KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** ***Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt***
Customer:

**Bestell-Nr.:** ***Lurgi Job – No.:*** ***69690-10***
Order no.: ***Lurgi OGC PO.-No.:*** ***4567569-000 to -001/1.69690/136***

*Project Name :* ***2nd Zagros Methanol Plant - Iran***

**Auftrag-Nr.:** ***HH – 02535***
Job no.:

**Lieferumfang** / range:

| **Pos** | **Stck.** pcs. | **Gegenstand** object | **DN** | **PN** | **Werkstoff** material | **Bemerkung** comment |
|---|---|---|---|---|---|---|
| *00010* | *4* | *Gate valve FB BB RF* | *3/4"* | *Cl.150* | *ASTM A 105N* | *Valve Ident – No.: " S353 "* |

**Auslegung + Prüfung nach** API 602 – BS EN ISO 15761, API 598 / BS EN 12266-1
Design and tests acc. To ASME B16.34 – B16.25 – B16.11 – B1.20.1

**Sicht- und Funktionsprüfung:** *o.k.*
visual and functional test:

**Festigkeits-/Dichtheitsprüfung:**
strength-/tightness-test:

| | | | |
|---|---|---|---|
| *Festigkeit / shell test* | = | *30 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *22 bar Wasser / water* | (60 sec) |
| *Rückdichtung / backseat* | = | *22 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *6 bar Luft / air* | (60 sec) |

**Prüfungsergebnis:** *ohne Beanstandung !*
result: *no complaint !*

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** *Dokumentation gemäß Material-Dokumentationsdeckblatt*
enclosure *Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter W. Glass
Person in charge

**Kommissions-Nr. / Reference No.**

**HH-02535**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00010 | Gate Valve 3/4" Cl. 150 lbs. FB, BB, RF | " S353 " | 4 | Body | R-L45 | ASTM A105N | Risetti | 03/70195 | | 230755 |
| | | Drawing-No.: F212-7/15 | | Wedge | | A182/F6a C.2 | Valbruna | 414430 | | 122852/2004 |
| | | | | Seat | | A182/F6a C.3 | Valbruna | 236720 | | 045944/2003 |
| | | | | Body Srew | | ASTM A193/B7 | Morandi | AR4272 | | 6125 |
| | | | | Bonnet | SM-C | ASTM A105N | Menzago | 75341 | | 127A+127 |
| | | | | Stem | | A182/F6a C.2 | Valbruna | 237840 | | 105950/2004 |
| | | | | | | | | | | |
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# FRATELLI RISETTI S.R.L.

21048 SOLBIATE ARNO (VA) - VIA TRIESTE, 4 - TELEFONO 0331/993.440-993.356 - STAB. VIA COLZANI, 41
TELEFONO 0331/994.088 - FAX 0331/992.247 - TELEGR. RISETTI - SOLBIATE ARNO - CASELLA POSTALE N. 15
REG. FOR F. S. 09037 - REG. IMPR. VARESE VA 025.21500 - ISCRIZIONE TRIBUNALE BUSTO A. 21500
COD. MECC. VA 010325 - PARTITA IVA IT 01773060122 - CODICE FISCALE 01773060122


SINCERT — SISTEMA QUALITA' CERTIFICATO ISO 9001 — OMOLOGATI TÜV SÜDWEST

00236740C

## CERTIFICATO PROVE MATERIALI

TEST CERTIFICATE
WERKSABNAHMEZEUGNIS — ACCORDO DIN 50049 3.1/B
CERTIFICAT D'EMPREUVES — EN 10204 /91-3.1/B

N. 230755

Data - Date - Datum - Date: 02/07/03

| Ordine del Cliente - Customer's - Bestellung - Commande du Client | Ns. Commessa - Mill order - Unsere Auftragsbestätigun Notre Configuration de Commande | Bolla di consegna - Delivery bill Lieferschein - Bulletin de livraison |
|---|---|---|
| N. 0 230883-18/04/03 DOUGLAS C. | › | › |

| Pos. ITEM POST | Quantità Quantity Stückzahl Quantité | DESCRIZIONE SPEDIZIONE - DESCRIPTION OF DELIVERY - UMFANG DER LIEFERUNG - DETAILS DU LOT | | | |
|---|---|---|---|---|---|
| | | Descrizione - Description Deschreibung - Description | Disegno - Drawing Zeichnung - Dessin | Norma di collaudo - Test specification Abnahmenorme - Specification | |
| 1 | 1097 | CORPI STP.SBV.SABB. | 3/9-15 | A105 | › |
| › | › | › | › | › | › |
| › | › | › | › | › | › |

ANALISI CHIMICA - CHEMICAL ANALYSIS - CHEMISCHE ZUSAMMENSETZUNG - COMPOSITION CHIMIQUE

| Codice di identificazione forgiato sui pezzi Heat identification code stamped on forging pieces | Colata N. Heat No. Schmelz Nr. No. de Coulée | C % | Si % | Mn % | Ni % | Cr % | S % | P % | Mo % | Cu % | Sn % | Al % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L45 | 03/70195 | 0,21 | 0,20 | 0,90 | 0,06 | 0,09 | 0,009 | 0,011 | 0,00 | 0,17 | 0,007 | 0,021 |
| | | C.E. % | F.B. % | Ti % | V % | › | › | › | › | › | | |
| › | › | 0,40 | › | 0,023 | 0,023 | › | › | › | › | › | | |
| › | › | | | | | | | | | | | |

PROPRIETÀ MECCANICHE - MECHANICAL PROPERTIES - MECHANISCHE EIGENSCHAFTEN - ESSAIS MECANIQUES

| Colata N. Heat No. Schmelze Nr. No. de Coulée | Lega Alloy Legierung Alliage | Provetta Test bar Probestab Echantillon | Rs (N/mm²) Snervamento Yeld Point Streckgrenze Limit d'élasticité | R (N/mm²) Rottura Tensile strenght Zugfestigkeit Rupture | A (%) Allungamento Elongation Dehnung Allongement | Z (%) Contrazione Red. of area Einschnürung Contraction | HB Hardness on forging pieces | Resilienza - Resilience Kerbschlagzähigkeit - Resil. Charpy V - Notch at minus |
|---|---|---|---|---|---|---|---|---|
| 03/70195 | › | › | 321 | 518 | 32,6 | 56,4 | 151 | KV(J) › |
| › | › | › | | | | | | KCU(J) › |
| › | › | › | | | | | | |
| › | › | › | | | | | | |
| › | › | › | | | | | | |

08 LUG. 2003
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

Trattamento Termico Thermal Treatment Thermische Behandlung Traitment Thermique: NORMALIZZATO ›

| JOMINY | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Norm. › | mm | 1,5 | 3 | 5 | 7 | 9 | 11 | 13 | 15 |
| | HRC | › | › | › | › | › | › | › | › |
| Tempra › | mm | 20 | 25 | 30 | 35 | 40 | 45 | 50 | |
| | HRC | › | › | › | › | › | › | › | |

GRANO AUSTENTICO austenite grain size check: › Metodo: ›
ISO 643-UNI3245-ASTM E112

Final Control on forging pieces and found: ›
Sandblasting SA 2 1/2: ›
Marking on pieces: ›
Visual Inspection: ›
Dimensional control: ›
Hardness test: ›

UFFICIO COLLAUDI - Inspection Department Prüfungsabteil - Bureau d'inspection
F.lli RISETTI
Quality Assurance
Sign. .....

# Acciaierie Valbruna S.p.A.

36100-VICENZA (Italia) - Viale della scienza, 26 z.i.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Kunde/Customer/Client
VERRI & PINA SRL
VIA TERRAROSSA, 10 - C.P. N.26
22036-CANZO (CO)-CO

Produttore: STABILIMENTO DI BOLZANO
Hersteller/Manufacturer/Usine productrice

Oggetto Prova: - Ricotto lavorabile Pelato
Prüfgegenstand/Item inspected/Prelevage

Avviso di Spedizione: A-BZ04006068
Lieferanzeige/Packing list/B.L.

Ordine nr: 94-05-07-103
Bestell/Your order/Commande

Tipo di Elaborazione: E+AOD
Erzeugnisart/Melting process/Mode d'élaboration

## CERTIFICATO DI COLLAUDO
## ABNAHMEPRUEFZEUGNIS
## INSPECTION CERTIFICATE
## CERTIFICAT DE RECEPTION
## EN 10204 , 3.1.B

Certificato nr: MEST122852/2004/
Prüfung/Test/Essai

Conforme ordine nr: MI04002883
Werks/Our Order/Ref nr.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice

Punzone del Collaudatore:
Stempel des Werksachverständigen
Inspector's stamp/Poinçon de l'essayeur

SC

4422

Specifiche:
Anforderungen / Requirements / Exigences
ASTM A182 2000C S41000 CLASS2 (0)
(0) Chemical analysis only and mecc.properties(for ASTM A182[M])

Qualità: 410
Werkstoff/Grade/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Nuance

Punzonatura: 410
Kennzeichnung/Marking/Marquage

| Pos. nr. / Pos. nr. / Item nr. / Nr. de poste | Oggetto / Bezeichnung / Product description / Designation du produit | Dimensioni - mm / Abmessungen / Dimension / Dimensions | Tolleranza / Toleranz. / Allowance / Tolérance | Lunghezza - mm / Länge / Length / Longueur | Colata / Schmelze / Heat / Coulée | Pezzi / Stückzahl / Pieces / Pièces | Peso - / Gewicht / Weight / Poids | Lotto nr. / Lose nr. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0050 | Tondo | 25,000 | | 5000 / 5500 | 414430 | | 3707,0 | 408202560 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind lt. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le matériel a été trouvé conforme aux exigences

Controllo antimescolanza: OK
Verwechslungsprüfung: spezifikationsgemäß durchgeführt
Anti-mixing testing performed: OK
Contrôle antimélange fait: o.k.

Controllo visivo e dimensionale: soddisfa le esigenze:
Sichtprüfung und Abmessungen ohne Beanstandung
Visual inspection and dimensional checks satisfactory
Contrôle visuel et dimensionnel satisfaisant

| TEST | Provetta/Probestab / Specimen / Eprouvette: Lung. utile/Gauge Length/Longueur utile; Diam./Thickness/Epaisseur; Largh./Width/Largeur; mm | °C | Posiz. Saggio / Location / Emplacement: % | Snervamento / Streckgrenze / Yield Strength / Limite elastique: Rp 0,2% N/mm2 | Snervamento / Streckgrenze / Yield Strength / Limite elastique | Resistenza / Zugfestigkeit / Tensile strength / Résistance à traction: Rm N/mm2 | Allungamento / Dehnung / Elongation / Allongement: E 4d % | | Strizione / Einschnürung / Reduction of area / Striction: RA % | | Resilienza / Kerbschlagarbeit / Impact Value / Resilience | | | Durezza / Härte / Hardness / Dureté: HB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 / Anforderungen erfüllt/Requirements fulfilled/Valeurs demandées | | min / max | | 380 | - | 585 | - | 18 | - | 35 | - | | | 187 / 229 | | |
| A | 10.00 | 20 | L | 534 | | 688 | | 31 | | 70 | | | | 216 | | |

1)L=Längs/Lateral/Longit., Q=Querversuch/Lateral, T=Tangential/Tangentiel

## Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata / Heat / Schmelze/Coulée | min - max 0,15 | - 1,00 | - 1,00 | 11,50 - 13,50 | - 0,60 | - 0,040 | - 0,030 | - | - | - | - | - | - | - | - |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 414430 | 0,13 | 0,44 | 0,72 | 12,36 | 0,24 | 0,024 | 0,030 | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,2,4.3 by TUEV and LLOYD'S

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

| Bolzano,15/07/04 | Il collaudatore di stabilimento / der Werkssachverständige / Works inspector / L'agent d'usine | Pagina - 1 di 1 |
|---|---|---|
| Mod/RELOOS | R.Cristel | |

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.

Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

## ATTESTATO DI CONTROLLO - WERKSZEUGNIS
## TEST REPORT - RELEVE DE CONTROLE
## EN 10204 , 2.2

BS03001899 3/11/03

Cliente / Besteller/Purchaser/Client
O.M.I.C. SNC DI CAVAGNOLI A.& C.
VIA DELLE INDUSTRIE 11/13
26018 - TRIGOLO (CR) - CR

Produttore: ACCIAIERIE VALBRUNA S.P.A.
Hersteller/Item/Usine productrice

Avviso di Spedizione: A-VI03025442
Lieferanzeige/Packing list/B.L.

Ordine nr: 000074/A3
Bestell/Your order/Commande

Certificato nr: MEST045944/2003/
Prüfung/Test/Essai

Conferma ordine nr: BS03000867
Werks/Our Order/Ref nr.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice

Oggetto Prova: Bonificato Secondo esecuzione Trafilato
Prüfgegenstand/Item inspected/Finissage

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'elaboration

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

O.M.I.C. SNC DI CAVAGNOLI
VIA DELLE INDUSTRIE
TRIGOLO

Specifiche:
Anforderungen / Requirements / Exigences

VALBRUNA 2002 410 HT,CF (I)
ASTM A276 2000A S41000 T,CF (I)
(I) Chemical analysis only and mecc.properties(for ASTM A182[M])

AISI 410 (I)
(I)

ASTM A182 2000C S41000 CLASS3 (I)
(I)

Qualità: S41000
We lity/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Nuance

Punzonatura:
Kennzeichnung/Marking/Marquage

| Pos. nr. Pos. nr. Item nr. Nr. de posta | Oggetto Gegenstand Product description Descrip. du produit | Dimensioni - mm Abmessungen Dimension Dimension | Tolleranza Toleranz. Allowance Tolerance | Lunghezza -mm Länge Length Longueur | Colata Schmelze Heat Coulée | Pezzi Stückzahl Pieces Pieces | Peso - Gewicht Weight Poids | Lotto nr. Losnr. Lot nr. Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0030 | Tondo | 26,000 | H9-MIN | 3000 / 3200 | 236720 | | 1180,0 | 312500280 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind lt. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à été trouve conforme aux exigences

| TEST | Provetta/Probenio Spaurnen/Eprouvette Larg.stan Spess. Breite Dicke Width Diam. Thickness Larg. diam. epais mm | °C | Posiz. Saggio Probenlage Lieu de prélèv. 1) | Snervamento Streck Yield Stress Limite elastique Rp 0,2% N/mm2 | Snervamento Streck Yield Stress Limite elastique | Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2 | Allungamento Bruchdehnung Elongation Allongement E % | | Strizione Einschnürung Reduction of area Striction RA % | | Resilienza Kerbschlagarbeit Impact Value Resilience °C | | Durezza Harte Hardness Dureté HB | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti Anforderungen/Required values Valeurs demandées | | min max | | 585 | - | 760 | - | 15 | 40 | - | - | | 235 302 | |
| A | 12.5 | 20 | L | 668 | | 821 | | 24 | 59 | | | | 289 | |

1) L=Longitudinale/längs, Q=trasversale/quer, T=Tangenziale/tangential

## Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata: Schmelze/Heat/ Coulée | - min 0,150 max | - 1,00 | - 1,00 | 11,50 13,50 | - 0,50 | - 0,040 | - 0,030 | - | - | - | - | - | - | - | - |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 236720 | 0,140 | 0,39 | 0,72 | 12,39 | 0,22 | 0,018 | 0,024 | | | | | | | | |

The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,3.,4.3 by TUEV and LLOYD'S

05 DIC. 2003

DOUGLAS CHERO Spa

Quality Assurance .....
P.C. STEFANI VITTORIO

Stab. .....

Vicenza, 18/09/03
Mod./VC0012

Il collaudatore di stabilimento
der Werkssachverständige / l'inspecteur / l'agent d'usine
Rizzotto

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.948 • Fax 0331.302.948
E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129


CERTIFICATO DI COLLAUDO 26729
Inspection certificate N°6125/DCH DATE-09.11.04

CLIENTE- DOUGLAS CHERO Spa ORDINE-760 BOLLA CONSEGNA N-3659
Customer Order Delivery note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| 1 | 44000+56038 | VITI TE. M 10 X 28 | B7 ASTM A 193/A 193M | AR4272 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Cr | Mo | S | P |
|---|---|---|---|---|---|---|---|---|
| REQUIRED VALUE | min. | 0.37 | 0.65 | 0.15 | 0.75 | 0.15 | | |
| | max. | 0.49 | 1.10 | 0.35 | 1.20 | 0.25 | 0.040 | 0.035 |
| HEAT n. AR4272 | | 0,44 | 0,79 | 0,27 | 1,09 | 0,22 | 0,002 | 0,007 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

| | Rm. | Rp.(0,2) | A4 | Z. | Hardness |
|---|---|---|---|---|---|
| REQUIRED | min. 860 MPa | min. 720 MPa | min. 16% | min. 50% | max 35 HRC |
| ACTUAL VALUE | 1018 | 922 | 17,5 | 54,5 | 31 |

HEAT TREATMENT
Quenched at : 860 °C in oil
Tempering : 2 hours at 593 °C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

QUALITY CONTROL
MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

15 NOV. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

STAMPERIA DI MENZAGO s.r.l.
STAMPAGGIO A CALDO SU ACCIAIO
via della cavanella 29 / tel. 0331.908.156 / fax 908.531
21040 MENZAGO DI SUMIRAGO / va / Italy

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV
ISO 9002

# CERTIFICATO DI CONFORMITA'
*CONFORMITY CERTIFICATE*

N° 127

pag. / page ... di / of ...

CLIENTE / *CUSTOMER*: DOUGLAS CHERO S.p.A.

RIFERIMENTO ALL'ORDINE / *ORDER*: N° 232643 Del/Dated 17/12/2003

ALLEGATO AL RIMESSO / *ENCLOSED TO THE DOCUMENT OF THE TRANSPORT*: N° 249 Del/Dated 27/02/04

NOME DEL PRODOTTO / *NAME OF THE PRODUCT*: CAPPELLO

DISEGNO / *DRAWING*: N° 2/8

Indice ultima modifica / *Index of last modification*: 5 Data / *Date*:

FABBRICATO CON ATTREZZATURA / *MANUFACTURED WITH EQUIPMENT*
PROVVISORIA / *PROVISIONAL* ☐
DEFINITIVA / *DEFINITIVE* ■

TIPO DI CONSEGNA / *TYPE OF DELIVERY*
CALCO IN PIOMBO / *MODEL IN LEAD* ☐
CAMPIONATURA / *SAMPLES* ☐
LOTTO / *PARCEL* ■

QUANTITA' / *QUANTITY*: 20.680

CAUSALE DEL CERTIFICATO / *REASON OF THE CERTIFICATE*: PRODOTTO NUOVO / *NEW PRODUCT* ☐ ATTREZZATURA NUOVA / *NEW EQUIPMENT* ☐ VERIFICA SISTEMATICA / *SYSTEMATICAL VERIFICATION* ■

## CERTIFICAZIONE DELLA QUALITA' DEL PRODOTTO / *CERTIFICATION OF THE QUALITY OF THE PRODUCT*

| N° Ref. | QUOTE CONTROLLATE / CHECKED QUOTES | VALORI PRESCRITTI / *PRESCRIBED VALUES* | Strumenti di Misura Utilizzati / *Equipment use for measure* | LIMITI MIN E MAX RILEVATI | | VALORI OTTENUTI SUI SINGOLI PEZZI CONTROLLATI / *VALUES OBTAINED ON THE THE INDIVIDUAL CHECKED PIECES* | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1 | 2 | 3 | 4 | 5 |
| | SPESSORE | 14 +0,8 -0,4 | 26 | 14 | 14,2 | 14 | 14,1 | 14,1 | 14,2 | 14,1 |
| | SPESSORE | 59 +0,8 | 26 | 60 | 60,3 | 60 | 60,1 | 60,3 | 60,3 | 60,2 |
| | DIAMETRO | 30 +0,8 | 26 | 30 | 30,3 | 30 | 30 | 30,3 | 30,2 | 30,1 |
| | DIAMETRO | 29 +0,5 | 26 | 29,1 | 29,3 | 29,1 | 29,2 | 29,3 | 29,2 | 29,1 |
| | LARGHEZZA | 62 + -0,5 | 26 | 62,5 | 62,6 | 62,5 | 62,5 | 62,6 | 62,6 | 62,6 |
| | LARGHEZZA | 8 +0,9 -0,5 | 26 | 8,5 | 8,6 | 8,5 | 8,6 | 8,6 | 8,6 | 8,5 |
| | LARGHEZZA | 50 +1,1 -0,5 | 26 | 50,6 | 50,9 | 50,7 | 50,9 | 50,6 | 50,8 | 50,8 |
| | | | | | | | | | | |
| | | | | | | | | | | |
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| | | | | | | | | | | |

| ACCIAIO UTILIZZATO / *UTILIZED STEEL* | COLATA / *CASTING* | MARCATURA / *MARKING* | TRATTAMENTO ESEGUITO / *TREATMENT MADE* | VALORI RILEVATI / *FOUNDED VALUES* |
|---|---|---|---|---|
| ASTM A105 | 75341 | A105N S M C | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

DUROMETRO UTILIZZATO / *UTILIZED DUROMETER*: A200 ☐ HPO3000 ☐

RELAZIONI DI PROVE ALLEGATE / *RELATIONS OF ENCLOSED RESULTS*

CERTIFICATO ACCIAIERIA / *STEELWORKS CERTIFICATE* ■
BOLLETTINO TRATTAMENTO TERMICO / *HEAT TREATMENT CERTIFICATE* ☐
CERTIFICATO 3.1.B / *3.1.B CERTIFICATE* ☐
..... ☐

02 MAR. 2004
DOUGLAS CHERO Spa

NOTE / *REMARKS*:

Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

IL TRATTAMENTO TERMICO DI BONIFICA E' STATO ESEGUITO SECONDO SPECIFICHE DOUGLAS CHERO S.p.A.

DICHIARAZIONE DI CONFORMITA' DEL PRODOTTO / *DECLARATION OF CONFORMITY OF THE PRODUCT*

LA CONFORMITA' DELLA FORNITURA ALLE PRESCRIZIONI CONTENUTE NEI DISEGNI, CAPITOLATI, NORME, TABELLE, ED EVENTUALE CAMPIONE DEPOSITATO, E' ASSICURATA DA SISTEMATICI CONTROLLI A CUI IL PRODOTTO VIENE SOTTOPOSTO.
*THE CONFORMITY OF THE SUPPLY TO THE PRESCRIPTIONS IN THE DRAWINGS, CONTRACTS, NORMS, TABLES AND POSSIBLE DEPOSITED SAMPLE, IS ASSURED FROM SYSTEMATICAL INSPECTIONS WHICH THE PRODUCT IS SUBORDINATE.*

| DATA/DATE | COMPILATO DA / *FILLED IN FROM* | C.Q./QUALITY CONTROL | STAMPERIA DI MENZAGO S.r.l. |
|---|---|---|---|
| 27/02/04 | ..... | ..... | ..... |

2512306

STAMPERIA DI MENZAGO s.r.l.
STAMPAGGIO A CALDO DELL' ACCIAIO
via della concordia, 39
tel. 0331-909194/fax 908511
21040 MENZAGO DI SUMIRAGO/VA/ITALY

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV
ISO 9002

# CERTIFICATO DI ANALISI CHIMICA E CARATTERISTICHE MECCANICHE
*CERTIFICATE OF CHEMICAL COMPOSITION AND MECHANICAL PROPERTIES*

Pag. di

| | | | |
|---|---|---|---|
| N°/*NR.* | 127A | ORDINE/*ORDER* | 232643 DEL 17/12/2003 |
| DATA/*DATE* | 27/02/04 | RIMESSO/*RIESSUSE* | 243 DEL 27/02/04 |
| CLIENTE/*CUSTOMER* | | DESCRIZIONE/*DESCRIPTION* | COPERCHIO 2/8 |
| DOUGLAS CHERO S.p.A. | | MATERIALE/*MATERIAL* | ASTM A105 |
| | | COLATA/*HEAT* | 75341 |
| | | MARCATURA/*MARKING* | A105N SM C |

## ANALISI CHIMICA/*CHEMICAL COMPOSITION*

| | C% | Mn% | Si% | P% | S% | Cr% | Ni% | Mo% | Cu% | V% | Nb% | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MIN | 0,00 | 0,60 | 0,10 | 0,000 | 0,000 | 0,00 | 0,000 | 0,00 | 0,00 | 0,00 | 0,00 | | | | |
| MAX | 0,35 | 1,05 | 0,35 | 0,035 | 0,040 | 0,30 | 0,40 | 0,12 | 0,40 | 0,05 | 0,02 | | | | |
| ANALISI COLATA *HEAT COMPOSITION* | 0,20 | 0,92 | 0,23 | 0,011 | 0,004 | 0,08 | 0,05 | 0,01 | 0,18 | 0,025 | 0,001 | | | | |

## CARATTERISTICHE MECCANICHE/*MECHANICAL PROPERTIES*

| DESCRIZIONE/*DESCRIPTION* | U.M./*M.U.* | MIN. | MAX | VALORE/*VALUE* | |
|---|---|---|---|---|---|
| SNERVAMENTO/*YIELD STRENGHT* 0,2% | N/mm2 | 250 | | 322 | |
| ROTTURA/*TENSILE STRENGHT* | N/mm2 | 485 | | 519 | |
| ALLUNGAMENTO/*ELONGATION* | % | 22 | | 32,2 | |
| STRIZIONE/*REDUCT OF AREA* | % | 30 | | 56,4 | |
| DUREZZA/*HARDNESS* | HB | | 187 | 148 - 151 - 147 | |
| | | | | | |

TRATTAMENTO TERMICO/*HEAT TREATMENT*

NORMALIZZATO A 900°C

NOTE/*NOTES*
3.1.B Certificate according to EN 10204

02 MAR. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

STAMPERIA DI MENZAGO s.r.l.
CONTROLLO QUALITA'
*QUALITY CONTROL*
.....

STAMPERIA di MENZAGO S.r.L.
.....

EN 10204-22

**Valbruna S.p.A.**

36100 VICENZA (Italia) - Viale della scienza, 25 c.p. 1

Stabil.: 36100 BOLZANO (Italia) - Via Alessandro Volta, 4

Cliente / Besteller / Purchaser/Client

Avviso di Spedizione: A-VI04014062

Certificato nr: MEST105950/2004/

Ordine nr: DEL 29.01.04

Conferma ordine nr: MI04000714

Produttore: ACCIAIERIE VALBRUNA S.P.A.

Marchio di Fabbrica:

Oggetto Prove: - Ricotto lavorabile Trafilato

Tipo di Elaborazione: E+AOD

Punzone del Collaudatore:

Specifiche:

ASTM A182 2000C S41000 CLASS2 (0) 0 0

(0) Chemical analysis only and mecc.properties(for ASTM A182[M]) 0

Qualità: S41000

Marca: VAL1

Punzonatura:

| Pos. nr. | Oggetto | Dimensioni - mm | Tolleranza | Lunghezza - mm | Colata | Pezzi | Peso - KG | Lotto nr. |
|---|---|---|---|---|---|---|---|---|
| 0010 | Tondo | 14,000 | H9-MIN | 3900 / 4000 | 237840 | | ~~5965,0~~ | 403302310 |

Sono state soddisfatte tutte le condizioni richieste

The material has been furnished in accordance with the requirements

Le materiel A été trouvé conforme aux exigences

| TEST | Provetta/ | °C | | Snervamento Rp 0,2% N/mm2 | Snervamento | Resistenza Rm N/mm2 | Allungamento E 4d % | | Strizione RA % | | Resilienza | Durezza HB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 | | min max | | 380 | - | 585 | - | 18 | - | 35 | - | 167 229 |
| A | 12.5 | 20 | L | 610 | | 698 | | 22 | | 68 | | 215 |

1)Longitudinale/Längs, Ouetraversale/quer, T=Tangenziale/tangential

## Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata: | - min 0,15 max | - 1,00 | - 1,00 | 11,50 13,50 | - 0,50 | - 0,040 | - 0,030 | - | - | - | - | - | - | - | - |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 237840 | 0,14 | 0,36 | 0,70 | 12,55 | 0,27 | 0,017 | 0,024 | | | | | | | | |

Made in Italy No welding or weld repair Material free from Mercury or radio-activity contamination

The Quality Management System is Certified acc. Pressure Equipment Directive (97/23/EC) Annex I,2.,4.3 by TUEV and LLOYD'S

29 GIU. 2004

DOUGLAS CHERO Spa

Quality Assurance .....

P.C. STEFANI VITTORIO

Sign: .....

Vicenza, 17/05/04

Il collaudatore di stabilimento / der Werkssachverständige / Works inspector / L'agent d'usine

M.Rizzotto

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** ***Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt***
Customer:

**Bestell-Nr.:** ***Lurgi Job – No.:*** ***69690-10***
Order no.: ***Lurgi OGC PO.-No.:*** ***4567569-000 to -001/1.69690/136***

*Project Name :* ***2nd Zagros Methanol Plant - Iran***

**Auftrag-Nr.:** ***HH – 02535***
Job no.:

**Lieferumfang /** range**:**

| **Pos** | **Stck.** pcs. | **Gegenstand** object | **DN** | **PN** | **Werkstoff** material | **Bemerkung** comment |
|---|---|---|---|---|---|---|
| *00020* | *55* | *Gate valve FB BB RF* | *1"* | *Cl.150* | *ASTM A 105N* | *Valve Ident – No.: " S353 "* |

**Auslegung + Prüfung nach** API 602 – BS EN ISO 15761, API 598 / BS EN 12266-1
Design and tests acc. To ASME B16.34 – B16.25 – B16.11 – B1.20.1

**Sicht- und Funktionsprüfung:** *o.k.*
visual and functional test:

**Festigkeits-/Dichtheitsprüfung:**
strength-/tightness-test:

*Festigkeit / shell test = 30 bar Wasser / water* (60 sec)
*Dichtheit Sitz / seat = 22 bar Wasser / water* (60 sec)
*Rückdichtung / backseat = 22 bar Wasser / water* (60 sec)
*Dichtheit Sitz / seat = 6 bar Luft / air* (60 sec)

**Prüfungsergebnis:** *ohne Beanstandung !*
result: *no complaint !*

i.A. Walter Glass

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** *Dokumentation gemäß Material-Dokumentationsdeckblatt*
enclosure *Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter / Person in charge W. Glass

**Kommissions-Nr. / Reference No.**

**HH-02535**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Designation** | **Valve Ident - No.:** | **Pc.** | **Piece parts** | Heat-Code | **Material** | **Manufacturer** | **Heat No.** | **Sample No.** | **Cert. No.** |
| 00020 | Gate Valve<br>1" Cl. 150 lbs.<br>FB, BB, RF | **" S353 "** | 55 | Body | FB-VI | ASTM A105N | Feat | 04/79405 | | 2004/3005378 |
| | | Drawing-No.: F212-7/15 | | Wedge | | A182/F6a C.2 | Valbruna | 237839 | | 110880/2004 |
| | | | | Seat | | A182/F6a C.3 | Ugitech | 322021 | | 46233 |
| | | | | Body Srew | | ASTM A193/B7 | Morandi | AR4273 | | 6129 |
| | | | | Bonnet | FB-TZ | ASTM A105N | Feat | D92080 | | 2004/3001207 |
| | | | | Stem | | A182/F6a C.2 | Ugitech | 350031 | | 80446 |
| | | | | | | | | | | |
| | | | | | | | | | | |
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26404

**FEAT INDUSTRIALE**
divisione della Feat Group S.p.A.
Feat Group S.p.A.
SEDE LEGALE:
I - 20122 MILANO (MI) - Viale Majno, 17
Capitale Sociale € 5.000.000,00 interamente versato
Codice fiscale, Partita IVA e numero di iscrizione Registro
delle Imprese di Milano: 08203090157
Codice identif. IVA CEE IT 08203090157 - R.E.A. Milano 1211374
UFFICI AMMINISTRATIVI:
I - 23842 BOSISIO PARINI (LC) - Via dei Livelli, snc
tel. 031 3681411 - fax 031 876178 - Cod. Mecc. MI240760
STABILIMENTO E UFFICI COMMERCIALI DELLA DIVISIONE:
I - 23861 CESANA BRIANZA (LC) - Via G. Parini, 30 e Via Artigia, 1/3/5/7
tel. 031 0591 - Fax 031 859219 - http://www.fealgroup.com

Certificato 2004/3005378
Data 15/09/2004
Pagina 1

DOUGLAS CHERO S.P.A.

LOCALITA' PRADAGLIE

29013 CARPANETO PIACENTINO PC

| Ordine cliente | Bolla | Fattura | Quantita' |
|---|---|---|---|
| O 241249 | 2004/000/0031976 | O 0032154 | 830,00 |

| Articolo Feat | Descrizione |
|---|---|
| 292003001044 | CORPO 4/9F-15 |

| Cod.Stamp./N.Col. | Tipo Materiale e Specifica |
|---|---|
| BVI | A105/C22.8 ASTM A 105 + DIN 17243 Ultima Edizione |

| Numero colata | Acciaieria | N.Cert.Acc. |
|---|---|---|
| 04/79405 | **RIVA ACCIAIO S.P.A. | |

## ANALISI CHIMICA

| Elem. | Al | C | Cr | Cu | Mn | Mo | Nb | Ni | P | S | Si | V | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Min | 0,015 | 0,180 | | | 0,600 | | | | | | 0,150 | | | | |
| Max | ******* | 0,220 | 0,300 | 0,400 | 0,900 | 0,120 | 0,020 | 0,400 | 0,035 | 0,030 | 0,350 | 0,030 | | | |
| Colata | 0,021 | 0,200 | 0,100 | 0,200 | 0,770 | 0,010 | 0,000 | 0,060 | 0,011 | 0,013 | 0,210 | 0,002 | | | |
| C.An. | | | | | | | | | | | | | | | |

Carbonio Equivalente= 0,368

## CARATTERISTICHE MECCANICHE

| Ordine | Laboratorio | N. | Descrizione | UNI | Min | Max | Valore | UM2 | Valore |
|---|---|---|---|---|---|---|---|---|---|
| 176805 | | 01 | Snerv.Rp0,2% Amb T | N/mm2 | 250,000 | | 339,000 | PSI | 49155,000 |
| 176805 | | 01 | Rottura Amb T | N/mm2 | 485,000 | 540,000 | 497,000 | PSI | 72065,000 |
| 176805 | | 01 | Allungam.A% T Amb | % | 22,000 | | 33,700 | | |
| 176805 | | 01 | Strizione Amb T | % | 30,000 | | 53,100 | | |
| | | 01 | Durezza HB | HB | 140,000 | 187,000 | 149,000 | | |

Trattamento Termico
NORMALIZZAZIONE:
I PARTICOLARI SONO STATI NORMALIZZATI ALLA TEMPERATURA
DI 910 C., CON PERMANENZA A TALE VALORE DI 1 ORA PER
OGNI 25mm. DI SPESSORE E RAFFREDDATI IN ARIA CALMA.-

Note
CERTIFICATO FEAT

20 SET. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

Resp Assicurazione Qualita'
E.MANZONI

FEAT INDUSTRIALE division of FEAT Group S.p.A. states that material hereby certified is in compliance with the quality and technical requirements as described in the customer's order, or FEAT order acknowledgement.

1 - The results of chemicals analysis is a true and correct copy of the mill certificate issued by the manufacturer of the steel employed or by the laboratory which has determined it.
2 - The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufacturing process inspection or storage.

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Kunde/Purchaser/Client
ACC.VALBRUNA SPA-MAG.CORMANO
VIA BIZZOZZERO, 125
20032 - CORMANO (MI) - MI

Produttore: STABILIMENTO DI BOLZANO

Oggetto Prove: - Ricotto lavorabile Pelato VERIF e PIND

Avviso di Spedizione: A/8204004757

Ordine nr: TRASFERIMENTO SU APPRON

Tipo di Elaborazione: E+AOD

## CERTIFICATO DI COLLAUDO
## ABNAHMEPRUEFZEUGNIS
## INSPECTION CERTIFICATE
## CERTIFICAT DE RECEPTION
EN 10204 , 3.1.B

448

Certificato nr: MEST110880/2004/

Conferma ordine nr: MI04000176

Marchio di Fabbrica:

Punzone del Collaudatore: SC

Specifiche:

VALBRUNA 2002 410 A ()
ASME (1) SA479 2001 S41000 A (*)
ASTM A479 2001 S41000 A ()
(1) SEC.II PT.A 2001 EDITION
(*) Chemical analysis only.

AISI 410 ()
ASTM A182 2002 S41000 (*)
EN 10088-3 95 1.4006 A ()
(1) SEC.II PT.A 2001 EDITION
()

ASME (1) SA182 2001 S41000 CLASS2 (*)
ASTM A276 2000A S41000 A ()
EN 10272 2000 1.4006 A ()

Qualità: 410

Forza: VAL1

Punzonatura: 410

| Pos. nr. / Nr. di posiz. | Oggetto / Prodotti trasformati Descriz. dei prodotti | Dimensioni - mm / Abmessungen / Dimension | Tolleranza / Toleranz. / Tolérance | Lunghezza - mm / Länge / Longueur | Colata / Schmelze / Coulée | Pezzi / Stück / Pièces | Peso - KG / Gewicht / Poids | Lotto nr. / Los nr. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0010 | Tondo | 28,000 | K12-MIN | 5000 / 5500 | 237839 | | 3462 | 336600470 |

Sono state soddisfatte tutte le condizioni richieste
The goods/services received fulfil the order
The material has been furnished in accordance with the requirements
Le matériel a été livré conforme aux exigences

Controllo antimacculanza: OK
Ultraschallprüfung spezialanalytisch durchgeführt
Antiseizing testing performed: OK
Controllo antimacchia fatto s.a.s.

Controllo visivo e dimensionale: soddisfa le esigenze:
Sichtprüfung und Abmessungen ohne Beanstandung
Visual inspection and dimensional checks satisfactory
Contrôle visuel et dimensionnel satisfaisant

| TEST | Provetta / Probestab / Eprouvette | | °C | Prel. Sagge / Biegen / Pliage | Snervamento / Streckgrenze / Limite d'allongement Rp 0,2% N/mm2 | Snervamento / Streckgrenze / Limite d'allongement | Resistenza / Zugfestigkeit / Résistance Rm N/mm2 | Allungamento / Bruchdehnung / Allongement A5 % | | Strizione / Einschnürung / Rétrécissement Z % | RA % | Resilienza / Kerbschlagarbeit / Résilience | | | Durezza / Härte / Dureté HB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 | | min | | | 380 | - | 585 | - | 20 | - | 45 | - | - | | | 167 | | |
| | | max | | | | | 730 | | | | | | | | | 220 | | |
| A | 10.00 | 20 | L | | 458 | | 694 | 30 | 32 | 66 | 66 | | | | | 212 | | |

1)L=Längsrichtung/Longs., Q=transversal/transv., T=Tangential/tangential

## Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata / Schmelze/Coulée | min 0,000 max 0,150 | - 1,00 | - 1,00 | 11,50 13,50 | - 0,50 | - 0,040 | - 0,030 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 237839 | 0,140 | 0,40 | 0,79 | 12,61 | 0,24 | 0,018 | 0,024 | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive (97/23/EC) Annex I,2.,4.3 by TUEV and LLOYD'S

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVAN VITTORIO
Sign. .....

COPIA CONFORME ALL' ORIGINALE
ACCIAIERIE VALBRUNA S.P.A.
FILIALE DI CORMANO

Bolzano,08/06/04

Il collaudatore di stabilimento / der Werksachverständige / Works inspector / L'agent d'usine
R.Cristel

Pagina 1

**UGINE-SAVOIE IMPHY**
**Groupe Arcelor**

FRANCE

5 Usine Productrice / Hersteller / Manufacturer: **UGINE**
F 73403 UGINE CEDEX
Tél : 04.79.89.30.30
Fax : 04.79.89.30.51

4 N.Nde 46233

11 N.de commande usine-Werksbestellnummer-Works order number: FUGE TEJE 1/1 2WN01000 X

3 **CERTIFICAT DE RECEPTION 3.1.B**
**INSPECTION CERTIFICATE B**
**ABNAHMEPRUEFZEUGNIS B**

EN 10204 / 3.1.B

Produit / Erzeugnisform / Product: IMA4006/TR BARRE A CHAUD RONDE TOL.13 TRAITEE 6

Client et/ou destinataire - Besteller und/oder Empfänger - Purchaser and/or Consignee: UGINE SAVOIE IMPHY 9

N. de commande client - Kundenbestellnummer - Purchase order number: 303131984 10

Nuance et spécifications techniques - Stahlsorte und Prüfbedingungen - Quality and Specifications
IMA4006 IMA4006/TR ASTM A182 F6A/CL3
RI4006-QTC3-1X REV.A DU 06/11/2002 12

Etat de livraison - Lieferzustand - As delivered (1): TREMPE ET REVENU 13

Traitement de Référence - Probenentnahmebehandlung - Treatment of test samples (1) 14

| Identification du produit / Erzeugnis Benennung-Product identification: N. de cde usine Werksbestellnummer Works order number 15 | N. de poste Post Nr Item No 17 | N. de Coulée Schmelz Nr Heat No 16 | Nombre Stückzahl Pieces Nbr 18 | Profil Profile Shape 19 | Dimension Anmessung Dimension 20 | Longueur Laenge Length 21 | Masse Gewicht Weight 22 |
|---|---|---|---|---|---|---|---|
| 2WN01 000 | | 322021 | 29 | ROND | 32,000 | | 1004 KG |

| N. de Prélèvement Probenummer Test N. 39B | Traction - Zugversuch - Tensile test: Direction Vorzugsrichtung Orientation (3) 24 | Température d'essai Prüftemperatur Test temperature 25 | Limite d'Elasticité Streckgrenze Yield Strength 0,2% 26A | Limite d'Elasticité 1% 26B | Résistance à la traction Zugfestigkeit Tensile strength 27 | Allongement Bruchdehnung Elong. (Lo=5d) 28 | Striction Brucheinschnürung Red. of Area 29 | Dureté Härte Hardness (4) 30 | Résilience - Kerbschlagzähigkeit - Notch Toughness: Type Form Type 31 | Sens Richtung Direction (3) 32 | Température d'essai Prüftemperatur Test Temperature 33 | Valeurs individuelles Einzelwerte Individual Values 35 | Moyenne Mittelwerte Average 36 | Dureté Härte Hardness (5) 37 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | °C | MPA | MPA | MPA | % | % | | | | | | | HB |
| Min | | 20 | 585 | | 760 | 15 | 35 | | | | | | | 235 |
| Max | | | | | | | | | | | | | | 302 |
| (4) | | | | | | | | | | | | | | |
| (5) | | | 701 | | 820 | 19 | 69 | | | | | | | 247 |

| 39A N. de Prélèvement Probenummer Test N. | | 40 | 41 | 42 C | 43 SI | 44 MN | 45 NI | 46 CR | 47 N | 48 S | 49 P | 50 CO |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Demandé Vorschrift Required | Min | | 0,080 | | | | 11,50 | | | | |
| | | Max | | 0,150 | 1,00 | 1,00 | 0,50 | 13,50 | | 0,030 | 0,040 | |
| | N. de Coulée Schmelz Nr Heat N. 322021 | | Analyse Produit Check Analysis | 0,118 | 0,33 | 0,37 | 0,34 | 12,11 | 0,051 | 0,022 | 0,020 | 0,024 |

| 38 Mode d'élaboration Erzeugungsart Melting process | Demandé Vorschrift Required | 51 | 52 | 53 | 54 | 55 |
|---|---|---|---|---|---|---|
| Electrique Elektrisch Electric | Min | CU | | | | |
| | Max | 0,125 | | | | |

AISI 410
X12CR13 NF EN10088-3 1.4006

23 MAR. 2004

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign .....

(3) L = Long / Laengs - Lang / T = Travers / Quer-Transverse 58

(1) TH = Trempé à l'eau - Wasserhaerten - Waterquench
TH = Trempé à l'huile - Oelhaerten - Oil Quench
A = Hypertremp - Loesungsgeglueht - Solution annealed
R = Revenu - Anlassen - Tempered
RT = Recuit - Geglueht - Annealed
TRM = Recuit maxi - Weichgeglueht - Maxi annealed 7

Usine, le 16-06-03
L'Agent Réceptionnaire de l'usine / Der Werksabnahmebeauftragte / The Work Inspector

(4) A l'état de référence / Zum Bezug Zustand / At reference condition 60A

(5) A l'état de livraison / In Lieferzustand / In state of deliver 60B

Contrôles de marquage, d'aspect et de dimensions : satisfaisants
Bezeichnung, Beschaffenheit und Anmessung : ohne Beanstandung
Marking, inspection and measurement : without objection 62

Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande
Wir bestätigen hiermit dass die obengenannten Erzeugnisse den Bestellungsvorschriften entsprechen
We certify hereby that the above mentioned products are constient with the order prescriptions 64

63

# UGITECH
Groupe Arcelor

Siège Social : Ugitech S.A.
Avenue Paul Girod
73400 UGINE, FRANCE
IDENT. TVA : FR 89 410 436 158

| Bolle/N° BL/OL N° /Lief. | N° Certificat /Prüf N° | Produttore/Usine produz./Manufact./Herstell. |
|---|---|---|
| 324046 | 46233 | F00002 |

## RELEVE DE CONTROLE (1)
SELON EN 10204 PARAGRAPHE 4
Texte certificat de conformité
Texte certificat de conformité

Texte type cert. conformité édité - fctc

Prodotto Erzeugnisform / Produit Product: BARRE RONDE IMA 4006-410 32.0 K13 — LAMINE DECALAM. TRAITE

Cliente a/o destinatario - Client et/ou destinataire - Besteller und/oder Empfaenger / Purchaser and/or Consignee: UGINE-SAVOIE ITALIA SRL

N° ordine cliente - Votre référence - Ihre Auftrag Nr - Your reference: OMIC 402082318 MI/PARDU

Qualità e specifiche tecniche - Nuance et spécifications techniques - Stalsorte und Pruefbedingungen - Quality and Specifications: IMA 4006-410 K13 — X12CR13/NFEN10088-3 /1.4006 - AISI410/ASTM A182: /F6A CLASS 3

Stato di fornitura - Etat de livraison - Lieferzustand - As delivered (1): LAMINE DECALAM.

Stato metallurgico - Etat métallurgique - Heat treatment condition - Lieferzustand: TRAITE

| N° Conferma d'ordine / Accusé de réception / Auftragsbest N° / Acknowledgment N° | Posizione / N° Poste / Post Nr / Item N° | N° lotto interno / N° de lot interne / Interne los Nr / Internal batch N° | Profilo / Profil / Profile / Shape | Dimensione / Dimension / Abmessung / Size | Tolleranza / Tolérance / Toleranz / Tolerance | Lunghezza / Longueur / Laenge / Length | Peso netto / Masse / Gewicht / Weight |
|---|---|---|---|---|---|---|---|
| 402664679 | 1 | 4467855 | BARRE RONDE | 32,0000 | K13 | . | 172,000 |

| Lotto fornitore / N° Coulée fournisseur / Schmelz Nr / Heat N° | Trazione - Traction - Zugversuch - Tensile test: Lim. di snervamento / Limite d'Elasticité / Streckgrenze / Yield Strength 0,2 % RP02 N/MM2 | Trazione: 1 % N/MM2 | Trazione: Carico di rottura / Résistance tract. / Zugfestigkeit / Tensile strength RM N/MM2 | Trazione: AL % | Trazione: Z % | Resilienza - Résilience - Kerbschlagzaehigkeit - Notch Toughness: Forma / Type / Form / Type | Valori / Valeurs individuelles / Einzelwerte / Individual values | Media / Moyenne / Mittelwerte / Average | Durezza / Dureté / Haerte / Hardness HB |
|---|---|---|---|---|---|---|---|---|---|
| 322021 2WN01000 | 701 | | 820 | 19 | 69 | | | | 247 |

| | | C | SI | MN | P | S | N | CR | CU |
|---|---|---|---|---|---|---|---|---|---|
| 322021 | 2WN01000 | 0,118 | 0,330 | 0,370 | 0,020 | 0,022 | 0,051 | 12,110 | 0,125 |

| | | NI | | CO |
|---|---|---|---|---|
| 322021 | 2WN01000 | 0,340 | | 0,024 |

Test : (1 = OK)

322021

C.INT = Corrosione intergranul / SCHI. = Schiacciamento / EDD.C = Controllo non distrutt / FLANG = Flangiatura / P.PN. = Prova pneumatica / REVFL = Appiatt. saldature (Re) / C.MES = Contr. antimescolament / P.RET = Essai de retournement

Note - Notes - Remarks - Bemerkungen

EN 10204 / 3.1.B AISI 410 X12CR13 NF EN10088-3 1.4006 IMA4006/TR BARRE A CHAUD R
ONDE TOL. 13 TRAITEE DECALAMINEE

23 MAR. 2004

DOUGLAS CHERO Spa

Quality Assurance .....

P.C. STEFANI VITTORIO

Sign .....

Le 27/02/04

Signature de l'inspecteur

Resp. controllo qualità
Resp. contrôle qualité
Sachverstandiger
Quality control Mgr

(1) Controllo marcatura, visivo e dimensionale : soddisfacente. Si certifica che i prodotti sopra descritti sono conformi alle prescrizioni dell'ordine
L'analisi chimica è copia conforme a quella presente sul certificato del produttore

Contrôle de marquage, d'aspect et de dimensions satisfaisant. Nous certifions que le présent document reproduit avec exactitude les données du certificat producteur. L'analyse chimique a été relevée du certificat de la matière première.

Bezeichnung, besichtigung und ausmessung : Ohne beanstandung. Wir bestatigen hiermit dass die obengenannten erzeugnisse den bestellung vorschriften entsprechen. Die chemische zusammensetzung entspricht den lieferanten analyse.

The chemical analysis results are true and correct copy of the raw material supplier's certificate.
Marking, inspection and measurement : Without objections. We certify that the above mentioned products are consistent with the order prescriptions.

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948

E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129


CERTIFICATO DI COLLAUDO
Inspection certificate

26738

N°6129/DCH DATE-16.11.04

CLIENTE- DOUGLAS CHERO Spa — ORDINE-242000 Order — BOLLA CONSEGNA N-3750 Delivery note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| 1 | 6733 | VITI TE M 12 X 30,5 | B7 ASTM A 193/A 193M | AR4273 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Cr | Mo | S | P |
|---|---|---|---|---|---|---|---|---|
| REQUIRED VALUE | min. | 0.37 | 0.65 | 0.15 | 0.75 | 0.15 | | |
| | max. | 0.49 | 1.10 | 0.35 | 1.20 | 0.25 | 0.040 | 0.035 |
| HEAT n. AR4273 | | 0,44 | 0,77 | 0,26 | 1,06 | 0,23 | 0,005 | 0,007 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

| | Rm. | Rp.(0,2) | A4 | Z. | Hardness |
|---|---|---|---|---|---|
| REQUIRED | min. 860 MPa | min. 720 MPa | min. 16% | min. 50% | max 35 HRC |
| ACTUAL VALUE | 1032 | 945 | 17,5 | 53,5 | 32 |

HEAT TREATMENT
Quenched at : 860 °C in oil
Tempering : 2 hours at 593 °C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

QUALITY CONTROL

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

22 NOV. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
R.C. STAFANA VITTORIO
Firma .....

MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

FEAT INDUSTRIALE
divisione della Feat Group S.p.A.
Feat Group S.p.A.
SEDE LEGALE:
I - 20122 MILANO (MI) - Viale Majno, 17
Capitale Sociale € 5.000.000,00 interamente versato
Codice fiscale, Partita IVA e numero di iscrizione Registro delle Imprese di Milano: 08203090157
Codice Identif. IVA CEE IT 08203090157 - R.E.A. Milano 1211374
UFFICI AMMINISTRATIVI:
I - 23842 BOSISIO PARINI (LC) - Via dei Livedi, snc
tel. 031 3581411 - fax 031 376178 - Cod. Mecc. MI240750
STABILIMENTO E UFFICI COMMERCIALI DELLA DIVISIONE:
I - 23881 CESANA BRIANZA (LC) - Via G. Parini, 30 a Via Ariosto, 1/3/5/7
tel. 031 6591 - Fax 031 653219 - http://www.featgroup.com

Certificato 2004/3001207
Data 19/02/2004
Pagina 1

DOUGLAS CHERO S.P.A.

LOCALITA' PRADAGLIE

29013 CARPANETO PIACENTINO PC

| Ordine cliente | Bolla | Fattura | Quantita' |
|---|---|---|---|
| O 232464 | 2004/000/0030346 | O 0030385 | 5.090,00 |

| Articolo Feat | Descrizione |
|---|---|
| 292011001018 | CAPPELLO 4/8 |

| Cod.Stamp./N.Col. | Tipo Materiale e Specifica |
|---|---|
| BTZ | A105/C22.8 ASTM A 105 + DIN 17243 Ultima Edizione |

| Numero colata | Acciaieria | N.Cert.Acc. |
|---|---|---|
| D92080 | LAS LAMINAZIONE ACCIAI SPECIA | |

ANALISI CHIMICA

| Elem. | Al | C | Cr | Cu | Mn | Mo | Nb | Ni | P | S | Si | V | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Min | | 0,180 | | | 0,600 | | | | | | 0,150 | | | | |
| Max | ******* | 0,220 | 0,300 | 0,400 | 0,900 | 0,120 | 0,020 | 0,400 | 0,035 | 0,030 | 0,350 | 0,030 | | | |
| Colata | 0,014 | 0,190 | 0,050 | 0,280 | 0,880 | 0,012 | 0,001 | 0,100 | 0,009 | 0,007 | 0,230 | 0,001 | | | |
| C.An. | | | | | | | | | | | | | | | |

Carbonio Equivalente= 0,375

CARATTERISTICHE MECCANICHE

| Ordine Laboratorio | N. | Descrizione | UM1 | Min | Max | Valore | UM2 | Valore |
|---|---|---|---|---|---|---|---|---|
| 171758 | 01 | Snerv.Rp0,2% Amb T | N/mm2 | 250,000 | | 331,000 | PSI | 47995,000 |
| 171758 | 01 | Rottura Amb T | N/mm2 | 485,000 | 540,000 | 491,000 | PSI | 71195,000 |
| 171758 | 01 | Allungam.A% T Amb | % | 22,000 | | 28,700 | | |
| 171758 | 01 | Strizione Amb T | % | 30,000 | | 53,400 | | |
| | 01 | Durezza HB | HB | 140,000 | 187,000 | 149,000 | | |

Trattamento Termico
NORMALIZZAZIONE:
I PARTICOLARI SONO STATI NORMALIZZATI ALLA TEMPERATURA DI 910 C., CON PERMANENZA A TALE VALORE DI 1 ORA PER OGNI 25mm. DI SPESSORE E RAFFREDDATI IN ARIA CALMA.-

Note
CERTIFICATO FEAT

23 FEB. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

Resp. Assicurazione Qualita'
EMANZONI

FEAT INDUSTRIALE division of FEAT Group S.p.A. states that material hereby certified is in compliance with the quality and technical requirements as described in the customer's order, or FEAT order acknowledgement.

1 - The results of chemicals analysis is a true and correct copy of the mill certificate issued by the manufacturer of the steel employed or by the laboratory which has determined it.
2 - The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufacturing process inspection or storage.

UGITECH
Groupe Arcelor

FRANCE

**UGINE**
F 73403 UGINE CEDEX
Tél : 04.79.89.30.30
Fax : 04.79.89.30.51

N./ N° 80446

N. de commande usine - Werksbestellnummer - Works order number: FUGE TEJE 17/01/01 8Z091000 010

# CERTIFICATO COLLAUDO DI ACCETTAZIONE B
# CERTIFICAT DE RECEPTION 3.1.B
# INSPECTION CERTIFICATE B

EN 10204 / 3.1.B

Produit - Erzeugnisform - Product: IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE

Client et/ou destinataire - Besteller und/oder Empfänger - Purchaser and/or Consignee: TECNOMECCANICA SRL

N. de commande client - Kundebestellnummer - Purchaser order number: 364

Nuance et spécifications techniques - Stahlsorte und Prüfbedingungen - Quality and Specifications:
IMA4006 410 AISI 410 UNS S41000
SPEC. SDA 09 DU 20/11/01 (SAUF MN)

Etat de livraison - Lieferzustand - As delivered (1): TEMPRATO RINVENUTO

Traitement de Référence - Probenvorbehandlung - Treatment of test samples (1):

| Identification du produit - Erzeugnis Benennung - Product identification<br>N. de cde,usine - Werksbestellnummer - Works order number Item No 15 | Post Nr 17 | N. de Coulée - Schmelz Nr - Heat No 18 | Nombre - Stückzahl - Pieces Nbr 18 | Profil - Profile - Shape 19 | Dimension - Ausmessung - Dimension 20 | Longueur - Laenge - Length 21 | Masse - Gewicht - Weight 22 |
|---|---|---|---|---|---|---|---|
| 8Z091 000 | | 350031 | 316 | TONDO | 16,000 | | 2102 KG |

| N. de Prélèvement - Probenummer - Test N. 39 B | Demandé - Vorschrift - Required | Sens - Richtung - Direction 24 | Température d'essai - Pruefemperatur - Test Temperature 25 | Traction - Zugversuch - Tensile test: Limite d'Elasticité - Streckgrenze - Yield Strength 0,2 % 26 A | Limite d'Elasticité - Streckgrenze - Yield Strength 1 % 26 B | Résistance à la traction - Zugfestigkeit - Tensile strength 27 | Allongement - Anfangsdehnung - Elongation (Lo = 5d) 28 | Striction - Einschnürung - Red of Area 29 | Dureté - Haerte - Hardness (4) 30 | Type - Form - Type 31 | Résilience - Kerbschlagzaehigkeit - Notch Toughness: Eprouvette - Probestab - Test piece (3) 32 | Température d'essai - Pruefemperatur - Test Temperature 33 | Valeurs Individuelles - Einzelwerte - Individual Values 35 | Moyenne - Mittelwerte - Average 36 | Dureté - Haerte - Hardness (5) 37 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | L | °C | MPA | MPA | MPA | % | % | | | | | | | HB |
| | Min | | 20 | 275 | | 585 | 20 | 45 | | | | | | | |
| | Max | | | | | | | | | | | | | | 237 |
| | (4) | | | | | | | | | | | | | | |
| | (5) | | | 613 | | 697 | 20 | 71 | | | | | | | 210 |

| N. de Prélèvement - Probenummer - Test N. 39 A | Demandé - Vorschrift - Required | Analyse/Produit-Check Analyse - Check Analysis | C 42 | SI 43 | MN 44 | NI 45 | CR 46 | S 47 | P 48 | 49 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Min | | | | 0,30 | | 11,50 | | | | |
| | Max | | 0,150 | 0,60 | 0,60 | | 13,50 | 0,030 | 0,040 | | |
| N. de Coulée - Schmelz Nr - Heat N. 350031 | | | 0,107 | 0,42 | 0,38 | 0,35 | 12,18 | 0,022 | 0,019 | | |

| Mode d'élaboration - Erschmelzungsart - Melting process 38 | Demandé - Vorschrift - Required 51 | | 52 | 53 | 54 | 55 |
|---|---|---|---|---|---|---|
| Electrique - Elektrisch - Electric | Min | | | | | |
| | Max | | | | | |

IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE

09 LUG. 2004

DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.

56

(3) L = Long - Laengs - Long; T = Travers - Quer - Transverse 58

(1) TE = Trempé à l'eau - Wasserhaerten - Waterquench; TH = Trempé à l'huile - Oelhaerten - Oil Quench; A = Hypertrempé - Loesungsgegluecht - Solution annealed; R = Revenu - Anlassen - Tempered; RT = Recuit - Geglueht - Annealed; TRM = Recuit maxi - Weichgeglueht - Maxi annealed 7

Usine, le 16-01-04
L'Agent Réceptionnaire de l'usine - Der Werksachverstaendige - The Work Inspector
H. Mayet 63

(4) A l'état de référence - Zum Bezug Zustand - At reference condition 60 A

(5) A l'état de livraison - In Lieferzustand - In state of delivery 60 B

Contrôles de marquage, d'aspect et de dimensions satisfaisants - Bezeichnung, Beschaffung und Ausmessung : ohne Beanstandung - Marking, inspection and measurement : without objection 62

Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande - Wir bestaetigen hiermit dass die obengenannten Erzeugnisse den Bestellungvorschriften ansprechen - We certify hereby that the above mentioned products are consistent with the order prescriptions 66

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** / Customer: ***Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt***

**Bestell-Nr.:** / Order no.: ***Lurgi Job – No.: 69690-10***
***Lurgi OGC PO.-No.: 4567569-000 to -001/1.69690/136***

*Project Name :* ***2nd Zagros Methanol Plant - Iran***

**Auftrag-Nr.:** / Job no.: ***HH – 02535***

**Lieferumfang** / range:

| **Pos** | **Stck.** pcs. | **Gegenstand** object | **DN** | **PN** | **Werkstoff** material | **Bemerkung** comment |
|---|---|---|---|---|---|---|
| *00030* | *5* | *Gate valve FB BB RF* | *1.1/2"* | *Cl.150* | *ASTM A 105N* | *Valve Ident – No.: " S353 "* |

**Auslegung + Prüfung nach** / Design and tests acc. To: API 602 – BS EN ISO 15761, API 598 / BS EN 12266-1
ASME B16.34 – B16.25 – B16.11 – B1.20.1

**Sicht- und Funktionsprüfung:** / visual and functional test: *o.k.*

**Festigkeits-/Dichtheitsprüfung:** / strength-/tightness-test:

*Festigkeit / shell test = 30 bar Wasser / water* (60 sec)
*Dichtheit Sitz / seat = 22 bar Wasser / water* (60 sec)
*Rückdichtung / backseat = 22 bar Wasser / water* (60 sec)
*Dichtheit Sitz / seat = 6 bar Luft / air* (60 sec)

**Prüfungsergebnis:** / result: *ohne Beanstandung ! / no complaint !*

i.A. Walter Glass

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** / enclosure *Dokumentation gemäß Material-Dokumentationsdeckblatt / Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter W. Glass
Person in charge Walli Glass

**Kommissions-Nr. / Reference No.**

**HH-02535**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Designation** | **Valve Ident - No.:** | **Pc.** | **Piece parts** | Heat-Code | **Material** | **Manufacturer** | **Heat No.** | **Sample No.** | **Cert. No.** |
| 00030 | Gate Valve<br>1.1/2" Cl. 150 lbs.<br>FB, BB, RF | **" S353 "** | 5 | Body | FB-TP | ASTM A105N | Feat | 03/75580 | | 2004/3001003 |
| | | Drawing-No.: F212-7/15 | | Body | FB-OT | ASTM A105N | Feat | 94448/15 | | 2001/3005631 |
| | | | | Wedge | | A182/F6a C.2 | Ugitech | 409014 | | 95600 |
| | | | | Seat | | A182/F6a C.3 | Ugitech | 345091 | | 319761 |
| | | | | Body Srew | | ASTM A193/B7 | Morandi | AQ6195 | | 6116 |
| | | | | Bonnet | Y-SG | ASTM A105N | Iselfa | 1470249/70 | | 10432 |
| | | | | Stem | | A182/F6a C.2 | Ugitech | 350031 | | 80208 |
| | | | | | | | | | | |
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FEAT INDUSTRIALE
divisione della Feat Group S.p.A.
Feat Group S.p.A.
SEDE LEGALE:
I - 20122 MILANO (MI) - Viale Majno, 17
Capitale Sociale € 8.000.000,00 interamente versato
Codice fiscale, Partita IVA e numero di iscrizione Registro
delle Imprese di Milano: 08203090157
Codice identif. IVA CEE IT 08203090157 - R.E.A. Milano 1211374
UFFICI AMMINISTRATIVI:
I - 23842 BOSISIO PARINI (LC) - Via dei Livelli, snc
tel. 031 3581411 - fax 031 876170 - Cod. Mecc. MI240750
STABILIMENTO E UFFICI COMMERCIALI DELLA DIVISIONE:
I - 23881 CESANA BRIANZA (LC) - Via G. Parini, 30 e Via Ariosto, 1/3/5/7
tel. 031 6591 - Fax 031 659219 - http://www.featgroup.com

2495401

Certificato 2004/3001003
Data 17/02/2004
Pagina 1

DOUGLAS CHERO S.P.A.

LOCALITA' PRADAGLIE

29013 CARPANETO PIACENTINO PC

| Ordine cliente | Bolla | Fattura | Quantita' |
|---|---|---|---|
| O 232364 | 2004/000/0030319 | O 0030356 | 532,00 |

| Articolo Feat | Descrizione |
|---|---|
| 292003001036 | CORPO FL.6/9-15F |

| Cod.Stamp./N.Col. | Tipo Materiale e Specifica |
|---|---|
| BTP | A105/C22.8 ASTM A 105 + DIN 17243 Ultima Edizione |

| Numero colata | Acciaieria | N.Cert.Acc. |
|---|---|---|
| 03/75580 | RIVA ACCIAIO S.P.A. | |

ANALISI CHIMICA

| Elem. | Al | C | Cr | Cu | Mn | Mo | Nb | Ni | P | S | Si | V | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Min | 0,015 | 0,180 | | | 0,600 | | | | | | 0,150 | | | | |
| Max | ******* | 0,230 | 0,300 | 0,400 | 0,900 | 0,120 | 0,020 | 0,400 | 0,035 | 0,030 | 0,350 | 0,030 | | | |
| Colata | 0,022 | 0,180 | 0,090 | 0,220 | 0,890 | 0,010 | 0,001 | 0,070 | 0,012 | 0,015 | 0,210 | 0,014 | | | |
| C.An. | | | | | | | | | | | | | | | |

Carbonio Equivalente= 0,371

CARATTERISTICHE MECCANICHE

| Ordine Laboratorio | N. | Descrizione | UM1 | Min | Max | Valore | UM2 | Valore |
|---|---|---|---|---|---|---|---|---|
| 169588 | 01 | Snerv.Rp0,2% Amb T | N/mm2 | 250,000 | | 340,000 | PSI | 49300,000 |
| 169588 | 01 | Rottura Amb T | N/mm2 | 485,000 | 540,000 | 503,000 | PSI | 72935,000 |
| 169588 | 01 | Allungam.A% T Amb | % | 22,000 | | 29,400 | | |
| 169588 | 01 | Strizione Amb T | % | 30,000 | | 54,700 | | |
| | 01 | Durezza HB | HB | 140,000 | 187,000 | 152,000 | | |

Trattamento Termico
NORMALIZZAZIONE:
I PARTICOLARI SONO STATI NORMALIZZATI ALLA TEMPERATURA
DI 910 C., CON PERMANENZA A TALE VALORE DI 1 ORA PER
OGNI 25mm. DI SPESSORE E RAFFREDDATI IN ARIA CALMA.-

Note
CERTIFICATO FEAT

23 FEB. 2004

DOUGLAS CHERO Spa

Quality Assurance .....
P.C. STEFANI VITTORIO
Sign.....

Resp. Assicurazione Qualita'
E.MAZZONI

FEAT INDUSTRIALE division of FEAT Group S.p.A. states that material hereby certified is in compliance with the quality and technical requirements as described in the customer's order, or FEAT order acknowledgement.

1 - The results of chemicals analysis is a true and correct copy of the mill certificate issued by the manufacturer of the steel employed or by the laboratory which has determined it.
2 - The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufacturing process inspection or storage.

**FEAT INDUSTRIALE**
divisione della Feat Group S.p.A.

SEDE LEGALE:
20122 MILANO - C.so Di Porta Romana, 46
Capitale sociale L. 15.000.000.000 int. vers.
Reg. Impr. Milano 256796 - R.E.A. Milano 1211374
Codice Fiscale e Partita IVA 08203090157
Codice Identif. IVA CEE IT 08203090157
UFFICI AMMINISTRATIVI:
I - 23842 BOSISIO PARINI (LC) - Via dei Livelli
Tel. (031) 876.187 - Fax (031) 876.176 - Cod. Mecc. MI240750
STABILIMENTO E UFFICI COMMERCIALI:
I - 23861 CESANA BRIANZA (LC) - Via G. Parini, 30
Tel. (031) 6591 - Fax (031) 659.219 - HTTP://www.featgroup.it

00203870C

Certificato 2001/3005631
Data 30/10/2001
Pagina 1

DOUGLAS CHERO S.P.A.

LOCALITA' PRADAGLIE

IN ACCORDO A BS EN 10204 3.1B

29013 CARPANETO PIACENTINO PC

| Ordine cliente | Bolla | Fattura | Quantita' |
|---|---|---|---|
| 211396 | 2001/000/0031805 | O 0032063 | 515;00 |

| Articolo Feat | Descrizione |
|---|---|
| 292003001036 | CORPO FL.6/9-15F |

| Cod.Stamp./N.Col. | Tipo Materiale e Specifica |
|---|---|
| BOT | A105 ASTM Last Edition - C 0.22 MAX |

| Numero colata | Acciaieria | N.Cert.Acc. |
|---|---|---|
| 94448/15032 | OSKOL ELECTROMETALLURGICAL KO | |

## ANALISI CHIMICA

| Elem. | C | Cr | Cu | Mn | Mo | Nb | Ni | P | S | Si | V | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Min | | | | 0,600 | | | | | | 0,100 | | | | | |
| Max | 0,220 | 0,300 | 0,400 | 1,350 | 0,120 | 0,020 | 0,400 | 0,035 | 0,040 | 0,350 | 0,050 | | | | |
| Colata | 0,190 | 0,090 | 0,080 | 0,750 | 0,009 | 0,020 | 0,060 | 0,015 | 0,025 | 0,240 | 0,003 | | | | |
| C.An. | | | | | | | | | | | | | | | |

Carbonio Equivalente= 0,345

## CARATTERISTICHE MECCANICHE

| Ordine Laboratorio | N. | Descrizione | UM1 | Min | Max | Valore | UM2 | Valore |
|---|---|---|---|---|---|---|---|---|
| 125455 | 01 | Snerv.Rp0,2% Amb T | N/mm2 | 250,000 | | 337,000 | PSI | 48865,000 |
| 125455 | 01 | Rottura Amb T | N/mm2 | 485,000 | | 506,000 | PSI | 73370,000 |
| 125455 | 01 | Allungamento Amb T | % | 22,000 | | 26,900 | | |
| 125455 | 01 | Strizione Amb T | % | 30,000 | | 61,000 | | |
| | 01 | Durezza HB | HB | 146,000 | 187,000 | 149,000 | | |

Trattamento Termico
NORMALIZZAZIONE:
I PARTICOLARI SONO STATI NORMALIZZATI ALLA TEMPERATURA DI 910 C.;
CON PERMANENZA A TALE VALORE DI 1 ORA PER OGNI 25 mm. DI SPESSORE
E RAFFREDDATI IN ARIA CALMA.-

Note
CERTIFICATO FEAT

Resp.Controllo Certificati
P.SPREAFICO

05 NOV. 2001
DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.

Resp.Assicurazione Qualita'
E.MANZONI

**UGITECH**
Groupe Arcelor

**FRANCE**

5 Usine Productrice / Hersteller / Manufacturer
**UGINE**
F 73403 UGINE CEDEX
Tél : 04.79.89.30.30
Fax : 04.79.89.30.51

4 N. Nr No 95600

11 N. de commande usine-Werksbestellnummer-Works order number
FUGE TESF 01/01 1LS31000 I

3
# CERTIFICATO COLLAUDO DI ACCETTAZIONE B
# CERTIFICAT DE RECEPTION 3.1.B
# INSPECTION CERTIFICATE B

EN 10204 / 3.1.B

Produit / Erzeugnisform / Product: AISI 410 IMA BARRE LAMINATE PELATE RICOTTE TOL.K13 — 6

Client et/ou destinataire - Besteller und/oder Empfaenger - Purchaser and/or Consignee: STAMPERIA DI MENZAGO SRL — 9

N. de commande client - Kundebestellnummer - Purchaser order number: 3145 — 10

Nuance et spécifications techniques - Stahlsorte und Pruefbedingungen - Quality and Specifications: IMA4006 REV.02 EDITION 02 — ASTM A182 F6A — 12

Etat de livraison - Lieferzustand - As delivered (1): RICOTTO — 13

Traitement de Référence - Probestreifenbehandlung - Treatment of test samples (1) — 14

Identification du produit / Erzeugnis Benennung-Product identification

| N. de cde usine Werksbestellnummer Works order number 15 | Post Nr item No 17 | N. de poste Schmelz Nr Heat No 16 | Nombre Stueckzahl Pieces Nbr 18 | Profil Profile Shape 19 | Dimension Ausmessung Dimension 20 | Longueur Laenge Length 21 | Masse Gewicht Weight 22 |
|---|---|---|---|---|---|---|---|
| 1LS31 | 000 | 409014 | 76 | TONDO | 40,000 | | 4036 KG |

| N. de Prélèvement Benummer Test N. | Demandé Vorschrift Required | Sens Richtung Direction (3) | Température d'essai Pruefemperatur Test Temperature | Traction - Zugversuch - Tensile test: Limite d'Elasticité Streckgrenze Yield Strength 0,2 % 26 A | Limite d'Elasticité Streckgrenze Yield Strength 1 % 26 B | Résistance à la traction Zugfestigkeit Tensile strength 27 | Allongement Dehnung Elongation (L0 = 5d0) 28 | Striction Einschnuerung Red of Area 29 | Dureté Haerte Hardness (4) 30 | Type Form Type 31 | Résilience Kerbschlagzaehigkeit - Notch Toughness: Sens Richtung Direction (3) 32 | Température d'essai Pruefemperatur Test Temperature 33 | Valeurs Individuelles Einzelwerte Individual Values 36 | Moyenne Mittelwert Average 38 | Dureté Haerte Hardness (5) 37 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| - 39 B | | L | °C | MPA | MPA | MPA | % | % | | | | | | | |
| | | Min | 20 | 380 | | 585 | 18 | 35 | | | | | | | |
| | | Max | | | | | | | | | | | | | |
| | (4) | | | | | | | | | | | | | | |
| | (5) | | | 510 | | 669 | 26 | 71 | | | | | | | |

21 MAG. 2004
DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.

| 39 A N. de Prélèvement Probenummer Test N. | Demandé Vorschrift Required | Analyse/Produit-Schmelz-analyse-Check Analysis | 42 C | 43 SI | 44 MN | 45 NI | 46 CR | 47 N | 48 S | 49 P | 50 CO |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Min | | | | | 11,50 | | | | |
| | | Max | 0,150 | 1,00 | 1,00 | 0,50 | 13,50 | | 0,030 | 0,040 | |
| N. de Coulée Schmelz Nr Heat N. | | | 0,105 | 0,46 | 0,37 | 0,33 | 12,13 | 0,056 | 0,023 | 0,017 | 0,019 |
| 409014 | | | | | | | | | | | |

| 38 Mode d'élaboration Erschmelzungsart Melting process | Demandé Vorschrift Required | 51 | 52 | 53 | 54 | 55 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min | | | | | | | | | |
| Electrique Elektrisch Electric | Max | CU | | | | | | | | |
| | | 0,143 | | | | | | | | |

AISI 410

AISI 410 IMA BARRE LAMINATE PELATE RICOTTE TOL.K13

S.r.l.
5/4/04

58

(3) L = Long / Laengs - Long / T = Travers / Quer-Transverse — 58

(1) TE = Trempé à l'eau - Wasserhaerten - Waterquench; TH = Trempé à l'huile - Oelharten - Oil Quench; A = Hypertrempé - Loesungsgegluecht - Solution annealed; R = Revenu - Anlassen - Tempered; RT = Recuit - Gegluecht - Annealed; TRM = Recuit maxi - Weichgegluecht - Maxi annealed — 7

Ugine, le 06-04-04
L'Agent Réceptionnaire de l'usine / Der Werkssachverstaendige / The Work Inspector
C. Bioteau — 63

(4) A l'état de référence / Zum Bezug Zustand / At reference condition — 60 A

(5) A l'état de livraison / In Lieferzustand / In state of delivery — 60 B

Contrôles de marquage, d'aspect et de dimensions: satisfaisants / Bezeichnung, Besichtigung und Ausmessung: ohne Beanstandung / Marking, inspection and measurement: without objection — 62

Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande / Wir bestaetigen hiermit dass die obengenannten Erzeugnisse den Bestellungsvorschriften entsprechen / We certify hereby that the above mentioned products are consistent with the order prescriptions — 65

**UGITECH**
**Groupe Arcelor**


**Siège Social : Ugitech S.A.**
**Avenue Paul Girod**
**73400 UGINE, FRANCE**
IDENT. TVA : FR 89 410 436 158


| Bolla/N°BL/DL N°/Lief. | N° Certificat./Prüf N° | Produttore/Usine produc./Manufact./Herstell. |
|---|---|---|
| 319761 | 74496 | F00002 |

# RELEVE DE CONTROLE (1)

SELON EN 10204 PARAGRAPHE 4
Texte certificat de conformité
Texte certificat de conformité

Texte type cert. conformité éditë - fctc

Prodotto Erzeugnisform / Produit / Product: BARRE RONDE IMA 4006-410 45,0 K13 — LAMINE DECALAM. TRAITE

Cliente a/o destinatario - Client et/ou destinataire - Besteller und/oder Empfaenger / Purchaser and/or Consignee: UGINE-SAVOIE ITALIA SRL

N° ordine cliente - Votre référence - Ihre Auftrag Nr - Your reference: OMIC 40108115B MI PARDU

Qualità e specifiche tecniche - Nuance et spécifications techniques - Stalsorte und Pruefbedingungen - Quality and Specifications: IMA 4006-410 K13 — X12CR13/NFEN10088-3 /1.4006 - AISI410/ASTM A182 /F6A CLASS 3

Stato di fornitura - Etat de livraison - Lieferzustand - As delivered (1): LAMINE DECALAM.

Stato metallurgico - Etat métallurgique - Heat treatment condition - Lieferzustand: TRAITE

| N° Conferma d'ordine / Accusé de reception / Auftragsbest N° / Acknowledgment N° | Posizione / N° Poste / Post Nr / Item N° | N° lotto interno / N° de lot interne / Interne los Nr / Internal batch N° | Profilo / Profil / Profile / Shape | Dimensione / Dimension / Abmessung / Size | Tolleranza / Tolérance / Toleranz / Tolerance | Lunghezza / Longueur / Laenge / Length | Peso netto / Masse / Gewicht / Weight |
|---|---|---|---|---|---|---|---|
| 401657839 | 1 | 4478554 | BARRE RONDE | 45,0000 | K13 | . | 313,000 |

| Lotto fornitore / Lot producteur / Lieferant los / Master batch | N° Colata / N° de coulée / Schmelz Nr / Heat N° | Trazione - Traction - Zugversuch - Tensile test: Lim. di snervamento / Limite d'Elasticité / Streckgrenze / Yield Strength 0,2 % | 1 % | Carico di rottura / Résistance tract. / Zugfestigkeit / Tensile strength | Allungamento % / Allongement % / Bruchdehnung % | Strizione % / Striction % / Brucheinschnürung % | Resilienza - Résilience - Kerbschlagzaehigkeit - Notch Toughness: Forma / Type / Form / Type | Dim. / Dimens. / Abm. / Dimens. | Temperatura di prova / Température d'essai / Pruefungstemperatur / Test Temperature | Valori / Valeurs individuelles / Einzelwerte / Individual values | Media / Moyenne / Mittelwerte / Average | Durezza / Dureté / Hearte / Hardness |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | RP02 N/MM2 | | RM N/MM2 | AL | Z | | | | | | HB |
| 345091 | 7D421000 | 774 | | 887 | 19 | 64 | | | | | | 264 |

| | | C | SI | MN | P | S | N | CR | CU | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 345091 | 7D421000 | 0,102 | 0,560 | 0,410 | 0,022 | 0,023 | 0,051 | 12,160 | 0,123 | | |

| | | NI | | CO | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 345091 | 7D421000 | 0,340 | | 0,019 | | | | | | | |

Test : (1 = OK)

345091

C.INT = Corrosione intergranul / SCHI. = Schiacciamento — EDD.C = Controllo non distrutt / FLANG = Flangiatura — P.PN. = Prova pneumatica / REVFL = Appiatt. saldatura IRe — C.MES = Contr. antimescolament / P.RET = Essai de retournement

Note - Notes - Remarks - Bemerkungen

EN 10204 / 3.1.B AISI 410 X12CR13 NF EN10088-3 1.4006 IMA4006/TR BARRE A CHAUD R ONDE TOL. 13 TRAITEE DECALAMINEE

23 FEB. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

Le 12/01/04
Signature de l'Inspecteur
Resp. controllo qualità
Resp. contrôle qualité
Sachverstandiger
Quality control Mgr

Controllo marcatura, visivo e dimensionale : soddisfacente. Si certifica che i prodotti sopra descritti sono conformi alle prescrizioni dell'ordine (1)
L'analisi chimica è copia conforme a quella presente sul certificato dei produttore

Contrôle de marquage, d'aspect et de dimensions satisfaisant. Nous certifions que le présent document reproduit avec exactitude les données du certificat producteur. L'analyse chimique a été relevée du certificat de la matière première.

Bezeichnung, besichtigung und ausmessung : Ohne beanstandung. Wir bestatigen hiermit dass die obengenannten erzeugnisse den bestellung vorschriften entsprechen. Die chemische zusammensetzung entspricht den lieferanten analyse.

The chemical analysis results are true and correct copy of the raw material supplier's certificate.
Marking, inspection and measurement : Without objections. We certify that the above mentioned products are consistent with the order prescriptions.

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948

E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129


CERTIFICATO DI COLLAUDO
Inspection certificate

26732

N°6116/DCH DATE-02.11.04

CLIENTE- DOUGLAS CHERO Spa — ORDINE-831 Order — BOLLA CONSEGNA N-3566 Delivery note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| | | | B7 | |
| 1 | 3000 | VITI TE. M 14 X 37 | ASTM A 193/A 193M | AQ6195 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Cr | Mo | S | P |
|---|---|---|---|---|---|---|---|---|
| REQUIRED VALUE | min. | 0.37 | 0.65 | 0.15 | 0.75 | 0.15 | | |
| | max. | 0.49 | 1.10 | 0.35 | 1.20 | 0.25 | 0.040 | 0.035 |
| HEAT n. AQ6195 | | 0,39 | 0,76 | 0,22 | 0,95 | 0,17 | 0,006 | 0,008 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

| | Rm. | Rp.(0,2) | A4 | Z. | Hardness |
|---|---|---|---|---|---|
| REQUIRED | min. 860 MPa | min. 720 MPa | min. 16% | min. 50% | max 35 HRC |
| ACTUAL VALUE | 983 | 879 | 18,6 | 54,5 | 31 |

HEAT TREATMENT
Quenched at : 860 °C in oil
Tempering : 2 hours at 593 °C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

QUALITY CONTROL

MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

08 NOV. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

ISELFA S.p.A.
STEEL FORGINGS
ELECTRING FITTINGS
S.r.l. - C.F./P.IVA VAT IT 00189520125
21048 SOLBIATE ARNO (Va) Italy - Corso Roma, 22
P.O. BOX 21 - TELELEFONO +39 (331) 99.30.08
FAX FORGINGS +39 (331) 99.15.35 - FAX FITTINGS +39 (331) 99.46.77
ICIM

# CONTROLLO QUALITÀ

Certificato di conformità
Compliance certificate
Gemoess Zeugnis
UNI EN 10204/3.1.B

N° 10432 — Data / Date 25.09.01

| | | | | | |
|---|---|---|---|---|---|
| CLIENTE *Customer / Kunde* | DOUGLAS CHERO SPA | ORDINE N° *Order / Bestellung* | 211159 | DATA *Date / Datum* | 02.08.01 |
| RIMESSO N° *Delivery note / Lieferschein* | 101168 | DATA *Date / Datum* | 25-09-01 | N° PEZZI *Pieces / Stuckzahl* | 1.016 |

DESCRIZIONE - *Description - Dezelchnung*: CAPPELLI — DISEGNO N° - *Drawing - Zelchnung*: Dis. 6/8 — INDICE - *Last revision -Verzelchnis*: Rev.2

| | | | | | |
|---|---|---|---|---|---|
| TIPO ACCIAIO *Steel type / Stahl* | A 105 BILL.70 | COLATA *Heat / Schmelze* | 14 70249/70 | FORNITORE *Supplier / Lieferant* | FERRIERA SIDER SCAL SPA |

COMPOSIZIONE CHIMICA / *Chemical composition / Chemische Zusammensetzung*

CARATTERISTICHE ACCIAIO

| % | C | Mn | Si | Cr | Ni | Mo | V | P | S | Cu | Nb |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA min *Requested* | | 0,600 | | | | | | | | | |
| *Erforderikhe* max | 0,350 | 1,050 | 0,350 | 0,300 | 0,400 | 0,120 | 0,030 | 0,040 | 0,050 | 0,400 | 0,020 |
| FORNITA *Supplied / Wirkilche* | 0,1730 | 0,8920 | 0,2400 | 0,0600 | 0,0990 | 0,0190 | 0,0050 | 0,0140 | 0,0110 | 0,1740 | 0,004 |

PROVA JOMINY / *Jominy test / Stimabschreckversuch*

| | HRC | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA min *Requested* | | | | | | | | | | | | GRANO *Grain size* |
| *Erforderikhe* max | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | *Korngrosse* |
| FORNITA *Supplied / Wirkilche* | | | | | | | | | | | | 6-8 |

CARATTERISTICHE MECCANICHE / *Mechanical properties / Mechanische Eigenscheften* — Normalizzato ☒ — Bonificato ☐

| Ø PROVETTA *Ø sample / Ø probest* | RP 0,2% *Yield strenght 0,2% / 0,2% Grenze* | R *Tensile stranght / Zugfestigkelt* | A% *Elongation % / Dehnung %* | Z % *Reduc. of area % / Einschnurung %* | KCU *Impact value / Kerbschlang* |
|---|---|---|---|---|---|
| mm | N/mm² | N/mm² | Lo = 5d | | J (loule) |
| 16 | 320 | 498 | 26 | 62 | 0 / 0 / 95 |

CARATTERISTICHE PRODOTTO

| | | | | | |
|---|---|---|---|---|---|
| TRATT. TERMICO *Heat Treatement / Warmebehandlung* | NORMALIZZAZIONE | DUREZZA RICHIESTA *Requested hardness / Fesligkelt* | N/mm² | | |
| DUREZZA RISCONTRATA N/mm² *Checked hardness / Finden harte* | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 |

| | | | | | |
|---|---|---|---|---|---|
| CONTROLLI *Tests / Ausmabetest* | C.D.C. | SI | DIMENSIONALE | POSITIVO | NO |
| | MAGNAFLUX 100% | NO | ALTRI | | SI |
| | VISIVO 100% | SI | | | NO |
| ALLEGATI *Enclosed / Anlage* | ANALISI CHIMICA ACCIAIERIA | SI | PRODOTTO AUTOCERTIFICATO | | ☐ |
| | CERTIFICATO TRATT. TERMICO | NO | 29 SET. 2001 | | |

NOTE *Remarks / Bemerkungen*: TRATT: RISCALDO A 900C PER 1 ORA OGNI 25mm DI SPESSORE E RAFFREDDAMENTO IN ARIA CALMA.
SIGLA DI COLATA "SG"

DOUGLAS CHERO Spa
Quality Assurance
P.C. STEFANI VITTORIO
Sign.

CONTROLLO QUALITÀ / QUALITY CONTROL / QUALITATSSTELLE: ISELFA S.p.A. UFFICIO CONTROLLO QUALITA' STAMPAGGIO

COMPILATORE

ISELFA S.p.A. SOLBIATE ARNO (VA)

EMESSO ED ARCHIVIATO DAL RESPONSABILE DEL CONTROLLO FINALE (CFI)

**UGITECH**
Groupe Arcelor

**FRANCE**

5 Usine Productrice / Hersteller / Manufacturer
**UGINE**
F 73403 UGINE CEDEX
Tél : 04.79.89.30.30
Fax : 04.79.89.30.51

4 N. Nr No **80208**

11 N. de commande usine-Werksbestellnummer-Works order number
FUGE TEJE 01/01 8Z101000 Q

3

# CERTIFICATO COLLAUDO DI ACCETTAZIONE B
# CERTIFICAT DE RECEPTION 3.1.B
# INSPECTION CERTIFICATE B

**EN 10204 / 3.1.B**

Produit / Erzeugnisform / Product: **IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE** 6

Client et/ou destinataire - Besteller und/oder Empfaenger - Purchaser and/or Consignee 9: **TECNOMECCANICA SRL**

N. de commande client - Kundenbestellnummer - Purchaser order number 10: **364**

Nuance et spécifications techniques - Stahlsorte und Pruefbedingungen - Quality and Specifications 12:
**IMA4006 410 AISI 410 UNS S41000**
**SPEC. SDA 09 DU 20/11/01 (SAUF MN)**

Etat de livraison - Lieferzustand - As delivered (1) 13: **TEMPRATO RINVENUTO**

Traitement de Référence - Probestreifenbehandlung - Treatment of test samples (1) 14:

| Identification du produit Erzeugnis Benennung-Product Identification N. de cde usine Werksbestellnummer Works order number 15 | N. de poste Post Nr Item No 17 | N. de Coulée Schmelz Nr Heat No 16 | Nombre Stueckzahl Pieces Nbr 18 | Profil Profile Shape 19 | Dimension Ausmessung Dimension 20 | Longueur Laenge Length 21 | Masse Gewicht Weight 22 |
|---|---|---|---|---|---|---|---|
| 8Z101 000 | | 350031 | 190 | TONDO | 20,000 | | 1974 KG |

Traction - Zugversuch - Tensile test

| Prélèvement Probenummer Test N. 39 B 24 | Demandé Vorschrift Required (3) | Sens Richtung Direction 25 | Température d'essai Prueftemperatur Test Temperature °C | Limite d'Elasticité Streckgrenze Yield Strength 0,2 % 26 A MPA | Limite d'Elasticité Streckgrenze Yield Strength 1 % 26 B MPA | Résistance à la traction Zugfestigkeit Tensile strength 27 MPA | Allongement Bruchdehnung Elongation (Lo = 5do) 28 % | Striction Einschnuerung Red of Area 29 % | Dureté Hazrte Hardness (4) 30 | Type Form Type 31 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min | L | 20 | 275 | | 585 | 20 | 45 | | |
| | Max | | | | | | | | | |
| | (4) | | | | | | | | | |
| | (5) | | | 607 | | 684 | 21 | 72 | | |

Résilience - Kerbschlagzaehigkeit - Notch Toughness

| Sens Richtung Direction (3) 32 | Température d'essai Pruefemperatur Test Temperature 33 | Valeurs individuelles Einzelwerte Individual Values 35 | Moyenne Mittelwerte Average 36 | Dureté Hazrte Hardness (5) 37 |
|---|---|---|---|---|
| | | | | HB |
| | | | | 237 |
| | | | | |
| | | | | 205 |

| N. de Prélèvement Probenummer Test N. 39 A | Demandé Vorschrift Required | Analyse/Produit-Check Analysis | 42 C | 43 SI | 44 MN | 46 NI | 48 CR | 47 S | 48 P | 49 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Min | | | | 0,30 | | 11,50 | | | | |
| | Max | | 0,150 | 0,60 | 0,60 | | 13,50 | 0,030 | 0,040 | | |
| N. de Coulée Schmelz Nr Heat N. | | | 0,107 | 0,42 | 0,38 | 0,35 | 12,18 | 0,022 | 0,019 | | |
| 350031 | | | | | | | | | | | |

| 38 Mode d'élaboration Erschmelzungsart Melting process | Demandé Vorschrift Required | 51 | 52 | 53 | 54 | 55 |
|---|---|---|---|---|---|---|
| Electrique Elektrisch Electric | Min | | | | | |
| | Max | | | | | |

IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE

06 MAG. 2004

***DOUGLAS CHERO Spa***

Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

56

(3) L = Long / Laengs - Long / T = Travers / Quer-Transverse 58

(1) TE = Trempé à l'eau - Wasserhaerten - Waterquench; TH = Trempé à l'huile - Oilhaerten - Oil Quench; A = Hypertrempé - Losungsgeglueht - Solution annealed; R = Revenu - Anlassen - Tempered; RT = Recuit - Geglueht - Annealed; TRM = Recuit maxi - Weichgeglueht - Maxi annealed 7

Usine, le 15-01-04
L'Agent Réceptionnaire de l'usine / Der Werkssachverstaendige / The Work Inspector
H. Mayet 83

(4) A l'état de référence / Zum Bezug Zustand / At reference condition 60 A

(5) A l'état de livraison / In Lieferzustand / In state of delivery 60 B

Controles de marquage, d'aspect et de dimensions: satisfaisants / Bezeichnung, Besichtigung und Ausmessung : ohne Beanstandung / Marking, inspection and measurement : without objection 62

Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande / Wir bestaetigen hiermit dass die obengenannten Erzeugnisse den Bestellungvorschriften entsprechen / We certify hereby that the above mentioned products are consistent with the order prescriptions 68

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** / Customer: *Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt*

**Bestell-Nr.:** / Order no.: *Lurgi Job – No.: 69690-10*
*Lurgi OGC PO.-No.: 4567569-000 to -001/1.69690/136*

*Project Name :* *2nd Zagros Methanol Plant - Iran*

**Auftrag-Nr.:** / Job no.: *HH – 02535*

**Lieferumfang** / range:

| **Pos** | **Stck.** pcs. | **Gegenstand** object | **DN** | **PN** | **Werkstoff** material | **Bemerkung** comment |
|---|---|---|---|---|---|---|
| *00040* | *20* | *Gate valve FB BB SW* | *1/2"* | *Cl.800* | *ASTM A 105N* | *Valve Ident – No.: "S350 "* |

**Auslegung + Prüfung nach** / Design and tests acc. To: API 602 – BS EN ISO 15761, API 598 / BS EN 12266-1
ASME B16.34 – B16.25 – B16.11 – B1.20.1

**Sicht- und Funktionsprüfung:** / visual and functional test: *o.k.*

**Festigkeits-/Dichtheitsprüfung:** / strength-/tightness-test:

*Festigkeit / shell test = 211 bar Wasser / water* (60 sec)
*Dichtheit Sitz / seat = 156 bar Wasser / water* (60 sec)
*Rückdichtung / backseat = 156 bar Wasser / water* (60 sec)
*Dichtheit Sitz / seat = 6 bar Luft / air* (60 sec)

**Prüfungsergebnis:** / result: *ohne Beanstandung ! / no complaint !*

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** / enclosure *Dokumentation gemäß Material-Dokumentationsdeckblatt / Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter / Person in charge W. Glass

**Kommissions-Nr. / Reference No.**

**HH-02535**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00040 | Gate Valve 1/2" Cl. 800 lbs. FB, BB, SW | " S350 " | 20 | Body | E-XN | ASTM A105N | Evasi e Casteln. | 03/76016 | | 000112 |
| | | Drawing-No.: F210-7/SW | | Body | E-XX | ASTM A105N | Evasi e Casteln. | 1T11704 | | 000163 |
| | | | | Body | E-YL | ASTM A105N | Evasi e Casteln. | 1T10233 | | 000426 |
| | | | | Wedge | | A182/F6a C.2 | Valbruna | 238209 | | 128331/2004 |
| | | | | Seat | | A182/F6a C.3 | Valbruna | 236784 | | 049908/2003 |
| | | | | Body Srew | | ASTM A193/B7 | Morandi | AR4272 | | 6125 |
| | | | | Bonnet | SM-C | ASTM A105N | Menzago | 75341 | | 127A+127 |
| | | | | Stem | | A182/F6a C.2 | Valbruna | 415174 | | 156778/2004 |
| | | | | | | | | | | |
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| | | | | | | | | | | |

# Evasi e Castelnuovo s.r.l.

Via Carlo Porta, 1 - 23861 CESANA BRIANZA (LC)
Tel. 031/65.59.36 - Fax 031/65.66.27
Cod. Fisc. e Part. IVA 00209790138
Reg.Soc. Trib. Lecco n. 5932 - C.C.I.A. 121373

Spett.
DOUGLAS CHERO SPA

LOC. PRADAGLIE
29013 CARPANETO PIACENTINO PC

***CERTIFICATO DI COLLAUDO/INSPECTION CERTIFICATE***
***UNI EN 10204 3.1 B***

***SISTEMA QUALITA' CERTIFICATO UNI EN ISO 9001/2000***
***QUALITY SYSTEM CERTIFIED UNI EN ISO 9001/2000***

| N. | DATA/DATE |
|---|---|
| 000112 | 31-03-2004 |
| D.D.T. / DELIVERY NOTE N. | DATA/DATE |
| | |

| COLATA /HEAT N. | MATERIALE/MATERIAL | ACCIAIERIA/STEEL PLANT | N.QUANTITY | DESCRIZIONE/DESCRIPTION |
|---|---|---|---|---|
| 76016 | A105 | RIVA | 6.730 | CORPI GR VS 3/4 800 BB 3/9 |

## ANALISI CHIMICA / CHEMICAL ANALYSIS

| C | Mn | Si | P | S | Cr | Ni | Mo | Ti | V | Cu | Al |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,180 | 0,930 | 0,190 | 0,013 | 0,009 | 0,120 | 0,080 | 0,010 | 0,015 | 0,015 | 0,230 | 0,022 |
| **Sn** | **Nb** | **N** | **Fe** | **W** | **Ta** | **Co** | **Ca** | **B** | **Sb** | | **CE** |
| 0,010 | 0,001 | | | | | | | | | | |

## PROVE MECCANICHE/MECHANICAL TESTS

| RS-YELD N./mm² | R-TENSILE N./mm² | A%-ELONG | Z%-REDUCT |
|---|---|---|---|
| 316,0 | 509,0 | 32,0 | 58,6 |

*IMPACT TEST - KV - J*

| TEST 1 | TEST 2 | TEST 3 | TEMP.°C |
|---|---|---|---|
| | | | |

| TRADE MARK | HEAT CODE | MATERIAL CODE | MATERIAL TYPE NR. | DWG |
|---|---|---|---|---|
| E.XN | | | | |

05 APR. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign .....

*TRATTAMENTO TERMICO / HEAT TREATMENT*

| DESCRIPTION | HEATING °C | STAY TIME | COOLING | HARDNESS |
|---|---|---|---|---|
| NORMALIZZAZIONE | 900 | 2,3 | ARIA CALMA | |

1) The result of chemical analisys is a true and correct copy of the mill cerificate issued,by the manufacturer of the steel employed, or by the laboratory which has determined it.
*Il risultato delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o del laboratorio che li ha rilevati*

2) Visual and dimensional control satisfactory.
*Controlli visivi e dimensionali soddisfacenti.*

3) Results of test effected are in conformance with order's specifications.
*I risultati delle prove eseguite sono conformi alle specifiche richieste.*

4) We confirm that materials used for the manufacture of supplied products are in conformance with the Directive 97/23/CE (PED); in particular with annex 1 par. 4 "Materials".
*Confermiamo che i materiali usati per lo stampaggio dei prodotti forniti sono conformi alla Direttiva 97/23/CE (PED) e particolarmente all'allegato 1 paragrafo 4 "Materiali".*

| APPROVATO/APPROVED |
|---|
| COLLAUDATORE/INSPECTOR |
| EMESSO/ISSUED |

EVASI E CASTELNUOVO s.r.l.
STAMPERIA IN FERRO E ACCIAIO

# Evasi e Castelnuovo s.r.l.

Via Carlo Porta, 1 - 23861 CESANA BRIANZA (LC)
Tel. 031/65.59.36 - Fax 031/65.66.27
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Reg.Soc. Trib. Lecco n. 5932 - C.C.I.A. 121373


Spett.
DOUGLAS CHERO SPA

LOC. PRADAGLIE
29013 CARPANETO PIACENTINO PC

***CERTIFICATO DI COLLAUDO/INSPECTION CERTIFICATE***
***UNI EN 10204 3.1 B***

***SISTEMA QUALITA' CERTIFICATO UNI EN ISO 9001/2000***
***QUALITY SYSTEM CERTIFIED UNI EN ISO 9001/2000***

| N. | DATA/DATE |
|---|---|
| **000163** | **10-05-2004** |

*D.D.T. / DELIVERY NOTE*
N. DATA/DATE

| COLATA /HEAT N. | MATERIALE/MATERIAL | ACCIAIERIA/STEEL PLANT | N.QUANTITY | DESCRIZIONE/DESCRIPTION |
|---|---|---|---|---|
| AT 11704 | A105 | LEALI | 7.974 | CORPO GR.VS 3/4 800 BB 3/9 |

## ANALISI CHIMICA / CHEMICAL ANALYSIS

| C | Mn | Si | P | S | Cr | Ni | Mo | Ti | V | Cu | Al |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,200 | 0,900 | 0,270 | 0,010 | 0,007 | 0,080 | 0,180 | 0,030 | 0,002 | 0,001 | 0,140 | 0,025 |
| **Sn** | **Nb** | **N** | **Fe** | **W** | **Ta** | **Co** | **Ca** | **B** | **Sb** | | **CE** |
| 0,013 | 0,002 | | | | | | | | | | 0,390 |

## PROVE MECCANICHE/MECHANICAL TESTS

| RS-YELD N./mm² | R-TENSILE N./mm² | A%-ELONG | Z%-REDUCT |
|---|---|---|---|
| 350,0 | 526,0 | 29,0 | 56,0 |

*IMPACT TEST - KV - J*

| TEST 1 | TEST 2 | TEST 3 | TEMP.°C |
|---|---|---|---|
| | | | |

| TRADE MARK | HEAT CODE | MATERIAL CODE | MATERIAL TYPE NR. | DWG |
|---|---|---|---|---|
| E.XX | | | | |

14 MAG. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sig. .....

*TRATTAMENTO TERMICO / HEAT TREATMENT*

| DESCRIPTION | HEATING °C | STAY TIME | COOLING | HARDNESS |
|---|---|---|---|---|
| NORMALIZZAZIONE | 900 | 2,3 | ARIA CALMA | |

1) The result of chemical analisys is a true and correct copy of the mill carificate issued,by the manufacturer of the steel employed, or by the laboratory which has determined it.
*Il risultato delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o del laboratorio che li ha rilevati*

2) Visual and dimensional control satisfactory.
*Controlli visivi e dimensionali soddisfacenti.*

3) Results of test effected are in conformance with order's specifications.
*I risultati delle prove eseguite sono conformi alle specifiche richieste.*

4) We confirm that materials used for the manufacture of supplied products are in conformance with the Directive 97/23/CE (PED); in particular with annex 1 par. 4 "Materials".
*Confermiamo che i materiali usati per lo stampaggio dei prodotti forniti sono conformi alla Direttiva 97/23/CE (PED) e particolarmente all'allegato 1 paragrafo 4 "Materiali".*

| APPROVATO/APPROVED |
|---|
| COLLAUDATORE/INSPECTOR |
| EMESSO/ISSUED |

EVASI E CASTELNUOVO s.r.l.
STAMPERIA IN FERRO E ACCIAIO

26564

PAG. 1

# Evasi e Castelnuovo s.r.l.

Via Carlo Porta, 1 - 23861 CESANA BRIANZA (LC)
Tel. 031/65.59.36 - Fax 031/65.66.27
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Spett.
DOUGLAS CHERO SPA

LOC. PRADAGLIE
29013 CARPANETO PIACENTINO PC

***CERTIFICATO DI COLLAUDO/INSPECTION CERTIFICATE***
***UNI EN 10204 3.1 B***

***SISTEMA QUALITA' CERTIFICATO UNI EN ISO 9001/2000***
***QUALITY SYSTEM CERTIFIED UNI EN ISO 9001/2000***

| N. | DATA/DATE |
|---|---|
| 000426 | 19-11-2004 |

D.D.T. / DELIVERY NOTE
N. DATA/DATE

| COLATA /HEAT N. | MATERIALE/MATERIAL | ACCIAIERIA/STEEL PLANT | N.QUANTITY | DESCRIZIONE/DESCRIPTION |
|---|---|---|---|---|
| 1T 10233 | A105 | LEALI | 7.250 | CORPO 3/9 |

## ANALISI CHIMICA / CHEMICAL ANALYSIS

| C | Mn | Si | P | S | Cr | Ni | Mo | Ti | V | Cu | Al |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,190 | 0,890 | 0,230 | 0,009 | 0,016 | 0,140 | 0,130 | 0,020 | 0,001 | 0,001 | 0,210 | 0,027 |

| Sn | Nb | N | Fe | W | Ta | Co | Ca | B | Sb | | CE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,013 | 0,001 | | | | | | | | | | 0,380 |

## PROVE MECCANICHE/MECHANICAL TESTS

| RS-YELD N./mm² | R-TENSILE N./mm² | A%-ELONG | Z%-REDUCT |
|---|---|---|---|
| 331,0 | 536,0 | 29,0 | 58,0 |

*IMPACT TEST - KV - J*

| TEST 1 | TEST 2 | TEST 3 | TEMP.°C |
|---|---|---|---|
| 49,0 | 50,0 | 47,0 | -46,0 |

| TRADE MARK | HEAT CODE | MATERIAL CODE | MATERIAL TYPE NR. | DWG |
|---|---|---|---|---|
| E.YL | | | | |

23 NOV. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

*TRATTAMENTO TERMICO / HEAT TREATMENT*

| DESCRIPTION | HEATING °C | STAY TIME | COOLING | HARDNESS |
|---|---|---|---|---|
| NORMALIZZAZIONE | 900 | 2,3 | ARIA CALMA | |

1) The result of chemical analisys is a true and correct copy of the mill carificate issued,by the manufacturer of the steel employed, or by the laboratory which has determined it.
*Il risultato delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati*

2) Visual and dimensional control satisfactory.
*Controlli visivi e dimensionali soddisfacenti.*

3) Results of test effected are in conformance with order's specifications.
*I risultati delle prove eseguite sono conformi alle specifiche richieste.*

4) We confirm that materials used for the manufacture of supplied products are in conformance with the Directive 97/23/CE (PED); in particular with annex 1 par. 4 "Materials".
*Confermiamo che i materiali usati per lo stampaggio dei prodotti forniti sono conformi alla Direttiva 97/23/CE (PED) e particolarmente all'allegato 1 paragrafo 4 "Materiali".*

| APPROVATO/APPROVED |
|---|
| COLLAUDATORE/INSPECTOR |
| EMESSO/ISSUED |

EVASI E CASTELNUOVO s.r.l.
STAMPERIA IN FERRO E ACCIAIO

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

4550

**CERTIFICATO DI COLLAUDO**
**ABNAHMEPRUEFZEUGNIS**
**INSPECTION CERTIFICATE**
**CERTIFICAT DE RECEPTION**
**EN 10204 , 3.1.B**

Cliente / Kunde/Purchaser/Client:
VERRI & PINA SRL
VIA TERRAROSSA, 10 - C.P. N.26
22035-CANZO (CO)-CO

Avviso di Spedizione: A-BZ04006748
Lieferschein/Packing list/B.L.

Certificato nr: MEST128331/2004/
Prüfung/Test/Essai

Conferma ordine nr: MI04002683
Werks/Our Order/Rif nr.

Produttore: STABILIMENTO DI BOLZANO
Hersteller/Usine/Works production

Ordine nr: 94-85-97-103
Bestell/Your order/Commande

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice

Oggetto Prova: Decapato Ricotto lavorabile Laminato
Prüfgegenstand/Item inspected/Fabrique

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Nature d'elaboration

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'expert

Specifiche:
Anforderungen / Requirements / Exigences
ASTM A182 2000C S41000 CLASS2 (0)
(0) Chemical analysis only and mecc.properties(for ASTM A182(M))

Qualità: 410
Werkstoff/Grade/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Marque

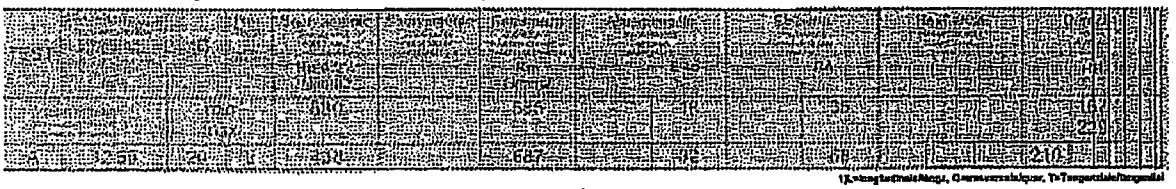
Punzonatura: S.410
Kennzeichnung/Marking/Marquage

| Pos. nr. / Item nr. / N° de poste | Oggetto / Gegenstand / Product description / Désignation du produit | Dimensioni - mm / Abmessungen / Dimension / Dimension | Tolleranza / Toleranz / Allowance / Tolérance | Colata / Schmelze / Heat / Coulée | Pezzi / Stückzahl / Pieces / Pièces | Peso - Gewicht / Weight / Poids | Lotto nr. / Loss / Lot nr. / Lot nr. |
|---|---|---|---|---|---|---|---|
| | Tondo | 20,000 | | 236209 | | 1086,0 | 409202530 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind lt. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le matériel a été livré conforme aux exigences

Controllo antimiscelanza: OK
Verwechslungsprüfung: spezifikationsgemäss durchgeführt
Antimixing testing performed: OK
Contrôle antimélange fait / e.s.

Controllo visivo e dimensionale: soddisfa le esigenze:
Besichtigung und Ausmassprüfung ohne Beanstandung
Visual inspection and dimensional check satisfactory
Contrôle visuel et dimensionnel satisfaisant



## Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata / Heat / Schmelze/Coulée | min - max 0,15 | 1,00 | 1,00 | 11,50 - 13,50 | 0,60 | 0,040 | 0,030 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 236209 | 0,14 | 0,33 | 0,76 | 12,64 | 0,47 | 0,024 | 0,029 | | | | | | | | |

Made in Italy — No welding or weld repair — Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pr — n Equipment Directive [97/23/EC] Annex 1,s.4.3 by TUEV and LLOYD

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

Bolzano,27/08/04
Ort/Datum/Lieu

Il collaudatore di stabilimento / der Werkssachverständige / Works inspector / L'agent d'usine
R.Cristel

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.l.

Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

## ATTESTATO DI CONTROLLO - WERKSZEUGNIS
## TEST REPORT - RELEVE DE CONTROLE
## EN 10204 , 2.2

Q20
Fo Bon

Cliente / Bestelle/Purchaser/Client
- -

Avviso di Spedizione: A-BZ0300491 4
Lieferanzeige/Packing list/B.L.

Certificato nr: MEST049908/2003/
Prüfung/Test/Essai

Conferma ordine nr:
Werks/Our Order/Ref nr.

Produttore: STABILIMENTO DI BOLZANO
Hersteller/Item/Usine productrice

Ordine nr:
Basis#/Your order/Commande

Marchio di Fabbrica:
Zeichen des Unternehmens
Trade mark
Sigle de l'usine productrice

Oggetto Prove: Secondo esecuzione Bonificato Palato
Prüfgegenstand/Item inspected/Finissage

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'elaboration

Punzone del Collaudatore:
Stempel der Werksachverständigen
Inspector's stamp/Poinçon de l'assayeur

Specifiche:
Anforderungen / Requerimento / Exigences

VALBRUNA 2002 410 HT ()
ASTM A193 2001A B6 QT ()
(0) Chemical analysis only and mecc.properties(for ASTM A182[M])

AISI 410 ()
ASTM A276 2000A S41000 T ()

ASTM A182 2000C S41000 CLASS3 (0)
()

T.410
Quality/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Nuance

Punzonatura:
Kennzeichnung/Marking/Marquage

| Pos. nr. Pos. nr. Item nr. Nr. de poste | Oggetto Gegenstand Product description Descrip. du produit | Dimensioni - mm Abmessungen Dimension Dimension | Tolleranza Toleranz. Allowance Tolerance | Lunghezza -mm Länge Length Longueur | Colata Schmelze Heat Coulée | Pezzi Stückzahl Pieces Pieces | Peso - Gewicht Weight Poids | Lotto nr. Losnr. Lot nr. Lot nr. |
|---|---|---|---|---|---|---|---|---|
| | Tondo | 20,000 | K12-MIN | 5000 / 5500 | 236784 | | ~~4486,0~~ 974 | 310700620 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à été fourni conforme aux exigences

| TEST | Provetta/Probestab Specimen/Eprouvette Long.assi Speci. Stress Direct. Dicht Width Dirct. Thickness Larg. dans. spec mm | °C | Posiz. Saggio Position Location Emplacement | Snervamento Streck Yield Stress Limite apparente Rp 0,2% N/mm2 | Snervamento Streck Yield Stress Limite elastique | Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2 | Allungamento Bruchdehnung Elongation Allongement E % | | Strizione Einschnürung Reduction of area Striction RA % | | Resilienza Kerbschlagarbeit Impact Value Resilience °C | | Durezza Härte Hardness Dureté HB | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti Anforderungen/Required values Valeurs demandées | | min max | | 585 | - | 760 | - | 15 | 50 | - | - | | 235 302 | |
| 1 | 12.5 | 20 | L | 720 | | 856 | | 22 | 63 | | | | 255 | |

1)L=longitudinale/längs, Q=trasversale/quer, T=Tangenziale/tangential

## Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata: Schmelze/Heat Coulée | - min 0,150 max | - 1,00 | - 1,00 | 11,50 13,50 | - 0,50 | - 0,040 | - 0,030 | - | - | - | - | - | - | - | - |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 236784 | 0,141 | 0,37 | 0,72 | 12,37 | 0,34 | 0,020 | 0,030 | | | | | | | | |

The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,s.,4.3 by TUEV and LLOYD'S

09 APR. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

COPIA CONFORME ALL' ORIGINALE
ACCIAIERIE VALBRUNA S.P.A.
FILIALE DI CORMANO

Bolzano,07/10/03
Mod.SBIL.doc

Il collaudatore di stabilimento
der Werksachverständige/Inspector/Inspecteur

Pagina - 1 di 1

24/0129/01

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.948 • Fax 0331.302.948

E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129


CERTIFICATO DI COLLAUDO 26729
Inspection certificate N°6125/DCH DATE-09.11.04

CLIENTE- DOUGLAS CHERO Spa ORDINE-760 BOLLA CONSEGNA N-3659
Customer Order Delivery note

DESCRIZIONE DEL MATERIALE / MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| 1 | 44000+56038 | VITI TE. M 10 X 28 | B7 ASTM A 193/A 193M | AR4272 |

ANALISI CHIMICA / CHEMICAL ANALYSIS

| % | | C | Mn | Si | Cr | Mo | S | P |
|---|---|---|---|---|---|---|---|---|
| REQUIRED VALUE | min. | 0.37 | 0.65 | 0.15 | 0.75 | 0.15 | | |
| | max. | 0.49 | 1.10 | 0.35 | 1.20 | 0.25 | 0.040 | 0.035 |
| HEAT n. AR4272 | | 0,44 | 0,79 | 0,27 | 1,09 | 0,22 | 0,002 | 0,007 |

CARATTERISTICHE MECCANICHE / MECHANICAL REQUIREMENTS

| | Rm. | Rp.(0,2) | A4 | Z. | Hardness |
|---|---|---|---|---|---|
| REQUIRED | min. 860 MPa | min. 720 MPa | min. 16% | min. 50% | max 35 HRC |
| ACTUAL VALUE | 1018 | 922 | 17,5 | 54,5 | 31 |

HEAT TREATMENT
Quenched at : 860 °C in oil
Tempering : 2 hours at 593 °C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

QUALITY CONTROL
MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

15 NOV. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

STAMPERIA DI MENZAGO s.r.l.
STAMPAGGIO A CALDO DI ACCIAIO
via della cavanella 29 / tel. 0331.909.156 / fax 908.531
21049 MENZAGO DI SUMIRAGO / va / Italy

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV
ISO 9002

# CERTIFICATO DI CONFORMITA'
*CONFORMITY CERTIFICATE*

N° 127

pag./ page ... di/of ...

| CLIENTE / CUSTOMER | NOME DEL PRODOTTO / NAME OF THE PRODUCT | DISEGNO / DRAWING |
|---|---|---|
| DOUGLAS CHERO S.p.A. | CAPPELLO | N° 2/8 |
| RIFERIMENTO ALL'ORDINE / ORDER: N° 232643 Del/Dated 17/12/2003 | | Indice ultima modifica / Index of last modification: 3 Data / Date: |
| ALLEGATO AL RIMESSO / ENCLOSED TO THE DOCUMENT OF THE TRANSPORT: N° 249 Del/Dated 27/02/04 | FABBRICATO CON ATTREZZATURA / MANUFACTURED WITH EQUIPMENT: PROVVISORIA / PROVISIONAL ☐ DEFINITIVA / DEFINITIVE ■ | TIPO DI CONSEGNA / TYPE OF DELIVERY: CALCO IN PIOMBO / MODEL IN LEAD ☐ CAMPIONATURA / SAMPLES ☐ LOTTO / PARCEL ■ |
| | | QUANTITA' / QUANTITY: 20.680 |

CAUSALE DEL CERTIFICATO / *REASON OF THE CERTIFICATE*: PRODOTTO NUOVO / *NEW PRODUCT* ☐ ATTREZZATURA NUOVA / *NEW EQUIPMENT* ☐ VERIFICA SISTEMATICA / *SYSTEMATICAL VERIFICATION* ■

## CERTIFICAZIONE DELLA QUALITA' DEL PRODOTTO / *CERTIFICATION OF THE QUALITY OF THE PRODUCT*

| N° Ref. | QUOTE CONTROLLATE / CHECKED QUOTES | VALORI PRESCRITTI / *PRESCRIBED VALUES* | Strumenti di Misura Utilizzati / *Equipment use for measures* | LIMITI MIN E MAX RILEVATI | | VALORI OTTENUTI SUI SINGOLI PEZZI CONTROLLATI / *VALUES OBTAINED ON THE THE INDIVIDUAL CHECKED PIECES* | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1 | 2 | 3 | 4 | 5 |
| | SPESSORE | 14 +0,8 -0,4 | 26 | 14 | 14,2 | 14 | 14,1 | 14,1 | 14,2 | 14,1 |
| | SPESSORE | 59 +0,8 | 26 | 60 | 60,3 | 60 | 60,1 | 60,3 | 60,3 | 60,2 |
| | DIAMETRO | 30 +0,8 | 26 | 30 | 30,3 | 30 | 30 | 30,3 | 30,2 | 30,1 |
| | DIAMETRO | 29 +0,5 | 26 | 29,1 | 29,3 | 29,1 | 29,2 | 29,3 | 29,2 | 29,1 |
| | LARGHEZZA | 62 + -0,5 | 26 | 62,5 | 62,6 | 62,5 | 62,5 | 62,6 | 62,6 | 62,6 |
| | LARGHEZZA | 8 +0,9 -0,5 | 26 | 8,5 | 8,6 | 8,5 | 8,6 | 8,6 | 8,6 | 8,5 |
| | LARGHEZZA | 50 +1,1 -0,5 | 26 | 50,6 | 50,9 | 50,7 | 50,9 | 50,6 | 50,8 | 50,8 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

| ACCIAIO UTILIZZATO / *UTILIZED STEEL* | COLATA / *CASTING* | MARCATURA / *MARKING* | TRATTAMENTO ESEGUITO / *TREATMENT MADE* | VALORI RILEVATI / *FOUNDED VALUES* |
|---|---|---|---|---|
| ASTM A105 | 75341 | A105N S M C | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

DUROMETRO UTILIZZATO / *UTILIZED DUROMETER*: A200 ☐ HPO3000 ☐

RELAZIONI DI PROVE ALLEGATE / *RELATIONS OF ENCLOSED RESULTS*

CERTIFICATO ACCIAIERIA / *STEELWORKS CERTIFICATE* ■
BOLLETTINO TRATTAMENTO TERMICO / *HEAT TREATMENT CERTIFICATE* ☐
CERTIFICATO 3.1.B / *3.1.B CERTIFICATE* ☐
..... ☐

02 MAR. 2004
DOUGLAS CHERO Spa

NOTE:
*REMARKS*

Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

IL TRATTAMENTO TERMICO DI BONIFICA E' STATO ESEGUITO SECONDO SPECIFICHE DOUGLAS CHERO S.p.A.

DICHIARAZIONE DI CONFORMITA' DEL PRODOTTO / *DECLARATION OF CONFORMITY OF THE PRODUCT*

LA CONFORMITA' DELLA FORNITURA ALLE PRESCRIZIONI CONTENUTE NEI DISEGNI, CAPITOLATI, NORME, TABELLE, ED EVENTUALE CAMPIONE DEPOSITATO, E' ASSICURATA DA SISTEMATICI CONTROLLI A CUI IL PRODOTTO VIENE SOTTOPOSTO.
*THE CONFORMITY OF THE SUPPLY TO THE PRESCRIPTIONS IN THE DRAWINGS, CONTRACTS, NORMS, TABLES AND POSSIBLE DEPOSITED SAMPLE, IS ASSURED FROM SYSTEMATICAL INSPECTIONS WHICH THE PRODUCT IS SUBORDINATE.*

| DATA/DATE | COMPILATO DA / *FILLED IN FROM* | C.Q. / *QUALITY CONTROL* | STAMPERIA DI MENZAGO S.r.l. |
|---|---|---|---|
| 27/02/04 | ..... | ..... | ..... |

2512306

STAMPERIA DI MENZAGO s.r.l.
STAMPAGGIO A CALDO DELL' ACCIAIO
via della concordia, 39
tel. 0331-909196/fax 908511
21040 MENZAGO DI SUMIRAGO/VA/ITALY

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV
ISO 9002

# CERTIFICATO DI ANALISI CHIMICA E CARATTERISTICHE MECCANICHE
*CERTIFICATE OF CHEMICAL COMPOSITION AND MECHANICAL PROPERTIES*

Pag. di

| | | | |
|---|---|---|---|
| N°/*NR.* | 127A | ORDINE/*ORDER* | 232643 DEL 17/12/2003 |
| DATA/*DATE* | 27/02/04 | RIMESSO/*RIESSUSE* | 243 DEL 27/02/04 |
| CLIENTE/*CUSTOMER* | | DESCRIZIONE/*DESCRIPTION* | COPERCHIO 2/8 |
| DOUGLAS CHERO S.p.A. | | MATERIALE/*MATERIAL* | ASTM A105 |
| | | COLATA/*HEAT* | 75341 |
| | | MARCATURA/*MARKING* | A105N S M C |

## ANALISI CHIMICA/*CHEMICAL COMPOSITION*

| | C% | Mn% | Si% | P% | S% | Cr% | Ni% | Mo% | Cu% | V% | Nb% | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MIN | 0,00 | 0,60 | 0,10 | 0,000 | 0,000 | 0,00 | 0,000 | 0,00 | 0,00 | 0,00 | 0,00 | | | | |
| MAX | 0,35 | 1,05 | 0,35 | 0,035 | 0,040 | 0,30 | 0,40 | 0,12 | 0,40 | 0,05 | 0,02 | | | | |
| ANALISI COLATA *HEAT COMPOSITION* | 0,20 | 0,92 | 0,23 | 0,011 | 0,004 | 0,08 | 0,05 | 0,01 | 0,18 | 0,025 | 0,001 | | | | |

## CARATTERISTICHE MECCANICHE/*MECHANICAL PROPERTIES*

| DESCRIZIONE/*DESCRIPTION* | U.M./*M.U.* | MIN. | MAX | VALORE/*VALUE* | |
|---|---|---|---|---|---|
| SNERVAMENTO/*YIELD STRENGHT* 0,2% | N/mm2 | 250 | | 322 | |
| ROTTURA/*TENSILE STRENGHT* | N/mm2 | 485 | | 519 | |
| ALLUNGAMENTO/*ELONGATION* | % | 22 | | 32,2 | |
| STRIZIONE/*REDUCT OF AREA* | % | 30 | | 56,4 | |
| DUREZZA/*HARDNESS* | HB | | 187 | 148 - 151 - 147 | |
| | | | | | |

TRATTAMENTO TERMICO/*HEAT TREATMENT*

NORMALIZZATO A 900°C

NOTE/*NOTES*
3.1.B Certificate according to EN 10204

02 MAR. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

STAMPERIA DI MENZAGO s.r.l.
CONTROLLO QUALITA'
*QUALITY CONTROL*
.....

STAMPERIA di MENZAGO S.r.L.
.....

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Besteller/Purchaser/Client
TECNOMECCANICA SRL
VIA CRETA 8
25033-COLOGNE (BS)-BS

Produttore: STABILIMENTO DI BOLZANO
Hersteller/Item/Usine productrice

Avviso di Spedizione: A-BS04002225
Lieferanzeige/Packing list/B.L.

Ordine nr: 468
Beste/Your order/Commande

## ATTESTATO DI CONTROLLO
## WERKSZEUGNIS
## TEST REPORT
## RELEVE DE CONTROLE
## EN 10204 , 2.2

Certificato nr: MEST156778/2004/
Prüfung/Test/Essai

Conferma ordine nr: BS04002055
Werks/Our Order/Ref nr.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice

Oggetto Prova: Ricotto lavorabile Trafilato
Prüfgegenstand/Item inspected/Finissage

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'elaboration

Punzone del Collaudatore:
Stempel des Werksachverständigen
Inspector's stamp/Poinçon de l'assayeur

Specifiche:
Anforderungen / Requirements / Exigences

ASTM A182 2002 S41000 CLASS2 (0)
(0) Chemical analysis only and mecc.properties(for ASTM A182(M))

Qualità: S41000
Werkstoff/Grade/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Nuance

Punzonatura:
Kennzeichnung/Marking/Marquage

| Pos. nr. / Item nr. / Nr. de poste | Oggetto / Gegenstand / Product description / Designation du produit | Dimensioni - mm / Abmessungen / Dimension / Dimension | Tolleranza / Toleranz. / Allowance / Tolerance | Lunghezza - mm / Länge / Length / Longueur | Colata / Schmelze / Heat / Coulée | Pezzi / Stückzahl / Pieces / Pièces | Peso - KG / Gewicht / Weight / Poids | Lotto nr. / Losnr. / Lot nr. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0010 | Tondo | 12,000 | H9-MIN | 4190 / 4240 | 415174 | | 985,0 | 423601360 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind lt. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel a été fourni conforme aux exigences

| TEST | Provetta/Probestab / Specimen/Eprouvette: Lunghezza Test L. / Prova Diam. Diam. / Width Diam. Thickness / Larg. diam. epais. mm | °C | Posiz. Saggio / Position / Location / Emplacement | Snervamento / Streckgrenze / Yield Stress / Limite elastique Rp 0,2% N/mm2 | Snervamento / Streckgrenze / Yield Stress / Limite plastique | Resistenza / Zugfestigkeit / Tensile strength / Resistance à traction Rm N/mm2 | Allungamento / Bruchdehnung / Elongation / Allongement E 4d % | | Strizione / Einschnürung / Reduction of area / Striction RA % | | Resilienza / Kerbschlagarbeit / Impact Value / Resilience | | | Durezza / Härte / Hardness / Dureté HB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 / Anforderungen/Required values / Valeurs demandées | | min / max | | 380 | - | 585 | - | 18 | - | 35 | - | | | 167 / 229 | | |
| A | 12.00 | 20 | L | 548 | | 656 | | 21 | | 51 | | | | 200 | | |

1)L=longitudinale/along, Q=trasversale/quer, T=Tangenziale/tangential

## Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata / Coulée | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Limiti / Schmelze / Coulée | min - max 0,15 | - 1,00 | - 1,00 | 11,50 - 13,50 | - 0,50 | - 0,040 | - 0,030 | - - | - - | - - | - - | - - | - - | - - | - - |
| 415174 | 0,15 | 0,41 | 0,77 | 12,52 | 0,24 | 0,020 | 0,026 | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,3.,4.3 by TUEV and LLOYD'S

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

| Bolzano,10/11/04<br>Mod./BBL007 | Il collaudatore di stabilimento / der Werkssachverständige / Works inspector / L'agent d'usine<br>R.Cristel | Pagina - 1 di 1 |
|---|---|---|

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** ***Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt***
Customer:

**Bestell-Nr.:** ***Lurgi Job – No.:*** ***69690-10***
Order no.: ***Lurgi OGC PO.-No.:*** ***4567569-000 to -001/1.69690/136***

*Project Name :* ***2nd Zagros Methanol Plant - Iran***

**Auftrag-Nr.:** ***HH – 02535***
Job no.:

**Lieferumfang** / range:

| **Pos** | **Stck.** pcs. | **Gegenstand** object | **DN** | **PN** | **Werkstoff** material | **Bemerkung** comment |
|---|---|---|---|---|---|---|
| *00050* | *145* | *Gate valve FB BB SW* | *3/4"* | *Cl.800* | *ASTM A 105N* | *Valve Ident – No.: " S350 "* |

**Auslegung + Prüfung nach** API 602 – BS EN ISO 15761, API 598 / BS EN 12266-1
Design and tests acc. To ASME B16.34 – B16.25 – B16.11 – B1.20.1

**Sicht- und Funktionsprüfung:** *o.k.*
visual and functional test:

**Festigkeits-/Dichtheitsprüfung:**
strength-/tightness-test:

*Festigkeit / shell test = 211 bar Wasser / water* (60 sec)
*Dichtheit Sitz / seat = 156 bar Wasser / water* (60 sec)
*Rückdichtung / backseat = 156 bar Wasser / water* (60 sec)
*Dichtheit Sitz / seat = 6 bar Luft / air* (60 sec)

**Prüfungsergebnis:** *ohne Beanstandung !*
result: *no complaint !*

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** *Dokumentation gemäß Material-Dokumentationsdeckblatt*
enclosure *Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter / Person in charge W. Glass

**Kommissions-Nr. / Reference No.**

**HH-02535**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00050 | Gate Valve<br>3/4" Cl. 800 lbs.<br>FB, BB, SW | " S350 " | 145 | Body | E-XT | ASTM A105N | Evasi e Casteln. | 1T11324 | | 000151 |
| | | Drawing-No.: F210-7/SW | | Wedge | | A182/F6a C.2 | Valbruna | 414430 | | 122852/2004 |
| | | | | Seat | | A182/F6a C.3 | Valbruna | 236720 | | 045944/2003 |
| | | | | Body Srew | | ASTM A193/B7 | Morandi | AR4273 | | 6129 |
| | | | | Bonnet | B-BA | ASTM A105N | Bonomi | 04/79481 | | 143467 |
| | | | | Bonnet | FB-VN | ASTM A105N | Feat | 04/78765 | | 2004/3004411 |
| | | | | Stem | | A182/F6a C.2 | Valbruna | 237840 | | 105950/2004 |
| | | | | | | | | | | |
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02537300

Pag. 1

# Evasi e Castelnuovo s.r.l.

Via Carlo Porta, 1 - 23861 CESANA BRIANZA (LC)
Tel. 031/65.59.36 - Fax 031/65.66.27
Cod. Fisc. e Part. IVA 00209790138
Reg.Soc. Trib. Lecco n. 5932 - C.C.I.A. 121373

Spett.
DOUGLAS CHERO SPA

LOC. PRADAGLIE
29013 CARPANETO PIACENTINO PC

***CERTIFICATO DI COLLAUDO/INSPECTION CERTIFICATE***
***UNI EN 10204 3.1 B***

***SISTEMA QUALITA' CERTIFICATO UNI EN ISO 9001/2000***
***QUALITY SYSTEM CERTIFIED UNI EN ISO 9001/2000***

| N. | DATA/DATE |
|---|---|
| 000151 | 30-04-2004 |
| D.D.T. / DELIVERY NOTE N. | DATA/DATE |
| | |

| COLATA /HEAT N. | MATERIALE/MATERIAL | ACCIAIERIA/STEEL PLANT | N.QUANTITY | DESCRIZIONE/DESCRIPTION |
|---|---|---|---|---|
| AT 11324 | A105 | LEALI | 3.370 | CORPI GRVS 1 800 BB |

## ANALISI CHIMICA / CHEMICAL ANALYSIS

| C | Mn | Si | P | S | Cr | Ni | Mo | Ti | V | Cu | Al |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,190 | 0,880 | 0,230 | 0,012 | 0,010 | 0,130 | 0,130 | 0,020 | 0,003 | 0,001 | 0,290 | 0,031 |
| **Sn** | **Nb** | **N** | **Fe** | **W** | **Ta** | **Co** | **Ca** | **B** | **Sb** | | **CE** |
| 0,016 | 0,001 | | | | | | | | | | |

## PROVE MECCANICHE/MECHANICAL TESTS

| RS-YELD N./mm² | R-TENSILE N./mm² | A%-ELONG | Z%-REDUCT |
|---|---|---|---|
| 344,0 | 524,0 | 29,0 | 59,0 |

*IMPACT TEST - KV - J*

| TEST 1 | TEST 2 | TEST 3 | TEMP.°C |
|---|---|---|---|
| | | | |

| TRADE MARK | HEAT CODE | MATERIAL CODE | MATERIAL TYPE NR. | DWG |
|---|---|---|---|---|
| E.XT | | | | |

05 MAG. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

*TRATTAMENTO TERMICO / HEAT TREATMENT*

| DESCRIPTION | HEATING °C | STAY TIME | COOLING | HARDNESS |
|---|---|---|---|---|
| NORMALIZZAZIONE | 900 | 2,3 | ARIA CALMA | |

1) The result of chemical analisys is a true and correct copy of the mill ceriticate issued,by the manufacturer of the steel employed, or by the laboratory which has determined it.
*Il risultato delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati*

2) Visual and dimensional control satisfactory.
*Controlli visivi e dimensionali soddisfacenti.*

3) Results of test effected are in conformance with order's specifications.
*I risultati delle prove eseguite sono conformi alle specifiche richieste.*

4) We confirm that materials used for the manufacture of supplied products are in conformance with the Directive 97/23/CE (PED); in particular with annex 1 par. 4 "Materials".
*Confermiamo che i materiali usati per lo stampaggio dei prodotti forniti sono conformi alla Direttiva 97/93/CE (PED) e particolarmente all'allegato 1 paragrafo 4 "Materiali".*

| APPROVATO/APPROVED |
|---|
| COLLAUDATORE/INSPECTOR |
| EMESSO/ISSUED |

EVASI E CASTELNUOVO s.r.l.
STAMPERIA IN FERRO E ACCIAIO

# Acciaierie Valbruna S.p.A.

36100-VICENZA (Italia) - Viale della scienza, 26 z.i.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

**CERTIFICATO DI COLLAUDO**
**ABNAHMEPRUEFZEUGNIS**
**INSPECTION CERTIFICATE**
**CERTIFICAT DE RECEPTION**
**EN 10204 , 3.1.B**

Cliente / Besteller/Purchaser/Client
VERRI & PINA SRL
VIA TERRAROSSA, 10 - C.P. N.26
22036-CANZO (CO)-CO

Avviso di Spedizione: A-BZ04006069
Lieferanzeige/Packing Note/B.L.

Certificato nr: MEST122852/2004/
Prüfung/Test/Essai

Produttore: STABILIMENTO DI BOLZANO
Hersteller/Fabrikant/Usine productrice

Ordine nr: 94-06-07-103
Bestell/Your order/Commande

Conforme ordine nr: MI04002883
Werks/Our Order/Ref nr.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice

Oggetto Prova: - Ricotto lavorabile Pelato
Prüfgegenstand/Item Inspected/Prélevage

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'élaboration

Punzone del Collaudatore:
Stempel des Werksachverständigen
Inspector's stamp/Poinçon de l'essayeur

SC

4422

Specifiche:
Anforderungen / Requirements / Exigences
ASTM A182 2000C S41000 CLASS2 (0)
(0) Chemical analysis only and mecc.properties(for ASTM A182[M])

Qualità: 410
Werkstoff/Grade/Nuance

Marca: VAL1
Herkunftszeichnung/Brand/Nuance

Punzonatura: 410
Kennzeichnung/Marking/Marquage

| Pos. nr. / Pos. nr. / Item nr. / Nr. de poste | Oggetto / Gegenstand / Product description / Descrip. du produit | Dimensioni - mm / Abmessungen / Dimension / Dimensions | Tolleranza / Toleranz / Allowance / Tolérance | Lunghezza - mm / Länge / Length / Longueur | Colata / Schmelze / Heat / Coulée | Pezzi / Stückzahl / Pieces / Pièces | Peso - / Gewicht / Weight / Poids | Lotto nr. / Los nr. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0050 | Tondo | 25,000 | | 5000 / 5500 | 414430 | | 3707,0 | 409202560 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind in Anlage erfüllt
The material has been finished in accordance with the requirements
Le matériel a été traité conformes aux exigences

Controllo antimescolanza: OK
Verwechslungsprüfung: spektralanalytisch durchgeführt
Antimixing testing performed: OK
Contrôle antimélange fait: c.s.a.

Controllo visivo e dimensionale: soddisfa le esigenze:
Sichtprüfung und Abmessung: ohne Beanstandung
Visual inspection and dimensional check: satisfactory
Contrôle visuel et dimensionnel: satisfaisant

| TEST | Provetta/Probestab / Specimen / Eprouvette: Lung. base/Länge/Length/Longueur; Diam./Durchm./Diam.; Largh./Breite/Width; Lung. misur./Messl./Gauge length/Longueur de mesure: mm | °C | Posiz. Saggio / Lage der Probe / Location / Emplacement: ° | Snervamento / Streckgrenze / Yield Point / Limite élastique: Rp 0,2% N/mm2 | Snervamento / Yield Point / Limite élastique | Resistenza / Zugfestigkeit / Tensile strength / Résistance à traction: Rm N/mm2 | Allungamento / Dehnung / Elongation / Allongement: E 4d % | | Strizione / Einschnürung / Reduction of area / Striction: RA % | | Resilienza / Kerbschlagarbeit / Impact Value / Resilience | | | Durezza / Härte / Hardness / Dureté: HB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 / Anforderungswerte/Required values/Valeurs demandées | | min / max | | 380 | - | 586 | - | 18 | - | 35 | - | | | 167 / 229 | | |
| A | 10.00 | 20 | L | 534 | | 688 | | 31 | | 70 | | | | 216 | | |

1)L=Longitudinale/Längs, Q=Trasversale/quer, T=Tangenziale/tangential

## Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata / Heat / Schmelze/Coulée | min - max 0,15 | - 1,00 | - 1,00 | 11,50 - 13,50 | - 0,60 | - 0,040 | - 0,030 | - - | - - | - - | - - | - - | - - | - - | - - |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 414430 | 0,13 | 0,44 | 0,72 | 12,36 | 0,24 | 0,024 | 0,030 | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,3.,4.3 by TUEV and LLOYD'S

**DOUGLAS CHERO Spa**
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

| Bolzano,15/07/04 / Ort/Place/Lieu | Il collaudatore di stabilimento / Der Werksachverständige / Works inspector / L'agent d'usine: R.Cristel | Pagina - 1 di 1 |
|---|---|---|

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.

Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

## ATTESTATO DI CONTROLLO - WERKSZEUGNIS
## TEST REPORT - RELEVE DE CONTROLE
## EN 10204 , 2.2

BS03001899 3/11/03

Cliente / Besteller/Purchaser/Client
O.M.I.C. SNC DI CAVAGNOLI A.& C.
VIA DELLE INDUSTRIE 11/13
26018 - TRIGOLO (CR) - CR

Produttore: ACCIAIERIE VALBRUNA S.P.A.
Hersteller/Item/Usine productrice

Avviso di Spedizione: A-VI03025442
Lieferanzeige/Packing list/B.L.

Ordine nr: 000074/A3
Bestell/Your order/Commande

Certificato nr: MEST045944/2003/
Prüfung/Test/Essai

Conferma ordine nr: BS03000867
Werks/Our Order/Rel nr.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice

Oggetto Prove: Bonificato Secondo esecuzione Trafilato
Prüfgegenstand/Item inspected/Finissage

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'elaboration

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

O.M.I.C. SNC DI CAVAGNOLI
VIA DELLE INDUSTRIE
TRIGOLO

Specifiche:
Anforderungen / Requirements / Exigences

VALBRUNA 2002 410 HT,CF 0 — AISI 410 0 — ASTM A182 2000C S41000 CLASS3 (0)
ASTM A276 2000A S41000 T,CF 0 — 0 — 0
(0) Chemical analysis only and meco.properties(for ASTM A182(M))

Qualità: S41000
We Quality/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Nuance

Punzonatura:
Kennzeichnung/Marking/Marquage

| Pos. nr. Pos. nr. Item nr. Nr. de posta | Oggetto Gegenstand Product description Descrip. du produit | Dimensioni - mm Abmessungen Dimension Dimension | Tolleranza Toleranz. Allowance Tolerance | Lunghezza - mm Länge Length Longueur | Colata Schmelze Heat Coulée | Pezzi Stückzahl Pieces Pieces | Peso - Gewicht Weight Poids | Lotto nr. Lose nr. Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0030 | Tondo | 26,000 | H9-MIN | 3000 / 3200 | 236720 | | 1180,0 | 312500280 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind lt. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel a été livrés conforme a ses exigences

| TEST | Provetta/Probenart Specimen/Eprouvette Long.staut Sperr. Broke Barr. Eclate Verif.Barr. Trazione Long. Barra. eprov mm | °C | Posiz. Saggio Position Lage Position | Snervamento Streck Yield Stress Limite elastique Rp 0,2% N/mm2 | Snervamento Streck Yield Stress Limite elastique | Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2 | Allungamento Bruchdehnung Elongation Allongement E % | | Strizione Brechdehnung Reduction of area Striction RA % | | Resilienza Kerbschlagarbeit Impact Value Resilience °C | | | Durezza Härte Hardness Dureté HB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti Anforderungen/Required values Valeurs sont prises | | min max | | 585 | - | 760 | - | 15 | 40 | - | - | | | 235 302 | | |
| A | 12.5 | 20 | L | 668 | | 821 | | 24 | 59 | | | | | 289 | | |

1)Longitudinale/Längs, Trasversale/quer, T=Tangenziale/tangential

## Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata: Schmelze/Heat/Coulée | C % | Si % | Mn % | Cr % | Ni % | P % | S % |
|---|---|---|---|---|---|---|---|
| | - min 0,150 max | - 1,00 | - 1,00 | 11,50 13,50 | - 0,50 | - 0,040 | - 0,030 |
| 236720 | 0,140 | 0,39 | 0,72 | 12,39 | 0,22 | 0,018 | 0,024 |

The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,s.4.3 by TUEV and LLOYD'S

05 DIC. 2003

DOUGLAS CHERO Spa

Quality Assurance .....
P.C. STEFANI VITTORIO
Stein .....

Vicenza,18/09/03
Mod./VC-0012

Il collaudatore di stabilimento
der Werkssachverständige / Inspector / L'agent d'usine
M.Rizzotto

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948

E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129


CERTIFICATO DI COLLAUDO
Inspection certificate

26738

N°6128/DCH DATE-16.11.04

CLIENTE- DOUGLAS CHERO Spa
Customer

ORDINE-242000
Order

BOLLA CONSEGNA N-3750
Delivery note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| 1 | 6733 | VITI TE M 12 X 30,5 | B7 ASTM A 193/A 193M | AR4273 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Cr | Mo | S | P |
|---|---|---|---|---|---|---|---|---|
| REQUIRED VALUE | min. | 0.37 | 0.65 | 0.15 | 0.75 | 0.15 | | |
| | max. | 0.49 | 1.10 | 0.35 | 1.20 | 0.25 | 0.040 | 0.035 |
| HEAT n. AR4273 | | 0,44 | 0,77 | 0,26 | 1,06 | 0,23 | 0,005 | 0,007 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

| | Rm. | Rp.(0,2) | A4 | Z. | Hardness |
|---|---|---|---|---|---|
| REQUIRED | min. 860 MPa | min. 720 MPa | min. 16% | min. 50% | max 35 HRC |
| ACTUAL VALUE | 1032 | 945 | 17,5 | 53,5 | 32 |

HEAT TREATMENT
Quenched at : 860 °C in oil
Tempering : 2 hours at 593 °C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

QUALITY CONTROL

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

22 NOV. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Firma: .....

MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

**Bonomi srl**

*STAMPAGGIO A CALDO DELL'ACCIAIO*

CERTIFICATO N°143467

23861 CESANA BRIANZA (LC)
Via Carlo Porta, 8
☎ 031/656798 🖷 031/657597
Partita I.V.A. 02418370132
R.I. Lecco N. 15934 R.E.A. Lecco N. 288235

26483

TEST CERTIFICATE N° 040687
CERTIFICATO DI COLLAUDO
3.1B-AS-TO- SECONDO
UNI EN 10204
DATA : 07/10/2004

*Spett.le Ditta*
*DOUGLAS CHERO Spa*
*Loc. Pradaglie*
*29013 CARPANETO P.NO (Pc)*

Mod. 28/1

| CUSTOMER ORDER - ORDINE CLIENTE | P.O. | DOCUMENTO DI TRASPORTO | INVOICE-FATTURA |
|---|---|---|---|
| 240741 pos. 1 | | 251 del 07/10/2004 | |

| DESCRIPTION OF PARTICULAR - DESCRIZIONE DEL PARTICOLARE | TYPE AND MATERIAL SPECIFICATIONS-TIPO E SPECIFICA MATERIALE |
|---|---|
| BONNET | ASTM A105N |

NUMERO COLATA / HEAT NUMBER: 04/79481
STELL MILL. ACCIAIERIA: RIVA
ST.M. CERT. N. / CERT. ACC. N.: 29058

CHEMICAL ANALYSIS - ANALISI CHIMICA

| C | Mn | Si | P | S | Cr. | Ni | Mo | Cu | Sn |
|---|---|---|---|---|---|---|---|---|---|
| 0.185 | 0.80 | 0.22 | 0.021 | 0.020 | 0.12 | 0.06 | 0.01 | 0.22 | 0.008 |
| **Al** | **Ti** | **V** | **Nb** | **B** | **C.E.** | | | | |
| 0.005 | 0.007 | 0.003 | 0.001 | 0.000 | 0.36 | | | | |

| HEAT CODE ON FORGING CODICE COLATA | DISEGNO DEL FORGIATO . | QUANTITY QUANTITA' | MECHANICAL PROPERTIES - CARATTERISTICHE MECCANICHE | | | | |
|---|---|---|---|---|---|---|---|
| | | | YIELD STRENGTH P.S.I. SNERVAM. N./mm2 | TENS. STRENGTH P.S.I. RDTT. N/mm2 | ELONG 2" 50 ALLUNG % | RED OF AREA % CONTRAZ. | H.B. |
| BBA | 4/8 | 11.954 | 313 | 505 | 32,40 | 54,84 | 154<br>151<br>151 |

15 OTT. 2004

HEAT TREATMENT - TRATTAMENTO TERMICO: Normalizing

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign.

REMARKS

1) The result of chemical analisys is a true and correct copy of the mill certificate issued, by the manufacturer of the steel employed, or by the laboratory witch has determined it.
* I risultati delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati.
2) The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufactoring process inspection or storage.
** Il materiale o i particolari spediti per questi ordini non sono mai venuti a contatto diretto con mercurio o con elementi contenenti mercurio durante la fase di lavorazione, controllo o immagazzinamento.

I certify these tests to be correct as contained in the records of the company
certifico che tutti i dati sono corretti e uguali a quelli registrati presso Bonomi

Q.A. OFFICE
UFFICIO QUALITA'
Bucca Rosalba

**FEAT INDUSTRIALE**
divisione della Feat Group S.p.A.
**Feat Group S.p.A.**
SEDE LEGALE:
I - 20122 MILANO (MI) - Viale Majno, 17
Capitale Sociale € 8.000.000,00 interamente versato
Codice fiscale, Partita IVA e numero di iscrizione Registro delle Imprese di Milano: 08203090157
Codice identif. IVA CEE IT 08203090157 - R.E.A. Milano 1211374
UFFICI AMMINISTRATIVI:
I - 23842 BOSISIO PARINI (LC) - Via dei Livelli, snc
tel. 031 3581411 - fax 031 876176 - Cod. Mecc. MI240750
STABILIMENTO E UFFICI COMMERCIALI DELLA DIVISIONE:
I - 23881 CESANA BRIANZA (LC) - Via G. Parini, 30 e Via Ariosto, 1/3/5/7
tel. 031 6591 - Fax 031 659219 - http://www.featgroup.com

2C09000

Certificato 2004/3004411
Data 12/07/2004
Pagina 1

DOUGLAS CHERO S.P.A.

LOCALITA' PRADAGLIE

29013 CARPANETO PIACENTINO PC

| Ordine cliente | Bolla | Fattura | Quantita' |
|---|---|---|---|
| O 240066 | 2004/000/0031592 | O 0031747 | 173,00 |

| Articolo Feat | Descrizione |
|---|---|
| 292011001018 | CAPPELLO 4/8 |

| Cod.Stamp./N.Col. | Tipo Materiale e Specifica |
|---|---|
| BVN | A105/C22.8 ASTM A 105 + DIN 17243 Ultima Edizione |

| Numero colata | Acciaieria | N.Cert.Acc. |
|---|---|---|
| 04/78765 | **RIVA ACCIAIO S.P.A. | |

## ANALISI CHIMICA

| Elem. | Al | C | Cr | Cu | Mn | Mo | Nb | Ni | P | S | Si | V | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Min | 0,015 | 0,160 | | | 0,600 | | | | | | 0,150 | | | | |
| Max | ******* | 0,220 | 0,300 | 0,400 | 0,900 | 0,120 | 0,020 | 0,400 | 0,035 | 0,030 | 0,350 | 0,030 | | | |
| Colata | 0,024 | 0,190 | 0,120 | 0,170 | 0,700 | 0,020 | 0,002 | 0,100 | 0,012 | 0,005 | 0,230 | 0,003 | | | |
| C.An. | | | | | | | | | | | | | | | |

Carbonio Equivalente= 0,353

## CARATTERISTICHE MECCANICHE

| Ordine Laboratorio | N. | Descrizione | UM1 | Min | Max | Valore | UM2 | Valore |
|---|---|---|---|---|---|---|---|---|
| 175558 | 01 | Snerv.Rp0,2% Amb T | N/mm2 | 250,000 | | 359,000 | PSI | 52055,000 |
| 175558 | 01 | Rottura Amb T | N/mm2 | 485,000 | 540,000 | 500,000 | PSI | 72500,000 |
| 175558 | 01 | Allungam.A% T Amb | % | 22,000 | | 29,700 | | |
| 175558 | 01 | Strizione Amb T | % | 30,000 | | 56,000 | | |
| | 01 | Durezza HB | HB | 140,000 | 187,000 | 152,000 | | |

Trattamento Termico
NORMALIZZAZIONE:
I PARTICOLARI SONO STATI NORMALIZZATI ALLA TEMPERATURA DI 910 C., CON PERMANENZA A TALE VALORE DI 1 ORA PER OGNI 25mm. DI SPESSORE E RAFFREDDATI IN ARIA CALMA.-

Note
CERTIFICATO FEAT

16 LUG. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

Resp. Assicurazione Qualita'
E.MANZONI

FEAT INDUSTRIALE division of FEAT Group S.p.A. states that material hereby certified is in compliance with the quality and technical requirements as described in the customer's order, or FEAT order acknowledgement.

1 - The results of chemicals analysis is a true and correct copy of the mill certificate issued by the manufacturer of the steel employed or by the laboratory which has determined it.
2 - The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufacturing process inspection or storage.

EN 10204 - 3.2

# Valbruna S.p.A.

36100 VICENZA (Italia) - Viale delle scienze, 25 c.p. 89

Sede: 36100 BOLZANO (Italia) - Via Al. Volta, 43

Cliente / Besteller / Customer / Client

Avviso di Spedizione: A-VI04014062
Lieferanzeige/Packing list/B.L.

Certificato nr: MEST105950/2004/
Prüfbescheinigung/Test Report/Certificat

Ordine nr: DEL 29.01.04
Bestell/Your order/Commande

Conferma ordine nr: MI04000714
Werks/Our Order/Ref nr.

Produttore: ACCIAIERIE VALBRUNA S.P.A.
Herstellerwerk/Usine productrice

Marchio di Fabbrica:
Zeichen des Herstellers
Trade mark
Sigle de l'usine productrice

Oggetto Prova: - Ricotto lavorabile Trafilato
Prüfgegenstand/Item inspected/Prélèvement

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'élaboration

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Specifiche:
Anforderungen / Requirements / Exigences

ASTM A182 2000C S41000 CLASS2 (0) 0 0
(0) Chemical analysis only and mecc.properties(for ASTM A182[M]) 0

Qualità: S41000
Werks/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Nuance

Punzonatura:
Kennzeichnung/Marking/Marquage

| Pos. nr. / Rest nr. / Nr. de poste | Oggetto / Gegenstand / Product description / Description du produit | Dimensioni - mm / Abmessungen / Dimension / Dimension | Tolleranza / Toleranz / Allowance / Tolerance | Lunghezza - mm / Länge / Length / Longueur | Colata / Schmelze / Heat / Coulée | Pezzi / Stückzahl / Pieces / Pièces | Peso - KG / Gewicht / Weight / Poids | Lotto nr. / Losnr. / Lot nr. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0010 | Tondo | 14,000 | H9-MIN | 3900 / 4000 | 237840 | | ~~5995,0~~ Mol | 403302310 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind lt. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel a été fourni conforme aux exigences

| TEST | Provetta/Prelievo / Specimen Sampling Longitudinale Direz. Long. Direz. Trasv. Direz. Varie Direz. Tangenziale Long. diam. spess. / mm | °C | Posiz. Sezione / Position Section / 1) | Snervamento / Streck / Limite elastico / Rp 0,2% / N/mm2 | Snervamento / Streck / Yield Stress / Limite elastique | Resistenza / Zugfestigkeit / Tensile strength / Resistance à traction / Rm / N/mm2 | Allungamento / Bruchdehnung / Elongation / Allongement / E 4d / % | | Strizione / Einschnürung / Reduction of area / Striction / RA / % | | Resilienza / Kerbschlagarbeit / Impact Value / Resilience | | | Durezza / Härte / Hardness / Dureté / HB | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 / Anforderungswerte / Required Values / Valeurs demandées | | min | | 380 | - | 585 | - | 18 | - | 35 | - | | | 167 | |
| | | max | | | | | | | | | | | | 229 | |
| A | 12.5 | 20 | L | 610 | | 698 | | 22 | | 68 | | | | 215 | |

1)Längsd=Longitudinalrichtung, Q=Querrichtung/Transversale/quer, T=Tangentialrichtung/tangentiel

## Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata: / Schmelze/Heat/ Coulée | - min 0,15 max | - 1,00 | - 1,00 | 11,50 13,50 | - 0,50 | - 0,040 | - 0,030 | - | - | - | - | - | - | - | - |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 237840 | 0,14 | 0,36 | 0,70 | 12,55 | 0,27 | 0,017 | 0,024 | | | | | | | | |

Made in Italy No welding or weld repair Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex I,3.,4.3 by TUEV and LLOYD'S

COPIA ALL'ORIGINALE
ACCIAIERIE VALBRUNA S.P.A.

29 GIU. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign: .....

Vicenza, 17/05/04
Mod./VC0012

Il collaudatore di stabilimento / der Werkssachverständige / Works Inspector / L'agent d'usine
M. Rizzotto

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** ***Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt***
Customer:

**Bestell-Nr.:** ***Lurgi Job – No.:*** ***69690-10***
Order no.: ***Lurgi OGC PO.-No.:*** ***4567569-000 to -001/1.69690/136***

*Project Name :* ***2nd Zagros Methanol Plant - Iran***

**Auftrag-Nr.:** ***HH – 02535***
Job no.:

**Lieferumfang** / range:

| **Pos** | **Stck.** pcs. | **Gegenstand** object | **DN** | **PN** | **Werkstoff** material | **Bemerkung** comment |
|---|---|---|---|---|---|---|
| *00060* | *45* | *Gate valve FB BB SW* | *1"* | *Cl.800* | *ASTM A 105N* | *Valve Ident – No.: " S350 "* |

**Auslegung + Prüfung nach** API 602 – BS EN ISO 15761, API 598 / BS EN 12266-1
Design and tests acc. To ASME B16.34 – B16.25 – B16.11 – B1.20.1

**Sicht- und Funktionsprüfung:** *o.k.*
visual and functional test:

**Festigkeits-/Dichtheitsprüfung:**
strength-/tightness-test:

| | | | |
|---|---|---|---|
| *Festigkeit / shell test* | = | *211 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *156 bar Wasser / water* | (60 sec) |
| *Rückdichtung / backseat* | = | *156 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *6 bar Luft / air* | (60 sec) |

**Prüfungsergebnis:** *ohne Beanstandung !*
result: *no complaint !*

i.A. Walter Glass

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** *Dokumentation gemäß Material-Dokumentationsdeckblatt*
enclosure *Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter / Person in charge W. Glass

**Kommissions-Nr. / Reference No.**

**HH-02535**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00060 | Gate Valve<br>1" Cl. 800 lbs.<br>FB, BB, SW | " S350 " | 45 | Body | B-AU | ASTM A105N | Bonomi | 04/77895 | | 040220 |
| | | Drawing-No.: F210-7/SW | | Wedge | | A182/F6a C.2 | Valbruna | 237839 | | 110880/2004 |
| | | | | Seat | | A182/F6a C.3 | Ugitech | 322021 | | 46233 |
| | | | | Body Srew | | ASTM A193/B7 | Morandi | AR4273 | | 6129 |
| | | | | Bonnet | Y-AZ | ASTM A105N | Iselfa | 04/70222 | | 17458 |
| | | | | Stem | | A182/F6a C.2 | Ugitech | 350031 | | 80208 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
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**Bonomi s r l**

*STAMPAGGIO A CALDO DELL'ACCIAIO*

23861 CESANA BRIANZA (Lc) Via Carlo Porta, 8

☎ 031/656798 🖷 031/657597

CERTIFICATO N°143467

Partita I.V.A. 02418370132
R.I. Lecco N. 15934
R.E.A. Lecco N. 288235

0042545600

TEST CERTIFICATE N° 040220
CERTIFICATO DI COLLAUDO
3.1B-AS-TO- SECONDO
UNI EN 10204
DATA : 30/04/2004

*Spett.le Ditta*
*DOUGLAS CHERO Spa*
*Loc. Pradaglie*
*29013 CARPANETO P.NO (PC)*

Mod. 28/1

| CUSTOMER ORDER - ORDINE CLIENTE | P.O. | DOCUMENTO DI TRASPORTO | INVOICE-FATTURA |
|---|---|---|---|
| 240405 pos. 2 | | 95 del 16/04/2004 | |

| DESCRIPTION OF PARTICULAR - DESCRIZIONE DEL PARTICOLARE | TYPE AND MATERIAL SPECIFICATIONS-TIPO E SPECIFICA MATERIALE |
|---|---|
| BODY | ASTM A105N |

NUMERO COLATA / HEAT NUMBER: 04/77895
STELL MILL. ACCIAIERIA: RIVA
ST.M. CERT. N. / CERT. ACC. N.: 16386

CHEMICAL ANALYSIS - ANALISI CHIMICA

| C | Mn | Si | P | S | Cr | Ni | Mo | Cu | Sn |
|---|---|---|---|---|---|---|---|---|---|
| 0.22 | 0.94 | 0.17 | 0.010 | 0.023 | 0.09 | 0.05 | 0.01 | 0.18 | 0.008 |
| **Al** | **Ti** | **V** | **Nb** | **B** | **C.E.** | | | | |
| 0.005 | 0.013 | 0.003 | 0.0010 | 0.000 | 0.41 | | | | |

| HEAT CODE ON FORGING CODICE COLATA | DISEGNO DEL FORGIATO . | QUANTITY QUANTITA' | MECHANICAL PROPERTIES - CARATTERISTICHE MECCANICHE | | | | |
|---|---|---|---|---|---|---|---|
| | | | YIELD STRENGTH P.S.I. SNERVAM. N./mm2 | TENS. STRENGTH P.S.I. ROTT. N/mm2 | ELONG 2" 50 ALLUNG % | RED OF AREA % CONTRAZ. | H.B. |
| BAU | N6/9S | 5.456 | 293 | 507 | 27,20 | 63,03 | 148<br>157<br>148 |

HEAT TREATMENT - TRATTAMENTO TERMICO
Normalizing

**REMARKS**

1) The result of chemical analisys is a true and correct copy of the mill certificate issued, by the manufacturer of the steel employed, or by the laboratory witch has determined it.
* I risultati delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati.
2) The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufactoring process inspection or storage.
** Il materiale o i particolari spediti per questi ordini non sono mai venuti a contatto diretto con mercurio o con elementi contenenti mercurio durante la fase di lavorazione, controllo o immagazzinamento.

I certify these tests to be correct as contained in the records of the company
certifico che tutti i dati sono corretti e uguali a quelli registrati presso Bonomi

05 MAG. 2004

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

Q.A. OFFICE
UFFICIO QUALITA'
Bucca Rosalba

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Kunde/Purchaser/Client
ACC.VALBRUNA SPA-MAG.CORMANO
VIA BIZZOZZERO, 125
20032 - CORMANO (MI) - MI

Produttore: STABILIMENTO DI BOLZANO
Hersteller/Maker/Usine producteur

Oggetto Prove: - Ricotto lavorabile Pelato
Prüfgegenstand/Objet de l'essai

Avviso di Spedizione: A/8Z04004757
Lieferanzeige/Packing Instr. n.

Ordine nr: TRASFERIMENTO SU APPRON
Bestell/Your order/Commande

Tipo di Elaborazione: E+AOD
Erzeugungsart/Melting process/Mode d'élaboration

## CERTIFICATO DI COLLAUDO
## ABNAHMEPRUEFZEUGNIS
## INSPECTION CERTIFICATE
## CERTIFICAT DE RECEPTION
## EN 10204 , 3.1.B

4448

Certificato nr: MEST110880/2004/
Prüfbeg/Test/Essai

Conferma ordine nr: MI04000176
Werks/Our Order/Ref nr.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice

Punzone del Collaudatore:
Stempel des Werksachverständigen
Inspector's stamp/Poinçon de l'expert

Specifiche:
Anforderungen / Requirements / Exigences

VALBRUNA 2002 410 A ()
ASME (1) SA479 2001 S41000 A (1)
ASTM A479 2001 S41000 A ()
SEC.II PT.A 2001 EDITION
Chemical analysis only.

AISI 410 ()
ASTM A182 2002 S41000 (2)
EN 10088-3 95 1.4005 A ()
(1) SEC.II PT.A 2001 EDITION
()

ASME (1) SA182 2001 S41000 CLASS2 (2)
ASTM A276 2000A S41000 A ()
EN 10272 2000 1.4006 A ()

Qualità: 410
Werkstoff/Qualité/Nuance

Marca: VAL1
Marke/Spezifizierung/Brand/Nuance

Punzonatura: 410
Kennzeichnung/Marking/Marquage

| Pos. nr. / Pos. nr. / Item no. / Nr. de poste | Oggetto / Gegenstand / Product description / Designation du produit | Dimensioni - mm / Abmessungen / Dimension / Dimension | Tolleranza / Toleranz / Allowance / Tolérance | Lunghezza - mm / Länge / Length / Longueur | Colata / Schmelze / Heat / Coulée | Pezzi / Stücke / Pieces / Pièces | Peso - KG / Gewicht / Weight / Poids | Lotto nr. / Los nr. / Lot no. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0010 | Tondo | 28,000 | K12-MIN | 5000 / 5500 | 237839 | | 3482,0 | 335600470 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind lt. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le matériel à été livré conforme aux exigences

Controllo anomescolanza: OK
Verwechslungsprüfung: spektralytisch durchgeführt
Antimixing testing performed: OK
Contrôle antimélange fait r.m.v.

Controllo visivo e dimensionale: soddisfa le esigenze:
Sichtprüfung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional check satisfactory
Contrôle visuel et dimensionel: satisfaisant

| TEST | Provetta / Probestab / Test piece / Eprouvette | | °C | Prova Saggio / Test piece / Eprouvette | Snervamento / Streckgrenze / Yield Strength / Limite d'élasticité Rp 0,2% N/mm² | Snervamento / Streckgrenze / Yield Strength / Limite d'élasticité | Resistenza / Zugfestigkeit / Tensile Strength / Résistance à la traction Rm N/mm² | Allungamento / Bruchdehnung / Elongation / Allongement A5 % | | Strizione / Einschnürung / Reduction of area / Striction Z % | RA % | Resilienza / Kerbschlagarbeit / Impact Value / Resilience | | | Durezza / Härte / Hardness / Dureté HB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 | | | min | | 380 | - | 586 | - | 20 | - | 45 | - | - | | 167 | | |
| | | | max | | | | 730 | | | | | | | | 220 | | |
| A | 10.00 | 20 | L. | | 458 | | 694 | 30 | 32 | 66 | 66 | | | | 212 | | |

1) L = longitudinale/Längs, T = trasversale/quer, Te = Tangenziale/tangential

## Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata / Schmelze/Coulée | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | min 0,080 max 0,150 | - 1,00 | - 1,00 | 11,50 13,50 | - 0,50 | - 0,040 | - 0,030 | - | - | - | - | - | - | - | - | - | - |
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | | | |
| 237839 | 0,140 | 0,40 | 0,79 | 12,61 | 0,24 | 0,018 | 0,024 | | | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive (97/23/EC) Annex 1,s.4.3 by TUEV and LLOYD'S

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVAN VITTORIO
Sign. .....

COPIA CONFORME ALL'ORIGINALE
ACCIAIERIE VALBRUNA S.P.A.
FILIALE DI CORMANO

Bolzano, 08/06/04
Mod.QS1205

Il collaudatore di stabilimento / der Werksachverständige / Works inspector / L'agent d'usine
R.Cristel

Pagina # 1

**UGINE-SAVOIE IMPHY**
**Groupe Arcelor**

FRANCE

5 Usine Productrice / Hersteller / Manufacturer: **UGINE**
F 73403 UGINE CEDEX — Tél : 04.79.89.30.30 — Fax : 04.79.89.30.31

4 N.Nde 46233

11 N.de commande usine-Werksbestellnummer-Works order number: FUGE TEJE 1/1 2WN01000 X

3

# CERTIFICAT DE RECEPTION 3.1.B
# INSPECTION CERTIFICATE B
# ABNAHMEPRUEFZEUGNIS B

EN 10204 / 3.1.B

Produit / Erzeugnisform / Product: IMA4006/TR BARRE A CHAUD RONDE TOL.13 TRAITEE — 6

Client et/ou destinataire - Besteller und/oder Empfaenger - Purchaser and/or Consignee: UGINE SAVOIE IMPHY — 9

N. de commande client - Kundenbestellnummer - Purchase order number: 303131984 — 10

Nuance et spécifications techniques - Stahlsorte und Pruefbedingungen - Quality and Specifications
IMA4006 IMA4006/TR ASTM A182 F6A/CL3
RI4006-QTC3-1X REV.A DU 06/11/2002 — 12

Etat de livraison - Lieferzustand - As delivered (1): TREMPE ET REVENU — 13

Traitement de Référence - Probenvorbehandlung - Treatment of test samples (1) — 14

| Identification du produit Erzeugnis Bezeichnung-Product identification N. de cde usine Werksbestellnummer Works order number 15 | N. de poste Post Nr Item No 17 | N. de Coulée Schmelz Nr Heat No 16 | Nombre Stueckzahl Pieces Nbr 18 | Profil Profils Shape 19 | Dimension Anmessung Dimension 20 | Longueur Laenge Length 21 | Masse Gewicht Weight 22 |
|---|---|---|---|---|---|---|---|
| 2WN01 000 | | 322021 | 29 | ROND | 32,000 | | 1004 KG |

| N. de Prélèvement Probenummer Test N. 39B | Repère/Vorzeichen/Location (3) | Température d'essai Pruefungstemperatur Test temperature | Traction - Zugversuch - Tensile test: Limite d'Elasticité Streckgrenze Yield Strength 0,2% 26A | Limite d'Elasticité Streckgrenze Yield Strength 1% 26B | Résistance la traction Zugfestigkeit Tensile strength | Allongement Bruchdehnung (L=5d) | Striction Einschnürung Red. of Area | Dureté Haerte Hardness (4) | Résilience - Kerbschlagzaehigkeit - Notch Toughness: Type Form Type | Sens Richtung Direction (3) | Température d'essai Pruefungstemperatur Test temperature | Valeurs individuelles Einzelwerte Individual Values | Moyenne Mittelwerte Average | Dureté Haerte Hardness (5) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 24 | L | 25 °C | 26A MPA | 26B MPA | 27 MPA | 28 % | 29 % | 30 | 31 | 32 | 33 | 35 | 36 | 37 HB |
| Min | | 20 | 585 | | 760 | 15 | 35 | | | | | | | 235 |
| Max | | | | | | | | | | | | | | 302 |
| (4) | | | | | | | | | | | | | | |
| | | | 701 | | 820 | 19 | 69 | | | | | | | 247 |
| (5) | | | | | | | | | | | | | | |

| 39A N. de Prélèvement Probenummer Test N. | Demandé/Vorschrift Required | Analyse Produit/Schmelz analyse Check Analysis | C 42 | SI 43 | MN 44 | NI 45 | CR 46 | N 47 | S 48 | P 49 | CO 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Min | | 0,080 | | | | 11,50 | | | | |
| | Max | | 0,150 | 1,00 | 1,00 | 0,50 | 13,50 | | 0,030 | 0,040 | |
| N. de Coulée Schmelz Nr Heat N. 322021 | | | 0,118 | 0,33 | 0,37 | 0,34 | 12,11 | 0,051 | 0,022 | 0,020 | 0,024 |

| 38 Mode d'élaboration Erzeugungsart Melting process | Demandé/Vorschrift Required | 51 | 52 | 53 | 54 | 55 |
|---|---|---|---|---|---|---|
| Electrique Elektrisch Electric | Min | CU | | | | |
| | Max | 0,125 | | | | |

AISI 410
X12CR13 NF EN10088-3 1.4006

23 MAR. 2004

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign .....

(3) L = Long Laengs - Long / T = Travers Quer-Transverse — 58

(1) TE = Trempé A Team - Wasserhaerten - Waterquench; TH = Trempé à l'huile - Oelhaerten - Oil Quench; A = Hypertremp - Loesungsgeglueht - Solution annealed; R = Revenu - Anlassen - Tempered; RT = Recuit - Geglueht - Annealed; TRM = Recuit maxi - Weichgeglueht - Maxi annealed — 7

Usine, le 16-06-03
L'Agent Réceptionnaire de l'Usine
Der Werksabnahmebeauftragte
The Work Inspector

(4) A l'état de référence Zum Bezug Zustand At reference condition — 60A

(5) A l'état de livraison In Lieferzustand In state of deliver — 60B

Contrôles de marquage, d'aspect et de dimensions : satisfaisants
Bezeichnung, Beschaffenheit und Anmessung : ohne Beanstandung
Marking, inspection and measurement : without objection — 57

Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande
Wir bestaetigen hiermit dass die obengenannten Erzeugnisse den Bestellungsvorschriften entsprechen
We certify hereby that the above mentioned products are consistent with the order prescriptions — 64

63

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948

E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129


CERTIFICATO DI COLLAUDO
Inspection certificate 26738 N°6128/DCH DATE-16.11.04

CLIENTE- DOUGLAS CHERO Spa ORDINE-242000 BOLLA CONSEGNA N-3750
Customer Order Delivery note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| 1 | 6733 | VITI TE M 12 X 30,5 | B7 ASTN A 193/A 193M | AR4273 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Cr | Mo | S | P |
|---|---|---|---|---|---|---|---|---|
| REQUIRED VALUE | min. | 0.37 | 0.65 | 0.15 | 0.75 | 0.15 | | |
| | max. | 0.49 | 1.10 | 0.35 | 1.20 | 0.25 | 0.040 | 0.035 |
| HEAT n. AR4273 | | 0,44 | 0,77 | 0,26 | 1,06 | 0,23 | 0,005 | 0,007 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

| | Rm. | Rp.(0,2) | A4 | Z. | Hardness |
|---|---|---|---|---|---|
| REQUIRED | min. 860 MPa | min. 720 MPa | min. 16% | min. 50% | max 35 HRC |
| ACTUAL VALUE | 1032 | 945 | 17,5 | 53,5 | 32 |

HEAT TREATMENT
Quenched at : 860 °C in oil
Tempering : 2 hours at 593 °C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

QUALITY CONTROL

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

22 NOV. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Firma .....

MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

26800

# ISELFA

STEEL FORGINGS
ELECTRING FITTINGS

S.p.A. - C.F./P. IVA IT 00189520125
21048 SOLBIATE ARNO (Va) Italy - Corso Roma, 22
Casella Postale n. 57 - TELEFONO +39 0331 99 30 08
FAX FORGINGS +39 0331 99 15 35 - FAX FITTINGS +39 0331 99 46 77

ICIM

## CONTROLLO QUALITÀ

Certificato di conformità
Compliance certificate
Gemaess Zeugnis
UNI EN 10204/3.1.B

| N° | Data / Date |
|---|---|
| 17458 | 09.11.04 |

| | | | | | |
|---|---|---|---|---|---|
| CLIENTE / Customer / Kunda | DOUGLAS CHERO SPA | ORDINE N° / Order / Bestellung | 240696 | DATA / Date / Datum | 25.03.04 |
| RIMESSO N° / Delivery note / Lieferschein | 401803 | DATA / Date / Datum | 09-11-04 | N° PEZZI / Pieces / Stuckzahl. | 522 |

DESCRIZIONE - *Description - Dezeichnung*: CAPPELLI 1.1/2"-80088 Dis. N6/8

DISEGNO N° - *Drawing - Zeichnung*:

INDICE - *Last revision - Verzeichnis*:

| TIPO ACCIAIO / Steel type / Stahl | COLATA / Heat / Schmelze | FORNITORE / Supplier / Lieferant |
|---|---|---|
| ASTM-A.105 BILL.50 | 04J70222/60 | RIVA ACCIAIO SPA |

COMPOSIZIONE CHIMICA / *Chemical composition / Chemische Zusammensetzung*

CARATTERISTICHE ACCIAIO (FORNITE DALL'ACCIAIERIA)

| % | C | Mn | Si | Cr | Ni | Mo | V | P | S | Cu | Nb |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA min / *Requested* / *Erforderlikhe* max | 0,350 | 0,600 / 1,050 | 0,350 | 0,300 | 0,400 | 0,120 | 0,030 | 0,040 | 0,050 | 0,400 | 0,020 |
| FORNITA / *Supplied* / *Wirklche* | 0,1650 | 0,9000 | 0,1900 | 0,0900 | 0,0500 | 0,0100 | 0,0180 | 0,0130 | 0,0100 | 0,1800 | |

PROVA JOMINY / *Jominy test / Stimabschreckversuch*

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HRC | | | | | | | | | | | | |
| RICHIESTA min / *Requested* / *Erforderlikhe* max | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | GRANO / *Grain size* / *Korngrosse* |
| FORNITA / *Supplied* / *Wirkilche* | | | | | | | | | | | | 6 |

CARATTERISTICHE MECCANICHE / *Mechanical properties / Mechanische Eigenscheften* — Normalizzato ☐ Bonificato ☐

| Ø PROVETTA / *Ø sample* / *Ø probest* mm | RP 0,2% / *Yield strenght 0,2%* / *0,2% Grenze* N/mm² | R / *Tensile strenght* / *Zugfestigkeit* N/mm² | A5 % / *Elongation %* / *Dehnung %* Lo = 5d | Z % / *Reduc. of area %* / *Einschnurung %* | KCU / *Impact value* / *Kerbschlang* J (joule) |
|---|---|---|---|---|---|
| 10 | 314 | 506 | 33 | 57 | 48 / 0 / 0 |

CARATTERISTICHE PRODOTTO

| | | | | | |
|---|---|---|---|---|---|
| TRATT. TERMICO / *Heat Treatement* / *Warmebehandlung* | NORMALIZZAZIONE | DUREZZA RICHIESTA / *Requested hardness* / *Festigkeit* | N/mm² | | |
| DUREZZA RISCONTRATA N/mm² / *Checked hardness* / *Finden harte* | 0 / 0 | 0 / 0 | 0 / 0 | 0 / 0 | 0 / 0 / 0 / 0 / 0 / 0 / 0 / 0 |
| CONTROLLI / *Tests* / *Ausmabelast* | C.D.C. SI<br>MAGNAFLUX 100% NO<br>VISIVO 100% SI | DIMENSIONALE: POSITIVO<br>ALTRI: DOUGLAS CHERO Spa NO | | | |
| ALLEGATI / *Enclosed* / *Anlage* | ANALISI CHIMICA ACCIAIERIA SI<br>CERTIFICATO TRATT. TERMICO NO | PRODOTTO AUTOCERTIFICATO Quality Assurance ☐<br>12 NOV. 2004 P.C. SPEVANI VITTORIO<br>Sig. | | | |
| NOTE / *Remarks* / *Bemerkungen* | TRATT:RISCALDO A 850/925C PER 10MA OGNI 25MM DI SPESSORE E RAFFREDDAMENTO IN ARIA.<br>SIGLA DI COLATA:"AZ" | | | | |

CONTROLLO QUALITÀ / *QUALITY CONTROL* / *QUALITATSSTELLE*

ISELFA S.p.A. SOLBIATE ARNO (VA)

COMPILATORE

ISELFA S.p.A.
UFFICIO CONTROLLO QUALITA'
STAMPAGGIO

EMESSO ED ARCHIVIATO DAL RESPONSABILE DEL CONTROLLO FINALE (CFI)

UGITECH
Groupe Arcelor

FRANCE

5 Usine Productrice / Herstellar / Manufacturer
**UGINE**
F 73403 UGINE CEDEX
Tél : 04.79.89.30.30
Fax : 04.79.89.30.51

4 N. Nr No 80208

11 N. de commande usine-Werksbestellnummer-Works order number
FUGE TEJE 01/01 8Z101000 Q

3
# CERTIFICATO COLLAUDO DI ACCETTAZIONE B
# CERTIFICAT DE RECEPTION 3.1.B
# INSPECTION CERTIFICATE B

EN 10204 / 3.1.B

Produit / Erzeugnisform / Product
IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE 6

Client et/ou destinataire - Besteller und/oder Empfaenger - Purchaser and/or Consignee 9
TECNOMECCANICA SRL

N. de commande client - Kundenbestellnummer - Purchaser order number 10
364

Nuance et spécifications techniques - Stahlsorte und Pruefbedingungen - Quality and Specifications
IMA4006 410 AISI 410 UNS S41000
SPEC. SDA 09 DU 20/11/01 (SAUF MN)

Etat de livraison - Lieferzustand - As delivered (1) 12
TEMPRATO RINVENUTO 13

Traitement de Référence - Probestabbehandlung - Treatment of test samples (1) 14

| Identification du produit Erzeugnis Benennung-Product identification N. de cde usine Werksbestellnummer Works order number 15 | N. de poste Post Nr Item No 17 | N. de Coulée Schmelz Nr Heat No 16 | Nombre Stueckzahl Pieces Nbr 18 | Profil Profile Shape 19 | Dimension Ausmassung Dimension 20 | Longueur Laenge Length 21 | Masse Gewicht Weight 22 |
|---|---|---|---|---|---|---|---|
| 8Z101 000 | | 350031 | 190 | TONDO | 20,000 | | 1974 KG |

| Prélèvement Probenummer Test N. 39 B | Demandé Vorschrift Required [3] | Température d'essai Pruefteperatur Test Temperature 24 25 | Traction - Zugversuch - Tensile test: Limite d'Elasticité Streckgrenze Yield Strength 0,2 % 26 A | Limite d'Elasticité 1 % 26 B | Résistance à la traction Zugfestigkeit Tensile strength 27 | Allongement Bruchdehnung Elongation (Lo = 5do) 28 | Striction Einschnuerung Red of Area 29 | Dureté Haute Hardness (4) 30 | Type Form Type 31 | Résilience Kerbschlagzähigkeit Notch Toughness: Sens Lage Direction [3] 32 | Température d'essai Pruefteperatur Test Temperature 33 | Valeurs individuelles Einzelwerte Individual Values 35 | Moyenne Mittelwerte Average 36 | Dureté Haute Hardness [5] 37 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | L °C | MPA | MPA | MPA | % | % | | | | | | | HB |
| | Min | 20 | 275 | | 585 | 20 | 45 | | | | | | | |
| | Max | | | | | | | | | | | | | 237 |
| | [4] | | 607 | | 684 21 72 | | | | | | | | | |
| | [5] | | | | | | | | | | | | | 205 |

| N. de Prélèvement Probenummer Test N. 39 A | Demandé Vorschrift Required | Produit-Check Analyse Analysis | 42 C | 43 SI | 44 MN | 45 NI | 46 CR | 47 S | 48 P | 49 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Min | | | | 0,30 | | 11,50 | | | | |
| | Max | | 0,150 | 0,60 | 0,60 | | 13,50 | 0,030 | 0,040 | | |
| N. de Coulée Schmelz Nr Heat N. | | Analyse/Produit-Check analysis | | | | | | | | | |
| 350031 | | | 0,107 | 0,42 | 0,38 | 0,35 | 12,18 | 0,022 | 0,019 | | |

| 38 Mode d'élaboration Erschmelzungsart Melting process | Demandé Vorschrift Required | 51 | 52 | 53 | 54 | 55 |
|---|---|---|---|---|---|---|
| Electrique Elektrisch Electric | Min | | | | | |
| | Max | | | | | |

IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE

06 MAG. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....
56

(3) L = Long / Laengs - Long / T = Travers / Quer-Transverse 58

(1) TE = Trempé à l'eau - Wasserhaerten - Waterquench; TH = Trempé à l'huile - Oilhaerten - Oil Quench; A = Hypertrempé - Losungsgeglueht - Solution annealed; R = Revenu - Anlassen - Tempered; RT = Recuit - Geglueht - Annealed; TRM = Recuit maxi - Weichgeglueht - Maxi annealed 7

Usine, le 15-01-04
L'Agent Réceptionnaire de l'usine / Der Werksachverstaendige / The Work Inspector
H. Mayet 63

(4) A l'état de référence / Zum Bezug Zustand / As reference condition 60 A

(5) A l'état de livraison / In Lieferzustand / In state of delivery 60 B

Contrôles de marquage, d'aspect et de dimensions satisfaisants / Bezeichnung, Besichtigung und Ausmessung : ohne Beanstandung / Marking, inspection and measurement : without objection 62

Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande / Wir bestaetigen hiermit dass die obengenannten Erzeugnisse den Bestellungsvorschriften entsprechen / We certify hereby that the above mentioned products are consistant with the order prescriptions 66

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** / Customer: *Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt*

**Bestell-Nr.:** / Order no.: *Lurgi Job – No.: 69690-10*
*Lurgi OGC PO.-No.: 4567569-000 to -001/1.69690/136*

*Project Name :* *2nd Zagros Methanol Plant - Iran*

**Auftrag-Nr.:** / Job no.: *HH – 02535*

**Lieferumfang** / range:

| **Pos** | **Stck.** pcs. | **Gegenstand** object | **DN** | **PN** | **Werkstoff** material | **Bemerkung** comment |
|---|---|---|---|---|---|---|
| *00070* | *16* | *Gate valve FB BB SW* | *1.1/2"* | *Cl.800* | *ASTM A 105N* | *Valve Ident – No.: " S350 "* |

**Auslegung + Prüfung nach** / Design and tests acc. To: API 602 – BS EN ISO 15761, API 598 / BS EN 12266-1
ASME B16.34 – B16.25 – B16.11 – B1.20.1

**Sicht- und Funktionsprüfung:** / visual and functional test: *o.k.*

**Festigkeits-/Dichtheitsprüfung:** / strength-/tightness-test:

| | | | |
|---|---|---|---|
| *Festigkeit / shell test* | = | *211 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *156 bar Wasser / water* | (60 sec) |
| *Rückdichtung / backseat* | = | *156 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *6 bar Luft / air* | (60 sec) |

**Prüfungsergebnis:** / result: *ohne Beanstandung !* / *no complaint !*

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** / enclosure *Dokumentation gemäß Material-Dokumentationsdeckblatt* / *Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter W. Glass
Person in charge Walter Glass

**Kommissions-Nr. / Reference No.**

**HH-02535**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00070 | Gate Valve<br>1.1/2" Cl. 800 lbs.<br>FB, BB, SW | " S350 " | 16 | Body | Y-TH | ASTM A105N | Iselfa | 5970 | | 17005 |
| | | Drawing-No.: F210-7/SW | | Wedge | | A182/F6a C.2 | Ugitech | 409014 | | 95600 |
| | | | | Seat | | A182/F6a C.3 | Valbruna | 411642 | | 023387/2003 |
| | | | | Body Srew | | ASTM A193/B7 | Morandi | AR1982 | | 6137 |
| | | | | Bonnet | FB-TS | ASTM A105N | Feat | 03/76258 | | 2004/3001747 |
| | | | | Stem | | A182/F6a C.2 | Ugitech | 350031 | | 80208 |
| | | | | | | | | | | |
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402608100

# ISELFA

STEEL FORGINGS
ELECTRING FITTINGS

S.p.A. - C.F./P.IVA VAT IT 00189520125
21048 SOLBIATE ARNO (Va) Italy - Corso Roma, 22
P.O. BOX 21 - TELELEFONO +39 (0331) 99.30.08
FAX FORGINGS +39 (0331) 99.15.35 - FAX FITTINGS +39 (0331) 99.46.77

## CONTROLLO QUALITÀ

Certificato di conformità
Compliance certificate
Gemaess Zeugnis
UNI EN 10204/3.1.B

| N° | Data / Date |
|---|---|
| 17005 | 02.08.04 |

CLIENTE / Customer / Kunde: DOUGLAS CHERO SPA

ORDINE N° / Order / Bestellung: 240696

DATA / Date / Datum: 25.03.04

RIMESSO N° / Delivery note / Lieferschein: 401174

DATA / Date / Datum: 02-08-04

N° PEZZI / Pieces / Stuckzahl: 1.546

DESCRIZIONE - Description - Dezeichnung: CORPI

DISEGNO N° - Drawing - Zeichnung: Dis. 7/98

INDICE - Last revision - Verzeichnis: Rev.4

TIPO ACCIAIO / Steel type / Stahl: ASTM-A.105 BILL.100

COLATA / Heat / Schmelze: 5970/100

FORNITORE / Supplier / Lieferant: OLIFER-ACP SPA

### CARATTERISTICHE ACCIAIO (FORNITE DALL'ACCIAIERIA)

COMPOSIZIONE CHIMICA / Chemical composition / Chemische Zusammensetzung

| % | C | Mn | Si | Cr | Ni | Mo | V | P | S | Cu | Nb |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA min / Requested / Erforderikhe max | 0,350 | 0,600 / 1,050 | 0,350 | 0,300 | 0,400 | 0,120 | 0,030 | 0,040 | 0,050 | 0,400 | 0,020 |
| FORNITA / Supplied / Wirkliche | 0,1900 | 0,9200 | 0,2000 | 0,1100 | 0,1900 | 0,0500 | 0,0010 | 0,0070 | 0,0040 | 0,2500 | 0,001 |

PROVA JOMINY / Jominy test / Stimabschreckversuch

| HRC | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA min / Requested / Erforderikhe max | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | GRANO / Grain size / Korngrosse |
| FORNITA / Supplied / Wirkilche | | | | | | | | | | | | |

CARATTERISTICHE MECCANICHE / Mechanical properties / Mechanische Eigenschetten — Normalizzato ☐ Bonificato ☐

| Ø PROVETTA / Ø sample / Ø probest | RP 0,2% / Yield stranght 0,2% / 0,2% Grenze | R / Tensile stronght / Zugfestigkeit | Aζ % / Elongation % / Dehnung % | Z % / Reduc. of area % / Einschnurung % | KCU / Impact value / Kerbschlang |
|---|---|---|---|---|---|
| mm | N/mm² | N/mm² | Lo = ζd | | J (joule) |
| | 368 | 536 | 28 | 56 | 0 / 0 / 0 |

### CARATTERISTICHE PRODOTTO

| | | | | | |
|---|---|---|---|---|---|
| TRATT. TERMICO / Heat Treatement / Warmebahandlung | NORMALIZZAZIONE | DUREZZA RICHIESTA / Requested hardness / Fesligkeit | N/mm² | | |
| DUREZZA RISCONTRATA N/mm² / Checked hardness / Finden harte | 0 / 0 | 0 / 0 | 0 / 0 | 0 / 0 | 0 / 0 / 0 / 0 / 0 / 0 / 0 / 0 |

| | | | | |
|---|---|---|---|---|
| CONTROLLI / Tests / Ausmabetest | C.D.C. SI<br>MAGNAFLUX 100% NO<br>VISIVO 100% SI | DIMENSIONALE SI<br>ALTRI NO | POSITIVO | DOUGLAS CHERO Spa<br>Quality Assurance ..... |
| ALLEGATI / Enclosed / Anlage | ANALISI CHIMICA ACCIAIERIA SI<br>CERTIFICATO TRATT. TERMICO NO | PRODOTTO AUTOCERTIFICATO | | P.C. STEFANI VITTORIO ☐<br>Sign. ..... |

NOTE / Remarks / Bemerkungen:
TRATT: RISCALDO A 900C PER 1 ORA OGNI 25mm DI SPESSORE E RAFFREDDAMENTO IN ARIA CALMA.
SIGLA DI COLATA "TH"

CONTROLLO QUALITÀ / QUALITY CONTROL / QUALITATSSTELLE: ISELFA S.p.A. UFFICIO CONTROLLO QUALITA' STAMPAGGIO

COMPILATORE: ISELFA S.p.A. SOLBIATE ARNO (VA)

EMESSO ED ARCHIVIATO DAL RESPONSABILE DEL CONTROLLO FINALE (CFI)

**UGITECH**
Groupe Arcelor

**FRANCE**

5 Usine Productrice / Hersteller / Manufacturer
**UGINE**
F 73403 UGINE CEDEX
Tél : 04.79.89.30.30
Fax : 04.79.89.30.61

4 N. Nr No 95600

11 N. de commande usine-Werksbestellnummer-Works order number
FUGE TESF 01/01 1LS31000 I

3
# CERTIFICATO COLLAUDO DI ACCETTAZIONE B
# CERTIFICAT DE RECEPTION 3.1.B
# INSPECTION CERTIFICATE B

EN 10204 / 3.1.B

Produit / Erzeugnisform / Product: AISI 410 IMA BARRE LAMINATE PELATE RICOTTE TOL.K13 — 6

Client et/ou destinataire - Besteller und/oder Empfänger - Purchaser and/or Consignee: STAMPERIA DI MENZAGO SRL — 9

N. de commande client - Kundebestellnummer - Purchaser order number: 3145 — 10

Nuance et spécifications techniques - Stahlsorte und Prüfbedingungen - Quality and Specifications: IMA4006 REV.02 EDITION 02 — ASTM A182 F6A — 12

Etat de livraison - Lieferzustand - As delivered (1): RICOTTO — 13

Traitements de Référence - Probestreifenbehandlung - Treatment of test samples (1) — 14

| Identification du produit / Erzeugnis Benennung-Product identification<br>N. de cde usine / Werksbestellnummer / Post Nr / Works order number / Item No<br>15 17 | N. de poste / Schmelz Nr / Heat No<br>16 | Nombre / Stückzahl / Pieces Nbr<br>18 | Profil / Profile / Shape<br>19 | Dimension / Ausmessung / Dimension<br>20 | Longueur / Länge / Length<br>21 | Masse / Gewicht / Weight<br>22 |
|---|---|---|---|---|---|---|
| 1LS31 000 | 409014 | 76 | TONDO | 40,000 | | 4036 KG |

| N. de Prélèvement / Probenummer / Test N. | Demandé / Vorschrift / Required | Traction - Zugversuch - Tensile test: Température d'essai / Prüftemperatur / Test Temperature | Limite d'Elasticité / Streckgrenze / Yield Strength 0,2 % 28 A | Limite d'Elasticité / Streckgrenze / Yield Strength 1 % 28 B | Résistance à la traction / Zugfestigkeit / Tensile strength 27 | Allongement / Dehnung / Elongation (L0=5d) 28 | Striction / Einschnürung / Red of Area 29 | Dureté / Härte / Hardness (4) 30 | Type / Form / Type 31 | Résilience / Kerbschlagzähigkeit / Notch Toughness: Température d'essai / Prüftemperatur / Test Temperature 33 | Valeurs individuelles / Einzelwerte / Individual Values 35 | Moyenne / Mittelwerte / Average 36 | Dureté / Härte / Hardness (5) 37 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 B | [3] | 25 | | | | | | | | [3] 32 | | | |
| | L | °C | MPA | MPA | MPA | % | % | | | | | | |
| | Min | 20 | 380 | | 585 | 18 | 35 | | | | | | |
| | Max | | | | | | | | | | | | |
| | (4) | | | | | | | | | | | | |
| | (5) | | 510 | | 669 | 26 | 71 | | | | | | |

21 MAG. 2004
DOUGLAS CHERO Spa
Quality Assurance
P.C. STEFANI VITTORIO

| N. de Prélèvement / Probenummer / Test N. | Demandé / Vorschrift / Required | Analyse/Produit/Check Analysis | 42 C | 43 SI | 44 MN | 45 NI | 46 CR | 47 N | 48 S | 49 P | 50 CO |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 A | Min | | | | | | 11,50 | | | | |
| | Max | | 0,150 | 1,00 | 1,00 | 0,50 | 13,50 | | 0,030 | 0,040 | |
| N. de Coulée / Schmelz Nr / Heat N. | | | 0,105 | 0,46 | 0,37 | 0,33 | 12,13 | 0,056 | 0,023 | 0,017 | 0,019 |
| 409014 | | | | | | | | | | | |

| Mode d'élaboration / Erschmelzungsart / Melting process | Demandé / Vorschrift / Required | 51 | 52 | 53 | 54 | 55 |
|---|---|---|---|---|---|---|
| 38 | Min | | | | | |
| | Max | CU | | | | |
| Electrique / Elektrisch / Electric | | 0,143 | | | | |

AISI 410

AISI 410 IMA BARRE LAMINATE PELATE RICOTTE TOL.K13

S.r.l.
8/4/04

56

(3) L = Long / Langs / Long
T = Travers / Quer / Transverse — 58

(1) TE = Trempé à l'eau - Wasserhärten - Waterquench
TH = Trempé à l'huile - Ölhärten - Oil Quench
A = Hypertrempé - Lösungsglühen - Solution annealed
R = Revenu - Anlassen - Tempered
RT = Recuit - Glühen - Annealed
TRM = Recuit mixte - Weichglühen - Mixt annealed — 7

Ugine, le 06-04-04
L'Agent Réceptionnaire de l'usine / Der Werksachverständige / The Work Inspector
C. Bioteau — 63

(6) A l'état de référence / Zum Bezug Zustand / At reference condition — 60 A

(5) A l'état de livraison / In Lieferzustand / In state of delivery — 60 B

Contrôles de marquage, d'aspect et de dimensions: satisfaisants
Bezeichnung, Besichtigung und Ausmessung : ohne Beanstandung
Marking, inspection and measurement : without objection — 62

Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande
Wir bestätigen hiermit dass die obengenannten Erzeugnisse den Bestellungvorschriften entsprechen
We certify hereby that the above mentioned products are consistent with the order prescriptions — 66

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.

Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

## CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION
EN 10204 , 3.1.B

Cliente / Besteller/Purchaser/Client
ACC.VALBRUNA SPA-MAG.CORMANO
VIA BIZZOZZERO, 125
20032 - CORMANO (MI) - MI

Produttore: ACCIAIERIE VALBRUNA S.P.A.
Hersteller/Item/Usine productrice

Avviso di Spedizione: A-VI03014998
Lieferanzeige/Packing list/B.L.

Ordine nr:
Bestell/Your order/Commande

Certificato nr: MEST023387/2003/
Prüfung/Test/Essai

Conferma ordine nr: MI03003676
Werks/Our Order/Rel nr.

Oggetto Prove: Pelato Bonificato Secondo esecuzione
Prüfgegenstand/Item inspected/Finissage

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'elaboration

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice

Punzone del Collaudatore:
Stempel des Werksachverständigen
Inspector's stamp/Poinçon de l'essayeur

Specifiche:
Anforderungen / Requirements / Exigences

VALBRUNA 2002 410 HT (0)
ASTM A193 2001A B6 QT (0)
(0) Chemical analysis only and meca.properties(for ASTM A182(M))

AISI 410 (0)
ASTM A276 2000A S41000 T (0)

ASTM A182 2000C S41000 CLASS3 (0)
(0)

Qualità: 410
Werkstoff/Quality/Nuance

Marchio: AL1
Warenzeichnung/Brand/Nuance

Punzonatura: T.410
Kennzeichnung/Marking/Marquage

| Pos. nr. Pos. nr. Item nr. Nr. de poste | Oggetto Gegenstand Product description Descrip. du produit | Dimensioni - mm Abmessungen Dimension Dimension | Tolleranza Toleranz Allowance Tolerance | Lunghezza - mm Länge Length Longueur | Colata Schmelze Heat Coulée | Pezzi Stückzahl Pieces Pieces | Peso - KG Gewicht Weight Poids | Lotto nr. Losnr. Lot nr. Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0010 | Tondo | 48,000 | | 5000 / 5500 | 411642 | | ~~5000~~;0 | 20270360 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind fl. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel A été trouvé conforme aux exigences

Controllo antimescolanza: OK
Verwechslungsprüfung: spektralanalytisch durchgeführt
Antimixing testing performed: OK
Contrôle antimélange fait: r.a.s.

Controllo visivo e dimensionale: soddisfa le esigenze:
Sachlich prüfg und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks satisfactory
Contrôle visuel et dimension: satisfaisant

| TEST | Provetta/Probestab Specimen/Eprouvette Long.dim. Diam. Diam. Spess. Width Diam. Thickness Larg. diam. epaiss mm | °C | Posiz. Saggio Position Lage Emplacement | Snervamento Streck Yield Stress Limite elastique Rp 0,2% N/mm2 | Snervamento Streck Yield Stress Limite elastique | Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2 | Allungamento Bruchdehnung Elongation Allongement E % | | Strizione Einschnürung Reduction of area Striction RA % | | Resilienza Kerbschlagarbeit Impact Value Resilience °C | | | Durezza Härte Hardness Dureté HB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti Anforderungen/Required values Valeurs demandées | | min max | | 585 | - | 780 | - | 15 | 50 | - | - | | | 235 302 | | |
| A | 12,5 | 20 | L | 763 | | 875 | | 20 | 64 | | | | | 264 | | |

t) Lunghezza/Longitudinale/Longitudinal, C=trasversale/quer, T=Tangenziale/tangential

## Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata: Schmelze/Heat/Coulée | - min 0,150 max | - 1,00 | - 1,00 | 11,50 13,50 | - 0,50 | - 0,040 | - 0,030 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 411642 | 0,130 | 0,37 | 0,82 | 12,50 | 0,37 | 0,019 | 0,026 | | | | | | | | |

The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,2.,4.3 by TUEV and LLOYD'S

15 SET. 2003

DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.

COPIA CONFORME ALL' ORIGINALE
ACCIAIERIE VALBRUNA S.P.A.
FILIALE DI CORMANO

Vicenza, 22/05/03
Mod./VC0206

Il collaudatore di stabilimento
der Werksachverständige / the authorized inspector / l'agent d'usine
M. Rizzotto



231552/02

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948

E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129


CERTIFICATO DI COLLAUDO 26250
Inspection certificate

N°6137/DCH DATE-02.12.04

CLIENTE- DOUGLAS CHERO Spa ORDINE-831 BOLLA CONSEGNA N-3980
Customer Order Delivery-note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| 1 | 4000 | VITI TE. M 16 X 40 | B7 ASTM A 193/A 193M | AR1982 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Cr | Mo | S | P |
|---|---|---|---|---|---|---|---|---|
| REQUIRED VALUE | min. | 0.37 | 0.65 | 0.15 | 0.75 | 0.15 | | |
| | max. | 0.49 | 1.10 | 0.35 | 1.20 | 0.25 | 0.040 | 0.035 |
| HEAT n. AR1982 | | 0,405 | 0,76 | 0,28 | 0,98 | 0,22 | 0,007 | 0,007 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

| | Rm. | Rp.(0,2) | A4 | Z. | Hardness |
|---|---|---|---|---|---|
| REQUIRED | min. 860 MPa | min. 720 MPa | min. 16% | min. 50% | max 35 HRC |
| ACTUAL VALUE | 974 | 858 | 18,7 | 55,4 | 30 |

HEAT TREATMENT
Quenched at : 860 °C in oil
Tempering : 2 hours at 593 °C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

QUALITY CONTROL
MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

09 DIC. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

FEAT INDUSTRIALE
divisione della Feat Group S.p.A.
Feat Group S.p.A.
SEDE LEGALE:
I - 20122 MILANO (MI) - Viale Majno, 17
Capitale Sociale € 8.000.000,00 interamente versato
Codice fiscale, Partita IVA e numero di iscrizione Registro
delle Imprese di Milano: 08203080157
Codice identif. IVA CEE IT 08203080157 - R.E.A. Milano 1211374
UFFICI AMMINISTRATIVI:
I - 23842 BOSISIO PARINI (LC) - Via dei Livelli, snc
tel. 031 3581411 - fax 031 876176 - Cod. Mecc. MI240750
STABILIMENTO E UFFICI COMMERCIALI DELLA DIVISIONE:
I - 23801 CESANA BRIANZA (LC) - Via G. Parini, 30 e Via Ariosto, 1/3/5/7
tel. 031 6591 - Fax 031 660219 -http://www.featgroup.com

2510300

Certificato 2004/3001747
Data 18/03/2004
Pagina 1

DOUGLAS CHERO S.P.A.

LOCALITA' PRADAGLIE

29013 CARPANETO PIACENTINO PC

| Ordine cliente | Bolla | Fattura | Quantita' |
|---|---|---|---|
| O 232365 | 2004/000/0030559 | O 0030623 | 1.734,00 |

| Articolo Feat | Descrizione |
|---|---|
| 292011001021 | CAPP. GR. VS 2" 800 BB A105N<br>Dis. 7/8 REV.5 |

| Cod.Stamp./N.Col. | Tipo Materiale e Specifica |
|---|---|
| BTS | |

| Numero colata | Acciaieria | N.Cert.Acc. |
|---|---|---|
| 03/76258 | RIVA ACCIAIO S.P.A. | |

ANALISI CHIMICA

| Elem. | Al | C | Cr | Cu | Mn | Mo | Nb | Ni | P | S | Si | V | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Min | 0,015 | 0,180 | | | 0,600 | | | | | | | | | | |
| Max | 0,050 | 0,220 | 0,300 | 0,400 | 0,900 | 0,120 | 0,020 | 0,400 | 0,025 | 0,015 | 0,350 | 0,030 | | | |
| Colata | 0,021 | 0,190 | 0,120 | 0,250 | 0,800 | 0,020 | 0,000 | 0,080 | 0,019 | 0,015 | 0,210 | 0,016 | | | |
| C.An. | | | | | | | | | | | | | | | |

Carbonio Equivalente= 0,377

CARATTERISTICHE MECCANICHE

| Ordine | Laboratorio | N. | Descrizione | UM1 | Min | Max | Valore | UM2 | Valore |
|---|---|---|---|---|---|---|---|---|---|
| 172615 | | 01 | Snerv.Rp0,2% Amb T | N/mm2 | 250,000 | | 329,000 | PSI | 47705,000 |
| 172615 | | 01 | Rottura Amb T | N/mm2 | 485,000 | | 495,000 | PSI | 71775,000 |
| 172618 | | 01 | Allungam.A% T Amb | % | 22,000 | | 35,100 | | |
| 172618 | | 01 | Strizione Amb T | % | 30,000 | | 57,000 | | |
| | | 01 | Durezza HB | HB | 0,000 | 187,000 | 152,000 | | |

Trattamento Termico
NORMALIZZAZIONE:
I PARTICOLARI SONO STATI NORMALIZZATI ALLA TEMPERATURA DI 910 C.,
CON PERMANENZA A TALE VALORE DI 1 ORA PER OGNI 25 mm. DI SPESSORE
E RAFFREDDATI IN ARIA CALMA.-

Note
CERTIFICATO FEAT

23 MAR. 2004

DOUGLAS CHERO Spa

Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

Resp. Assicurazione Qualita'
EMANUELONI

FEAT INDUSTRIALE division of FEAT Group S.p.A. states that material hereby certified is in compliance with the quality and technical requirements as described in the customer's order, or FEAT order acknowledgement.

1 - The results of chemicals analysis is a true and correct copy of the mill certificate issued by the manufacturer of the steel employed or by the laboratory which has determined it.
2 - The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufacturing process inspection or storage.

UGITECH
Groupe Arcelor

FRANCE

4 N. Nr No 80208

11 N. de commande usine-Werksbestellnummer-Works order number FUGE TEJE 01/01 8Z101000 Q

3

# CERTIFICATO COLLAUDO DI ACCETTAZIONE B
# CERTIFICAT DE RECEPTION 3.1.B
# INSPECTION CERTIFICATE B

EN 10204 / 3.1.B

5 Usine Productrice Hersteller Manufacturer: **UGINE** F 73403 UGINE CEDEX Tél : 04.79.89.30.30 Fax : 04.79.89.30.51

Produit Erzeugnisform Product: IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE 6

Client et/ou destinataire - Besteller und/oder Empfaenger - Purchaser and/or Consignee 9: TECNOMECCANICA SRL

N. de commande client - Kundenbestellnummer - Purchaser order number 10: 364

Nuance et spécifications techniques - Stahlsorte und Pruefbedingungen - Quality and Specifications 12:
IMA4006 410 AISI 410 UNS S41000
SPEC. SDA 09 DU 20/11/01 (SAUF MN)

Etat de livraison - Lieferzustand - As delivered (1) 13: TEMPRATO RINVENUTO

Traitement de Référence - Probestabbehandlung - Treatment of test samples (1) 14:

| Identification du produit Erzeugnis Benennung-Product Identification N. de cde usine Werksbestellnummer Post Nr Works order number Item No 16 | N. de poste Pos Nr Item No 17 | N. de Coulée Schmelz Nr Heat No 16 | Nombre Stueckzahl Pieces Nbr 18 | Profil Profile Shape 19 | Dimension Ausmassung Dimension 20 | Longueur Laenge Length 21 | Masse Gewicht Weight 22 |
|---|---|---|---|---|---|---|---|
| 8Z101 000 | | 350031 | 190 | TONDO | 20,000 | | 1974 KG |

| Prélèvement Probenummer Test N. 39 B | Demandé Vorschrift Required (3) 24 | Direction Richtung Direction 24 | Température d'essai Pruefemperatur Test Temperature 25 | Traction - Zugversuch - Tensile test: Limite d'Elasticité Streckgrenze Yield Strength 0,2 % 26 A | Limite d'Elasticité Streckgrenze Yield Strength 1 % 26 B | Résistance à la traction Zugfestigkeit Tensile strength 27 | Allongement Verlaengerung Elongation (Lo=5d0) 28 | Striction Einschnuerung Red of Area 29 | Dureté Haerte Hardness (4) 30 | Type Form Type 31 | Résilience Kerbschlagzaehigkeit - Notch Toughness: Température d'essai Pruefemperatur Test Temperature 32 (3) | Valeurs individuelles Einzelwerte Individual Values 35 | Moyenne Mittelwerte Average 36 | Dureté Haerte Hardness (5) 37 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | L | °C | MPA | MPA | MPA | % | % | | | | | | HB |
| | Min | | 20 | 275 | | 585 | 20 | 45 | | | | | | |
| | Max | | | | | | | | | | | | | 237 |
| | (4) | | | | | | | | | | | | | |
| | (5) | | | 607 | | 684 | 21 | 72 | | | | | | 205 |

| N. de Prélèvement Probenummer Test N. 39 A | Demandé Vorschrift Required | Analyse/Produit-Check Analysis | 42 C | 43 SI | 44 MN | 45 NI | 46 CR | 47 S | 48 P | 49 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Min | | | | 0,30 | | 11,50 | | | | |
| | Max | | 0,150 | 0,60 | 0,60 | | 13,50 | 0,030 | 0,040 | | |
| N. de Coulée Schmelz Nr Heat N. | | | 0,107 | 0,42 | 0,38 | 0,35 | 12,18 | 0,022 | 0,019 | | |
| 350031 | | | | | | | | | | | |

| 38 Mode d'élaboration Erschmelzungsart Melting process | Demandé Vorschrift Required 51 | 52 | 53 | 54 | 55 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Electrique Elektrisch Electric | Min | | | | | | | | | |
| | Max | | | | | | | | | |

IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE

06 MAG. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

58

(3) L = Long Laengs - Long
T = Travers Quer-Transverse 59

(1) TE = Trempé à l'eau - Wasserhaerten - Waterquench
TH = Trempé à l'huile - Oelhaerten - Oil Quench
A = Hypertrempé - Losungsgegluht - Solution annealed
R = Revenu - Anlassen - Tempered
RT = Recuit - Geglueht - Annealed
TRM = Recuit maxi - Weichgegluht - Maxi annealed 7

Usine, le 15-01-04
L'Agent Réceptionnaire de l'usine
Der Werksachverstaendige
The Work Inspector
H. Mayet 83

(4) A l'état de référence Zum Bezug Zustand As reference condition 60 A

(5) A l'état de livraison In Lieferzustand In state of delivery 60 B

Controles de marquage, d'aspect et de dimensions satisfaisants
Bezeichnung, Besichtigung und Ausmassung : ohne Beanstandung
Marking, inspection and measurement : without objection 62

Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande
Wir bestaetigen hiermit dass die obengenannten Erzeugnisse den Bestellungvorschriften entsprechen
We certify hereby that the above mentioned products are consistent with the order prescriptions 68

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** / Customer: ***Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt***

**Bestell-Nr.:** / Order no.: ***Lurgi Job – No.: 69690-10***
***Lurgi OGC PO.-No.: 4567569-000 to -001/1.69690/136***

*Project Name :* ***2nd Zagros Methanol Plant - Iran***

**Auftrag-Nr.:** / Job no.: ***HH – 02535***

**Lieferumfang** / range:

| **Pos** | **Stck.** pcs. | **Gegenstand** object | **DN** | **PN** | **Werkstoff** material | **Bemerkung** comment |
|---|---|---|---|---|---|---|
| *00080* | *1* | *Gate valve*<br>*RB BB RF*<br>*Seats + Wedge Stell.* | *1"* | *Cl.600* | *ASTM A 105N* | *Valve Ident – No.: " S354 "* |

**Auslegung + Prüfung nach** / Design and tests acc. To: API 602 – BS EN ISO 15761, API 598 / BS EN 12266-1
ASME B16.34 – B16.25 – B16.11 – B1.20.1

**Sicht- und Funktionsprüfung:** / visual and functional test: *o.k.*

**Festigkeits-/Dichtheitsprüfung:** / strength-/tightness-test:

| | | | |
|---|---|---|---|
| *Festigkeit / shell test* | = | *156 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *114 bar Wasser / water* | (60 sec) |
| *Rückdichtung / backseat* | = | *114 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *6 bar Luft / air* | (60 sec) |

**Prüfungsergebnis:** / result: *ohne Beanstandung !*
*no complaint !*

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** / enclosure *Dokumentation gemäß Material-Dokumentationsdeckblatt*
*Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter W. Glass
Person in charge Walli GB

**Kommissions-Nr. / Reference No.**

**HH-02535**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Designation** | **Valve Ident - No.:** | **Pc.** | **Piece parts** | Heat-Code | **Material** | **Manufacturer** | **Heat No.** | **Sample No.** | **Cert. No.** |
| 00080 | Gate Valve | **" S354 "** | 1 | Body | R-M12 | ASTM A105N | Risetti | 04/77824 | | 240710 |
| | 1" Cl. 600 lbs. RB, BB, RF | Drawing-No.: R252-7/60 | | Wedge | | A182/F6a C.2 stel. | Valbruna | 414430 | | 122852/2004 |
| | seats+wedge stell. | | | Seat | | A182/F6a C.2 stel. | Valbruna | 238300 | | 127568/2004 |
| | | | | Body Srew | | ASTM A193/B7 | Morandi | AR4273 | | 6129 |
| | | | | Bonnet | FB-VN | ASTM A105N | Feat | 04/78765 | | 2004/3004411 |
| | | | | Stem | | A182/F6a C.2 | Valbruna | 237840 | | 105950/2004 |
| | | | | | | | | | | |
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| | | | | | | | | | | |

# FRATELLI RISETTI S.R.L.

21048 SOLBIATE ARNO (VA) - VIA TRIESTE, 4 - TELEFONO 0331/993.440-993.356 - STAB. VIA COLZANI, 41
TELEFONO 0331/994.088 - FAX 0331/992.247 - TELEGR. RISETTI - SOLBIATE ARNO - CASELLA POSTALE N. 15
REG. FOR F. S. 09037 - REG. IMPR. VARESE VA 026.21500 - ISCRIZIONE TRIBUNALE BUSTO A. 21500
COD. MECC. VA 010325 - PARTITA IVA IT 01773060122 - CODICE FISCALE 01773060122


SINCERT SISTEMA QUALITA' CERTIFICATO ISO 9001

OMOLOGATI TÜV SÜDWEST

02288000

## CERTIFICATO PROVE MATERIALI

TEST CERTIFICATE
WERKSABNAHMEZEUGNIS
CERTIFICAT D'EMPREUVES

ACCORDO DIN 50049 3.1/B
EN 10204 /91-3.1/B

N. 240710

Data - Date - Datum - Date: 05/07/04

| Ordine del Cliente - Customers - Bestellung - Commande du Client | Ns. Commessa - Mill order - Unsere Auftragsbestätigun Notre Configuration de Commande | Bolla di consegna - Delivery bill Lieferschein - Bulletin de livraison |
|---|---|---|
| N. 0 240886-22/04/04 DOUGLAS C. | › | › |

| POS. ITEM POST | Quantità Quantity Stückzahl Quantité | DESCRIZIONE SPEDIZIONE - DESCRIPTION OF DELIVERY - UMFANG DER LIEFERUNG - DETAILS DU LOT<br>Descrizione - Description<br>Beschreibung - Description | Disegno Drawing<br>Zeichnung - Dessin | Norma di collaudo - Test specification<br>Abnahmenorme - Specification | |
|---|---|---|---|---|---|
| 1 | 366 | CORPO STP.SBV.SABB. | 4/9F-60 | A105 | › |
| | › | › | › | › | › |
| | › | › | › | › | › |

ANALISI CHIMICA - CHEMICAL ANALYSIS - CHENISCHE ZUSAMMENSETZUNG - COMPOSITION CHIMIQUE

| Codice di identificazione impresso sui pezzi<br>Heat identification code stamped on forging pieces | Colata N<br>Heat No.<br>Schmelze Nr.<br>No. de Coulée | C<br>% | Si<br>% | Mn<br>% | Ni<br>% | Cr<br>% | S<br>% | P<br>% | Mo<br>% | Cu<br>% | Sn<br>% | Al<br>% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M12 | 04/77824 | 0,18<br>C.E. % | 0,22<br>F.B. % | 0,92<br>Ti % | 0,07<br>V % | 0,09 | 0,008 | 0,009 | 0,01 | 0,16 | 0,007 | › |
| › | › | › | › | › | › | › | › | › | › | › | | |
| › | › | | | | | | | | | | | |

PROPRIETÀ MECCANICHE - MECHANICAL PHOPERTIES - MECHANISCHE EIGENSCHAFTEN - ESSAIS MECANIQUES

| Colata N<br>Heat No.<br>Schmelze Nr.<br>No. de Coulée | Lega<br>Alloy<br>Legierung<br>Alliage | Provetta<br>Test bar<br>Probestab<br>Eprouvette | Rs (N/mm²)<br>Snervamento<br>Yeld Point<br>Streckgrenze<br>Limit d'élasticité | R (N/mm²)<br>Rottura<br>Tensile strenght<br>Zugfestigkeit<br>Rupture | A (%)<br>Allungamento<br>Elongation<br>Dehnung<br>Allongement | Z (%)<br>Contrazione<br>Red. of area<br>Einschnürung<br>Contraction | HB<br>Hardness on forging pieces | Resilienza - Resilience<br>Kerbschlagzähigkeit - Resil.<br>Charpy V - Notch<br>at mmus |
|---|---|---|---|---|---|---|---|---|
| 04/77824 | › | › | 311 | 503 | 33,4 | 58,2 | 149 | |
| › | › | › | | | | | | |
| › | › | › | | | | | | |
| › | › | › | | | | | | |
| › | › | › | | | | | | |

12 LUG. 2004
DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign. ...

| Trattamento Termico<br>Thermal Treatment<br>Thermische Behandlung<br>Traitement Thermique | NORMALIZZATO<br>› |
|---|---|

| JOMINY | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Norm. | mm | 1,5 | 3 | 5 | 7 | 9 | 11 | 13 | 15 |
| › | HRC | › | › | › | › | › | › | › | › |
| Teapra | mm | 20 | 25 | 30 | 35 | 40 | 45 | 50 | |
| › | HRC | › | › | › | › | › | › | › | |

› Metodo: ›

GRANO AUSTENTICO
austenite grain size check
ISO 643-UNI3245-ASTM E112

Final Control on forging pieces and found: ›
Sandblasting SA 2 1/2: ›
Marking on pieces: ›
Visual inspection: ›
Dimensional control: ›
Hardness test: ›

UFFICIO COLLAUDI - Inspection Department
Pruefungsabteil - Bureau d'inspection
F.lli RISETTI
Quality Assurance
Sign. ...

# Acciaierie Valbruna S.p.A.

36100-VICENZA (Italia) - Viale della scienza, 26 z.l.
Stab.: 36100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Besteller/Purchaser/Client
VERRI & PINA SRL
VIA TERRAROSSA, 10 - C.P. N.26
22036-CANZO (CO)-CO

Produttore: STABILIMENTO DI BOLZANO
Hersteller/Fabr/Usine produttrice

Oggetto Prove: - Ricotto lavorabile Pelato
Prüfgegenstand/Item inspected/Fabrique

Avviso di Spedizione: A-BZ04006068
Lieferanzeige/Packing list/B.L.

Ordine nr: 94-95-97-103
Bestell/Your order/Commande

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'elaboration

## CERTIFICATO DI COLLAUDO
## ABNAHMEPRUEFZEUGNIS
## INSPECTION CERTIFICATE
## CERTIFICAT DE RECEPTION
## EN 10204 , 3.1.B

Certificato nr: MEST122852/2004/
Prüfzeug/Test/Essai

Conferma ordine nr: MI04002883
Werks/Our Order/Ref nr.

Marchio di Fabbrica:
Zeichen des Herstellers/Trade mark/Sigle de l'usine productrice

Punzone del Collaudatore:
Stempel des Werksachverständigen/Inspector's stamp/Poinçon de l'essayeur

4422

Specifiche:
Anforderungen / Requirements / Exigences
ASTM A182 2000C S41000 CLASS2 (0)
(0) Chemical analysis only and mecc.properties(for ASTM A182[M])

Qualità: 410
Werkstoff/Grade/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Nuance

Punzonatura: 410
Kennzeichnung/Marking/Marquage

| Pos. nr. / Pos. nr. / Item nr. / Nr. de poste | Oggetto / Gegenstand / Product description / Descrip. du produit | Dimensioni - mm / Abmessungen / Dimension / Dimension | Tolleranza / Toleranz. / Allowance / Tolerance | Lunghezza - mm / Länge / Longueur | Colata / Schmelze / Heat / Coulée | Pezzi / Stückzahl / Pieces / Pièces | Peso - Gewicht / Weight / Poids | Lotto nr. / Losnr. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0050 | Tondo | 25,000 | | 5000 / 6500 | 414430 | | 3707,0 | 409202560 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind it. Anlage erfüllt
This order has been furnished in accordance with the requirements
Les produits ci-mis ensemble aux exigences

Controllo antimescolanza: OK
Verwechslungsprüfung spektralanalytisch durchgeführt
Antimixing testing performed: OK
Contrôle antimélange fait par s.p.a.

Controllo visivo e dimensionale: soddisfa le esigenze
Gleichmäßig und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks satisfactory
Contrôle visuel et dimensionnel satisfaisant

| TEST | Provetta/Probestab/Test piece/Eprouvette Long./Lunghezza/Length/Longueur mm | °C | Posiz. Saggio / Position / Emplacement | Snervamento / Streckgrenze / Yield strength / Limite d'allongt. Rp 0,2% N/mm2 | Snervamento / Streckgrenze / Yield strength / Limite d'allongt. | Resistenza / Zugfestigkeit / Tensile strength / Résistance à traction Rm N/mm2 | Allungamento / Bruchdehnung / Elongation / Allongement E 4d % | | Strizione / Einschnürung / Reduction of area / Réduction RA % | | Resilienza / Kerbschlagarbeit / Impact Value / Résilience | | | Durezza / Härte / Hardness / Dureté HB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 / Anforderungen/Requirements/Exigences / Valeurs demandées | | min / max | | 380 | - | 585 | - | 18 | - | 35 | - | | | 187 / 229 | | |
| A | 10,00 | 20 | L | 534 | | 688 | | 31 | | 70 | | | | 216 | | |

1)L=longitudinale/längs, Q=trasversale/quer, T=Tangenziale/tangential

## Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata / Heat / Schmelze/Coulée | min - max 0,15 | - 1,00 | - 1,00 | 11,50 - 13,50 | - 0,50 | - 0,040 | - 0,030 | - | - | - | - | - | - | - | - |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 414430 | 0,13 | 0,44 | 0,72 | 12,36 | 0,24 | 0,024 | 0,030 | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,3.4.3 by TUEV and LLOYD'S

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

| | | |
|---|---|---|
| Bolzano,15/07/04<br>Mod.IS8L006 | Il collaudatore di stabilimento / Der Werksachverständige / Works inspector / L'agent d'usine<br>R.Cristel | Pagina - 1 di 1 |

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Besteller/Purchaser/Client: NLOSS

Produttore: STABILIMENTO DI BOLZANO
Hersteller/Item/Usine produttrice

Oggetto Prova: - Ricotto lavorabile Pelato
Prüfgegenstand/Item inspected/Finissage

Avviso di Spedizione: A-BZ04000551
Lieferanzeige/Packing list/B.L.

Ordine nr: OD. 11.2.04
Bestell/Your order/Commande

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'élaboration

Certificato nr: MEST127568/2004/
Prüfung/Test/Essai

Conferma ordine nr: MI04001328
Werks/Our Order/Ref nr.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Specifiche:
Anforderungen / Requirements / Exigences

BELLEBONO 2004 410 HRC<22 A ASTM A182 2002 S41000 (0)
(0) Chemical analysis only.

Qualità: 410
Güte/Grade/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Nuance

Punzonatura: T.410
Kennzeichnung/Marking/Marquage

| Pos. nr. / Pos. nr. / Item nr. / Nr. de poste | Oggetto / Gegenstand / Product description / Designation du produit | Dimensioni - mm / Abmessungen / Dimension / Dimension | Tolleranza / Toleranz / Allowance / Tolérance | Lunghezza - mm / Länge / Length / Longueur | Colata / Schmelze / Heat / Coulée | Pezzi / Stückzahl / Pieces / Pièces | Peso - / Gewicht / Weight / Poids | Lotto nr. / Loser. Lot nr. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0100 | Tondo | 26,000 | K12-MIN | 3900 / 4000 | 238300 | | 2462,8 | 405400200 |

Sono stato soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind it. Beleg erfüllt
The material has been furnished in accordance with the requirements
Le materiel a été fourni conforme aux exigences

Controllo antimescolanza: OK
Vermischungsprüfung: stichprobenweise durchgeführt
Antimixing testing performed: OK
Contrôle antimélange fait c.s.s.

Controllo visivo e dimensionale: soddisfa le esigenze:
Sichtprüfung und Abmessungs ohne Beanstandung
Visual inspection and dimensional checks satisfactory
Contrôle visuel et dimensionnel satisfaisant

| TEST | Provetta/Probestab/Test piece/Eprouvette Lung./Länge/Length/Longueur mm | °C | Prova/Probe/Test/Essai | Snervamento / Streckgrenze / Yield Stress / Limite élastique Rp 0,2% N/mm2 | Snervamento / Streckgrenze / Yield Stress / Limite élastique | Resistenza / Zugfestigkeit / Tensile strength / Résistance à traction Rm N/mm2 | Allungamento / Bruchdehnung / Elongation / Allongement E 4d % | | Strizione / Einschnürung / Reduction of area / Striction RA % | | Resilienza / Kerbschlagarbeit / Impact Value / Résilience | | | Durezza / Härte / Hardness / Dureté HRc | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti / Anforderungswerte/Required values / Valeurs demandées | | min | | - | - | - | - | - | - | - | - | | | - | | |
| | | max | | | | | | | | | | | | 22,0 | | |
| A | 10.00 | 20 | L | 412 | | 684 | | 32 | | 68 | | | | 15,0 | | |

1)L=longitudinale/Längs, Q=trasversale/quer, T=Tangenziale/tangential

## Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata / Heat / Schmelze/Coulée | min - max 0,15 | - 1,00 | - 1,00 | 11,50 13,50 | - 0,50 | - 0,040 | - 0,030 | - | - | - | - | - | - | - | - | - |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | | |
| 238300 | 0,14 | 0,49 | 0,78 | 12,25 | 0,29 | 0,023 | 0,028 | | | | | | | | | |

Made in Italy No welding or weld repair Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,2,4.3 by TUEV and LLOYD'S

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

COPIA CONFORME ALL' ORIGINALE
ACCIAIERIE VALBRUNA S.P.A.
FILIALE DI CORMANO

| Bolzano,27/07/04 / Ann/RIEL011 | Il collaudatore di stabilimento / der Werkssachverständige / Works inspector / L'agent d'usine R.Cristel | Pagina - 1 di 1 |
|---|---|---|

241989 01

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948

E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129


CERTIFICATO DI COLLAUDO
Inspection certificate

26738

N°6128/DCH DATE-16.11.04

CLIENTE- DOUGLAS CHERO Spa
Customer

ORDINE-242000
Order

BOLLA CONSEGNA N-3750
Delivery note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| | | | B7 | |
| 1 | 6733 | VITI TE M 12 X 30,5 | ASTM A 193/A 193M | AR4273 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Cr | Mo | S | P |
|---|---|---|---|---|---|---|---|---|
| REQUIRED VALUE | min. | 0.37 | 0.65 | 0.15 | 0.75 | 0.15 | | |
| | max. | 0.49 | 1.10 | 0.35 | 1.20 | 0.25 | 0.040 | 0.035 |
| HEAT n. AR4273 | | 0,44 | 0,77 | 0,26 | 1,06 | 0,23 | 0,005 | 0,007 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

| | Rm. | Rp.(0,2) | A4 | Z. | Hardness |
|---|---|---|---|---|---|
| REQUIRED | min. 860 MPa | min. 720 MPa | min. 16% | min. 50% | max 35 HRC |
| ACTUAL VALUE | 1032 | 945 | 17,5 | 53,5 | 32 |

HEAT TREATMENT
Quenched at : 860 °C in oil
Tempering : 2 hours at 593 °C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

QUALITY CONTROL

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

22 NOV. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
R.C. STOYANE VITTORIO
Firma .....

MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

FEAT INDUSTRIALE
divisione della Feat Group S.p.A.
Feat Group S.p.A.
SEDE LEGALE:
I - 20122 MILANO (MI) - Viale Majno, 17
Capitale Sociale € 8.000.000,00.interamente versato
Codice fiscale, Partita IVA e numero di iscrizione Registro
delle Imprese di Milano: 08203090157
Codice identif. IVA CEE IT 08203090157 - R.E.A. Milano 1211374
UFFICI AMMINISTRATIVI:
I - 23842 BOSISIO PARINI (LC) - Via dei Livelli, snc
tel. 031 3561411 - fax 031 876176 - Cod. Mecc. MI240750
STABILIMENTO E UFFICI COMMERCIALI DELLA DIVISIONE:
I - 23861 CESANA BRIANZA (LC) - Via G. Parini, 30 e Via Ariosto, 1/3/5/7
tel. 031 6591 - Fax 031 659219 -http://www.featgroup.com

22C09006

Certificato 2004/3004411
Data 12/07/2004
Pagina 1

DOUGLAS CHERO S.P.A.

LOCALITA' PRADAGLIE

29013 CARPANETO PIACENTINO PC

| Ordine cliente | Bolla | Fattura | Quantita' |
|---|---|---|---|
| O 240066 | 2004/000/0031592 | O 0031747 | 173,00 |

| Articolo Feat | Descrizione |
|---|---|
| 292011001018 | CAPPELLO 4/8 |

| Cod.Stamp./N.Col. | Tipo Materiale e Specifica |
|---|---|
| BVN | A105/C22.8 ASTM A 105 + DIN 17243 Ultima Edizione |

| Numero colata | Acciaieria | N.Cert.Acc. |
|---|---|---|
| 04/78765 | **RIVA ACCIAIO S.P.A. | |

## ANALISI CHIMICA

| Elem. | Al | C | Cr | Cu | Mn | Mo | Nb | Ni | P | S | Si | V | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Min | 0,015 | 0,160 | | | 0,600 | | | | | | 0,150 | | | | |
| Max | ******* | 0,220 | 0,300 | 0,400 | 0,900 | 0,120 | 0,020 | 0,400 | 0,035 | 0,030 | 0,350 | 0,030 | | | |
| Colata | 0,024 | 0,190 | 0,120 | 0,170 | 0,700 | 0,020 | 0,002 | 0,100 | 0,012 | 0,005 | 0,230 | 0,003 | | | |
| C.An. | | | | | | | | | | | | | | | |

Carbonio Equivalente= 0,353

## CARATTERISTICHE MECCANICHE

| Ordine Laboratorio | N. | Descrizione | UM1 | Min | Max | Valore | UM2 | Valore |
|---|---|---|---|---|---|---|---|---|
| 175558 | 01 | Snerv.Rp0,2% Amb T | N/mm2 | 250,000 | | 359,000 | PSI | 52055,000 |
| 175558 | 01 | Rottura Amb T | N/mm2 | 485,000 | 540,000 | 500,000 | PSI | 72500,000 |
| 175558 | 01 | Allungam.A% T Amb | % | 22,000 | | 29,700 | | |
| 175558 | 01 | Strizione Amb T | % | 30,000 | | 56,000 | | |
| | 01 | Durezza HB | HB | 140,000 | 187,000 | 152,000 | | |

Trattamento Termico
NORMALIZZAZIONE:
I PARTICOLARI SONO STATI NORMALIZZATI ALLA TEMPERATURA
DI 910 C., CON PERMANENZA A TALE VALORE DI 1 ORA PER
OGNI 25mm. DI SPESSORE E RAFFREDDATI IN ARIA CALMA.-

Note
CERTIFICATO FEAT

16 LUG. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

Resp. Assicurazione Qualita'
E.MASCONI

FEAT INDUSTRIALE division of FEAT Group S.p.A. states that material hereby certified is in compliance with the quality and technical requirements as described in the customer's order, or FEAT order acknowledgement.

1 - The results of chemicals analysis is a true and correct copy of the mill certificate issued by the manufacturer of the steel employed or by the laboratory which has determined it.
2 - The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufacturing process inspection or storage.

EN 10204 : 3.2

# Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della Scienza 25 - P.I.

Stab.: 36100 BOLZANO (Italia) - Via Alessandro Volta, 4

Cliente / Kunde / Customer / Client

Avviso di Spedizione: A-MI04014062
Versandanzeige/Packing list/L...

Certificato nr: MEST105850/2004/
Prüfung/Test/Essai

Ordine nr: DEL 28.01.04
Bestell/Your order/Commande

Conferma ordine nr: MI04000714
Werks/Our Order/Ref nr.

Produttore: ACCIAIERIE VALBRUNA S.P.A.
Herstellerfabrik/Usine productrice

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice

Oggetto Prove: - Ricotto lavorabile Trafilato
Prüfgegenstand/Item inspected/Finissage

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'élaboration

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Specifiche:
Anforderungen / Requirements / Exigences

ASTM A182 2006C S41000 CLASS2 (0) 0 0
(0) Chemical analysis only and mecc.properties(for ASTM A182[M]) 0

Qualità: S41000
Werkst... stoff/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Nuance

Punzonatura:
Kennzeichnung/Marking/Marquage

| Pos. nr. / Pos. nr. / N. de poste | Oggetto / Gegenstand / Product description / Descrip. du produit | Dimensioni - mm / Abmessungen / Dimension / Dimension | Tolleranza / Toleranz / Allowance / Tolerance | Lunghezza - mm / Länge / Length / Longueur | Colata / Schmelze / Heat / Coulée | Pezzi / Stücke / Pieces / Pièces | Peso - KG / Gewicht / Weight / Poids | Lotto nr. / Losnr. / Lot nr. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0010 | Tondo | 14,000 | HS-MIN | 3900 / 4000 | 237840 | | ~~5985,0~~ Mol | 403302310 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind lt. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le material a été fourni conforme aux exigences

| TEST | Provetta/... mm | °C | Posiz. Saggio / ... | Snervamento Rp 0,2% N/mm2 | Snervamento | Resistenza Rm N/mm2 | Allungamento E 4d % | | Strizione RA % | | Resilienza | | Durezza HB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 | | min | | 380 | - | 585 | - | 18 | - | 35 | - | | 167 |
| | | max | | | | | | | | | | | 229 |
| A | 12.5 | 20 | L | 610 | | 698 | | 22 | | 68 | | | 215 |

1) L=Longitudinal/Länge, Q=Trasversale/Quer, T=Tangenziale/tangential

## Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata: Schmelze/Heat/Coulée | - min 0,15 max | - 1,00 | - 1,00 | 11,50 13,50 | - 0,50 | - 0,040 | - 0,030 | - | - | - | - | - | - | - | - |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 237840 | 0,14 | 0,36 | 0,70 | 12,55 | 0,27 | 0,017 | 0,024 | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,2,,4.3 by TUEV and LLOYD'S

COPIA ALL'ORIGINALE
ACCIAIERIE VALBRUNA S.P.A.

29 GIU. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign.: .....

Vicenza, 17/05/04
Mod./VCD312

Il collaudatore di stabilimento / der Werkssachverständige / Works inspector / L'agent d'usine
M. Rizzotto

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** ***Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt***
Customer:

**Bestell-Nr.:** ***Lurgi Job – No.:*** ***69690-10***
Order no.: ***Lurgi OGC PO.-No.:*** ***4567569-000 to -001/1.69690/136***

*Project Name :* ***2nd Zagros Methanol Plant - Iran***

**Auftrag-Nr.:** ***HH – 02535***
Job no.:

**Lieferumfang** / range:

| **Pos** | **Stck.** pcs. | **Gegenstand** object | **DN** | **PN** | **Werkstoff** material | **Bemerkung** comment |
|---|---|---|---|---|---|---|
| *00090* | *90* | *Gate valve*<br>*FB BB SW*<br>*Seats + Wedge Stell.* | *1/2"* | *Cl.800* | *ASTM A 105N* | *Valve Ident – No.: " S306 "* |

**Auslegung + Prüfung nach** API 602 – BS EN ISO 15761, API 598 / BS EN 12266-1
Design and tests acc. To ASME B16.34 – B16.25 – B16.11 – B1.20.1

**Sicht- und Funktionsprüfung:** *o.k.*
visual and functional test:

**Festigkeits-/Dichtheitsprüfung:**
strength-/tightness-test:

| | | | |
|---|---|---|---|
| *Festigkeit / shell test* | = | *211 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *156 bar Wasser / water* | (60 sec) |
| *Rückdichtung / backseat* | = | *156 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *6 bar Luft / air* | (60 sec) |

**Prüfungsergebnis:** *ohne Beanstandung !*
result: *no complaint !*

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** *Dokumentation gemäß Material-Dokumentationsdeckblatt*
enclosure *Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter / Person in charge W. Glass

**Kommissions-Nr. / Reference No.**

**HH-02535**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00090 | Gate Valve 1/2" Cl. 800 lbs. FB, BB, SW seats+wedge stell. | " S306 " | 90 | Body | E-XN | ASTM A105N | Evasi e Casteln. | 03/76016 | | 000112 |
| | | Drawing-No.: F210-7/SW | | Body | E-XX | ASTM A105N | Evasi e Casteln. | 1T11704 | | 000163 |
| | | | | Wedge | | A182/F6a C.2 stel. | Valbruna | 238209 | | 128331/2004 |
| | | | | Seat | | A182/F6a C.2 stel. | Valbruna | 236784 | | 05587/2003 |
| | | | | Body Srew | | ASTM A193/B7 | Morandi | AR4272 | | 6125 |
| | | | | Bonnet | SM-C | ASTM A105N | Menzago | 75341 | | 127A+127 |
| | | | | Stem | | A182/F6a C.2 | Valbruna | 415174 | | 156778/2004 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

# Evasi e Castelnuovo s.r.l.

Via Carlo Porta, 1 - 23861 CESANA BRIANZA (LC)
Tel. 031/65.59.36 - Fax 031/65.66.27
Cod. Fisc. e Part. IVA 00209790138
Reg.Soc. Trib. Lecco n. 5932 - C.C.I.A. 121373


Spett.
DOUGLAS CHERO SPA

LOC. PRADAGLIE
29013 CARPANETO PIACENTINO PC

***CERTIFICATO DI COLLAUDO/INSPECTION CERTIFICATE***
***UNI EN 10204 3.1 B***

***SISTEMA QUALITA' CERTIFICATO UNI EN ISO 9001/2000***
***QUALITY SYSTEM CERTIFIED UNI EN ISO 9001/2000***

| N. | DATA/DATE |
|---|---|
| 000112 | 31-03-2004 |
| D.D.T. / DELIVERY NOTE N. | DATA/DATE |
| | |

| COLATA /HEAT N. | MATERIALE/MATERIAL | ACCIAIERIA/STEEL PLANT | N.QUANTITY | DESCRIZIONE/DESCRIPTION |
|---|---|---|---|---|
| 76016 | A105 | RIVA | 6.730 | CORPI GR VS 3/4 800 BB 3/9 |

## ANALISI CHIMICA / CHEMICAL ANALYSIS

| C | Mn | Si | P | S | Cr | Ni | Mo | Ti | V | Cu | Al |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,180 | 0,930 | 0,190 | 0,013 | 0,009 | 0,120 | 0,080 | 0,010 | 0,015 | 0,015 | 0,230 | 0,022 |
| **Sn** | **Nb** | **N** | **Fe** | **W** | **Ta** | **Co** | **Ca** | **B** | **Sb** | | **CE** |
| 0,010 | 0,001 | | | | | | | | | | |

## PROVE MECCANICHE/MECHANICAL TESTS

| RS-YELD N./mm² | R-TENSILE N./mm² | A%-ELONG | Z%-REDUCT |
|---|---|---|---|
| 316,0 | 509,0 | 32,0 | 58,6 |

*IMPACT TEST - KV - J*

| TEST 1 | TEST 2 | TEST 3 | TEMP.°C |
|---|---|---|---|
| | | | |

| TRADE MARK | HEAT CODE | MATERIAL CODE | MATERIAL TYPE NR. | DWG |
|---|---|---|---|---|
| E.XN | | | | |

05 APR. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

*TRATTAMENTO TERMICO / HEAT TREATMENT*

| DESCRIPTION | HEATING °C | STAY TIME | COOLING | HARDNESS |
|---|---|---|---|---|
| NORMALIZZAZIONE | 900 | 2,3 | ARIA CALMA | |

1) The result of chemical analisys is a true and correct copy of the mill carificate issued,by the manufacturer of the steel employed, or by the Laboratory which has determined it.
*Il risultato delle analisi chimiche è la corretta trascrizione del cartificato di colata emesso dall'acciaieria o del laboratorio che li ha rilevati*

2) Visual and dimensional control satisfactory.
*Controlli visivi e dimensionali soddisfacenti.*

3) Results of test effected are in conformance with order's specifications.
*I risultati delle prove eseguite sono conformi alle specifiche richieste.*

4) We confirm that materials used for the manufacture of supplied products are in conformance with the Direcrive 97/23/CE (PED); in particular with annex 1 par. 4 "Materials".
*Confermiamo che i materiali usati per lo stampaggio dei prodotti forniti sono conformi alla Direttiva 97/53/CE (PED) e particolarmente all'allegato 1 paragrafo 4 "Materiali".*

| APPROVATO/APPROVED |
|---|
| COLLAUDATORE/INSPECTOR |
| EMESSO/ISSUED |

EVASI E CASTELNUOVO s.r.l.
STAMPERIA IN FERRO E ACCIAIO

# Evasi e Castelnuovo s.r.l.

Via Carlo Porta, 1 - 23861 CESANA BRIANZA (LC)
Tel. 031/65.59.36 - Fax 031/65.66.27
Cod. Fisc. e Part. IVA 00209790138
Reg.Soc. Trib. Lecco n. 5932 - C.C.I.A. 121373


Spett.
DOUGLAS CHERO SPA

LOC. PRADAGLIE
29013 CARPANETO PIACENTINO PC

***CERTIFICATO DI COLLAUDO/INSPECTION CERTIFICATE***
***UNI EN 10204 3.1 B***

***SISTEMA QUALITA' CERTIFICATO UNI EN ISO 9001/2000***
***QUALITY SYSTEM CERTIFIED UNI EN ISO 9001/2000***

| N. | DATA/DATE |
|---|---|
| **000163** | **10-05-2004** |

*D.D.T. / DELIVERY NOTE*

| N. | DATA/DATE |
|---|---|
| | |

| COLATA /HEAT N. | MATERIALE/MATERIAL | ACCIAIERIA/STEEL PLANT | N.QUANTITY | DESCRIZIONE/DESCRIPTION |
|---|---|---|---|---|
| AT 11704 | A105 | LEALI | 7.974 | CORPO GR.VS 3/4 800 BB 3/9 |

## ANALISI CHIMICA / CHEMICAL ANALYSIS

| C | Mn | Si | P | S | Cr | Ni | Mo | Ti | V | Cu | Al |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,200 | 0,900 | 0,270 | 0,010 | 0,007 | 0,080 | 0,180 | 0,030 | 0,002 | 0,001 | 0,140 | 0,025 |
| **Sn** | **Nb** | **N** | **Fe** | **W** | **Ta** | **Co** | **Ca** | **B** | **Sb** | | **CE** |
| 0,013 | 0,002 | | | | | | | | | | 0,390 |

## PROVE MECCANICHE/MECHANICAL TESTS

| RS-YELD N./mm² | R-TENSILE N./mm² | A%-ELONG | Z%-REDUCT |
|---|---|---|---|
| 350,0 | 526,0 | 29,0 | 56,0 |

*IMPACT TEST - KV - J*

| TEST 1 | TEST 2 | TEST 3 | TEMP.°C |
|---|---|---|---|
| | | | |

| TRADE MARK | HEAT CODE | MATERIAL CODE | MATERIAL TYPE NR. | DWG |
|---|---|---|---|---|
| E.XX | | | | |

14 MAG. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

*TRATTAMENTO TERMICO / HEAT TREATMENT*

| DESCRIPTION | HEATING °C | STAY TIME | COOLING | HARDNESS |
|---|---|---|---|---|
| NORMALIZZAZIONE | 900 | 2,3 | ARIA CALMA | |

1) The result of chemical analisys is a true and correct copy of the mill certificate issued,by the manufacturer of the steel employed, or by the laboratory which has determined it.
*Il risultato delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o del laboratorio che li ha rilevati*

2) Visual and dimensional control satisfactory.
*Controlli visivi e dimensionali soddisfacenti.*

3) Results of test effected are in conformance with order's specifications.
*I risultati delle prove eseguite sono conformi alle specifiche richieste.*

4) We confirm that materials used for the manufacture of supplied products are in conformance with the Directive 97/23/CE (PED); in particular with annex 1 par. 4 "Materials".
*Confermiamo che i materiali usati per lo stampaggio dei prodotti forniti sono conformi alla Direttiva 97/93/CE (PED) e particolarmente all'allegato 1 paragrafo 4 "Materiali".*

| APPROVATO/APPROVED |
|---|
| COLLAUDATORE/INSPECTOR |
| EMESSO/ISSUED |

EVASI E CASTELNUOVO s.r.l.
STAMPERIA IN FERRO E ACCIAIO

# Acciaierie Valbruna S.p.A.

4550

**CERTIFICATO DI COLLAUDO**
**ABNAHMEPRUEFZEUGNIS**
**INSPECTION CERTIFICATE**
**CERTIFICAT DE RECEPTION**
**EN 10204 , 3.1.B**

36100 VICENZA (Italia) - Viale della scienza, 25 z.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Kunde/Purchaser/Client
VERRI & PINA SRL
VIA TERRAROSSA, 10 - C.P. N.26
22035-CANZO (CO)-CO

Produttore: STABILIMENTO DI BOLZANO
Hersteller/Usine/Works producer

Avviso di Spedizione: A-BZ04006748
Lieferanzeige/Packing list/B.L.

Ordine nr: 94-65-97-103
Ihre/Your order/Commande

Certificato nr: MEST128331/2004/
Prüfung/Test/Essai

Conferma ordine nr: MI04002883
Werks/Our Order/Ref nr.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice

Oggetto Prove: Decapato Ricotto lavorabile Laminato
Prüfgegenstand/Item inspected/Fabrication

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'élaboration

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'expert

Specifiche:
Anforderungen / Requirements / Exigences
ASTM A182 2000C S41000 CLASS2 (0)
(0) Chemical analysis only and mecc.properties(for ASTM A182(M))

Qualità: 410
Werkstoff/Grade/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Nuance

Punzonatura: S.410
Kennzeichnung/Marking/Marquage

| Pos. nr. / Pos. nr. / Rest nr. / Nr. de poste | Oggetto / Gegenstand / Product description / Désignation du produit | Dimensioni - mm / Abmessungen / Dimension / Dimension | Tolleranza / Toleranz / Allowance / Tolérance | | Colata / Schmelze / Heat / Coulée | Pezzi / Stückzahl / Pieces / Pièces | Peso - Gewicht / Weight / Poids | Lotto nr. / Losnr. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0050 | Tondo | 20,000 | SATRAM | | 238209 | [illegible] | [illegible] | 409202530 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind il. Anlage erfüllt
The material has been halded in accordance with the requirements
Le matériel a été traité conformément aux exigences

Controllo antimascolanza: OK
Verbesserungsprüfung speziell angelassen durchgeführt
Antiveining testing performed OK
Contrôle antiretrait exigé fait o.k.

Controllo visivo e dimensionale: soddisfa le esigenze:
Sichtprüfung und Abmessungs ohne Beanstandung
Visual inspection and dimensional checks satisfactory
Contrôle visuel et dimensionnel satisfaisant

[illegible]

## Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata / Heat / Schmelze/Coulée | min - max 0.15 | 1.00 | 1.00 | 11.50 - 13.50 | 0.50 | 0.040 | 0.030 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 238209 | 0,14 | 0,53 | 0,76 | 12,64 | 0,47 | 0,024 | 0,029 | | | | | | | | |

Made in Italy — No welding or weld repair — Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pr — n Equipment Directive [97/23/EC] Annex 1,s.4.3 by TUEV and LLOYD

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

Bolzano, 27/08/04
Ort/Datum/Lieu

Il collaudatore di stabilimento / der Werkssachverständige / Works inspector / L'agent d'usine
R. Cristel

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.

Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Besteller/Purchaser/Client
ACC.VALBRUNA SPA-MAG.CORMANO
VIA BIZZOZZERO, 125
20032 - CORMANO (MI) - MI

Produttore: STABILIMENTO DI BOLZANO
Hersteller/Usine producer

Oggetto Prove: Secondo esecuzione Ricotto lavorabile Pelato
Prüfgegenstand/Item inspected/Finissage

Avviso di Spedizione: A-BZ03005496
Lieferanzeige/Packing list/B.L.

Ordine nr: TRASFERIMENTO DA BOLZANO
Bestell/Your order/Commande

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'assorbea

## CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION EN 10204 , 3.1.B

Ø20 FORK

Certificato nr: MEST055587/2003/
Prüfung/Test/Essai

Conferma ordine nr: MI03007175
Werks/Our Order/Ref nr.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de fusine productrice

Punzone del Collaudatore:
Stempel des Werksachverständigen
Inspector's stamp/Poinçon de l'assayeur

SC

Specifiche:
Anforderungen / Requirements / Exigences

VALBRUNA 2002 410 A ()
ASME (1) SA479 2001 S41000 A (1)
ASTM A479 2001 S41000 A ()
[illegible] PT.A 2001 EDITION
[illegible] PT.A 2001 EDITION
(2) chemical analysis only and meco.properties (for ASTM A182[M])

AISI 410 ()
ASTM A182 2000C S41000 CLASS2 (2)
EN 10088-3 95 1.4006 A ()

ASME (1) SA182 2001 S41000 CLASS2 (2)
ASTM A276 2000A S41000 A ()
EN 10272 2000 1.4006 A ()

Qualità: 410
Qualität/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Nuance

Punzonatura: 410
Kennzeichnung/Marking/Marquage

| Pos. nr. / Pos. nr. / Item nr. / Nr. de poste | Oggetto / Gegenstand / Product description / Descrip. de produit | Dimensioni - mm / Abmessungen / Dimension / Dimension | Tolleranza / Toleranz / Allowance / Tolerance | Lunghezza -mm / Länge / Length / Longueur | Colata / Schmelze / Heat / Coulée | Pezzi / Stückzahl / Pieces / Pieces | Peso - KG / Gewicht / Weight / Poids | Lotto nr. / Losnr. / Lot nr. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0020 | Tondo | 20,000 | K12-MIN | 5000 / 5500 | 236784 | | ~~7521,0~~ 1007 | 310700680 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind lt. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le matériel a été trouvé conforme aux exigences

Controllo antimescolanza: OK
Verwechslungsprüfung: spektralanalytisch durchgeführt
Antimixing testing performed: OK
Contrôle antimélange fait: r.a.s.

Controllo visivo e dimensionale: soddisfa le esigenze:
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional check: satisfactory
Contrôle visuel et dimensions: satisfaisant

| TEST | Provetta/Prüfstab/Test piece/Eprouvette mm | °C | Posiz. Saggio / Probenlage / Location / Position | Snervamento / Streckgrenze / Yield Stress / Limite elastique Rp 0,2% N/mm2 | Snervamento / Streckgrenze / Yield Stress / Limite elastique | Resistenza / Zugfestigkeit / Tensile strength / Resistance à traction Rm N/mm2 | Allungamento / Bruchdehnung / Elongation / Allongement A5 % | Allungamento E 2" % | Strizione / Einschnürung / Reduction of area / Striction Z % | Strizione RA % | Resilienza / Kerbschlagarbeit / Impact Value / Resilience °C | Durezza / Härte / Hardness / Dureté HB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 / Anforderungswerte/Required values/Valeurs demandées | | min | | 380 | - | 585 | - | 20 | - | 45 | - | 167 |
| | | max | | | | 730 | | | | | | 220 |
| | 10.00 | 20 | L | 490 | | 670 | 29 | 33 | 69 | 69 | | 190 |

1) L=Längsrichtung/Longs., Q=Querversuch/Lateral, T=Tangential/Tangential

## Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata: / Schmelze/Heat/ Coulée | 0,060 min 0,150 max | - 1,00 | - 1,00 | 11,50 13,50 | - 0,50 | - 0,040 | - 0,030 | - | - | - | - | - | - | - | - |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 236784 | 0,141 | 0,37 | 0,72 | 12,37 | 0,34 | 0,020 | 0,030 | | | | | | | | |

The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,s.,4.3 by TUEV and LLOYD'S

29 LUG. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

COPIA CONFORME ALL' ORIGINALE
ACCIAIERIE VALBRUNA S.P.A.
FILIALE DI CORMANO

Bolzano,23/10/03
Mod./BBL006

*Il collaudatore di stabilimento*
per Werksachverständiger/Works inspector/Agent d'usine
S.Poin



2326/1/01

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948
E-mail: mecomorandi@libero.it Codice Fiscale e Partita IVA 01779110129


CERTIFICATO DI COLLAUDO 26729
Inspection certificate N°6125/DCH DATE-09.11.04

CLIENTE- DOUGLAS CHERO Spa ORDINE-760 BOLLA CONSEGNA N-3659
Customer Order Delivery note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| 1 | 44000+56038 | VITI TE. M 10 X 28 | B7 ASTM A 193/A 193M | AR4272 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Cr | Mo | S | P |
|---|---|---|---|---|---|---|---|---|
| REQUIRED VALUE | min. | 0.37 | 0.65 | 0.15 | 0.75 | 0.15 | | |
| | max. | 0.49 | 1.10 | 0.35 | 1.20 | 0.25 | 0.040 | 0.035 |
| HEAT n. AR4272 | | 0,44 | 0,79 | 0,27 | 1,09 | 0,22 | 0,002 | 0,007 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

| | Rm. min. 860 MPa | Rp.(0,2) min. 720 MPa | A4 min. 16% | Z. min. 50% | Hardness max 35 HRC |
|---|---|---|---|---|---|
| REQUIRED | | | | | |
| ACTUAL VALUE | 1018 | 922 | 17,5 | 54,5 | 31 |

HEAT TREATMENT
Quenched at : 860 °C in oil
Tempering : 2 hours at 593 °C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

QUALITY CONTROL
MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

15 NOV. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sig. .....

2512306

STAMPERIA DI MENZAGO s.r.l.
STAMPAGGIO A CALDO DELL' ACCIAIO
via della concordia, 39
tel. 0331-909194/fax 908511
21040 MENZAGO DI SUMIRAGO/VA/ITALY

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV
ISO 9002

# CERTIFICATO DI ANALISI CHIMICA E CARATTERISTICHE MECCANICHE
*CERTIFICATE OF CHEMICAL COMPOSITION AND MECHANICAL PROPERTIES*

Pag. di

| | | | |
|---|---|---|---|
| N°/*NR.* | 127A | ORDINE/*ORDER* | 232643 DEL 17/12/2003 |
| DATA/*DATE* | 27/02/04 | RIMESSO/*RIESSUSE* | 243 DEL 27/02/04 |
| CLIENTE/*CUSTOMER* | | DESCRIZIONE/*DESCRIPTION* | COPERCHIO 2/8 |
| | | MATERIALE/*MATERIAL* | ASTM A105 |
| DOUGLAS CHERO S.p.A. | | COLATA/*HEAT* | 75341 |
| | | MARCATURA/*MARKING* | A105N S M C |

## ANALISI CHIMICA/*CHEMICAL COMPOSITION*

| | C% | Mn% | Si% | P% | S% | Cr% | Ni% | Mo% | Cu% | V% | Nb% | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MIN | 0,00 | 0,60 | 0,10 | 0,000 | 0,000 | 0,00 | 0,000 | 0,00 | 0,00 | 0,00 | 0,00 | | | | |
| MAX | 0,35 | 1,05 | 0,35 | 0,035 | 0,040 | 0,30 | 0,40 | 0,12 | 0,40 | 0,05 | 0,02 | | | | |
| ANALISI COLATA *HEAT COMPOSITION* | 0,20 | 0,92 | 0,23 | 0,011 | 0,004 | 0,08 | 0,05 | 0,01 | 0,18 | 0,025 | 0,001 | | | | |

## CARATTERISTICHE MECCANICHE/*MECHANICAL PROPERTIES*

| DESCRIZIONE/*DESCRIPTION* | U.M./*M.U.* | MIN. | MAX | VALORE/*VALUE* | |
|---|---|---|---|---|---|
| SNERVAMENTO/*YIELD STRENGHT* 0,2% | N/mm2 | 250 | | 322 | |
| ROTTURA/*TENSILE STRENGHT* | N/mm2 | 485 | | 519 | |
| ALLUNGAMENTO/*ELONGATION* | % | 22 | | 32,2 | |
| STRIZIONE/*REDUCT OF AREA* | % | 30 | | 56,4 | |
| DUREZZA/*HARDNESS* | HB | | 187 | 148 - 151 - 147 | |
| | | | | | |

TRATTAMENTO TERMICO/*HEAT TREATMENT*

NORMALIZZATO A 900°C

NOTE/*NOTES*
3.1.B Certificate according to EN 10204

02 MAR. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

STAMPERIA DI MENZAGO s.r.l.
CONTROLLO QUALITA'
*QUALITY CONTROL*
.....

STAMPERIA di MENZAGO S.r.L.
.....

STAMPERIA DI MENZAGO s.r.l.
STAMPAGGIO A CALDO DELL'ACCIAIO
via della cerasella 29 / tel. 0331.909.184 / fax 908.531
21040 MENZAGO DI SUMIRAGO / va / Italy

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV ISO 9002

# CERTIFICATO DI CONFORMITA'
*CONFORMITY CERTIFICATE*

N° 127

pag. / page 1 di / of 1

CLIENTE / *CUSTOMER*: DOUGLAS CHERO S.p.A.

NOME DEL PRODOTTO / *NAME OF THE PRODUCT*: CAPPELLO

DISEGNO / *DRAWING*: N° 2/8

Indice ultima modifica / *Index of last modification*: 5 Data / *Date*:

RIFERIMENTO ALL'ORDINE / *ORDER*: N° 232643 Del/Dated 17/12/2003

ALLEGATO AL RIMESSO / *ENCLOSED TO THE DOCUMENT OF THE TRANSPORT*: N° 249 Del/Dated 27/02/04

FABBRICATO CON ATTREZZATURA / *MANUFACTURED WITH EQUIPMENT*: PROVVISORIA / *PROVISIONAL* ☐ DEFINITIVA / *DEFINITIVE* ■

TIPO DI CONSEGNA / *TYPE OF DELIVERY*: CALCO IN PIOMBO / *MODEL IN LEAD* ☐ CAMPIONATURA / *SAMPLES* ☐ LOTTO / *PARCEL* ■

QUANTITA' / *QUANTITY*: 20.680

CAUSALE DEL CERTIFICATO / *REASON OF THE CERTIFICATE*: PRODOTTO NUOVO / *NEW PRODUCT* ☐ ATTREZZATURA NUOVA / *NEW EQUIPMENT* ☐ VERIFICA SISTEMATICA / *SYSTEMATICAL VERIFICATION* ■

## CERTIFICAZIONE DELLA QUALITA' DEL PRODOTTO / *CERTIFICATION OF THE QUALITY OF THE PRODUCT*

| N° Ref. | QUOTE CONTROLLATE / *CHECKED QUOTES* | VALORI PRESCRITTI / *PRESCRIBED VALUES* | Strumenti di Misura Utilizzati / *Equipment used for measure* | LIMITI MIN E MAX RILEVATI | | VALORI OTTENUTI SUI SINGOLI PEZZI CONTROLLATI / *VALUES OBTAINED ON THE THE INDIVIDUAL CHECKED PIECES* | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1 | 2 | 3 | 4 | 5 |
| | SPESSORE | 14 +0,8 -0,4 | 26 | 14 | 14,2 | 14 | 14,1 | 14,1 | 14,2 | 14,1 |
| | SPESSORE | 59 +0,8 | 26 | 60 | 60,3 | 60 | 60,1 | 60,3 | 60,3 | 60,2 |
| | DIAMETRO | 30 +0,8 | 26 | 30 | 30,3 | 30 | 30 | 30,3 | 30,2 | 30,1 |
| | DIAMETRO | 29 +0,5 | 26 | 29,1 | 29,3 | 29,1 | 29,2 | 29,3 | 29,2 | 29,1 |
| | LARGHEZZA | 62 + -0,5 | 26 | 62,5 | 62,6 | 62,5 | 62,5 | 62,6 | 62,6 | 62,6 |
| | LARGHEZZA | 8 +0,9 -0,5 | 26 | 8,5 | 8,6 | 8,5 | 8,6 | 8,6 | 8,6 | 8,5 |
| | LARGHEZZA | 50 +1,1 -0,5 | 26 | 50,6 | 50,9 | 50,7 | 50,9 | 50,6 | 50,8 | 50,8 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

| ACCIAIO UTILIZZATO / *UTILIZED STEEL* | COLATA / *CASTING* | MARCATURA / *MARKING* | TRATTAMENTO ESEGUITO / *TREATMENT MADE* | VALORI RILEVATI / *FOUNDED VALUES* |
|---|---|---|---|---|
| ASTM A105 | 75341 | A105N S M C | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

DUROMETRO UTILIZZATO / *UTILIZED DUROMETER*: A200 ☐ HPO3000 ☐

RELAZIONI DI PROVE ALLEGATE / *RELATIONS OF ENCLOSED RESULTS*

CERTIFICATO ACCIAIERIA / *STEELWORKS CERTIFICATE* ■
BOLLETTINO TRATTAMENTO TERMICO / *HEAT TREATMENT CERTIFICATE* ☐
CERTIFICATO 3.1.B / *3.1.B CERTIFICATE* ☐
..... ☐

02 MAR. 2004
DOUGLAS CHERO Spa

NOTE / *REMARKS*:

Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

IL TRATTAMENTO TERMICO DI BONIFICA E' STATO ESEGUITO SECONDO SPECIFICHE DOUGLAS CHERO S.p.A.

DICHIARAZIONE DI CONFORMITA' DEL PRODOTTO / *DECLARATION OF CONFORMITY OF THE PRODUCT*

LA CONFORMITA' DELLA FORNITURA ALLE PRESCRIZIONI CONTENUTE NEI DISEGNI, CAPITOLATI, NORME, TABELLE, ED EVENTUALE CAMPIONE DEPOSITATO, E' ASSICURATA DA SISTEMATICI CONTROLLI A CUI IL PRODOTTO VIENE SOTTOPOSTO.
*THE CONFORMITY OF THE SUPPLY TO THE PRESCRIPTIONS IN THE DRAWINGS, CONTRACTS, NORMS, TABLES AND POSSIBLE DEPOSITED SAMPLE, IS ASSURED FROM SYSTEMATICAL INSPECTIONS WHICH THE PRODUCT IS SUBOARDINATE.*

| DATA / *DATE* | COMPILATO DA / *FILLED IN FROM* | C.Q. / *QUALITY CONTROL* | STAMPERIA DI MENZAGO S.r.l. |
|---|---|---|---|
| 27/02/04 | ..... | ..... | ..... |

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Kunde/Purchaser/Client
TECNOMECCANICA SRL
VIA CRETA 8
25033-COLOGNE (BS)-BS

Produttore: STABILIMENTO DI BOLZANO
Hersteller/Item/Usine productrice

Avviso di Spedizione: A-BS04002225
Lieferanzeige/Packing list/B.L.

Ordine nr: 468
Bestell/Your order/Commande

## ATTESTATO DI CONTROLLO
## WERKSZEUGNIS
## TEST REPORT
## RELEVE DE CONTROLE
## EN 10204 , 2.2

Certificato nr: MEST156778/2004/
Prüfung/Test/Essai

Conferma ordine nr: BS04002055
Werks/Our Order/Ref nr.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de fusine productrice

Oggetto Prova: Ricotto lavorabile Trafilato
Prüfgegenstand/Item inspected/Finissage

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'elaboration

Punzone del Collaudatore:
Stempel des Werksachverständigen
Inspector's stamp/Poinçon de l'assayeur

Specifiche:
Anforderungen / Requirements / Exigences
ASTM A182 2002 S41000 CLASS2 (0)
(0) Chemical analysis only and mecc.properties(for ASTM A182[M])

Qualità: S41000
Werkstoff/Grade/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Nuance

Punzonatura:
Kennzeichnung/Marking/Marquage

| Pos. nr. / Item nr. / Nr. da posto | Oggetto / Gegenstand / Product description / Descrip. du produit | Dimensioni - mm / Abmessungen / Dimension / Dimension | Tolleranza / Toleranz / Allowance / Tolerance | Lunghezza - mm / Länge / Length / Longueur | Colata / Schmelze / Heat / Coulée | Pezzi / Stückzahl / Pieces / Pièces | Peso - KG / Gewicht / Weight / Poids | Lotto nr. / Losnr. / Lot nr. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0010 | Tondo | 12,000 | H9-MIN | 4190 / 4240 | 415174 | | 985,0 | 423601360 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind lt. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à été livré conforme aux exigences

| TEST | Provetta/Probestab / Specimen/Eprouvette: Lung.Base Meas. Long. Base Dim. Dim. Base / Largh. Width / Spess. Thickness / Diam. Lung. diam. spess. mm | °C | Posiz. Saggio / Position / Location / Emplacement: L | Snervamento / Streckgrenze / Yield Stress / Limite élastique: Rp 0,2% N/mm2 | Snervamento / Streckgrenze / Yield Stress / Limite élastique | Resistenza / Zugfestigkeit / Tensile strength / Résistance à traction: Rm N/mm2 | Allungamento / Bruchdehnung / Elongation / Allongement: E 4d % | | Strizione / Einschnürung / Reduction of area / Striction: RA % | | Resilienza / Kerbschlagarbeit / Impact Value / Resilience | | | Durezza / Härte / Hardness / Dureté: HB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 / Anforderungen/Required values / Valeurs demandées | | min / max | | 380 | - | 585 | - | 18 | - | 35 | - | | | 167 / 229 | | |
| A | 12.00 | 20 | L | 548 | | 656 | | 21 | | 51 | | | | 200 | | |

1)L=Longitudinale/Längs, Q=Trasversale/quer, T=Tangenziale/tangential

## Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata / Heat / Schmelze/Coulée | min - max 0,15 | - 1,00 | - 1,00 | 11,50 - 13,50 | - 0,50 | - 0,040 | - 0,030 | - | - | - | - | - | - | - | - |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 415174 | 0,15 | 0,41 | 0,77 | 12,52 | 0,24 | 0,020 | 0,026 | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,s.,4.3 by TUEV and LLOYD'S

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign .....

| Bolzano,10/11/04 | Il collaudatore di stabilimento / der Werkssachverständige / Works inspector / L'agent d'usine | Pagina - 1 di 1 |
|---|---|---|
| Mod./BBL007 | R.Cristel | |

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** / Customer: *Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt*

**Bestell-Nr.:** / Order no.: *Lurgi Job – No.: 69690-10*
*Lurgi OGC PO.-No.: 4567569-000 to -001/1.69690/136*

*Project Name :* *2nd Zagros Methanol Plant - Iran*

**Auftrag-Nr.:** / Job no.: *HH – 02535*

**Lieferumfang** / range:

| Pos | Stck. pcs. | Gegenstand object | DN | PN | Werkstoff material | Bemerkung comment |
|---|---|---|---|---|---|---|
| 00100 | 5 | Gate valve<br>FB BB SW<br>Seats + Wedge Stell. | 1/2" | Cl.1500 | ASTM A 105N | Valve Ident – No.: " S306 " |

**Auslegung + Prüfung nach** / Design and tests acc. To: API 602 – BS EN ISO 15761, API 598 / BS EN 12266-1
ASME B16.34 – B16.25 – B16.11 – B1.20.1

**Sicht- und Funktionsprüfung:** / visual and functional test: *o.k.*

**Festigkeits-/Dichtheitsprüfung:** / strength-/tightness-test:

| | | | |
|---|---|---|---|
| *Festigkeit / shell test* | = | *388 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *285 bar Wasser / water* | (60 sec) |
| *Rückdichtung / backseat* | = | *285 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *6 bar Luft / air* | (60 sec) |

**Prüfungsergebnis:** / result: *ohne Beanstandung !* / *no complaint !*

i.A. Walter Glass

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** / enclosure *Dokumentation gemäß Material-Dokumentationsdeckblatt* / *Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter W. Glass
Person in charge Walter Glass

**Kommissions-Nr. / Reference No.**

**HH-02535**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00100 | Gate Valve 1/2" Cl. 1500 lbs. FB, BB, SW seats+wedge stell. | " S306 " | 5 | Body | E-SR | ASTM A105N | Evasi e Casteln. | 76028 | | 000061 |
| | | Drawing-No.: BX652-7/SW | | Wedge | | A182/F6a C.2 stel. | Valbruna | 238209 | | 128331/2004 |
| | | | | Seat | | A182/F6a C.2 stel. | Valbruna | 231414 | | 5097/2000 C |
| | | | | Body Srew | | ASTM A193/B7 | Morandi | AR4273 | | 6129 |
| | | | | Bonnet | B-DHS | ASTM A105N | Bonomi | 1T8541 | | 040775 |
| | | | | Stem | | A182/F6a C.2 | Ugitech | 417024 | | 06902 |
| | | | | | | | | | | |
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# Evasi e Castelnuovo s.r.l.

Via Carlo Porta, 1 - 23861 CESANA BRIANZA (LC)
Tel. 031/65.59.36 - Fax 031/65.66.27
Cod. Fisc. e Part. IVA 00209790138
Reg.Soc. Trib. Lecco n. 5932 - C.C.I.A. 121373


Spett.
DOUGLAS CHERO SPA

LOC. PRADAGLIE
29013 CARPANETO PIACENTINO PC

***CERTIFICATO DI COLLAUDO / INSPECTION CERTIFICATE***

| N. | DATA/DATE |
|---|---|
| 000061 | 27-02-2001 |

*D.D.T. / DELIVERY NOTE*

| N. | DATA/DATE |
|---|---|
| | |

00190980C

| COLATA /HEAT N. | MATERIALE/MATERIAL | ACCIAIERIA/STEEL PLANT | N.QUANTITY | DESCRIZIONE/DESCRIPTION |
|---|---|---|---|---|
| 76028 | A105 | RIVA | 1.070 | CORPI GR VS 1" 800 BB |

## ANALISI CHIMICA / CHEMICAL ANALYSIS

| C | Mn | Si | P | S | Cr | Ni | Mo | Ti | V | Cu | Al |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,200 | 0,930 | 0,170 | 0,015 | 0,010 | 0,150 | 0,060 | 0,020 | 0,017 | 0,017 | 0,180 | 0,020 |
| **Sn** | **Nb** | **N** | **Fe** | **W** | **Ta** | **Co** | **Ca** | **B** | **Sb** | | **CE** |
| 0,012 | | | | | | | | | | | |

## PROVE MECCANICHE/MECHANICAL TESTS

| RS-YELD | R-TENSILE | A%-ELONG | C%-REDUCT |
|---|---|---|---|
| 323,0 | 521,0 | 32,0 | 56,0 |

*TESTS*

| TEST 1 | TEST 2 | TEST 3 | TEMPERAT. |
|---|---|---|---|
| | | | |

| TRADE MARK | HEAT CODE | MATERIAL CODE | MATERIAL TYPE NR. | DWG |
|---|---|---|---|---|
| E SR | | | | |

02 MAR. 2001
DOUGLAS CHERO Spa
Quality Assurance
P.C. STEFANI VITTORIO
Sign.

*TRATTAMENTO TERMICO / HEAT TREATMENT*

| DESCRIPTION | HEATING C. | STAY TIME | COOLING | HARDNESS |
|---|---|---|---|---|
| NORMALIZZAZIONE | 900 | 2,3 | ARIA CALMA | |

1) The result of chemical analisys is a true and correct copy of the mill cerificate issued,by the manufacturer of the steel employed, or by the laboratory which has determined it.

Il risultato delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o del laboratorio che li ha rilevati

2) The material of components shipped under the above order number did not come in direct contact with mercury or any its components; or with any mercury containing devices employing a single boundary of containment, during the manufacturing process inspection of storage.

Il materiale o i particolari spediti per questi ordini non sono mai venuti a contatto diretto con mercurio o con alimenti contenenti mercurio durante la fase di lavorazione, controllo o immagazzinamento.

According to UNI EN 10204 3.1B ☒
According to UNI EN 10204 2.2 ☐

| APPROVATO/APPROVED | |
|---|---|
| EMESSO/ISSUED | COLLAUDATORE/INSPECTOR |

EVASI E CASTELNUOVO s.r.l.
*STAMPERIA IN FERRO E ACCIAIO*
Via Carlo Porta, 1 - 23861 CESANA B.ZA (LC)
Tel. 031/65-59-36 - Fax 031/65.66 27
Cod. Fisc. e Part. IVA 00209790138

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Kunde/Purchaser
VERRI & PINA SRL
VIA TERRAROSSA, 10 - C.P. N.26
22035-CANZO (CO)-CO

Produttore: STABILIMENTO DI BOLZANO
Hersteller/Usine productrice

Oggetto Prova: Decapato Ricotto lavorabile Laminato
Prüfgegenstand/Item inspected/Fabricage

Avviso di Spedizione: A-BZ04006748
Lieferanzeige/Packing list/B.L.

Ordine nr: 94-85-97-103
Ihr Auf/Your order/Commande

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'elaboration

4550

**CERTIFICATO DI COLLAUDO**
**ABNAHMEPRUEFZEUGNIS**
**INSPECTION CERTIFICATE**
**CERTIFICAT DE RECEPTION**
**EN 10204 , 3.1.B**

Certificato nr: MEST128331/2004/
Prüfung/Test/Essai

Conferma ordine nr: MI04002683
Werks/Our Order/Ref nr.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice

Punzone del Collaudatore:
Stempel des Werksachverständigen
Inspector's stamp/Poinçon de l'essayeur

Specifiche:
Anforderungen / Requirements / Exigences
ASTM A182 2000C S41000 CLASS2 (0)
(0) Chemical analysis only and mecc.properties(for ASTM A182(M))

Qualità: 410
Werkstoff/Grade/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Marque

Punzonatura: S.410
Kennzeichnung/Marking/Marquage

| Pos. nr. / Pos. nr. / nam nr. / Nr. de poste | Oggetto / Gegenstand / Product description / Désignation du produit | Dimensioni - mm / Abmessungen / Dimension / Dimension | Tolleranza / Toleranz / Allowance / Tolérance | | Colata / Schmelze / Heat / Coulée | Pezzi / Stückzahl / Pieces / Pièces | Peso - / Gewicht / Weight / Poids | Lotto nr. / Losnr. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0010 | Tondo | 20,000 | | | 238209 | | 10863 | 409202530 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind lt. Anlage erfüllt
The material has been tested in accordance with the requirements
Le matériel a été trouvé conforme aux exigences

Controllo antimescolanza: OK
Verwechslungsprüfung: spezifizierungsgemäß durchgeführt
Antimixing testing performed: OK
Contrôle anticonfusion fait: O.K.

Controllo visivo e dimensionale: soddisfa le esigenze:
Sichtprüfung und Abmessungen ohne Beanstandung
Visual inspection and dimensional checks satisfactory
Contrôle visuel et dimensions: satisfaisant

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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1)Lungo/Longitudinale/Longit., C=Circonferenziale/Quer, T=Tangenziale/Tangential

## Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata / Heat / Schmelze/Coulée | min - max 0,15 | 1,00 | 1,00 | 11,50 - 13,50 | 0,60 | 0,040 | 0,030 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | | | |
| 238209 | 0,13 | 0,33 | 0,76 | 12,64 | 0,47 | 0,024 | 0,029 | | | | | | | | | | |

Made in Italy — No welding or weld repair — Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pr — e Eautoment Directive [97/23/EC] Annex 1,c,4.3 by TUEV and LLOYD

DOUGLAS CHERO Spa
Quality Assurance
P.C. STEFANI VITTORIO
Sign.

Bolzano,27/08/04
Ref/DBL01

Il collaudatore di stabilimento / der Werksachverständige / Works inspector / L'agent d'usine
R.Cristel

**Acciaierie Valbruna s.p.a.**
36100 Vicenza (Italia) - V.le della Scienza, 25

Telex 480090 VALVI I - Telegrammi: Acciaierie Valbruna - Fax: (0444) 963836
Telef.: (0444) 968211 (30 linee R.A.) - Casella postale 784 - C.C.I.A.A. 190689
Canc. Tribunale di Vicenza n. 19944 - Cod. Fisc. e Partita IVA 01863340244

**FILIALE DI CORMANO MI**

# ATTESTATO DI CONTROLLO / TEST REPORT
EN 10204, 2.2

N. 5097/2000-C

Bolla di consegna n. / delivery note: 00/0821 C

Conferma n. / confirmation: 00 K 9030

Cliente / purchaser: TECNOMECCANICA

Tipo / quality: VAL1A

Ordine n. / purchaser order:

Stato di fornitura / delivery condition: MOLATO RIC.LAV. CL.2

Profilo in mm. / size: TONDO 18.00

Peso Kg. / weight: 1067

| Analisi | | C | Si | Mn | Cr | Ni | P | S |
|---|---|---|---|---|---|---|---|---|
| Richiesta chemical requirem. | min | | | | 11.5 | | | |
| | max | 0.15 | 1.00 | 1.00 | 13.5 | 0.50 | 0.040 | 0.030 |
| Nr. Colata / heat nr. | | C | Si | Mn | Cr | Ni | P | S |
| 231414 | | 0.11 | 0.56 | 0.71 | 12.8 | 0.18 | 0.014 | 0.001 |

Specifiche applicabili: *ASTM A182,99,S41000

| Trattamento Termico del Saggio / sample heat treatment | °C | Normalizz. normaliz. | Ricottura annealing | Ricristallizz. annealing | Invecchiam. aging | Solubilizz. annealing | Tempra quenching | Mezzo medium | Rinvenimento tempering |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

| Caratt. Meccaniche Richieste / mechanical requirements | | Rm N/mm² | Rp0.2% N/mm² | E % | RA % | Lavoro assorbito impact value Joule KV | KCU | Durezza hardness HB | HRC |
|---|---|---|---|---|---|---|---|---|---|
| ☐ colata heat | min | 585 | 380 | 18 | 35 | | | 167 | |
| ☒ prodotto as-shipped | max | | | | | | | 229 | |

| Provetta / specimen Ø o x mm | Lo mm | Rm N/mm² | Rp0.2% N/mm² | E % | RA % | Joule KV | KCU | HB | HRC |
|---|---|---|---|---|---|---|---|---|---|
| 12.5 | 50 | 625 | 389 | 26 | 52 | | | 189 | |

08 MAR. 2001
DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.

Note / remarks: COPIA CONFORME ALL'ORIGINALE
VALBRUNA VICENZA S.P.A.
*Solo analisi chimica e caratteristiche meccaniche

Acciaio prodotto al forno elettrico ad arco + AOD.
Melting process : E+AOD

Vicenza, 20/10/2000

Resp. Controllo Qualità / Quality Control: M. RIZZOTTO

Il Collaudatore / Inspector:

cer-01 P

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948

E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129


CERTIFICATO DI COLLAUDO
Inspection certificate 26738 N°6128/DCH DATE-16.11.04

CLIENTE- DOUGLAS CHERO Spa ORDINE-242000 BOLLA CONSEGNA N-3750
Customer Order Delivery note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| 1 | 6733 | VITI TE M 12 X 30,5 | B7 ASTM A 193/A 193M | AR4273 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Cr | Mo | S | P |
|---|---|---|---|---|---|---|---|---|
| REQUIRED VALUE | min. | 0.37 | 0.65 | 0.15 | 0.75 | 0.15 | | |
| | max. | 0.49 | 1.10 | 0.35 | 1.20 | 0.25 | 0.040 | 0.035 |
| HEAT n. AR4273 | | 0,44 | 0,77 | 0,26 | 1,06 | 0,23 | 0,005 | 0,007 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

| | Rm. min. 860 MPa | Rp.(0,2) min. 720 MPa | A4 min. 16% | Z. min. 50% | Hardness max 35 HRC |
|---|---|---|---|---|---|
| REQUIRED | | | | | |
| ACTUAL VALUE | 1032 | 945 | 17,5 | 53,5 | 32 |

HEAT TREATMENT
Quenched at : 860 °C in oil
Tempering : 2 hours at 593 °C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

QUALITY CONTROL

22 NOV. 2004
DOUGLAS CHERO Spa
Quality Assurance
P.C. STEFANI VITTORIO

MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

**Bonomi s r l**
*STAMPAGGIO A CALDO DELL'ACCIAIO*

BVQI SINCERT
SISTEMA QUALITA' CERTIFICATO ISO 9001:2000
CERTIFICATO N°143467

23861 CESANA BRIANZA (LC)
Via Carlo Porta, 8
☎ 031/656798 🖷 031/657597
Partita I.V.A. 02418370132
R.I. Lecco N. 15934 R.E.A. Lecco N. 288235

26860

TEST CERTIFICATE N° 040775
CERTIFICATO DI COLLAUDO
3.1B-AS-TO- SECONDO
UNI EN 10204
DATA : 15/11/2004

*Spett.le Ditta*
*DOUGLAS CHERO Spa*
*Loc. Padaglie*
*29013 CARPANETO P.NO (Pc)*

Mod. 28/1

| CUSTOMER ORDER - ORDINE CLIENTE | P.O. | DOCUMENTO DI TRASPORTO | INVOICE-FATTURA |
|---|---|---|---|
| 240741 pos. 1 | | 288 del 04/11/2004 | |

| DESCRIPTION OF PARTICULAR - DESCRIZIONE DEL PARTICOLARE | TYPE AND MATERIAL SPECIFICATIONS-TIPO E SPECIFICA MATERIALE |
|---|---|
| BODY | ASTM A105N |

NUMERO COLATA / HEAT NUMBER: 1T8541
STELL MILL. ACCIAIERIA: LEALI
ST.M. CERT. N. / CERT. ACC. N.: HX 1497

CHEMICAL ANALYSIS - ANALISI CHIMICA

| C | Si | Mn | P | S | Cu | Cr | Ni | Mo | V |
|---|---|---|---|---|---|---|---|---|---|
| 0.190 | 0.270 | 0.830 | 0.009 | 0.010 | 0.170 | 0.070 | 0.120 | 0.010 | 0.001 |

| Al | Sn | Ti | Nb | C.E. |
|---|---|---|---|---|
| 0.025 | 0.13 | 0.002 | 0.002 | 0.360 |

| HEAT CODE ON FORGING - CODICE COLATA | DISEGNO DEL FORGIATO . | QUANTITY - QUANTITA' |
|---|---|---|
| BDHS | 4/8 | 9.500 |

MECHANICAL PROPERTIES - CARATTERISTICHE MECCANICHE

| YIELD STRENGTH P.S.I. SNERVAM. N/mm2 | TENS. STRENGTH P.S.I. ROTT. N/mm2 | ELONG 2" 50 ALLUNG % | RED OF AREA % CONTRAZ. | H.B. |
|---|---|---|---|---|
| 482 | 548 | 27,60 | 63,03 | 158<br>156<br>158 |

IMPACT VALUE -RESILIENZA

| TEMPERATURA DI PROVA ° C | RISULTATO DELLA PROVA JOULE | | | |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |

HEAT TREATMENT - TRATTAMENTO TERMICO
Normalizing

REMARKS

1) The result of chemical analisys is a true and correct copy of the mill certificate issued, by the manufacturer of the steel employed, or by the laboratory witch has determined it.
* I risultati delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati.
2) The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufactoring process inspection or storage.
** Il materiale o i particolari spediti per questi ordini non sono mai venuti a contatto diretto con mercurio o con elementi contenenti mercurio durante la fase di lavorazione, controllo o immagazzinamento.

I certify these tests to be correct as contained in the records of the company
certifico che tutti i dati sono corretti e uguali a quelli registrati presso Bonomi

19 NOV, 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

Q.A. OFFICE
UFFICIO QUALITA'
Bucca Rosalba

ISPESL Istituto Superiore Prevenzione e Sicurezza del Lavoro
FS Ferrovie dello Stato
RINa Registro Italiano Navale
Lloid's Register of Shipping
Istituto Italiano della Saldatura
BV Bureau Veritas
DNV Det Norske Veritas
MMI Marina Militare Italiana
TUV Technischen Uberwachungs Vereine

Rapporto prova **2004/1898/PM**

Garbagnate M. , giovedì 11 novembre 2004

775

Spettle

**BONOMI S.r.l.**

Via Carlo Porta, 8

23861 CESANA BRIANZA LC

Bonomi S.r.l.
UFFICIO QUALITA'
Firma
Data 15/11/04

## Dati per RINTRACCIABILITA'

| | | |
|---|---|---|
| Numero ordine interno | 20041623 | |
| Data ricevimento materiale | 08/11/04 | |
| Data esecuzione prove | 11/11/04 | |
| Grafico prove meccaniche | 1780 | |
| Bolla Cliente numero | 266 | |
| Data bolla Cliente | 08/11/04 | |
| Ordine Cliente | | |
| Data ordine Cliente | | |
| Campioni archiviati | SI | per 12 mesi c/o Lab. |
| Residui archiviati | SI | per 2 mesi c/o Off. |

Descrizione campione: Forgiato 4/8 Cod. BDHS

Materiale: Acciaio ASTM A105N - Colata 1T8541

Trattamento:

Dimensioni:

Note:

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

NORMATIVE applicate per lavorazione provette ed esecuzione prove meccaniche

UNI 552
Prove meccaniche dei materiali metallici - Simboli, denominazioni e definizioni
UNI 556
Prove meccaniche dei materiali metallici - Prova di trazione
UNI 564
Prove meccaniche dei materiali metallici - Prova di piegamento
UNI 562
Prove meccaniche dei materiali ferrosi - Prova di durezza Brinell
UNI 562
Prove meccaniche dei materiali ferrosi - Prova di durezza Rockwell (scala B e C)
UNI 1955
Prove meccaniche dei materiali ferrosi - Prova di durezza Vickers
UNI 3918
Prove meccaniche dei materiali ferrosi - Determinazione e verifica del carico unitario di scostamento della proporzionalità del'acciaio, ad alta temperatura
UNI 4431
Prove meccaniche dei materiali metallici - Prova di resilienza secondo Charpy, per l'acciaio
UNI 4713
Prove meccaniche dei materiali ferrosi - Prova di resilienza su provetta a due appoggi con intaglio a V, per l'acciaio
UNI 4714
Prove meccaniche dei materiali ferrosi - Prova di resilienza per l'acciaio a temperature minori di quella ambiente
ASTM A370
Standard test methods and definitions for mechanical testing of steel products
ASTM E8 -8M
Test methods for tension testing of metallic materials (Metric)
ASTM E10
Test methods for Brinell hardness of metallic materials
ASTM E18
Test methods for Rockwell hardness and Rockwell superficial hardness of metallic materials
ASTM E23
Test methods for notched bar impact testing of metallic materials
ASTM E110
Test methods for indentation Hardness of metallic materials by portable hardness testers
ASTM E190
Method for guided Bend test for duality of Welds

Identificazione del campione sottoposto alle prove: 20041623/5

Descrizione prove: **Prove meccaniche di trazione e durezza**

### PROVA DI TRAZIONE - parametri di esecuzione prova

| Dimensioni provetta | | | | Lunghezza Utile | Temperat. prova | Valori richiesti | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Acciaio ASTM A105N - Colata 1T8541 | | | | | |
| Larghezza | Spessore | Diametro | Sezione | | | | | | | | |
| b | a | d | So | Lo | t | Rp 0,2% | Rp1 | Rm | | A | Z |
| mm | mm | mm | mm2 | mm | °C | Min | Min | Min | Max | Min | Min |
| 0,00 | 0,00 | 6,25 | 30,68 | 25 | 20 | 250 | 0 | 485 | | 22 | 30 |

### PROVA DI TRAZIONE - Risultati prova

| carico totale Snervamento | carico Unitario Rp 0,2% | carico totale Rp1 | Unitario Rp1 | carico totale Rottura Fm | carico Unitario Rm | Allungamento totale Lu | Allungamento A | Diametro finale | Strizione Z |
|---|---|---|---|---|---|---|---|---|---|
| kN | N / mm2 | kN | N / mm2 | kN | N / mm2 | mm | % | mm | % |
| 14,80 | 482 | 0,00 | 0 | 16,80 | 548 | 31,90 | 27,60 | 3,80 | 63,03 |

### PROVA DI RESILIENZA

| Parametri di esecuzione prova | | | Risultati prova | | |
|---|---|---|---|---|---|
| Dimensioni | Intaglio | Temperat. | | | |
| mm | tipo | °C | Rich. > | 0 | ( 0 ) |
| | | | 0 | 0 | 0 |

### PROVA DI PIEGA

| mandrino ed angolo piega | |
|---|---|
| mm / ° | |
| Risultati prova | |

### PROVA DI DUREZZA

| Tipo di durezza | HB 10/3000 | |
|---|---|---|
| min / max | 137 | 187 |
| Risultati prova | | |
| 158 | 156 | 158 |

Annotazioni :

Il Tecnico di Laboratorio
SIGMATRE s.r.l.
Eugenio RIVA

Collaudo presenziato da :

Responsabile Laboratorio

| | | |
|---|---|---|
| Prova di trazione effettuata con macchina Galdabini 200 kN | Matricola n. 31550 e 31551 | Certificato 2004/209/204 Centro SIT n. 30/M |
| Prova di trazione effettuata con macchina AMSLER 980 kN | Matricola n. 2033 | Certificato 251/6506-6/107-6 Centro SIT 022/M |
| Prova di resilienza effettuata con Pendolo Charpy 300 J GALDABINI Tipo CH30 | Matricola n. 31055-3 | Certificato 255/6501-6/110 Centro SIT n. 022/M |
| Prova di durezza effettuata con durometro WOLPERT 2RA60 II Tipo DIA TESTOR 2B | Matricola n. 3581 | Certificato 258/6504-3/114 Centro SIT n. 022/M |
| Prova di durezza effettuata con durometro WOLPERT Tipo DIA TESTOR 2RC | Matricola n. 410025/10330 | Certificato 247/6503-4/69 Centro SIT n. 022/M |

Il presente rapporto di prova riguarda solo i campioni sottoposti a prova e non puo' essere riprodotto parzialmente, salvo approvazione scritta del Laboratorio di prova

**SIGMATRE srl**
Via Fornace, 31 - 23846 Garbagnate Monastero (LC)
Tel. 031-87.94.25 - Fax 031-87.94.22 e-mail: sigmatre@sigmatre.it
P. Iva 01516910138 - Cod. Fisc. 06544130153
Cap. Soc. € 99.500 i.v. -
C.C.I.A.A. Como n° 195838 - Iscr. Trib. Como n° 17954

- Prove meccaniche e tecnologiche
- Analisi chimiche e prove corrosione
- Esami metallografici
- Controlli non distruttivi
- Corsi di qualifica personale
- Manuali Sistema Qualità

- Mechanical and technological tests
- Chemical analysis and corrosion tests
- Metallographic examination
- Non destructive tests
- Training for personnel qualification
- Quality System Manuals

UGITECH
Groupe Arcelor

Siège Social : Ugitech S.A.
Avenue Paul Girod
73400 UGINE, FRANCE
IDENT TVA : FR 89 410 436 158

| Bolla/N°BL/DL N°/Lief. | N°. Certificat/Prüf N° | Produttore/Usine produc./Manufact./Herstell. |
|---|---|---|
| 335578 | 06902 | F00002 |

# RELEVE DE CONTROLE (1)

SELON EN 10204 PARAGRAPHE 4
Texte certificat de conformité
Texte certificat de conformité

Texte type cert. conformité édité - fctc

Prodotto. Erzeugnisform / Produit / Product: BARRE ROMDE INA 4006-410 16,0 K13 — LAMINE DECALAM. RECUIT

Cliente n/o destinatario - Client et/ou destinataire - Besteller und/oder Empfaenger / Purchaser and/or Consignee: UGINE-SAVOIE ITALIA SRL

N° ordine cliente - Votre référence - Ihre Auftrag Nr - Your reference: LVM 407085326 MI/LIMETTI

Qualità e specifiche tecniche - Nuance et spécifications techniques - Stalsorte und Pruefbedingungen - Quality and Specifications: INA 4006-410 K13 — X12CR13/NFEN 10088-3 /1.4006 - AISI410/ASTM A182/F6A CLASS 2

Stato di fornitura - Etat de livraison - Lieferzustand - As delivered (1): LAMINE DECALAM.

Stato metallurgico - Etat métallurgique - Heat treatment condition - Lieferzustand: RECUIT

| N° Conforme d'ordine / Accusé de reception / Auftragsbest N° / Acknowledgment N° | Posizione / N° Poste / Post Nr / Item N° | N° lotto interno / N° de lot interne / Interne los Nr / Internal batch N° | Profilo / Profil / Profile / Shape | Dimensione / Dimension / Abmessung / Size | Tolleranza / Tolérance / Toleranz / Tolerance | Lunghezza / Longueur / Laenge / Length | Peso netto / Masse / Gewicht / Weight |
|---|---|---|---|---|---|---|---|
| 407682892 | 3 | 4493044 | BARRE ROMDE | 16,0000 | K13 | . | 1040,000 |

| Lotto fornitore / Lot producteur / Lieferant los / Master batch | N° Colata / N° de coulée / Schmelz Nr / Heat N° | Trazione - Traction - Zugversuch - Tensile test: Lim. di snervamento / Limite d'Elasticité / Streckgrenze / Yield Strength 0,2 % | Lim. di snervamento / Limite d'Elasticité / Streckgrenze / Yield Strength 1 % | Carico di rottura / Résistance tract. / Zugfestigkeit / Tensile strength | Allungamento % | Strizione % | Resilienza - Résilience - Kerbschlagzaehigkeit - Notch Toughness: Forma / Type / Form / Type | Valori / Valeurs individuelles / Einzelwerte / Individual values | Media - Moyenne / Mittelwerte / Average | Durezza / Dureté / Haerte / Hardness |
|---|---|---|---|---|---|---|---|---|---|---|
| | | RP02 N/MM2 | | RM N/MM2 | AL | Z | | | | HB |
| 417024 | 2ZH01000 | 586 | | 665 | 22 | 73 | | | | 200 |

| | | C | SI | MN | P | S | N | CR | CU |
|---|---|---|---|---|---|---|---|---|---|
| 417024 | 2ZH01000 | 0,106 | 0,330 | 0,440 | 0,019 | 0,024 | 0,056 | 12,140 | 0,156 |

| | | NI | | CO |
|---|---|---|---|---|
| 417024 | 2ZH01000 | 0,350 | | 0,021 |

Test : (1 = OK)

417024

C.INT = Corrosione intergranul. — EDD.C = Controllo non distrutt. — P.PN. = Prova pneumatica — C.MES = Contr. antimescolament.
SCHI. = Schiacciamento — FLANG = Flangiatura — REVFL = Applatt. saldatura (Ra — P.RET = Essai de retournement

Note - Notes - Remarks - Bemerkungen

EN 10204 / 3.1.B AISI 410 X12CR13 NF EN10088-3 1.4006 INA 4006 BARRE A CHAUD RON DE TOL.13 TRAITEE DECALAMINEE

16 LUG. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

Signature de l'inspecteur 13/07/04

Controllo marcatura, visivo e dimensionale : soddisfacente. Si certifica che i prodotti sopra descritti sono conformi alle prescrizioni dell'ordine (1)
L'analisi chimica è copia conforme a quella presente sul certificato del produttore
Contrôle de marquage, d'aspect et de dimensions satisfaisant. Nous certifions que le présent document reproduit avec exactitude les données du certificat

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** / Customer: ***Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt***

**Bestell-Nr.:** / Order no.: ***Lurgi Job – No.: 69690-10***
***Lurgi OGC PO.-No.: 4567569-000 to -001/1.69690/136***

*Project Name :* ***2nd Zagros Methanol Plant - Iran***

**Auftrag-Nr.:** / Job no.: ***HH – 02535***

**Lieferumfang** / range:

| **Pos** | **Stck.** pcs. | **Gegenstand** object | **DN** | **PN** | **Werkstoff** material | **Bemerkung** comment |
|---|---|---|---|---|---|---|
| *00110* | *170* | *Gate valve*<br>*FB BB SW*<br>*Seats + Wedge Stell.* | *3/4"* | *Cl.800* | *ASTM A 105N* | *Valve Ident – No.: " S306 "* |

**Auslegung + Prüfung nach** / Design and tests acc. To: API 602 – BS EN ISO 15761, API 598 / BS EN 12266-1
ASME B16.34 – B16.25 – B16.11 – B1.20.1

**Sicht- und Funktionsprüfung:** / visual and functional test: *o.k.*

**Festigkeits-/Dichtheitsprüfung:** / strength-/tightness-test:

| | | |
|---|---|---|
| *Festigkeit / shell test* | = *211 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = *156 bar Wasser / water* | (60 sec) |
| *Rückdichtung / backseat* | = *156 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = *6 bar Luft / air* | (60 sec) |

**Prüfungsergebnis:** / result: *ohne Beanstandung !*
*no complaint !*

i.A. Walter Glass

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** / enclosure *Dokumentation gemäß Material-Dokumentationsdeckblatt*
*Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter W. Glass
Person in charge

**Kommissions-Nr. /**
**Reference No.**

**HH-02535**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00110 | Gate Valve | " S306 " | 170 | Body | E-XT | ASTM A105N | Evasi e Casteln. | 1T11324 | | 000151 |
| | 3/4" Cl. 800 lbs. | Drawing-No.: F210-7/SW | | Wedge | | A182/F6a C.2 stel. | Valbruna | 414430 | | 122852/2004 |
| | FB, BB, SW | | | Seat | | A182/F6a C.2 stel. | Valbruna | 238300 | | 127568/2004 |
| | seats+wedge stell. | | | Body Srew | | ASTM A193/B7 | Morandi | AR4273 | | 6129 |
| | | | | Bonnet | FB-VN | ASTM A105N | Feat | 04/78765 | | 2004/3004411 |
| | | | | Stem | | A182/F6a C.2 | Valbruna | 237840 | | 105950/2004 |
| | | | | | | | | | | |
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02537300

# Evasi e Castelnuovo s.r.l.

Via Carlo Porta, 1 - 23861 CESANA BRIANZA (LC)
Tel. 031/85.59.36 - Fax 031/85.86.27
Cod. Fisc. e Part. IVA 00209790138
Reg.Soc. Trib. Lecco n. 5932 - C.C.I.A. 121373

Spett.
DOUGLAS CHERO SPA

LOC. PRADAGLIE
29013 CARPANETO PIACENTINO PC

***CERTIFICATO DI COLLAUDO/INSPECTION CERTIFICATE***
***UNI EN 10204 3.1 B***

***SISTEMA QUALITA' CERTIFICATO UNI EN ISO 9001/2000***
***QUALITY SYSTEM CERTIFIED UNI EN ISO 9001/2000***

| N. | DATA/DATE |
|---|---|
| 000151 | 30-04-2004 |
| D.D.T. / DELIVERY NOTE N. | DATA/DATE |
| | |

| COLATA /HEAT N. | MATERIALE/MATERIAL | ACCIAIERIA/STEEL PLANT | N.QUANTITY | DESCRIZIONE/DESCRIPTION |
|---|---|---|---|---|
| AT 11324 | A105 | LEALI | 3.370 | CORPI GRVS 1 800 BB |

## ANALISI CHIMICA / CHEMICAL ANALYSIS

| C | Mn | Si | P | S | Cr | Ni | Mo | Ti | V | Cu | Al |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,190 | 0,880 | 0,230 | 0,012 | 0,010 | 0,130 | 0,130 | 0,020 | 0,003 | 0,001 | 0,290 | 0,031 |
| **Sn** | **Nb** | **N** | **Fe** | **W** | **Ta** | **Co** | **Ca** | **B** | **Sb** | | **CE** |
| 0,016 | 0,001 | | | | | | | | | | |

## PROVE MECCANICHE/MECHANICAL TESTS

| RS-YELD N./mm² | R-TENSILE N./mm² | A%-ELONG | Z%-REDUCT |
|---|---|---|---|
| 344,0 | 524,0 | 29,0 | 59,0 |

*IMPACT TEST - KV - J*

| TEST 1 | TEST 2 | TEST 3 | TEMP.°C |
|---|---|---|---|
| | | | |

| TRADE MARK | HEAT CODE | MATERIAL CODE | MATERIAL TYPE NR. | DWG |
|---|---|---|---|---|
| E.XT | | | | |

05 MAG. 2004
*DOUGLAS CHERO Spa*
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

*TRATTAMENTO TERMICO / HEAT TREATMENT*

| DESCRIPTION | HEATING °C | STAY TIME | COOLING | HARDNESS |
|---|---|---|---|---|
| NORMALIZZAZIONE | 900 | 2,3 | ARIA CALMA | |

1) The result of chemical analisys is a true and correct copy of the mill certificate issued,by the manufacturer of the steel employed, or by the laboratory which has determined it.
*Il risultato delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati*

2) Visual and dimensional control satisfactory.
*Controlli visivi e dimensionali soddisfacenti.*

3) Results of test effected are in conformance with order's specifications.
*I risultati delle prove eseguite sono conformi alle specifiche richieste.*

4) We confirm that materials used for the manufacture of supplied products are in conformance with the Directive 97/23/CE (PED); in particular with annex 1 par. 4 "Materials".
*Confermiamo che i materiali usati per lo stampaggio dei prodotti forniti sono conformi alla Direttiva 97/93/CE (PED) e particolarmente all'allegato 1 paragrafo 4 "Materiali".*

| APPROVATO/APPROVED |
|---|
| COLLAUDATORE/INSPECTOR |
| EMESSO/ISSUED |

EVASI E CASTELNUOVO s.r.l.
STAMPERIA IN FERRO E ACCIAIO

# Acciaierie Valbruna S.p.A.

36100-VICENZA (Italia) - Viale della scienza, 25 z.i.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Kunden/Purchaser/Client
VERRI & PINA SRL
VIA TERRAROSSA, 10 - C.P. N.26
22035-CANZO (CO)-CO

Produttore: STABILIMENTO DI BOLZANO
Herstellerbetrieb/Usine productrice

Oggetto Prova: - Ricotto lavorabile Pelato
Prüfgegenstand/Objet inspecté/Pelzange

Avviso di Spedizione: A-BZ04006085
Lieferanzeige/Packing list/B.L.

Ordine nr: 94-96-97-103
Besteil/Your order/Commande

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'élaboration

## CERTIFICATO DI COLLAUDO
## ABNAHMEPRUEFZEUGNIS
## INSPECTION CERTIFICATE
## CERTIFICAT DE RECEPTION
## EN 10204 , 3.1.B

Certificato nr: MEST122852/2004/
Prüfzeug/Test/Essai

Conforme ordine nr: MI04002883
Werks/Our Order/Ref nr.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice

Punzone del Collaudatore:
Stempel des Werksachverständigen
Inspector's stamp/Poinçon de l'essayeur

SC

4422

Specifiche:
Anforderungen / Requirements / Exigences
ASTM A182 2000C S41000 CLASS2 (0)
(0) Chemical analysis only and mecc.properties(for ASTM A182[M])

Qualità: 410
Werkstoff/Grade/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Nuance

Punzonatura: 410
Kennzeichnung/Marking/Marquage

| Pos. nr. / Pez. nr. / Item nr. / Nr. de poste | Oggetto / Gegenstand / Product description / Descrip. du produit | Dimensioni - mm / Abmessungen / Dimension / Dimensions | Tolleranza / Toleranz / Allowance / Tolerance | Lunghezza - mm / Longe / Length / Longueur | Colata / Schmelze / Heat / Coulée | Pezzi / Stücken / Pieces / Pièces | Peso - Gewicht / Weight / Poids | Lotto nr. / Los nr. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0050 | Tondo | 25,000 | | 5000 / 5500 | 414430 | | 3707,0 | 409202660 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
La matière a été livrée conforme aux exigences

Controllo antimescolanza: OK
Verwechslungsfreiheit spektralanalytisch durchgeführt
Analytical testing performed: OK
Contrôle anti-mélange fait c.a.s.

Controllo visivo e dimensionale: soddisfa le esigenze:
Besichtigung und Ausmessung ohne Beanstandung
Visual inspection and dimensional checks satisfactory
Contrôle visuel et dimensions: satisfaisant

| TEST | Provetta/Probestab / Test piece / Eprouvette / Provino / Test piece / Probestab / Eprouvette | | Prova/Test / Essai | Snervamento / Streckgrenze / Yield Stress / Limite élastique | Snervamento / Streckgrenze / Yield Stress / Limite élastique | Resistenza / Zugfestigkeit / Tensile strength / Résistance à traction | Allungamento / Bruchdehnung / Elongation / Allongement | | Strizione / Einschnürung / Reduction of area / Striction | | Resilienza / Kerbschlagarbeit / Impact Value / Resilience | | | Durezza / Härte / Hardness / Dureté | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mm | | ° C | | N/mm2 | N/mm2 | | E 4d % | | RA % | | | | HB | | |
| Valori richiesti 1 / Anforderung erfüllt gefordert / Valeurs demandées | | | min / max | | 380 | - | 585 | - | 18 | - | 36 | - | | | 167 / 229 | |
| A | 10,00 | | 20 | L | 534 | | 688 | | 31 | | 70 | | | | 216 | |

1)L=Long'udine/Längs, Q=Querrichtung/per, T=Tangenziale/tangential

## Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata / Heat / Schmelze / Coulée | min - max 0,15 | - 1,00 | - 1,00 | 11,50 - 13,50 | - 0,50 | - 0,040 | - 0,030 | - | - | - | - | - | - | - | - |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 414430 | 0,13 | 0,44 | 0,72 | 12,36 | 0,24 | 0,024 | 0,030 | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,3.4.3 by TUEV and LLOYD'S

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

| Bolzano,15/07/04 | Il collaudatore di stabilimento / der Werksachverständige / Works inspector / L'agent d'usine | Pagina - 1 di 1 |
|---|---|---|
| | R.Cristel | |

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.l.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Besteller/Purchaser/Client: ACCIAI

Produttore: STABILIMENTO DI BOLZANO
Hersteller/Item/Usine produttrice

Oggetto Prove: - Ricotto lavorabile Pelato
Prüfgegenstand/Item Inspected/Passage

Avviso di Spedizione: A-BZ04606561
Lieferanzeige/Packing list/B.L.

Ordine nr: DD. 11.2.04
Bestell/Your order/Commande

Tipo di Elaborazione: E+AOD
Erschmelzung Lern/Melting process/Mode d'elaboration

## CERTIFICATO DI COLLAUDO
## ABNAHMEPRUEFZEUGNIS
## INSPECTION CERTIFICATE
## CERTIFICAT DE RECEPTION
## EN 10204 , 3.1.B

Ø 26
P6 Ric

Certificato nr: MEST127568/2004/
Prüfung/Test/Essai

Conferma ordine nr: MI04001328
Werks/Our Order/Ref nr.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'essayeur

Specifiche:
Anforderungen / Requirements / Exigences

BELLEBONO 2004 410 HRC<22 A · ASTM A182 2002 S41000 (0)
(0) Chemical analysis only.

Qualità: 410
Güte/Grade/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Nuance

Punzonatura: T.410
Kennzeichnung/Marking/Marquage

| Pos. nr. / Pos. nr. / Nos nr. / N° de poste | Oggetto / Gegenstand / Product description / Descrip. du produit | Dimensioni - mm / Abmessungen / Dimension / Dimension | Tolleranza / Toleranz / Allowance / Tolerance | Lunghezza - mm / Länge / Length / Longueur | Colata / Schmelze / Heat / Coulée | Pezzi / Stückzahl / Pieces / Pièces | Peso - Gewicht / Weight / Poids | Lotto nr. / Los nr. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0100 | Tondo | 26,000 | K12-MIN | 3900 / 4000 | 238300 | | 2462,0 2463 | 405400200 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind in Anlage erfüllt
The material has been furnished in accordance with the requirements
Le matériel à été livré conforme aux exigences

Controllo antimescolanza: OK
Vermischungsprüfung: spektralanalytisch durchgeführt
Antimixing testing performed: OK
Contrôle antimélange fait: O.E.S.

Controllo visivo e dimensionale: soddisfa le esigenze:
Sichtprüfung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional check: satisfactory
Contrôle visuel et dimensionel: satisfaisant

| TEST | Provetta/Probestab/Test piece/Eprouvette Campione/Campione/Sample/Echantillon Lung. ass.le Spess. Ø o lato Diam. Ø ou côté Wide Diam. Ø ou côté Long. ass.le Diam. mm | °C | | Posiz. Saggio / Position / Position | Snervamento / Streckgrenze / Yield Stress / Limite élastique Rp 0,2% N/mm2 | Snervamento / Streckgrenze / Yield Stress / Limite élastique | Resistenza / Zugfestigkeit / Tensile Strength / Résistance à traction Rm N/mm2 | Allungamento / Bruchdehnung / Elongation / Allongement E 4d % | | Strizione / Einschnürung / Reduction of area / Section RA % | | Resilienza / Kerbschlagarbeit / Impact Value / Résilience | | | Durezza / Härte / Hardness / Dureté HRc | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 / Anforderungen/Required values/Valeurs exigées | | min / max | | | - | - | - | - | - | - | - | - | | | - | | |
| A | 10.00 | 20 | L | | 412 | | 684 | | 32 | | 68 | | | | 15,0 | | |

1)L=longitudinale/Längs, Q=trasversale/quer, T=Tangenziale/tangential

## Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata / Heat / Schmelze/Coulée | min - max 0,15 | - 1,00 | - 1,00 | 11,50 - 13,50 | - 0,50 | - 0,040 | - 0,030 | - | - | - | - | - | - | - | - |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 238300 | 0,14 | 0,49 | 0,78 | 12,25 | 0,29 | 0,023 | 0,028 | | | | | | | | |

Made in Italy No welding or weld repair Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive (97/23/EC) Annex 1,s.4.3 by TUEV and LLOYD'S

DOUGLAS CHERO Spa
Quality Assurance
P.C. STEFANI VITTORIO
Sign.

COPIA CONFORME ALL' ORIGINALE
ACCIAIERIE VALBRUNA S.P.A.
FILIALE DI CORMANO

| Bolzano,27/07/04 MoLABEL011 | Il collaudatore di stabilimento / der Werkssachverständige / Works inspector / L'agent d'usine R.Cristel | Pagina - 1 di 1 |
|---|---|---|

241989 01

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948

E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129


CERTIFICATO DI COLLAUDO
Inspection certificate 26738 N°6128/DCH DATE-16.11.04

CLIENTE- DOUGLAS CHERO Spa ORDINE-242000 BOLLA CONSEGNA N-3750
Customer Order Delivery note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| 1 | 6733 | VITI TE M 12 X 30,5 | B7 ASTM A 193/A 193M | AR4273 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Cr | Mo | S | P |
|---|---|---|---|---|---|---|---|---|
| REQUIRED | min. | 0.37 | 0.65 | 0.15 | 0.75 | 0.15 | | |
| VALUE | max. | 0.49 | 1.10 | 0.35 | 1.20 | 0.25 | 0.040 | 0.035 |
| HEAT n. AR4273 | | 0,44 | 0,77 | 0,26 | 1,06 | 0,23 | 0,005 | 0,007 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

| | Rm. | Rp.(0,2) | A4 | Z. | Hardness |
|---|---|---|---|---|---|
| REQUIRED | min. 860 MPa | min. 720 MPa | min. 16% | min. 50% | max 35 HRC |
| ACTUAL VALUE | 1032 | 945 | 17,5 | 53,5 | 32 |

HEAT TREATMENT
Quenched at : 860 °C in oil
Tempering : 2 hours at 593 °C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

QUALITY CONTROL

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

22 NOV. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Firma .....

MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

FEAT INDUSTRIALE
divisione della Feat Group S.p.A.
Feat Group S.p.A.
SEDE LEGALE:
I - 20122 MILANO (MI) - Viale Majno, 17
Capitale Sociale € 8.000.000,00 interamente versato
Codice fiscale, Partita IVA e numero di iscrizione Registro
delle Imprese di Milano: 08203000157
Codice identif. IVA CEE IT 08203000157 - R.E.A. Milano 1211374
UFFICI AMMINISTRATIVI:
I - 23842 BOSISIO PARINI (LC) - Via dei Livelli, snc
tel. 031 3581411 - fax 031 876176 - Cod. Mecc. MI240750
STABILIMENTO E UFFICI COMMERCIALI DELLA DIVISIONE:
I - 23861 CESANA BRIANZA (LC) - Via G. Parini, 30 e Via Artcalo, 1/3/5/7
tel. 031 6591 - Fax 031 659219 -http://www.featgroup.com

2C09000

Certificato 2004/3004411
Data 12/07/2004
Pagina 1

DOUGLAS CHERO S.P.A.

LOCALITA' PRADAGLIE

29013 CARPANETO PIACENTINO PC

| Ordine cliente | Bolla | Fattura | Quantita' |
|---|---|---|---|
| O 240066 | 2004/000/0031592 | O 0031747 | 173,00 |

| Articolo Feat | Descrizione |
|---|---|
| 292011001018 | CAPPELLO 4/8 |

| Cod.Stamp./N.Col. | Tipo Materiale e Specifica |
|---|---|
| BVN | A105/C22.8 ASTM A 105 + DIN 17243 Ultima Edizione |

| Numero colata | Acciaieria | N.Cert.Acc. |
|---|---|---|
| 04/78765 | **RIVA ACCIAIO S.P.A. | |

## ANALISI CHIMICA

| Elem. | Al | C | Cr | Cu | Mn | Mo | Nb | Ni | P | S | Si | V | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Min | 0,015 | 0,180 | | | 0,600 | | | | | | 0,150 | | | | |
| Max | ******* | 0,220 | 0,300 | 0,400 | 0,900 | 0,120 | 0,020 | 0,400 | 0,035 | 0,030 | 0,350 | 0,030 | | | |
| Colata | 0,024 | 0,190 | 0,120 | 0,170 | 0,700 | 0,020 | 0,002 | 0,100 | 0,012 | 0,005 | 0,230 | 0,003 | | | |
| C.An. | | | | | | | | | | | | | | | |

Carbonio Equivalente= 0,353

## CARATTERISTICHE MECCANICHE

| Ordine Laboratorio | N. | Descrizione | UM1 | Min | Max | Valore | UM2 | Valore |
|---|---|---|---|---|---|---|---|---|
| 175558 | 01 | Snerv.Rp0,2% Amb T | N/mm2 | 250,000 | | 359,000 | PSI | 52055,000 |
| 175558 | 01 | Rottura Amb T | N/mm2 | 485,000 | 540,000 | 500,000 | PSI | 72500,000 |
| 175558 | 01 | Allungam.A% T Amb | % | 22,000 | | 29,700 | | |
| 175558 | 01 | Strizione Amb T | % | 30,000 | | 56,000 | | |
| | 01 | Durezza HB | HB | 140,000 | 187,000 | 152,000 | | |

Trattamento Termico
NORMALIZZAZIONE:
I PARTICOLARI SONO STATI NORMALIZZATI ALLA TEMPERATURA DI 910 C., CON PERMANENZA A TALE VALORE DI 1 ORA PER OGNI 25mm. DI SPESSORE E RAFFREDDATI IN ARIA CALMA.-

Note
CERTIFICATO FEAT

16 LUG. 2004

DOUGLAS CHERO Spa

Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

Resp. Assicurazione Qualita'
E. MAZZONI

FEAT INDUSTRIALE division of FEAT Group S.p.A. states that material hereby certified is in compliance with the quality and technical requirements as described in the customer's order, or FEAT order acknowledgement.

1 - The results of chemicals analysis is a true and correct copy of the mill certificate issued by the manufacturer of the steel employed or by the laboratory which has determined it.
2 - The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufacturing process inspection or storage.

EN 10204 - 3.2

# Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della Scienza, 25 e 27

Stab.: 36100 BEDIZZANO (Italia) - Via Alessandro Volta, 4

Cliente / Kunde / Customer / Client

Produttore: ACCIAIERIE VALBRUNA S.P.A.
Herstellerfirma/Usine productrice

Avviso di Spedizione: A-VI04014062
Lieferanzeige/Packing list/L...

Ordine nr: DEL 29.01.04
Bestell/Your order/Commande

Certificato nr: MEST105950/2004/
Prüfung/Test/Essai

Conferma ordine nr: MI04000714
Werks/Our Order/Ref. nr.

Marchio di Fabbrica:
Zeichen des Unternehmens
Trade mark
Sigle de l'usine productrice

Oggetto Prove: - Ricotto lavorabile Trafilato
Prüfgegenstand/Item inspected/Finissage

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'élaboration

Funzione del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'essayeur

Specifiche:
Anforderungen / Requirements / Exigences

ASTM A182 2000C S41000 CLASS2 (0) 0 0
(0) Chemical analysis only and mecc.properties(for ASTM A182[M]) 0

Qualità: S41000
Werkst... stoff/Nuance

Marca: VAL1
Werkstoffbezeichnung/Brand/Nuance

Punzonatura:
Kennzeichnung/Marking/Marquage

| Pos. nr. / Pos. nr. / No. de poste | Oggetto / Gegenstand / Product description / Descrip. du produit | Dimensioni - mm / Abmessungen / Dimension / Dimension | Tolleranza / Toleranz / Allowance / Tolerance | Lunghezza - mm / Länge / Length / Longueur | Colata / Schmelze / Heat / Coulée | Pezzi / Stückzahl / Pieces / Pièces | Peso - KG / Gewicht / Weight / Poids | Lotto nr. / Losnr. / Lot nr. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0010 | Tondo | 14,000 | HS-MIN | 3900 / 4000 | 237840 | | ~~5965,0~~ | 403302310 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind lt. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le material a été fourni conforme aux exigences

| TEST | Provetta/... Direzione Lunghezza Diam. Diam. Spess. Largh. Diam. Diam. Spess. Largh. Diam. Spess. Largh. mm | °C | Posiz. Saggio / Position Lage / Position | Snervamento / Streck Yield Strength / Limite elastique Rp 0,2% N/mm2 | Snervamento / Streck Yield Strength / Limite elastique | Resistenza / Zugfestigkeit / Tensile strength / Résistance à traction Rm N/mm2 | Allungamento / Bruchdehnung / Elongation / Allongement E 4d % | | Strizione / Einschnürung / Reduction of area / Striction RA % | | Resilienza / Kerbschlagarbeit / Impact Value / Résilience | | Durezza / Härte / Hardness / Dureté HB | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 / Anforderungen/Required values/Valeurs minimales | | min / max | | 380 | - | 585 | - | 18 | - | 35 | - | | 167 / 229 | |
| A | 12.5 | 20 | L | 610 | | 698 | | 22 | | 68 | | | 215 | |

1)Longitudinale/Längs, Q=trasversale/quer, T=Tangenziale/tangential

## Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata: Schmelze/Heat/Coulée | - min 0,15 max | - 1,00 | - 1,00 | 11,50 13,50 | - 0,50 | - 0,040 | - 0,030 | - | - | - | - | - | - | - | - |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 237840 | 0,14 | 0,36 | 0,70 | 12,55 | 0,27 | 0,017 | 0,024 | | | | | | | | |

Made in Italy No welding or weld repair Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex I,3.,4.3 by TUEV and LLOYD'S

COPIA ALL'ORIGINALE
ACCIAIERIE VALBRUNA S.P.A.

29 GIU. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

Vicenza, 17/05/04
Mod./VC0012

Il collaudatore di stabilimento / der Werkssachverständige / Works Inspector / L'agent d'usine
M.Rizzotto

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** / Customer: *Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt*

**Bestell-Nr.:** / Order no.: *Lurgi Job – No.: 69690-10*
*Lurgi OGC PO.-No.: 4567569-000 to -001/1.69690/136*

*Project Name :* *2nd Zagros Methanol Plant - Iran*

**Auftrag-Nr.:** / Job no.: *HH – 02535*

**Lieferumfang** / range:

| **Pos** | **Stck.** pcs. | **Gegenstand** object | **DN** | **PN** | **Werkstoff** material | **Bemerkung** comment |
|---|---|---|---|---|---|---|
| *00120* | *6* | *Gate valve*<br>*FB BB SW*<br>*Seats + Wedge Stell.* | *3/4"* | *Cl.1500* | *ASTM A 105N* | *Valve Ident – No.: " S306 "* |

**Auslegung + Prüfung nach** / Design and tests acc. To: API 602 – BS EN ISO 15761, API 598 / BS EN 12266-1
ASME B16.34 – B16.25 – B16.11 – B1.20.1

**Sicht- und Funktionsprüfung:** / visual and functional test: *o.k.*

**Festigkeits-/Dichtheitsprüfung:** / strength-/tightness-test:

| | | |
|---|---|---|
| *Festigkeit / shell test* | = | *388 bar Wasser / water* (60 sec) |
| *Dichtheit Sitz / seat* | = | *285 bar Wasser / water* (60 sec) |
| *Rückdichtung / backseat* | = | *285 bar Wasser / water* (60 sec) |
| *Dichtheit Sitz / seat* | = | *6 bar Luft / air* (60 sec) |

**Prüfungsergebnis:** / result: *ohne Beanstandung !* / *no complaint !*

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** / enclosure *Dokumentation gemäß Material-Dokumentationsdeckblatt* / *Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter / Person in charge W. Glass

**Kommissions-Nr. / Reference No.**

**HH-02535**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00120 | Gate Valve 3/4" Cl. 1500 lbs. FB, BB, SW seats+wedge stell. | " S306 " | 6 | Body | Y-BE | ASTM A105N | Iselfa | 76009/80 | | 16310 |
| | | Drawing-No.: BX652-7/SW | | Body | B-AP | ASTM A105N | Bonomi | 77588 | | 040075 |
| | | | | Body | Y-BA | ASTM A105N | Iselfa | 79315/80 | | 14083 |
| | | | | Wedge | | A182/F6a C.2 stel. | Valbruna | 238209 | | 128331/2004 |
| | | | | Seat | | A182/F6a C.2 stel. | Valbruna | 236784 | | 05587/2003 |
| | | | | Body Srew | | ASTM A193/B7 | Morandi | AR4273 | | 6129 |
| | | | | Bonnet | B-AR | ASTM A105N | Bonomi | 03/76085 | | 040076 |
| | | | | Stem | | A182/F6a C.2 | Ugitech | 350031 | | 80208 |
| | | | | | | | | | | |
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ISELFA
STEEL FORGINGS
ELECTRING FITTINGS
S.p.A. - C.F./P.IVA VAT IT 00189520125
21048 SOLBIATE ARNO (Va) Italy - Corso Roma, 22
P.O. BOX 21 - TELELEFONO +39 (0331) 99.30.06
FAX FORGINGS +39 (0331) 99.15.35 - FAX FITTINGS +39 (0331) 99.46.77

# CONTROLLO QUALITÀ

Certificato di conformità
Compliance certificate
Gemaess Zeugnis
UNI EN 10204/3.1.B

N° 16310 — Data / Date 31.03.04

| | | | | | |
|---|---|---|---|---|---|
| CLIENTE / Customer / Kunde | DOUGLAS CHERO SPA | ORDINE N° / Order / Bestellung | 231844 | DATA / Date / Datum | 12.09.03 |
| RIMESSO N° / Delivery note / Lieferschein | 400529 | DATA / Date / Datum | 31-03-04 | N° PEZZI / Pieces / Stuckzahl | 2.420 |
| DESCRIZIONE - Description - Dezeichnung | CORPI | DISEGNO N° - Drawing - Zeichnung | Dis. N6/9S | INDICE - Last revision - Verzeichnis | Rev.1 |
| TIPO ACCIAIO / Steel type / Stahl | ASTM-A.105 BILL.80 | COLATA / Heat / Schmelze | 76009/60 | FORNITORE / Supplier / Lieferant | RIVA ACCIAIO SPA |

COMPOSIZIONE CHIMICA / Chemical composition / Chemische Zusammensetzung

CARATTERISTICHE ACCIAIO (FORNITE DALL'ACCIAIERIA)

| % | C | Mn | Si | Cr | Ni | Mo | V | P | S | Cu | Nb |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA min / Requested / Erforderikhe max | 0,350 | 0,600 / 1,050 | 0,350 | 0,300 | 0,400 | 0,120 | 0,030 | 0,040 | 0,050 | 0,400 | 0,020 |
| FORNITA / Supplied / Wirkliche | 0,2100 | 0,9000 | 0,2100 | 0,0900 | 0,0500 | 0,0100 | 0,0210 | 0,0130 | 0,0020 | 0,1700 | |

PROVA JOMINY / Jominy test / Stirnabschreckversuch

| HRC | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA min / Requested / Erforderikhe max | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | GRANO / Grain size / Korngrosse |
| FORNITA / Supplied / Wirkliche | | | | | | | | | | | | 6 |

CARATTERISTICHE MECCANICHE / Mechanical properties / Mechanische Eigenscheften — Normalizzato ☐ Bonificato ☐

| Ø PROVETTA / Ø sample / Ø probest | RP 0,2% / Yield strenght 0,2% / 0,2% Grenze | R / Tensile strenght / Zugfestigkeit | A% / Elongation % / Dehnung % | Z% / Reduc. of area % / Einschnurung % | KCU / Impact value / Kerbschlang |
|---|---|---|---|---|---|
| mm | N/mm² | N/mm² | Lo = 5d | | J (foule) |
| 30 | 324 | 524 | 32 | 56 | 0 / 0 / 0 |

CARATTERISTICHE PRODOTTO

| | | | | | |
|---|---|---|---|---|---|
| TRATT. TERMICO / Heat Treatement / Warmebehandlung | NORMALIZZAZIONE | DUREZZA RICHIESTA / Requested hardness / Festigkeit | N/mm² | | |
| DUREZZA RISCONTRATA N/mm² / Checked hardness / Finden harte | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 |

| | | | | |
|---|---|---|---|---|
| CONTROLLI / Tests / Ausmabetest | C.D.C. | SI | DIMENSIONALE | POSITIVO |
| | MAGNAFLUX 100% | NO | ALTRI | DOUGLAS CHERO Spa NO |
| | VISIVO 100% | SI | | |
| ALLEGATI / Enclosed / Anlage | ANALISI CHIMICA ACCIAIERIA | SI | PRODOTTO AUTOCERTIFICATO | Quality Assurance |
| | CERTIFICATO TRATT. TERMICO | NO | 06 APR. 2004 | P.C. STEVANI VITTORIO ☐ |
| NOTE / Remarks / Bemerkungen | TRATT: RISCALDO A 900C PER 1 ORA OGNI 25mm DI SPESSORE E RAFFREDDAMENTO IN ARIA CALMA. SIGLA DI COLATA "BE" | | | |

CONTROLLO QUALITÀ / QUALITY CONTROL / QUALITATSSTELLE — ISELFA S.p.A. UFFICIO CONTROLLO QUALITA' STAMPAGGIO

COMPILATORE — ISELFA S.p.A. SOLBIATE ARNO (VA)

EMESSO ED ARCHIVIATO DAL RESPONSABILE DEL CONTROLLO FINALE (CFI)

**Bonomi srl**

*STAMPAGGIO A CALDO DELL'ACCIAIO*

23861 CESANA BRIANZA (Lc) Via Carlo Porta, 8

☎ 031/656798 🖷 031/657597

CERTIFICATO N°143467

Partita I.V.A. 02418370132
R.I. Lecco N. 15934
R.E.A. Lecco N. 288235

02508200

TEST CERTIFICATE N° 040075
CERTIFICATO DI COLLAUDO
3.1B-AS-TO- SECONDO
UNI EN 10204
DATA : 12/02/2004

*Spett.le Ditta*
*DOUGLAS CHERO Spa*
*Loc. Pradaglie*
*29013 CARPANETO P.NO (Pc)*

Mod. 28/1

| CUSTOMER ORDER - ORDINE CLIENTE | P.O. | DOCUMENTO DI TRASPORTO | INVOICE-FATTURA |
|---|---|---|---|
| 232561 pos. 1 | | 33 del 12/02/2003 | |

| DESCRIPTION OF PARTICULAR - DESCRIZIONE DEL PARTICOLARE | TYPE AND MATERIAL SPECIFICATIONS-TIPO E SPECIFICA MATERIALE |
|---|---|
| BODY | ASTM A105N |

NUMERO COLATA / HEAT NUMBER: 77588
STELL MILL. ACCIAIERIA: RIVA
ST.M. CERT. N. / CERT. ACC. N.: 32283

CHEMICAL ANALYSIS - ANALISI CHIMICA

| C | MN | SI | P | S | CR | NI | MO | CU | SN |
|---|---|---|---|---|---|---|---|---|---|
| 0.185 | 0.91 | 0.25 | 0.015 | 0.010 | 0.010 | 0.05 | 0.01 | 0.21 | 0.006 |
| **AL** | **TI** | **V** | **NB** | **B** | **C.E.** | | | | |
| 0.023 | 0.021 | 0.017 | 0.000 | 0.000 | 0.38 | | | | |

| HEAT CODE ON FORGING CODICE COLATA | DISEGNO DEL FORGIATO | QUANTITY QUANTITA' |
|---|---|---|
| BAP | N6/9S | 2.127 |

MECHANICAL PROPERTIES - CARATTERISTICHE MECCANICHE

| YIELD STRENGTH P.S.I. SNERVAM. N./mm2 | TENS. STRENGTH P.S.I. ROTT. N/mm2 | ELONG 2" 50 ALLUNG % | RED OF AREA % CONTRAZ. | H.B. |
|---|---|---|---|---|
| 367 | 513 | 30,00 | 61,06 | 150<br>148<br>150 |

IMPACT VALUE -RESILIENZA

| TEMPERATURA DI PROVA ° C | RISULTATO DELLA PROVA JOULE | | | |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |

HEAT TREATMENT - TRATTAMENTO TERMICO

Normalizing

REMARKS

1) The result of chemical analisys is a true and correct copy of the mill certificate issued, by the manufacturer of the steel employed, or by the laboratory witch has determined it.
* I risultati delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati.
2) The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufactoring process inspection or storage.
** Il materiale o i particolari spediti per questi ordini non sono mai venuti a contatto diretto con mercurio o con elementi contenenti mercurio durante la fase di lavorazione, controllo o immagazzinamento.

I certify these tests to be correct as contained in the records of the company
certifico che tutti i dati sono corretti e uguali a quelli registrati presso Bonomi

17 FEB. 2004

*DOUGLAS CHERO Spa*

Quality Assurance .....
P.C. SERVANTI VITTORIO
Sign. .....

Q.A. OFFICE
UFFICIO QUALITA'
Bucca Rosalba

02233710C

# ISELFA

STEEL FORGINGS
ELECTRING FITTINGS

S.p.A. - C.F./P.IVA VAT IT 00189520125
21048 SOLBIATE ARNO (Va) Italy - Corso Roma, 22
P.O. BOX 21 - TELELEFONO +39 (0331) 99.30.08
FAX FORGINGS +39 (0331) 99.15.35 - FAX FITTINGS +39 (0331) 99.46.77

## CONTROLLO QUALITÀ

Certificato di conformità
Compliance certificate
Gemaess Zeugnis
UNI EN 10204/3.1.B

N° 14083 — Data / Date 02.05.03

| | | |
|---|---|---|
| CLIENTE / Customer / Kunde: DOUGLAS CHERO SPA | ORDINE N° / Order / Bestellung: 222004 | DATA / Date / Datum: 06.11.02 |
| RIMESSO N° / Delivery note / Lieferschein: 300753 | DATA / Date / Datum: 02-05-03 | N° PEZZI / Pieces / Stuckzahl: 2.090 |
| DESCRIZIONE - Description - Dezeichnung: CORPI | DISEGNO N° - Drawing - Zeichnung: Dis. N6/9S | INDICE - Last ravision -Verzeichnis: Rev.1 |
| TIPO ACCIAIO / Steel type / Stahl: A 105 BILL.80 | COLATA / Heat / Schmelze: 79315/80 | FORNITORE / Supplier / Lieferant: RIVA ACCIAIO SPA |

COMPOSIZIONE CHIMICA / Chemical composition / Chemische Zusammensetzung

CARATTERISTICHE ACCIAIO (FORNITE DALL'ACCIAIERIA)

| % | C | Mn | Si | Cr | Ni | Mo | V | P | S | Cu | Nb |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA min / Requested / Erforderikhe max | 0,350 | 0,600 / 1,050 | 0,350 | 0,300 | 0,400 | 0,120 | 0,030 | 0,040 | 0,050 | 0,400 | 0,020 |
| FORNITA / Supplied / Wirkilche | 0,1600 | 1,0900 | 0,2000 | 0,0700 | 0,0600 | | 0,0220 | 0,0100 | 0,0120 | 0,1500 | |

PROVA JOMINY / Jominy test / Stimabschreckversuch

| HRC | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA min / Requested / Erforderikhe max | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | GRANO / Grain size / Korngrosse |
| FORNITA / Supplied / Wirkilche | | | | | | | | | | | | 6 |

CARATTERISTICHE MECCANICHE / Mechanical properties / Mechanische Eigenschaften — Normalizzato ☐ Bonificato ☐

| Ø PROVETTA / Ø sample / Ø probest | RP 0,2% / Yield strenght 0,2% / 0,2% Grenze | R / Tensile strenght / Zugfestigkeit | AÇ % / Elongation % / Dehnung % | Z % / Reduc. of area % / Einschnurung % | KCU / Impact value / Kerbschlang |
|---|---|---|---|---|---|
| mm | N/mm² | N/mm² | Lo = Çd | | J (joule) |
| 30 | 320 | 514 | 32 | 59 | 0 / 0 / 0 |

CARATTERISTICHE PRODOTTO

| | | | | | |
|---|---|---|---|---|---|
| TRATT. TERMICO / Heat Treatement / Warmebehandlung | NORMALIZZAZIONE | DUREZZA RICHIESTA / Requested hardness / Fesligkeit | N/mm² | | |
| DUREZZA RISCONTRATA N/mm² / Checked hardness / Finden harte | 0 / 0 | 0 / 0 | 0 / 0 | 0 / 0 | 0 / 0 | 0 / 0 | 0 / 0 | 0 / 0 |

| | | | | |
|---|---|---|---|---|
| CONTROLLI / Tests / Ausmabetest | C.D.C. | SI | DIMENSIONALE | POSITIVO |
| | MAGNAFLUX 100% | NO | ALTRI | NO |
| | VISIVO 100% | SI | DOUGLAS CHERO Spa | |
| ALLEGATI / Enclosed / Anlage | ANALISI CHIMICA ACCIAIERIA | SI | PRODOTTO AUTOCERTIFICATO Quality Assurance | ☐ |
| | CERTIFICATO TRATT. TERMICO | NO | 07 MAG 2003 P.C. STEFANI VITTORIO | |
| NOTE / Remarks / Bemerkungen | TRATT.:RISCALDO A 900C PER 1 ORA OGNI 25mm DI SPESSORE POI RAFFREDDAMENTO IN ARIA CALMA. SIGLA DI COLATA"BA" | | | |

CONTROLLO QUALITÀ / QUALITY CONTROL / QUALITATSSTELLE: ISELFA S.p.A. UFFICIO CONTROLLO QUALITA' STAMPAGGIO

COMPILATORE: ISELFA S.p.A. SOLBIATE ARNO (VA)

EMESSO ED ARCHIVIATO DAL RESPONSABILE DEL CONTROLLO FINALE (CFI)

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

4550

CERTIFICATO DI COLLAUDO
ABNAHMEPRUEFZEUGNIS
INSPECTION CERTIFICATE
CERTIFICAT DE RECEPTION
EN 10204 , 3.1.B

Cliente / Kunde / Customer / Client:
VERRI & PINA SRL
VIA TERRAROSSA, 10 - C.P. N.26
22035-CANZO (CO)-CO

Avviso di Spedizione: A-BZ04006748

Certificato nr: MEST128331/2004/

Conferma ordine nr: MI04002883

Produzione: STABILIMENTO DI BOLZANO

Ordine nr: 94-85-97-103

Marchio di Fabbrica:

Oggetto Prova: Decapato Ricotto lavorabile Laminato

Tipo di Elaborazione: E+AOD

Funzione del Collaudatore:

Specifiche:
ASTM A182 2000C S41000 CLASS2 (d)
(d) Chemical analysis only and mech.properties(for ASTM A182(M))

Qualità: 410

Marca: VAL1

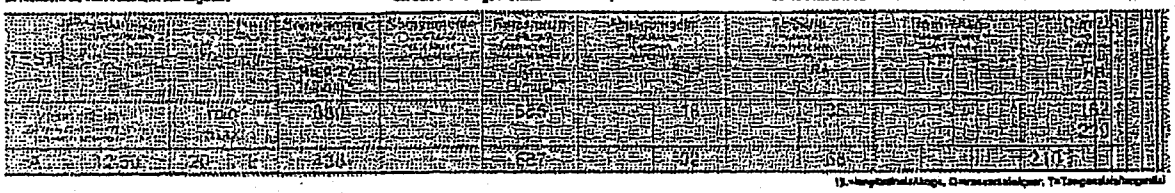
Piallonatura: S.410

| Pos. nr. | Oggetto | Dimensioni - mm | Tolleranza | | Colata | Pezzi | Peso - | Lotto nr. |
|---|---|---|---|---|---|---|---|---|
| 10 | Tondo | 20,000 | | | 238209 | | 1080,00 | 409202530 |

Sono state soddisfatte tutte le condizioni richieste

Controllo antimescolanza: OK

Controllo visivo e dimensionale: soddisfa le esigenze:



## Analisi chimica

| Colata | min - max | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0,15 | 1,00 | 1,00 | 11,50 - 13,50 | 0,60 | 0,040 | 0,030 | | | | | | | |
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | |
| 238209 | 0,14 | 0,33 | 0,76 | 12,64 | 0,47 | 0,024 | 0,029 | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pr  e Environment Directive [97/23/EC] Annex 1,s. 4.3 by TUEV and LLOYD

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

Bolzano, 27/08/04

Il collaudatore di stabilimento / der Werksachverständige / Works inspector / L'agent d'usine
R. Cristel

# Acciaierie Valbruna S.p.A.

38100 VICENZA (Italia) - Viale della scienza, 25 z.i.

Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

## CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION
EN 10204 , 3.1.B

Ø20 FORK

Cliente / Besteller/Purchaser/Client
ACC.VALBRUNA SPA-MAG.CORMANO
VIA BIZZOZZERO, 125
20032 - CORMANO (MI) - MI

Produttore: STABILIMENTO DI BOLZANO
Hersteller/Item/Usine productrice

Avviso di Spedizione: A-BZ03005496
Lieferanzeige/Packing list/B.L.

Certificato nr: MEST055587/2003/
Prüfung/Test/Essai

Conferma ordine nr: MI03007175
Werks/Our Order/Ref nr.

Ordine nr: TRASFERIMENTO DA BOLZANO
Bestell/Your order/Commande

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice

Oggetto Prova: Secondo esecuzione Ricotto lavorabile Pelato
Prüfgegenstand/Item inspected/Reissage

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'elaboration

Punzone del Collaudatore:
Stempel des Werksachverständigen
Inspector's stamp/Poinçon de l'expert

Specifiche:
Anforderungen / Requirements / Exigences

VALBRUNA 2002 410 A ()
ASME (1) SA479 2001 S41000 A (1)
ASTM A479 2001 S41000 A ()
[illegible] PTA 2001 EDITION
[illegible] PTA 2001 EDITION
(2) chemical analysis only and mecc.properties(for ASTM A182[M])

AISI 410 ()
ASTM A182 2000C S41000 CLASS2 (2)
EN 10088-3 95 1.4006 A ()

ASME (1) SA182 2001 S41000 CLASS2 (2)
ASTM A276 2000A S41000 A ()
EN 10272 2000 1.4006 A ()

Qualità: 410
Qualität/Quality/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Nuance

Punzonatura: 410
Kennzeichnung/Marking/Marquage

| Pos. nr. / Pos.nr. / Item nr. / Nr. de poste | Oggetto / Gegenstand / Product description / Descrip. du produit | Dimensioni - mm / Abmessungen / Dimension / Dimension | Tolleranza / Toleranz / Allowance / Tolerance | Lunghezza - mm / Länge / Length / Longueur | Colata / Schmelze / Heat / Coulée | Pezzi / Stückzahl / Pieces / Pieces | Peso - KG / Gewicht / Weight / Poids | Lotto nr. / Losnr. / Lot nr. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0020 | Tondo | 20,000 | K12-MIN | 5000 / 5500 | 236784 | | ~~7621,0~~ 1007 | 310700680 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind fl. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à été vouvé conforme aux exigences

Controllo antimescolanza: OK
Verwechslungsprüfung: spektralanalytisch durchgeführt
Antimixing testing performed: OK
Contrôle antimélange fait: r.s.s.

Controllo visivo e dimensionale: soddisfa le esigenze:
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional check:satisfactory
Contrôle visuel et dimensionel: satisfaisant

| TEST | Provetta/Probestab / Specimen/Eprouvette: Long.diam. Spess. / Diam.Gland. Diam.Glass. Dicke / Width Diam. Thickness / Larg. diam. epss. mm | °C | Posiz. Saggio / Probenlage / Location / Emplacement | Snervamento / Grenze / Yield Stress / Limite apparente Rp 0,2% N/mm2 | Snervamento / Grenze / Yield Stress / Limite apparente | Resistenza / Zugfestigkeit / Tensile strength / Resistance à traction Rm N/mm2 | Allungamento / Bruchdehnung / Elongation / Allongement A5 % | Allungamento E 2" % | Strizione / Einschnürung / Reduction of Area / Striction Z % | Strizione RA % | Resilienza / Kerbschlagarbeit / Impact Value / Resilience °C | Durezza / Härte / Hardness / Dureté HB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 / Anforderungswerte/Required values / Valeurs demandées | | min | | 380 | - | 585 | - | 20 | - | 45 | - | 167 |
| | | max | | | | 730 | | | | | | 220 |
| | 10.00 | 20 | L | 490 | | 670 | 29 | 33 | 69 | 69 | | 190 |

1) Längsrichtung/Längs, Querrichtung/quer, T=Tangential/tangential

## Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata: Schmelze/Heat/Coulée | 0,080 min 0,150 max | - 1,00 | - 1,00 | 11,50 13,50 | - 0,50 | - 0,040 | - 0,030 | - | - | - | - | - | - | - | - |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 236784 | 0,141 | 0,37 | 0,72 | 12,37 | 0,34 | 0,020 | 0,030 | | | | | | | | |

The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,s. 4.3 by TUEV and LLOYD'S

29 LUG. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign .....

COPIA CONFORME ALL' ORIGINALE
ACCIAIERIE VALBRUNA S.P.A.
FILIALE DI CORMANO

Bolzano,23/10/03
Mod./BBL.006

Il collaudatore di stabilimento
der Werksachverständige/Works inspector/L'agent d'usine
S.Pain



2326/1/01

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948

E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129


CERTIFICATO DI COLLAUDO
Inspection certificate

26738

N°6128/DCH DATE-16.11.04

CLIENTE- DOUGLAS CHERO Spa — Customer
ORDINE-242000 — Order
BOLLA CONSEGNA N-3750 — Delivery note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| | | | B7 | |
| 1 | 6733 | VITI TE M 12 X 30,5 | ASTM A 193/A 193M | AR4273 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Cr | Mo | S | P |
|---|---|---|---|---|---|---|---|---|
| REQUIRED VALUE | min. | 0.37 | 0.65 | 0.15 | 0.75 | 0.15 | | |
| | max. | 0.49 | 1.10 | 0.35 | 1.20 | 0.25 | 0.040 | 0.035 |
| HEAT n. AR4273 | | 0,44 | 0,77 | 0,26 | 1,06 | 0,23 | 0,005 | 0,007 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

| | Rm. | Rp.(0,2) | A4 | Z. | Hardness |
|---|---|---|---|---|---|
| REQUIRED | min. 860 MPa | min. 720 MPa | min. 16% | min. 50% | max 35 HRC |
| ACTUAL VALUE | 1032 | 945 | 17,5 | 53,5 | 32 |

HEAT TREATMENT
Quenched at : 860 °C in oil
Tempering : 2 hours at 593 °C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

QUALITY CONTROL

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

22 NOV. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
R.C. STEFANI VITTORIO
Firma .....

MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

**Bonomi srl**
*STAMPAGGIO A CALDO DELL'ACCIAIO*
23861 CESANA BRIANZA (Lc) Via Carlo Porta, 8
☎ 031/656798 🖷 031/657597

CERTIFICATO N°143467

Partita I.V.A. 02418370132
R.I. Lecco N. 15934
R.E.A. Lecco N. 288235

00249300

TEST CERTIFICATE N° 040076
CERTIFICATO DI COLLAUDO
3.1B-AS-TO- SECONDO
UNI EN 10204
DATA: 20/02/2004

*Spett.le Ditta*
*DOUGLAS CHERO Spa*
*Loc. Pradaglie*
*29013 CARPANETO P.NO (Pc)*

Mod. 28/1

| CUSTOMER ORDER - ORDINE CLIENTE | P.O. | DOCUMENTO DI TRASPORTO | INVOICE-FATTURA |
|---|---|---|---|
| 232561 pos. 2 | | 33 del 12/02/2004 | |

| DESCRIPTION OF PARTICULAR - DESCRIZIONE DEL PARTICOLARE | TYPE AND MATERIAL SPECIFICATIONS-TIPO E SPECIFICA MATERIALE |
|---|---|
| BONNET | ASTM A105N |

NUMERO COLATA / HEAT NUMBER: 03/76085
STELL MILL. ACCIAIERIA: RIVA
ST.M. CERT. N. / CERT. ACC. N.: 593

CHEMICAL ANALYSIS - ANALISI CHIMICA

| C | MN | SI | P | S | CR | NI | MO | CU | SN |
|---|---|---|---|---|---|---|---|---|---|
| 0.195 | 0.92 | 0.17 | 0.012 | 0.007 | 0.07 | 0.05 | 0.01 | 0.16 | 0.007 |
| **AL** | **TI** | **V** | **NB** | **B** | **C.E.** | | | | |
| 0.020 | 0.021 | 0.022 | 0.000 | 0.000 | 0.38 | | | | |

| HEAT CODE ON FORGING CODICE COLATA | DISEGNO DEL FORGIATO | QUANTITY QUANTITA' |
|---|---|---|
| BAR | N6/8 | 3.058 |

MECHANICAL PROPERTIES - CARATTERISTICHE MECCANICHE

| YIELD STRENGTH P.S.I. SNERVAM. N./mm2 | TENS. STRENGTH P.S.I. ROTT. N/mm2 | ELONG 2" 50 ALLUNG % | RED OF AREA % CONTRAZ. | H.B. |
|---|---|---|---|---|
| 359 | 533 | 24,40 | 61,67 | 154<br>151<br>154 |

HEAT TREATMENT - TRATTAMENTO TERMICO
Normalizing

**REMARKS**

1) The result of chemical analisys is a true and correct copy of the mill certificate issued, by the manufacturer of the steel employed, or by the laboratory witch has determined it.
* I risultati delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati.
2) The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufactoring process inspection or storage.
** Il materiale o i particolari spediti per questi ordini non sono mai venuti a contatto diretto con mercurio o con elementi contenenti mercurio durante la fase di lavorazione, controllo o immagazzinamento.

I certify these tests to be correct as contained in the records of the company
certifico che tutti i dati sono corretti e uguali a quelli registrati presso Bonomi

24 FEB. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

Q.A. OFFICE
UFFICIO QUALITA'
Bucca Rosalba

**UGITECH**
Groupe Arcelor

**FRANCE**

5 Usine Productrice / Hersteller / Manufacturer: **UGINE** F 73403 UGINE CEDEX
Tél : 04.79.89.30.20
Fax : 04.79.89.30.51

4 N. Nr No 80208

11 N. de commande usine-Werksbestellnummer-Works order number: FUGE TEJE 01/01 8Z101000 Q

3

# CERTIFICATO COLLAUDO DI ACCETTAZIONE B
# CERTIFICAT DE RECEPTION 3.1.B
# INSPECTION CERTIFICATE B

EN 10204 / 3.1.B

Produkt / Erzeugnisform / Product: IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE 6

Client et/ou destinataire - Besteller und/oder Empfaenger - Purchaser and/or Consignee 9: TECNOMECCANICA SRL

N. de commande client - Kundenbestellnummer - Purchaser order number 10: 364

Nuance et spécifications techniques - Stahlsorte und Pruefbedingungen - Quality and Specifications 12: IMA4006 410 AISI 410 UNS S41000
SPEC. SDA 09 DU 20/11/01 (SAUF MN)

Etat de livraison - Lieferzustand - As delivered (1) 13: TEMPRATO RINVENUTO

Traitement de Référence - Probestreifenbehandlung - Treatment of test samples (1) 14:

| Identification du produit Erzeugnis Benennung-Product identification N. de cde usine Werksbestellnummer Works order number 15 | N. de poste Post Nr 17 | N. de Coulée Schmelz Nr Heat No 16 | Nombre Stueckzahl Pieces Nbr 18 | Profil Profile Shape 19 | Dimension Ausmassung Dimension 20 | Longueur Laenge Length 21 | Masse Gewicht Weight 22 |
|---|---|---|---|---|---|---|---|
| 8Z101 000 | | 350031 | 190 | TONDO | 20,000 | | 1974 KG |

Traction - Zugversuch - Tensile test

| Prélèvement Probenummer Test N. | Demandé Vorschrift Required | Direction Richtung Direction (3) | Température d'essai Pruefltemperatur Test Temperature | Limite d'Elasticité Streckgrenze Yield Strength 0,2 % | Limite d'Elasticité Streckgrenze Yield Strength 1 % | Résistance à la traction Zugfestigkeit Tensile strength | Allongement Bruchdehnung Elongation | Striction Einschnuerung Red of Area | Dureté Haerte Hardness (4) | Type Form Type | Entaille Kerbe Notch | Température d'essai Pruefltemperatur Test Temperature | Valeurs individuelles Einzelwerte Individual Values | Moyenne Mittelwerte Average | Dureté Haerte Hardness (5) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 B | 24 | 25 | | 26 A | 26 B | 27 | 28 | 29 | 30 | 31 | (3) 32 | 33 | 35 | 36 | 37 |
| | | L | °C | MPA | MPA | MPA | % | % | | | | | | | HB |
| | Min | | 20 | 275 | | 585 | 20 | 45 | | | | | | | |
| | Max | | | | | | | | | | | | | | 237 |
| | (4) | | | | | | | | | | | | | | |
| | (5) | | | 607 | | 684 21 72 | | | | | | | | | 205 |

| 39 A N. de Prélèvement Probenummer Test N. | Demandé Vorschrift Required | 40 | Analyse Produit-Shoot analyse-Check Analysis | 42 C | 43 SI | 44 MN | 45 NI | 46 CR | 47 S | 48 P | 49 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Min | | | | 0,30 | | 11,50 | | | | |
| | | Max | | 0,150 | 0,60 | 0,60 | | 13,50 | 0,030 | 0,040 | | |
| | N. de Coulée Schmelz Nr Heat N. | | | | | | | | | | | |
| 350031 | | | | 0,107 | 0,42 | 0,38 | 0,35 | 12,18 | 0,022 | 0,019 | | |

| 38 Mode d'élaboration Erschmelzungsart Making process | Demandé Vorschrift Required | 51 | 52 | 53 | 54 | 55 |
|---|---|---|---|---|---|---|
| Electrique Elektrisch Electric | Min | | | | | |
| | Max | | | | | |

IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE

06 MAG. 2004

DOUGLAS CHERO Spa

Quality Assurance .....

P.C. STEFANI VITTORIO

Sign .....

56

(3) L = Long / Laengs - Long / T = Travers / Quer-Transverse 58

(1) TE = Trempé à l'eau - Wasserhaerten - Waterquench
TH = Trempé à l'huile - Oelhaerten - Oil Quench
A = Hypertrempé - Loesungsgeglueht - Solution annealed
R = Revenu - Anlassen - Tempered
RT = Recuit - Geglueht - Annealed
TRM = Recuit maxi - Weichgeglueht - Maxi annealed 7

(4) A l'état de référence / Zum Bezug Zustand / At reference condition 60 A

(5) A l'état de livraison / In Lieferzustand / In state of delivery 60 B

Contrôles de marquage, d'aspect et de dimensions satisfaisants
Bezeichnung, Beschichtigung und Ausmessung : ohne Beanstandung
Marking, inspection and measurement : without objection 62

Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande
Wir bestätigen hiermit dass die obengenannten Erzeugnisse den Bestellungsvorschriften entsprechen
We certify hereby that the above mentioned products are consistent with the order prescriptions 66

Usine, le 15-01-04
L'Agent Réceptionnaire de l'usine
Der Werksabnahmebeauftragte
The Work Inspector
H. Mayet 83

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** ***Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt***
Customer:

**Bestell-Nr.:** ***Lurgi Job – No.:*** ***69690-10***
Order no.: ***Lurgi OGC PO.-No.:*** ***4567569-000 to -001/1.69690/136***

*Project Name :* ***2nd Zagros Methanol Plant - Iran***

**Auftrag-Nr.:** ***HH – 02535***
Job no.:

**Lieferumfang** / range:

| **Pos** | **Stck.** pcs. | **Gegenstand** object | **DN** | **PN** | **Werkstoff** material | **Bemerkung** comment |
|---|---|---|---|---|---|---|
| *00130* | *95* | *Gate valve*<br>*FB BB SW*<br>*Seats + Wedge Stell.* | *1"* | *Cl.800* | *ASTM A 105N* | *Valve Ident – No.: " S306 "* |

**Auslegung + Prüfung nach** API 602 – BS EN ISO 15761, API 598 / BS EN 12266-1
Design and tests acc. To ASME B16.34 – B16.25 – B16.11 – B1.20.1

**Sicht- und Funktionsprüfung:** *o.k.*
visual and functional test:

**Festigkeits-/Dichtheitsprüfung:**
strength-/tightness-test:

| | | | |
|---|---|---|---|
| *Festigkeit / shell test* | = | *211 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *156 bar Wasser / water* | (60 sec) |
| *Rückdichtung / backseat* | = | *156 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *6 bar Luft / air* | (60 sec) |

**Prüfungsergebnis:** *ohne Beanstandung !*
result: *no complaint !*

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** *Dokumentation gemäß Material-Dokumentationsdeckblatt*
enclosure *Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter W. Glass
Person in charge Walli Gl

**Kommissions-Nr. / Reference No.**

**HH-02535**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00130 | Gate Valve | " S306 " | 95 | Body | Y-BE | ASTM A105N | Iselfa | 76009/80 | | 16310 |
| | 1" Cl. 800 lbs. FB, BB, SW | Drawing-No.: F210-7/SW | | Wedge | | A182/F6a C.2 stel. | Valbruna | 237839 | | 110880/2004 |
| | seats+wedge stell. | | | Seat | | A182/F6a C.2 stel. | Valbruna | 237411 | | 134329/2004 |
| | | | | Body Srew | | ASTM A193/B7 | Morandi | AR4273 | | 6129 |
| | | | | Bonnet | Y-AZ | ASTM A105N | Iselfa | 04/70222 | | 17458 |
| | | | | Stem | | A182/F6a C.2 | Ugitech | 350031 | | 80208 |
| | | | | | | | | | | |
| | | | | | | | | | | |
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ISELFA
STEEL FORGINGS
ELECTRING FITTINGS
S.p.A. - C.F./P.IVA VAT IT 00189520125
21048 SOLBIATE ARNO (Va) Italy - Corso Roma, 22
P.O. BOX 21 - TELELEFONO +39 (0331) 99.30.08
FAX FORGINGS +39 (0331) 99.15.35 - FAX FITTINGS +39 (0331) 99.46.77

# CONTROLLO QUALITÀ

Certificato di conformità
Compliance certificate
Gemaess Zeugnis
UNI EN 10204/3.1.B

N° 16310 — Data / Date 31.03.04

| | | | | | |
|---|---|---|---|---|---|
| CLIENTE / Customer / Kunde | DOUGLAS CHERO SPA | ORDINE N° / Order / Bestellung | 231844 | DATA / Date / Datum | 12.09.03 |
| RIMESSO N° / Delivery note / Lieferschein | 400529 | DATA / Date / Datum | 31-03-04 | N° PEZZI / Pieces / Stuckzahl | 2.420 |
| DESCRIZIONE - Description - Dezeichnung | CORPI | DISEGNO N° - Drawing - Zeichnung | Dis. N6/98 | INDICE - Last revision - Verzeichnis | Rev.1 |
| TIPO ACCIAIO / Steel type / Stahl | ASTM-A.105 BILL.80 | COLATA / Heat / Schmelze | 76009/80 | FORNITORE / Supplier / Lieferant | RIVA ACCIAIO SPA |

COMPOSIZIONE CHIMICA / *Chemical composition / Chemische Zusammensetzung*

CARATTERISTICHE ACCIAIO (FORNITE DALL'ACCIAIERIA)

| % | | C | Mn | Si | Cr | Ni | Mo | V | P | S | Cu | Nb |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA / Requested / Erforderikhe | min | | 0,600 | | | | | | | | | |
| | max | 0,350 | 1,050 | 0,350 | 0,300 | 0,400 | 0,120 | 0,030 | 0,040 | 0,050 | 0,400 | 0,020 |
| FORNITA / Supplied / Wirklche | | 0,2100 | 0,9000 | 0,2100 | 0,0900 | 0,0500 | 0,0100 | 0,0210 | 0,0130 | 0,0020 | 0,1700 | |

PROVA JOMINY / *Jominy test / Stimabschreckversuch*

| | | HRC | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA / Requested / Erforderikhe | min | | | | | | | | | | | | GRANO / Grain size / Korngrosse |
| | max | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | |
| FORNITA / Supplied / Wirklche | | | | | | | | | | | | | 6 |

CARATTERISTICHE MECCANICHE / *Mechanical properties / Mechanische Eigenscheften* — Normalizzato ☐ Bonificato ☐

| Ø PROVETTA / Ø sample / Ø probest | RP 0,2% / Yield strenght 0,2% / 0,2% Granze | R / Tensile strenght / Zugfestigkeit | A% / Elongation % / Dehnung % | Z % / Reduc. of area % / Einschnurung % | KCU / Impact value / Korbschlang |
|---|---|---|---|---|---|
| mm | N/mm² | N/mm² | Lo = 5d | | J (joule) |
| 30 | 324 | 524 | 32 | 56 | 0 / 0 / 0 |

CARATTERISTICHE PRODOTTO

| | | | | | |
|---|---|---|---|---|---|
| TRATT. TERMICO / Heat Trealement / Warmebehandlung | NORMALIZZAZIONE | DUREZZA RICHIESTA / Requested hardness / Festigkeit | N/mm² | | |
| DUREZZA RISCONTRATA N/mm² / Checked hardness / Finden harte | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 |

| | | | | |
|---|---|---|---|---|
| CONTROLLI / Tests / Ausmabetest | C.D.C. | SI | DIMENSIONALE | POSITIVO |
| | MAGNAFLUX 100% | NO | ALTRI | DOUGLAS CHERO Spa NO |
| | VISIVO 100% | SI | | |
| ALLEGATI / Enclosed / Anlage | ANALISI CHIMICA ACCIAIERIA | SI | PRODOTTO AUTOCERTIFICATO | Quality Assurance ..... |
| | CERTIFICATO TRATT. TERMICO | NO | 06 APR. 2004 | P.C. STEVANI VITTORIO ☐ |
| NOTE / Remarks / Bemerkungen | TRATT: RISCALDO A 900C PER 1 ORA OGNI 25mm DI SPESSORE E RAFFREDDAMENTO IN ARIA CALMA. SIGLA DI COLATA "BE" | | | |

CONTROLLO QUALITÀ / QUALITY CONTROL / QUALITATSSTELLE — ISELFA S.p.A. UFFICIO CONTROLLO QUALITA' STAMPAGGIO

COMPILATORE — ISELFA S.p.A. SOLBIATE ARNO (VA)

EMESSO ED ARCHIVIATO DAL RESPONSABILE DEL CONTROLLO FINALE (CFI)

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.I.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Kunde/Purchaser/Client
ACC.VALBRUNA SPA-MAG.CORMANO
VIA BIZZOZZERO, 125
20032 - CORMANO (MI) - MI

Produttore: STABILIMENTO DI BOLZANO
Hersteller/Fabricant/Works producer

Oggetto Prove: - Ricotto lavorabile Pelato
Prüfgegenstand/Item inspected/Fini

Avviso di Spedizione: A/8204004757
Lieferanzeige/Packing note

Ordine nr: TRASFERIMENTO SU APPRON
Bestell/Your order/Commande

Tubo 6123

VERIF e PIND

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'élaboration

## CERTIFICATO DI COLLAUDO
## ABNAHMEPRUEFZEUGNIS
## INSPECTION CERTIFICATE
## CERTIFICAT DE RECEPTION
## EN 10204 , 3.1.B

448

Certificato nr: MEST110880/2004/
Prüfung/Test/Essai

Conferma ordine nr: MI04000176
Werks/Our Order/Ref nr.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice

Punzone del Collaudatore:
Stempel des Werksachverständigen
Inspector's stamp/Poinçon de l'essayeur

SC

Specifiche:
Anforderungen / Requirements / Exigences

VALBRUNA 2002 410 A ()
ASME (1) SA479 2001 S41000 A (1)
ASTM A479 2001 S41000 A ()
SEC.II PT.A 2001 EDITION
Chemical analysis only.

AISI 410 ()
ASTM A182 2002 S41000 (2)
EN 10088-3 95 1.4006 A ()
(1) SEC.II PT.A 2001 EDITION
()

ASME (1) SA182 2001 S41000 CLASS2 (2)
ASTM A276 2000A S41000 A ()
EN 10272 2000 1.4006 A ()

Qualità: 410
Werkstoff/Quality/Nuance

Forza: VAL1
Herstellerbezeichnung/Brand/Nuance

Punzonatura: 410
Kennzeichnung/Marking/Etiquette

| Pos. nr. Pos. nr. Rang nr. Nr. de poste | Oggetto Dimensione Produzi stazionata Dimens. du produit | Dimensioni - mm Abmessungen Dimension Dimension | Tolleranza Toleranz. Allowance Tolerance | Lunghezza - mm Länge Length Longueur | Colata Schmelze Heat Coulée | Pezzi Stückzahl Pieces Pièces | Peso - KG Gewicht Weight Poids | Lotto nr. Losnr. Lot nr. Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0010 | Tondo | 28,000 | K12-MIN | 5000 / 5500 | 237839 | | 3482,[illegible] | 336600470 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind in Auftrag erfüllt
The material has been furnished in accordance with the requirements
La matière a été fournie conforme aux exigences

Controllo antimescolanza: OK
Verwechslungsprüfung: spektralanalytisch durchgeführt
Animixing testing performed: OK
Contrôle antimélange fait par

Controllo visivo e dimensionale: soddisfa le esigenze:
Beanstandungsfreie Abmessungen ohne Oberflächenfehler
Visual inspection and dimensional checks satisfactory
Contrôle visuel et dimensionnel satisfaisant

| TEST | Provetta Probestück Test piece mm | °C | Prova Saggio Test Essai | Snervamento Streck Yield Strength Limite d'élasticité Rp 0,2% N/mm2 | Snervamento Streck Yield Strength Limite d'élasticité | Resistenza Zugfestigkeit Tensile Strength Résistance à la traction Rm N/mm2 | Allungamento Bruchdehnung Elongation Allongement A5 % | Allungamento E 4d % | Strizione Brucheinschnürung Reduction of area Striction Z % | Strizione RA | Resilienza Kerbschlagarbeit Impact Value Résilience | Durezza Härte Hardness Dureté HB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 | | min | | 380 | - | 585 | - | 20 | - | 45 | - | 167 |
| | | max | | | | 730 | | | | | | 220 |
| A | 10.00 | 20 | L | 458 | | 694 | 30 | 32 | 66 | 66 | | 212 |

1L=longitudinale/Längs, Q=trasversale/Quer, T=Tangenziale/Tangential

## Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata max / Schmelze/Coulée | min 0,000 max 0,150 | - 1,00 | - 1,00 | 11,50 13,50 | - 0,50 | - 0,040 | - 0,030 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 237839 | 0,140 | 0,40 | 0,79 | 12,61 | 0,24 | 0,018 | 0,024 | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex I,4.3 by TUEV and LLOYD'S

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVAN VITTORIO
Sign. .....

COPIA CONFORME ALL'ORIGINALE
ACCIAIERIE VALBRUNA S.P.A.
FILIALE DI CORMANO

Bolzano,08/06/04
Bolzano/BOLZANO

Il collaudatore di stabilimento / der Werksachverständige / Works inspector / L'agent d'usine
R.Cristel

Pagina 1

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

# CERTIFICATO DI COLLAUDO
# ABNAHMEPRUEFZEUGNIS
# INSPECTION CERTIFICATE
# CERTIFICAT DE RECEPTION
# EN 10204 , 3.1.B

Ø 32
F5 Lic

Cliente / Besteller/Purchaser/Client
ARCOSS SNC DEI F.LLI ASSOLARI
VIA LEVATA N.19/A
24068-SERIATE (BG)-BG

Avviso di Spedizione: A 2406/1003
Lieferanzeige/Packing list/B.L.

Certificato nr: MEST134329/2004/
Prüfung/Test/Essai

Conferma ordine nr: MI04006028
Werks/Our Order/Ref nr.

Produttore: STABILIMENTO DI BOLZANO
Herstellerlitem/Usine productrice

Ordine nr: ORD.TEL
Bestell/Your order/Commande

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice

Oggetto Prove: - Ricotto lavorabile Pelato
Prüfgegenstand/Item inspected/Fini

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'elaboration

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'essayeur

SC

Specifiche:
Anforderungen / Requirements / Exigences

VALBRUNA 2002 410 OBSOLE
ASME (1) SA479 2001 S41000 A (1)
ASTM A479 2001 S41000 A
SEC.II PT.A 2001 EDITION
Chemical analysis only.

AISI 410
ASTM A182 2002 S41000 (2)
EN 10088-3 95 1.4006 A

ASME (1) SA182 2001 S41000 CLASS2 (0)
ASTM A276 2000A S41000 A
EN 10272 2000 1.4006 A

(1) SEC.II PT.A 2001 EDITION

Qualità: 410
Werkstoff/Grade/Nuance

Marca: VAL1
Markenzeichnung/Brand/Nuance

Punzonatura: 410
Kennzeichnung/Marking/Marquage

| Pos. nr. / Item nr. / Nr. da poste | Oggetto / Gegenstand / Product description / Descrip. du produit | Dimensioni - mm / Abmessungen / Dimension / Dimension | Tolleranze / Toleranz. / Allowance / Tolerance | Lunghezza - mm / Lange / Length / Longueur | Colata / Schmelze / Heat / Coulée | Pezzi / Stückzahl / Pieces / Pièces | Peso - KG / Gewicht / Weight / Poids | Lotto nr. / Losnr. / Lot nr. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0030 | Tondo | 32,000 | K12-MIN | 5000 / 5500 | 237411 | 1 | 642,0 | 335600480 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind il. Anlage erfüllt
The material has been finished in accordance with the requirements
Le matériel a été trouvé conforme aux exigences

Controllo antimescolanza: OK
Verwechslungsprüfung: spektralanalytisch durchgeführt
Antimixing testing performed: OK
Contrôle antimélange fait r.s.e.

Controllo visivo e dimensionale: soddisfa le esigenze
Besteingang und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks satisfactory
Contrôle visuel et dimensions: satisfaisant

| | Provetta/Probestab / Specimen / Eprouvette Larg. Diam. Spess. / Breite Durch. Dicke / Width Diam. Thickness / Larg. diam. epais. mm | °C | Posiz. Saggio / Probenlage / Location / Localisation | Snervamento / Streckgrenze / Yield Stress / Limite elastique Rp 0,2% N/mm2 | Snervamento / Streckgrenze / Yield Stress / Limite elastique | Resistenza / Zugfestigkeit / Tensile strength / Resistance à traction Rm N/mm2 | Allungamento / Bruchdehnung / Elongation / Allongement A5 % | Allungamento / Bruchdehnung / Elongation / Allongement E 4d % | Strizione / Einschnürung / Reduction of area / Striction Z % | Strizione / Einschnürung / Reduction of area / Striction RA % | Resilienza / Kerbschlagarbeit / Impact Value / Resilience | Durezza / Harte / Hardness / Dureté HB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TEST | | | | | | | | | | | | |
| Valori richiesti 1 / Anforderungen/Required value / Valeurs demandées | | min / max | | 380 | - | 585 / 730 | - | 20 | - | 45 | - | 167 / 220 |
| A | 10.00 | 20 | L | 458 | | 675 | 30 | 32 | 65 | 65 | | 205 |

1)L=longitudinale/langs, Q=trasversale/quer, T=Tangenziale/tangential

## Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata / Heat / Schmelze/Coulée | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min 0,080 max 0,150 | - 1,00 | - 1,00 | 11,50 13,50 | - 0,50 | - 0,040 | - 0,030 | - - | - - | - - | - - | - - | - - | - - | - - | |
| 237411 | 0,139 | 0,39 | 0,74 | 12,10 | 0,23 | 0,017 | 0,022 | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,a.,4.3 by TUEV and LLOYD'S

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

COPIA CONFORME ALL' ORIGINALE
ACCIAIERIE VALBRUNA S.P.A.
FILIALE DI CORMANO

| | | |
|---|---|---|
| Bolzano,08/06/04<br>Mod.RBIL006 | Il collaudatore di stabilimento / der Werkssachverständige / Works inspector / L'agent d'usine<br>R.Cristel | Pagina - 1 di 1 |

2120721

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.948 • Fax 0331.302.948

E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129


CERTIFICATO DI COLLAUDO
Inspection certificate 26738 N°6128/DCH DATE-16.11.04

CLIENTE- DOUGLAS CHERO Spa ORDINE-242000 BOLLA CONSEGNA N-3750
Customer Order Delivery note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| 1 | 6733 | VITI TE M 12 X 30,5 | B7 ASTM A 193/A 193M | AR4273 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Cr | Mo | S | P |
|---|---|---|---|---|---|---|---|---|
| REQUIRED VALUE | min. | 0.37 | 0.65 | 0.15 | 0.75 | 0.15 | | |
| | max. | 0.49 | 1.10 | 0.35 | 1.20 | 0.25 | 0.040 | 0.035 |
| HEAT n. AR4273 | | 0,44 | 0,77 | 0,26 | 1,06 | 0,23 | 0,005 | 0,007 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

| | Rm. | Rp.(0,2) | A4 | Z. | Hardness |
|---|---|---|---|---|---|
| REQUIRED | min. 860 MPa | min. 720 MPa | min. 16% | min. 50% | max 35 HRC |
| ACTUAL VALUE | 1032 | 945 | 17,5 | 53,5 | 32 |

HEAT TREATMENT
Quenched at : 860 °C in oil
Tempering : 2 hours at 593 °C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

QUALITY CONTROL

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

22 NOV. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Firma .....

MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

26800

ISELFA

STEEL FORGINGS
ELECTRING FITTINGS

S.p.A. - C.F./P. IVA IT 00189520125
21048 SOLBIATE ARNO (Va) Italy - Corso Roma, 22
Casella Postale n. 57 - TELEFONO +39 0331 99 30 08
FAX FORGINGS +39 0331 99 15 95 - FAX FITTINGS +39 0331 99 46 77

ICIM

# CONTROLLO QUALITÀ

Certificato di conformità
Compliance certificate
Gemaess Zeugnis
UNI EN 10204/3.1.B

N° 17458 — Data / Date 09.11.04

| | | | | | |
|---|---|---|---|---|---|
| CLIENTE / Customer / Kunde | DOUGLAS CHERO SPA | ORDINE N° / Order / Bestellung | 240696 | DATA / Date / Datum | 25.03.04 |
| RIMESSO N° / Delivery note / Lieferschein | 401803 | DATA / Date / Datum | 09-11-04 | N° PEZZI / Pieces / Stuckzahl. | 522 |

DESCRIZIONE - *Description* - *Dezeichnung*: CAPPELLI 1.1/2"-80088 Dis. N6/8

DISEGNO N° - *Drawing* - *Zeichnung*:

INDICE - *Last revision* - *Verzeichnis*:

| TIPO ACCIAIO / Steel type / Stahl | COLATA / Heat / Schmelze | FORNITORE / Supplier / Lieferant |
|---|---|---|
| ASTM-A.105 BILL.50 | 04J702222/60 | RIVA ACCIAIO SPA |

COMPOSIZIONE CHIMICA / *Chemical composition* / *Chemische Zusammensetzung*

CARATTERISTICHE ACCIAIO (FORNITE DALL'ACCIAIERIA)

| % | C | Mn | Si | Cr | Ni | Mo | V | P | S | Cu | Nb |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA min / Requested / Erforderlikhe max | 0,350 | 0,600 / 1,050 | 0,350 | 0,300 | 0,400 | 0,120 | 0,030 | 0,040 | 0,050 | 0,400 | 0,020 |
| FORNITA / Supplied / Wirklche | 0,1650 | 0,9000 | 0,1900 | 0,0900 | 0,0500 | 0,0100 | 0,0180 | 0,0130 | 0,0100 | 0,1800 | |

PROVA JOMINY / *Jominy test* / *Stimabschreckversuch*

| | HRC | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA min / Requested / Erforderlikhe max | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | GRANO / Grain size / Korngrosse |
| FORNITA / Supplied / Wirklche | | | | | | | | | | | | 6 |

CARATTERISTICHE MECCANICHE / *Mechanical properties* / *Mechanische Eigenscheften* — Normalizzato ☐ Bonificato ☐

| Ø PROVETTA / Ø sample / Ø probest | RP 0,2% / Yield strenght 0,2% / 0,2% Grenze | R / Tensile strenght / Zugfestigkeit | A% / Elongation % / Dehnung % | Z % / Reduc. of area % / Einschnurung % | KCU / Impact value / Kerbschlang |
|---|---|---|---|---|---|
| mm | N/mm² | N/mm² | Lo = 5d | | J (joule) |
| 10 | 314 | 506 | 33 | 57 | 48 / 0 / 0 |

CARATTERISTICHE PRODOTTO

| | | | | | |
|---|---|---|---|---|---|
| TRATT. TERMICO / Heat Treatement / Warmebehandlung | NORMALIZZAZIONE | DUREZZA RICHIESTA / Requested hardness / Festigkeit | N/mm² | | |
| DUREZZA RISCONTRATA N/mm² / Checked hardness / Finden harte | 0 / 0 | 0 / 0 | 0 / 0 | 0 / 0 | 0 / 0 / 0 / 0 | 0 / 0 / 0 / 0 | 0 / 0 / 0 / 0 | 0 / 0 / 0 / 0 |

| | | | | |
|---|---|---|---|---|
| CONTROLLI / Tests / Ausmabetest | C.D.C. | SI | DIMENSIONALE | POSITIVO |
| | MAGNAFLUX 100% | NO | ALTRI | DOUGLAS CHERO Spa NO |
| | VISIVO 100% | SI | | |
| ALLEGATI / Enclosed / Anlage | ANALISI CHIMICA ACCIAIERIA | SI | PRODOTTO AUTOCERTIFICATO | Quality Assurance ☐ |
| | CERTIFICATO TRATT. TERMICO | NO | 12 NOV. 2004 | P.C. STEVANI VITTORIO Sign. |

NOTE / Remarks / Bemerkungen: TRATT:RISCALDO A 850/925C PER 10MA OGNI 25MM DI SPESSORE E RAFFREDDAMENTO IN ARIA.
SIGLA DI COLATA:"AI"

CONTROLLO QUALITÀ / QUALITY CONTROL / QUALITATSSTELLE — ISELFA S.p.A. SOLBIATE ARNO (VA) — COMPILATORE — ISELFA S.p.A. UFFICIO CONTROLLO QUALITA' STAMPAGGIO

EMESSO ED ARCHIVIATO DAL RESPONSABILE DEL CONTROLLO FINALE (CFI)

UGITECH
Groupe Arcelor

FRANCE

5 Usine Productrice / Hersteller / Manufacturer: **UGINE**
F 73403 UGINE CEDEX
Tél : 04.79.89.30.30
Fax : 04.79.89.30.51

4 N. Nr No 80208

11 N. de commande usine-Werksbestellnummer-Works order number: FUGE TEJE 01/01 8Z101000 0

3

# CERTIFICATO COLLAUDO DI ACCETTAZIONE B
# CERTIFICAT DE RECEPTION 3.1.B
# INSPECTION CERTIFICATE B

EN 10204 / 3.1.B

Produit / Erzeugnisform / Product: IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE 6

Client et/ou destinataire - Besteller und/oder Empfaenger - Purchaser and/or Consignee 9: TECNOMECCANICA SRL

N. de commande client - Kundenbestellnummer - Purchaser order number 10: 364

Nuance et spécifications techniques - Stahlsorte und Pruefbedingungen - Quality and Specifications 12:
IMA4006 410 AISI 410 UNS S41000
SPEC. SDA 09 DU 20/11/01 (SAUF MN)

Etat de livraison - Lieferzustand - As delivered (1) 13: TEMPRATO RINVENUTO

Traitement de Référence - Probestreifenbehandlung - Treatment of test samples (1) 14:

| Identification du produit Erzeugnis Benennung-Product Identification N. de cde usine Werksbestellnummer Works order number 15 | N. de poste Post Nr Item No 17 | N. de Coulée Schmelz Nr Heat No 16 | Nombre Stueckzahl Pieces Nbr 18 | Profil Profile Shape 19 | Dimension Ausmessung Dimension 20 | Longueur Laenge Length 21 | Masse Gewicht Weight 22 |
|---|---|---|---|---|---|---|---|
| 8Z101 | 000 | 350031 | 190 | TONDO | 20,000 | | 1974 KG |

| Prélèvement Probenummer Test N. 39 B | Demandé Vorschrift Required (3) 24 | Direction Richtung Direction 25 | Température d'essai Pruefemperatur Test Temperature °C | Traction - Zugversuch - Tensile test: Limite d'Elasticité Streckgrenze Yield Strength 0,2 % 26 A MPA | Limite d'Elasticité Streckgrenze Yield Strength 1 % 26 B MPA | Résistance à la traction Zugfestigkeit Tensile strength 27 MPA | Allongement Bruchdehnung Elongation A (L0=5d0) 28 % | Striction Einschnuerung Red of Area 29 % | Dureté Haerte Hardness (4) 30 | Type Form Type 31 | Résilience Kerbschlagzaehigkeit - Notch Toughness: Température d'essai Pruefemperatur Test Temperature 33 | Valeurs individuelles Einzelwerte Individual Values 35 | Moyenne Mittelwerte Average 36 | Dureté Haerte Hardness (5) 37 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | | °C | MPA | MPA | MPA | % | % | | | | | | HB |
| | | Min | 20 | 275 | | 585 | 20 | 45 | | | | | | |
| | | Max | | | | | | | | | | | | 237 |
| | (4) | | | | | | | | | | | | | |
| | (5) | | | 607 | | 684 21 72 | | | | | | | | 205 |

| N. de Prélèvement Probenummer Test N. 39 A | Demandé Vorschrift Required | | 42 C | 43 SI | 44 MN | 45 NI | 46 CR | 47 S | 48 P | 49 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Min | | | 0,30 | | 11,50 | | | | |
| | | Max | 0,150 | 0,60 | 0,60 | | 13,50 | 0,030 | 0,040 | | |
| N. de Coulée Schmelz Nr Heat N. | | | 0,107 | 0,42 | 0,38 | 0,35 | 12,18 | 0,022 | 0,019 | | |
| 350031 | | | | | | | | | | | |

| 38 Mode d'élaboration Erschmelzungsart Melting process | Demandé Vorschrift Required | 51 | 52 | 53 | 54 | 55 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Electrique Elektrisch Electric | | Min | | | | | | | | | |
| | | Max | | | | | | | | | |

IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE

06 MAG. 2004

DOUGLAS CHERO Spa

Quality Assurance .....

P.C. STEFANI VITTORIO

Sign .....

66

(3) L = Long / Laengs - Long / Longitudinal
T = Travers / Quer-Transverse
68

(1) TE = Trempé à l'eau - Wasserhaerten - Waterquench
TH = Trempé à l'huile - Oelharten - Oil Quench
A = Hypertrempé - Losungsgegluht - Solution annealed
R = Revenu - Anlassen - Tempered
RT = Recuit - Geglueht - Annealed
TRM = Recuit maxi - Weichgegluht - Maxi annealed
7

Ugine, le 15-01-04
L'Agent Réceptionnaire de l'usine / Der Werksabnahmebeauftragte / The Work Inspector
H. Mayet
65

(4) A l'état de référence / Zum Bezug Zustand / At reference condition 60 A

(5) A l'état de livraison / In Lieferzustand / In state of delivery 60 B

Contrôles de marquage, d'aspect et de dimensions: satisfaisants / Bezeichnung, Beschichtigung und Ausmessung : ohne Beanstandung / Marking, inspection and measurement : without objection 62

Nous certifions que les produits désignés ci-dessus sont conformes aux prescriptions de la commande / Wir bestaetigen hiermit dass die obengenannten Erzeugnisse den Bestellungsvorschriften entsprechen / We certify hereby that the above mentioned products are constatant with the order prescriptions 66

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** / Customer: *Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt*

**Bestell-Nr.:** / Order no.: *Lurgi Job – No.: 69690-10*
*Lurgi OGC PO.-No.: 4567569-000 to -001/1.69690/136*

*Project Name :* *2nd Zagros Methanol Plant - Iran*

**Auftrag-Nr.:** / Job no.: *HH – 02535*

**Lieferumfang** / range:

| **Pos** | **Stck.** pcs. | **Gegenstand** object | **DN** | **PN** | **Werkstoff** material | **Bemerkung** comment |
|---|---|---|---|---|---|---|
| *00140* | *2* | *Gate valve*<br>*FB BB SW*<br>*Seats + Wedge Stell.* | *1"* | *Cl.1500* | *ASTM A 105N* | *Valve Ident – No.: "S306 "* |

**Auslegung + Prüfung nach** / Design and tests acc. To: API 602 – BS EN ISO 15761, API 598 / BS EN 12266-1
ASME B16.34 – B16.25 – B16.11 – B1.20.1

**Sicht- und Funktionsprüfung:** / visual and functional test: *o.k.*

**Festigkeits-/Dichtheitsprüfung:** / strength-/tightness-test:

*Festigkeit / shell test = 388 bar Wasser / water* (60 sec)
*Dichtheit Sitz / seat = 285 bar Wasser / water* (60 sec)
*Rückdichtung / backseat = 285 bar Wasser / water* (60 sec)
*Dichtheit Sitz / seat = 6 bar Luft / air* (60 sec)

**Prüfungsergebnis:** / result: *ohne Beanstandung !* / *no complaint !*

i.A. Wallis Glass

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** / enclosure: *Dokumentation gemäß Material-Dokumentationsdeckblatt* / *Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter / Person in charge W. Glass

**Kommissions-Nr. / Reference No.**

**HH-02535**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00140 | Gate Valve | " S306 " | 2 | Body | B-AU | ASTM A105N | Bonomi | 04/77895 | | 040220 |
| | 1" Cl. 1500 lbs. | Drawing-No.: BX652-7/SW | | Wedge | | A182/F6a C.2 stel. | Valbruna | 414430 | | 122852/2004 |
| | FB, BB, SW seats+wedge stell. | | | Seat | | A182/F6a C.2 stel. | Valbruna | 238300 | | 127568/2004 |
| | | | | Body Srew | | ASTM A193/B7 | Morandi | AR4273 | | 6129 |
| | | | | Bonnet | B-AR | ASTM A105N | Bonomi | 03/76085 | | 040076 |
| | | | | Stem | | A182/F6a C.2 | Ugitech | 350031 | | 80208 |
| | | | | | | | | | | |
| | | | | | | | | | | |
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| | | | | | | | | | | |

**Bonomi srl**

*STAMPAGGIO A CALDO DELL'ACCIAIO*

23861 CESANA BRIANZA (Lc) Via Carlo Porta, 8

☎ 031/656798 🖷 031/657597

CERTIFICATO N° 143467

Partita I.V.A. 02418370132
R.I. Lecco N. 15934
R.E.A. Lecco N. 288235

04545600

TEST CERTIFICATE N° 040220
CERTIFICATO DI COLLAUDO
3.1B-AS-TO- SECONDO
UNI EN 10204
DATA: 30/04/2004

*Spett.le Ditta*
*DOUGLAS CHERO Spa*
*Loc. Pradaglie*
*29013 CARPANETO P.NO (PC)*

Mod. 28/1

| CUSTOMER ORDER - ORDINE CLIENTE | P.O. | DOCUMENTO DI TRASPORTO | INVOICE-FATTURA |
|---|---|---|---|
| 240405 pos. 2 | | 95 del 16/04/2004 | |

| DESCRIPTION OF PARTICULAR - DESCRIZIONE DEL PARTICOLARE | TYPE AND MATERIAL SPECIFICATIONS-TIPO E SPECIFICA MATERIALE |
|---|---|
| BODY | ASTM A105N |

NUMERO COLATA / HEAT NUMBER: 04/77695
STELL MILL. ACCIAIERIA: RIVA
ST.M. CERT. N. / CERT. ACC. N.: 16386

CHEMICAL ANALYSIS - ANALISI CHIMICA

| C | Mn | Si | P | S | Cr | Ni | Mo | Cu | Sn |
|---|---|---|---|---|---|---|---|---|---|
| 0.22 | 0.94 | 0.17 | 0.010 | 0.023 | 0.09 | 0.05 | 0.01 | 0.18 | 0.008 |
| **Al** | **Ti** | **V** | **Nb** | **B** | **C.E.** | | | | |
| 0.005 | 0.013 | 0.003 | 0.0010 | 0.000 | 0.41 | | | | |

| HEAT CODE ON FORGING CODICE COLATA | DISEGNO DEL FORGIATO . | QUANTITY QUANTITA' | MECHANICAL PROPERTIES - CARATTERISTICHE MECCANICHE | | | | |
|---|---|---|---|---|---|---|---|
| | | | YIELD STRENGTH P.S.I. SNERVAM. N./mm2 | TENS. STRENGTH P.S.I. ROTT. N/mm2 | ELONG 2" 50 ALLUNG % | RED OF AREA % CONTRAZ. | H.B. |
| BAU | N6/9S | 5.456 | 293 | 507 | 27,20 | 63,03 | 148<br>157<br>148 |

HEAT TREATMENT - TRATTAMENTO TERMICO
Normalizing

REMARKS

1) The result of chemical analisys is a true and correct copy of the mill certificate issued, by the manufacturer of the steel employed, or by the laboratory witch has determined it. ...
* I risultati delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati.
2) The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufactoring process inspection or storage.
** Il materiale o i particolari spediti per questi ordini non sono mai venuti a contatto diretto con mercurio o con elementi contenenti mercurio durante la fase di lavorazione, controllo o immagazzinamento.

I certify these tests to be correct as contained in the records of the company
certifico che tutti i dati sono corretti e uguali a quelli registrati presso Bonomi

05 MAG. 2004

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

Q.A. OFFICE
UFFICIO QUALITA'
Bucca Rosalba

# Acciaierie Valbruna S.p.A.

**CERTIFICATO DI COLLAUDO**
**ABNAHMEPRUEFZEUGNIS**
**INSPECTION CERTIFICATE**
**CERTIFICAT DE RECEPTION**
**EN 10204 , 3.1.B**


36100-VICENZA (Italia) - Viale della scienza, 25 z.i.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4


Cliente / Kunde/Client
VERRI & PINA SRL
VIA TERRAROSSA, 10 - C.P. N.26
22036-CANZO (CO)-CO

Avviso di Spedizione: A-BZ04005088

Certificato nr: MEST122862/2004/

Conferma ordine nr: MI04002883

Produttore: STABILIMENTO DI BOLZANO

Ordine nr: 94-95-97-103

Marchio di Fabbrica:

Oggetto Prove: - Ricotto lavorabile Pelato

Tipo di Elaborazione: E+AOD

Punzone del Collaudatore:

4422

Specifiche:
ASTM A182 2000C S41000 CLASS2 (0)
(0) Chemical analysis only and mecc.properties(for ASTM A182[M])

Qualità: 410

Marca: VAL1

Punzonatura: 410

| Pos. nr. | Oggetto | Dimensioni - mm | Tolleranza | Lunghezza - mm | Colata | Pezzi | Peso - | Lotto nr. |
|---|---|---|---|---|---|---|---|---|
| 0050 | Tondo | 25,000 | | 5000 / 5500 | 414430 | | 3707,0 | 409202680 |

Sono state soddisfatte tutte le condizioni richieste

Controllo antimescolanza: OK

Controllo visivo e dimensionale: soddisfa le esigenze

| | Provetta/ | | | Prob. Doggia | Snervamento | Snervamento | Resistenza | Allungamento | | Strizione | | Resilienza | | | Durezza | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TEST | | ° C | | % | Rp 0,2% N/mm2 | | Rm N/mm2 | | E 4d % | | RA % | | | | HB | | |
| Valori richiesti 1 | | min max | | | 380 | - | 586 | - | 18 | - | 35 | - | | | 167 229 | | |
| A | 10,00 | 20 | L | | 534 | | 686 | | 31 | | 70 | | | | 216 | | |

1)L=Longitudinale/Längs, T=Trasversale/quer, T=Tangenziale/tangential

## Analisi chimica

| Colata | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Schmelze/Coulée | min - max 0,15 | - 1,00 | - 1,00 | 11,50 13,50 | - 0,50 | - 0,040 | - 0,030 | - | - | - | - | - | - | - | - | - | - |
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | | | |
| 414430 | 0,13 | 0,44 | 0,72 | 12,36 | 0,24 | 0,024 | 0,030 | | | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination

The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,4.,4.3 by TUEV and LLOYD'S

**DOUGLAS CHERO Spa**
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

| | | |
|---|---|---|
| Bolzano,15/07/04 | Il collaudatore di stabilimento / der Werkssachverständige / Works inspector / L'agent d'usine<br>R.Cristel | Pagina - 1 di 1 |

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

# CERTIFICATO DI COLLAUDO
# ABNAHMEPRUEFZEUGNIS
# INSPECTION CERTIFICATE
# CERTIFICAT DE RECEPTION
# EN 10204 , 3.1.B

Ø 26
F6 Ric

Cliente / Kunde/Purchaser/Client: DOUGLAS

Avviso di Spedizione: A/8Z04606581
Lieferanzeige/Packing list/B.L.: Julo 1503

Certificato nr: MEST127568/2004/
Prüfung/Test/Essai

Conferma ordine nr: MI04001328
Werks/Our Order/Ref nr.

Produttore: STABILIMENTO DI BOLZANO
Hersteller/Item/Usine productrice

Ordine nr: DD. 11.2.04
Bestell/Your order/Commande

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice

Oggetto Prove: - Ricotto lavorabile Pelato
Prüfgegenständlich Inspection/Reissage

Tipo di Elaborazione: E+AOD
Erzeugungsart/Melting process/Mode d'elaboration

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'essayeur

SC

Specifiche:
Anforderungen / Requirements / Exigences

BELLEBONO 2004 410 HRC<22 A - ASTM A182 2002 S41000 (0)
(0) Chemical analysis only.

Qualità: 410
Artikel/Grade/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Marque

Punzonatura: T.410
Kennzeichnung/Marking/Marquage

| Pos. nr. / Pos. nr. / Item nr. / Nr. de poste | Oggetto / Eigenschaft / Product description / Descrip. du produit | Dimensioni - mm / Abmessungen / Dimension / Dimension | Tolleranza / Toleranz / Allowance / Tolérance | Lunghezza - mm / Länge / Length / Longueur | Colata / Schmelze / Heat / Coulée | Pezzi / Stückzahl / Pieces / Pièces | Peso - Gewicht / Weight / Poids | Lotto nr. / Losnr. / Lot nr. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0100 | Tondo | 26,000 | K12-MIN | 3900 / 4000 | 238300 | | 2482,8 3403 | 405400200 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind lt. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le matériel a été livré conformé aux exigences

Controllo antimescolanza: OK
Verwechslungsprüfung: spezielles physikalisches Verfahren
Antimixing testing performed: OK
Contrôle antimélange fait: p.e.s.

Controllo visivo e dimensionale: soddisfacente
Sichtprüfung und Abmessungen ohne Beanstandung
Visual inspection and dimensional check satisfactory
Contrôle visuel et dimensions: satisfaisant

| TEST | Provetta / Probestab / Test piece / Eprouvette | | °C | Posiz. Saggio / Position / Location / Emplacement | Snervamento / Streckgrenze / Yield Stress / Limite elastique Rp 0,2% N/mm2 | Snervamento / Streckgrenze / Yield Stress / Limite elastique | Resistenza / Zugfestigkeit / Tensile strength / Résistance à la traction Rm N/mm2 | Allungamento / Bruchdehnung / Elongation / Allongement E 4d % | | Strizione / Einschnürung / Reduction of area / Striction RA % | | Resilienza / Kerbschlagarbeit / Impact Value / Résilience | | | Durezza / Härte / Hardness / Dureté HRc | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mm | | | | | | | | | | | | | | | | |
| Valori richiesti 1 / Anforderungen / Required values / Valeurs exigées | | | min / max | | - | - | - | - | - | - | - | - | | | | - / 22,0 | |
| A | 10.00 | | 20 | L | 412 | | 684 | | 32 | | 68 | | | | | 15,0 | |

1) L=longitudinale/Länge, O=trasversale/quer, T=Tangenziale/tangential

## Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata / Hea / Schmelze/Coulée | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | min - max 0,15 | - 1,00 | - 1,00 | 11,50 - 13,50 | - 0,50 | - 0,040 | - 0,030 | - | - | - | - | - | - | - | - | - | - |
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | | | |
| 238300 | 0,14 | 0,49 | 0,78 | 12,25 | 0,29 | 0,023 | 0,028 | | | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,s.4.3 by TUEV and LLOYD'S

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

COPIA CONFORME ALL'ORIGINALE
ACCIAIERIE VALBRUNA S.P.A.
FILIALE DI CORMANO

| | | |
|---|---|---|
| Bolzano,27/07/04<br>MM/SBL011 | Il collaudatore di stabilimento / der Werkssachverständige / Works inspector / L'agent d'usine<br>R.Cristel | Pagina - 1 di 1 |

241989 01

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948

E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129


CERTIFICATO DI COLLAUDO
Inspection certificate

26738

N°6128/DCH DATE-16.11.04

CLIENTE- DOUGLAS CHERO Spa — ORDINE-242000 — BOLLA CONSEGNA N-3750
Customer — Order — Delivery note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| | | | B7 | |
| 1 | 6733 | VITI TE M 12 X 30,5 | ASTM A 193/A 193M | AR4273 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Cr | Mo | S | P |
|---|---|---|---|---|---|---|---|---|
| REQUIRED | min. | 0.37 | 0.65 | 0.15 | 0.75 | 0.15 | | |
| VALUE | max. | 0.49 | 1.10 | 0.35 | 1.20 | 0.25 | 0.040 | 0.035 |
| HEAT n. AR4273 | | 0,44 | 0,77 | 0,26 | 1,06 | 0,23 | 0,005 | 0,007 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

| | Rm. | Rp.(0,2) | A4 | Z. | Hardness |
|---|---|---|---|---|---|
| REQUIRED | min. 860 MPa | min. 720 MPa | min. 16% | min. 50% | max 35 HRC |
| ACTUAL VALUE | 1032 | 945 | 17,5 | 53,5 | 32 |

HEAT TREATMENT
Quenched at : 860 °C in oil
Tempering : 2 hours at 593 °C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

QUALITY CONTROL

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

22 NOV. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Firma: .....

MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

**Bonomi srl**

*STAMPAGGIO A CALDO DELL'ACCIAIO*

23861 CESANA BRIANZA (Lc) Via Carlo Porta, 8

☎ 031/656798 🖷 031/657597

CERTIFICATO N°143467

Partita I.V.A. 02418370132
R.I. Lecco N. 15934
R.E.A. Lecco N. 288235

02249300

TEST CERTIFICATE N° 040076
CERTIFICATO DI COLLAUDO
3.1B-AS-TO- SECONDO
UNI EN 10204
DATA: 20/02/2004

*Spett.le Ditta*
*DOUGLAS CHERO Spa*
*Loc. Pradaglie*
*29013 CARPANETO P.NO (Pc)*

Mod. 28/1

| CUSTOMER ORDER - ORDINE CLIENTE | P.O. | DOCUMENTO DI TRASPORTO | INVOICE-FATTURA |
|---|---|---|---|
| 232561 pos. 2 | | 33 del 12/02/2004 | |

| DESCRIPTION OF PARTICULAR - DESCRIZIONE DEL PARTICOLARE | TYPE AND MATERIAL SPECIFICATIONS-TIPO E SPECIFICA MATERIALE |
|---|---|
| BONNET | ASTM A105N |

NUMERO COLATA / HEAT NUMBER: 03/76085
STELL MILL. ACCIAIERIA: RIVA
ST.M. CERT. N. / CERT. ACC. N.: 593

CHEMICAL ANALYSIS - ANALISI CHIMICA

| C | MN | SI | P | S | CR | NI | MO | CU | SN |
|---|---|---|---|---|---|---|---|---|---|
| 0.195 | 0.92 | 0.17 | 0.012 | 0.007 | 0.07 | 0.05 | 0.01 | 0.16 | 0.007 |
| **AL** | **TI** | **V** | **NB** | **B** | **C.E.** | | | | |
| 0.020 | 0.021 | 0.022 | 0.000 | 0.000 | 0.38 | | | | |

| HEAT CODE ON FORGING CODICE COLATA | DISEGNO DEL FORGIATO . | QUANTITY QUANTITA'. | MECHANICAL PROPERTIES - CARATTERISTICHE MECCANICHE | | | | |
|---|---|---|---|---|---|---|---|
| | | | YIELD STRENGTH P.S.I. SNERVAM. N./mm2 | TENS. STRENGTH P.S.I. ROTT. N/mm2 | ELONG 2" 50 ALLUNG % | RED OF AREA % CONTRAZ. | H.B. |
| BAR | N6/8 | 3.058 | 359 | 533 | 24,40 | 61,67 | 154<br>151<br>154 |

HEAT TREATMENT - TRATTAMENTO TERMICO
Normalizing

REMARKS

1) The result of chemical analisys is a true and correct copy of the mill certificate issued, by the manufacturer of the steel employed, or by the laboratory witch has determined it.
* I risultati delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati.
2) The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufactoring process inspection or storage.
** Il materiale o i particolari spediti per questi ordini non sono mai venuti a contatto diretto con mercurio o con elementi contenenti mercurio durante la fase di lavorazione, controllo o immagazzinamento.

I certify these tests to be correct as contained in the records of the company
certifico che tutti i dati sono corretti e uguali a quelli registrati presso Bonomi

24 FEB. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

Q.A. OFFICE
UFFICIO QUALITA'
Bucca Rosalba

**UGITECH**
Groupe Arcelor

**FRANCE**

5 Usine Productrice / Hersteller / Manufacturer: **UGINE** F 73403 UGINE CEDEX Tél : 04.79.89.30.20 Fax : 04.79.89.30.51

4 N. Nr No 80208

11 N. de commande usine-Werksbestellnummer-Works order number: FUGE TEJE 01/01 8Z101000 Q

3

# CERTIFICATO COLLAUDO DI ACCETTAZIONE B
# CERTIFICAT DE RECEPTION 3.1.B
# INSPECTION CERTIFICATE B

EN 10204 / 3.1.B

Produit / Erzeugnisform / Product: IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE 6

Client et/ou destinataire - Besteller und/oder Empfaenger - Purchaser and/or Consignee 9: TECNOMECCANICA SRL

N. de commande client - Kundenbestellnummer - Purchaser order number 10: 364

Nuance et spécifications techniques - Stahlsorte und Pruefbedingungen - Quality and Specifications 12:

IMA4006 410 AISI 410 UNS S41000
SPEC. SDA 09 DU 20/11/01 (SAUF MN)

Etat de livraison - Lieferzustand - As delivered (1) 13: TEMPRATO RINVENUTO

Traitement de Référence - Probestreifenbehandlung - Treatment of test samples (1) 14:

| Identification du produit Erzeugnis Benennung-Product identification N. de cde usine Werksbestellnummer Works order number 15 | N. de poste Post Nr kam No 17 | N. de Coulée Schmelz Nr Heat No 16 | Nombre Stueckzahl Pieces Nbr 18 | Profil Profile Shape 19 | Dimension Ausmassung Dimension 20 | Longueur Laenge Length 21 | Masse Gewicht Weight 22 |
|---|---|---|---|---|---|---|---|
| 8Z101 000 | | 350031 | 190 | TONDO | 20,000 | | 1974 KG |

| Prélèvement Probenummer Test N. | Demandé Vorschrift Required | Direction Richtung Direction (3) 24 | Température d'essai Pruefemperatur Test Temperature 25 | Traction - Zugversuch - Tensile test: Limite d'Elasticité Streckgrenze Yield Strength 0,2 % 28 A | Limite d'Elasticité Streckgrenze Yield Strength 1 % 28 B | Résistance à la traction Zugfestigkeit Tensile strength 27 | Allongement Bruchdehnung Elongation (L0=5d) 28 | Striction Einschnuerung Red of Area 29 | Dureté Haerte Hardness (4) 30 | Type Form Type 31 | Résilience Kerbschlagzaehigkeit Notch Toughness: Direction Richtung (3) 32 | Température d'essai Pruefemperatur Test Temperature 33 | Valeurs individuelles Einzelwerte Individual Values 35 | Moyenne Mittelwerte Average 36 | Dureté Haerte Hardness (5) 37 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 B | | L | °C | MPA | MPA | MPA | % | % | | | | | | | HB |
| | Min | | 20 | 275 | | 585 | 20 | 45 | | | | | | | |
| | Max | | | | | | | | | | | | | | 237 |
| | (4) | | | | | | | | | | | | | | |
| | (5) | | | 607 | | 684 21 72 | | | | | | | | | 205 |

| 39 A N. de Prélèvement Probenummer Test N. | Demandé Vorschrift Required | 42 C | 43 SI | 44 MN | 45 NI | 46 CR | 47 S | 48 P | 49 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min | | | 0,30 | | 11,50 | | | | |
| | Max | 0,150 | 0,60 | 0,60 | | 13,50 | 0,030 | 0,040 | | |
| N. de Coulée Schmelz Nr Heat N. | Analyse Produit-Stueck analyse Check Analysis | 0,107 | 0,42 | 0,38 | 0,35 | 12,18 | 0,022 | 0,019 | | |
| 350031 | | | | | | | | | | |

| 38 Mode d'élaboration Erschmelzungsart Melting process | Demandé Vorschrift Required | 51 | 52 | 53 | 54 | 55 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Electrique Elektrisch Electric | Min | | | | | | | | | | |
| | Max | | | | | | | | | | |

IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE

06 MAG. 2004

DOUGLAS CHERO Spa

Quality Assurance .....

P.C. STEFANI VITTORIO

Sign .....

56

(3) L = Long / Laengs - Long / T = Travers / Quer-Transverse 58

(1) TE = Trempé à l'eau - Wasserhaerten - Waterquench; TH = Trempé à l'huile - Oelhaerten - Oil Quench; A = Hypertrempé - Loesungsgeglueht - Solution annealed; R = Revenu - Anlassen - Tempered; RT = Recuit - Geglueht - Annealed; TRM = Recuit maxi - Weichgeglueht - Maxi annealed 7

Ugine, le 15-01-04

L'Agent Réceptionnaire de l'usine / Der Werksabnahmebeauftragte / The Work Inspector

H. Mayet 63

(4) A l'état de référence / Zum Bezug Zustand / At reference condition 60 A

(5) A l'état de livraison / In Lieferzustand / In state of delivery 60 B

Contrôles de marquage, d'aspect et de dimensions: satisfaisants / Bezeichnung, Beschichtung und Ausmassung : ohne Beanstandung / Marking, inspection and measurement : without objection 62

Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande / Wir bestaetigen hiermit dass die obengenannten Erzeugnisse den Bestellungsvorschriften entsprechen / We certify hereby that the above mentioned products are consistant with the order prescriptions 66

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** ***Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt***
Customer:

**Bestell-Nr.:** ***Lurgi Job – No.:*** ***69690-10***
Order no.: ***Lurgi OGC PO.-No.:*** ***4567569-000 to -001/1.69690/136***

*Project Name :* ***2nd Zagros Methanol Plant - Iran***

**Auftrag-Nr.:** ***HH – 02535***
Job no.:

**Lieferumfang** / range:

| **Pos** | **Stck.** pcs. | **Gegenstand** object | **DN** | **PN** | **Werkstoff** material | **Bemerkung** comment |
|---|---|---|---|---|---|---|
| *00150* | *25* | *Gate valve*<br>*FB BB SW*<br>*Seats + Wedge Stell.* | *1.1/2"* | *Cl.800* | *ASTM A 105N* | *Valve Ident – No.: " S306 "* |

**Auslegung + Prüfung nach** API 602 – BS EN ISO 15761, API 598 / BS EN 12266-1
Design and tests acc. To ASME B16.34 – B16.25 – B16.11 – B1.20.1

**Sicht- und Funktionsprüfung:** *o.k.*
visual and functional test:

**Festigkeits-/Dichtheitsprüfung:**
strength-/tightness-test:

| | | | |
|---|---|---|---|
| *Festigkeit / shell test* | = | *211 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *156 bar Wasser / water* | (60 sec) |
| *Rückdichtung / backseat* | = | *156 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *6 bar Luft / air* | (60 sec) |

**Prüfungsergebnis:** *ohne Beanstandung !*
result: *no complaint !*

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** *Dokumentation gemäß Material-Dokumentationsdeckblatt*
enclosure *Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter W. Glass
Person in charge Walter Glass

**Kommissions-Nr. / Reference No.**

**HH-02535**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00150 | Gate Valve 1.1/2" Cl. 800 lbs. FB, BB, SW seats+wedge stell. | " S306 " | 25 | Body | Y-TH | ASTM A105N | Iselfa | 5970 | | 17005 |
| | | Drawing-No.: F210-7/SW | | Wedge | | A182/F6a C.2 stel. | Ugitech | 409014 | | 95600 |
| | | | | Seat | | A182/F6a C.2 stel. | Ugitech | 327014 | | 53587 |
| | | | | Body Srew | | ASTM A193/B7 | Morandi | AR1982 | | 6137 |
| | | | | Bonnet | FB-TS | ASTM A105N | Feat | 03/76258 | | 2004/3001747 |
| | | | | Bonnet | FB-VT | ASTM A105N | Feat | 04/70782 | | 2004/3006152 |
| | | | | Bonnet | Y-TA | ASTM A105N | Iselfa | 04/78727 | | 16797 |
| | | | | Stem | | A182/F6a C.2 | Ugitech | 350031 | | 80208 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

02008100

**ISELFA**

STEEL FORGINGS
ELECTRING FITTINGS

S.p.A. - C.F./P.IVA VAT IT 00189520125
21048 SOLBIATE ARNO (Va) Italy - Corso Roma, 22
P.O. BOX 21 - TELELEFONO +39 (0331) 99.30.08
FAX FORGINGS +39 (0331) 99.15.35 - FAX FITTINGS +39 (0331) 99.46.77

## CONTROLLO QUALITÀ

Certificato di conformità
Compliance certificate
Gemaess Zeugnis
UNI EN 10204/3.1.B

N° 17005 — Data / Date 02.08.04

| | | | | | |
|---|---|---|---|---|---|
| CLIENTE *Customer / Kunde* | DOUGLAS CHERO SPA | ORDINE N° *Order / Bestellung* | 240696 | DATA *Date / Datum* | 25.03.04 |
| RIMESSO N° *Delivery note / Lieferschein* | 401174 | DATA *Date / Datum* | 02-08-04 | N° PEZZI *Pieces / Stuckzahl* | 1.546 |
| DESCRIZIONE - *Description - Dezeichnung* | CORPI | DISEGNO N° - *Drawing - Zeichnung* | Dis. 7/98 | INDICE - *Last revision - Verzeichnis* | Rev.4 |
| TIPO ACCIAIO *Steel type / Stahl* | ASTM-A.105 BILL.100 | COLATA *Heat / Schmelze* | 5970/100 | FORNITORE *Supplier / Lieferant* | OLIFER-ACP SPA |

COMPOSIZIONE CHIMICA / *Chemical composition / Chemische Zusammensetzung*

CARATTERISTICHE ACCIAIO (FORNITE DALL'ACCIAIERIA)

| % | | C | Mn | Si | Cr | Ni | Mo | V | P | S | Cu | Nb |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA *Requested / Erforderikhe* | min | 0,350 | 0,600 | 0,350 | 0,300 | 0,400 | 0,120 | 0,030 | 0,040 | 0,050 | 0,400 | 0,020 |
| | max | | 1,050 | | | | | | | | | |
| FORNITA *Supplied / Wirkliche* | | 0,1900 | 0,9200 | 0,2000 | 0,1100 | 0,1900 | 0,0500 | 0,0010 | 0,0070 | 0,0040 | 0,2500 | 0,001 |

PROVA JOMINY / *Jominy test / Stirnabschreckversuch*

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HRC | | | | | | | | | | | | | |
| RICHIESTA *Requested / Erforderikhe* | min | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | GRANO *Grain size / Korngrosse* |
| | max | | | | | | | | | | | | |
| FORNITA *Supplied / Wirkliche* | | | | | | | | | | | | | |

CARATTERISTICHE MECCANICHE / *Mechanical properties / Mechanische Eigenscheften* — Normalizzato ☐ Bonificato ☐

| Ø PROVETTA *Ø sample / Ø probest* | RP 0,2% *Yield stranght 0,2% / 0,2% Grenze* | R *Tensile stranght / Zugfestigkeit* | A% *Elongation % / Dehnung %* | Z% *Reduc. of area % / Einschnurung %* | KCU *Impact value / Kerbschlang* |
|---|---|---|---|---|---|
| mm | N/mm² | N/mm² | Lo = 5d | | J (joule) |
| | 368 | 536 | 28 | 56 | 0 / 0 / 0 |

CARATTERISTICHE PRODOTTO

| | | | | | |
|---|---|---|---|---|---|
| TRATT. TERMICO *Heat Treatement / Warmebehandlung* | NORMALIZZAZIONE | DUREZZA RICHIESTA *Requested hardness / Festigkeit* | N/mm² | | |

| DUREZZA RISCONTRATA N/mm² *Checked hardness / Finden harte* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | | |
|---|---|---|---|---|---|
| CONTROLLI *Tests / Ausmabetest* | C.D.C. | SI | DIMENSIONALE | POSITIVO | NO |
| | MAGNAFLUX 100% | NO | ALTRI | | |
| | VISIVO 100% | SI | | | |
| ALLEGATI *Enclosed / Anlage* | ANALISI CHIMICA ACCIAIERIA | SI | PRODOTTO AUTOCERTIFICATO | | NO |
| | CERTIFICATO TRATT. TERMICO | NO | | | |

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO ☐
Sign. .....

NOTE *Remarks / Bemerkungen*: TRATT: RISCALDO A 900C PER 1 ORA OGNI 25mm DI SPESSORE E RAFFREDDAMENTO IN ARIA CALMA.
SIGLA DI COLATA "TH"

CONTROLLO QUALITÀ
QUALITY CONTROL
QUALITATSSTELLE

ISELFA S.p.A.
UFFICIO CONTROLLO QUALITA'
STAMPAGGIO

COMPILATORE

ISELFA S.p.A.
SOLBIATE ARNO (VA)

EMESSO ED ARCHIVIATO DAL RESPONSABILE DEL CONTROLLO FINALE (CFI)

**UGITECH**
Groupe Arcelor

**FRANCE**

5 Usine Productrice / Hersteller / Manufacturer
**UGINE**
F 73403 UGINE CEDEX
Tél : 04.79.89.30.30
Fax : 04.79.89.30.51

4 N. Nr No 95600

11 N. de commande usine-Werksbestellnummer-Works order number
FUGE TESF 01/01 1LS31000 I

3
# CERTIFICATO COLLAUDO DI ACCETTAZIONE B
# CERTIFICAT DE RECEPTION 3.1.B
# INSPECTION CERTIFICATE B

EN 10204 / 3.1.B

Produit / Erzeugnisform / Product: AISI 410 IMA BARRE LAMINATE PELATE RICOTTE TOL.K13 — 6

Client et/ou destinataire - Besteller und/oder Empfänger - Purchaser and/or Consignee: STAMPERIA DI MENZAGO SRL — 9

N. de commande client - Kundebestellnummer - Purchaser order number: 3145 — 10

Nuance et spécifications techniques - Stahlsorte und Prüfbedingungen - Quality and Specifications: IMA4006 REV.02 EDITION 02 — ASTM A182 F6A — 12

Etat de livraison - Lieferzustand - As delivered (1): RICOTTO — 13

Traitement de Référence - Probestreifenbehandlung - Treatment of test samples (1) — 14

| Identification du produit Erzeugnis Benennung-Product identification N. de cde usine Werksbestellnummer Post Nr Works order number item No 16 | N. de poste Schmelz Nr Heat No 17 | N. de Coulée 18 | Nombre Stückzahl Pieces Nbr 18 | Profil Profile Shape 19 | Dimension Ausmessung Dimension 20 | Longueur Laenge Length 21 | Masse Gewicht Weight 22 |
|---|---|---|---|---|---|---|---|
| 1LS31 000 | 409014 | | 76 | TONDO | 40,000 | | 4036 KG |

| N. de Prélèvement Probenummer Test N. | Demandé Vorschrift Required | Direction Richtung Direction | Température d'essai Pruftemperatur Test Temperature | Traction - Zugversuch - Tensile test: Limite d'Elasticité Streckgrenze Yield Strength 0,2 % | Limite d'Elasticité 1 % | Résistance à la traction Zugfestigkeit Tensile strength | Allongement Bruchdehnung Elongation (L0=5d) | Striction Einschnürung Red of Area | Dureté Haerte Hardness | Type Form Type | Résilience - Kerbschlagzaehigkeit - Notch Toughness: Dimension Abmessung Dimension | Température d'essai Pruftemperatur Test Temperature | Valeurs individuelles Einzelwerte Individual Values | Moyenne Mittelwerte Average | Dureté Haerte Hardness |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (3) | | | | | | | | (4) | | (3) | | | | (5) |
| - 39 B | 24 | | 25 | 26 A | 26 B | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 35 | 36 | 37 |
| | L | | °C | MPA | MPA | MPA | % | % | | | | | | | |
| | Min | | 20 | 380 | | 585 | 18 | 35 | | | | | | | |
| | Max | | | | | | | | | | | | | | |
| | (4) | | | | | | | | | | | | | | |
| | (5) | | | 510 | | 669 | 26 | 71 | | | | | | | |

21 MAG. 2004

DOUGLAS CHERO Spa

Quality Assurance
P.C. STEVANI VITTORIO

Sign.:

| N. de Prélèvement Probenummer Test N. | Demandé Vorschrift Required | Produit Check Analysis | C | SI | MN | NI | CR | N | S | P | CO |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 A | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
| | | Min | | | | | 11,50 | | | | |
| | | Max | 0,150 | 1,00 | 1,00 | 0,50 | 13,50 | | 0,030 | 0,040 | |
| N. de Coulée Schmelz Nr Heat N. | | Analyse Produit Schmelz-Check Analysis | 0,105 | 0,46 | 0,37 | 0,33 | 12,13 | 0,056 | 0,023 | 0,017 | 0,019 |
| 409014 | | | | | | | | | | | |

| Mode d'Elaboration Erschmelzungsart Melting process | Demandé Vorschrift Required | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 38 | 51 | | 52 | 53 | 54 | 55 | | | | | |
| | | Min | | | | | | | | | |
| | | Max | | | | | | | | | |
| Electrique Elektrisch Electric | CU | | | | | | | | | | |
| | 0,143 | | | | | | | | | | |

AISI 410

AISI 410 IMA BARRE LAMINATE PELATE RICOTTE TOL.K13

S.r.l.

8/4/04

56

(3) L = Long / Laengs - Long / Longitudinal
T = Travers / Quer - Transverse
53

(1) TE = Trempé à l'eau - Wasserhaerten - Waterquench
TH = Trempé à l'huile - Oelharten - Oil Quench
A = Hypertrempé - Loesungsgegluht - Solution annealed
R = Revenu - Anlassen - Tempered
RT = Recuit - Gegluht - Annealed
TRM = Recuit maxi - Weichgegluht - Maxi annealed
7

Usine, le 06-04-04
L'Agent Réceptionnaire de l'usine / Der Werkssachverstaendige / The Work Inspector

C. Bioteau 63

(5) A l'état de référence / Zum Bezug Zustand / At reference condition 60 A

(5) A l'état de livraison / In Lieferzustand / In state of delivery 60 B

Contrôles de marquage, d'aspect et de dimensions: satisfaisants / Bezeichnung, Besichtigung und Ausmessung : ohne Beanstandung / Marking, inspection and measurement : without objection 62

Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande / Wir bestätigen hiermit dass die obengenannten Erzeugnisse den Bestellungsvorschriften entsprechen / We certify hereby that the above mentioned products are consistent with the order prescriptions 55

UGITECH
Groupe Arcelor

Siège Social : Ugitech S.A.
Avenue Paul Girod
73400 UGINE, FRANCE
IDENT. TVA : FR 89 410 436 158

| Bolla/N° BL/DL N°/Lief. | N° Certificat./Prüf N° | Produttore/Usine produc./Manufact./Herstell. |
|---|---|---|
| 330616 | 53587 | F00002 |

# RELEVE DE CONTROLE (1)
SELON EN 10204 PARAGRAPHE 4
Texte certificat de conformité
Texte certificat de conformité

Texte type cert. conformité édité - fatc

Prodotto Erzeugnisform / Produit Product: BARRE RONDE IMA 4006-410 48,0 K13 — LAMINE DECALAM. RECUIT

Cliente e/o destinatario - Client et/ou destinataire - Besteller und/oder Empfaenger / Purchaser and/or Consignee: UGINE-SAVOIE ITALIA SRL

N° ordine cliente - Votre référence - Ihre Auftrag Nr - Your reference: VEGIS 405084053 MI T.LIMETTI

Qualità e specifiche tecniche - Nuance et spécifications techniques - Stahlsorte und Pruefbedingungen - Quality and Specifications: IMA 4006-410 K13

Stato di fornitura - Etat de livraison - Lieferzustand - As delivered (1): LAMINE DECALAM.

Stato metallurgico - Etat métallurgique - Heat treatment condition - Lieferzustand: RECUIT

| N° Conferma d'ordine / Accusé de reception / Auftragsbest N° / Acknowledgment N° | Posizione / N° Poste / Pos Nr / Item N° | N° lotto interno / N° de lot interne / Interne los Nr / Internal batch N° | Profilo / Profil / Profile / Shape | Dimensione / Dimension / Abmessung / Size | Tolleranza / Tolérance / Toleranz / Tolerance | Lunghezza / Longueur / Laenge / Length | Peso netto / Masse / Gewicht / Weight |
|---|---|---|---|---|---|---|---|
| 405674959 | 2 | 4470777 | BARRE RONDE | 48,0000 | K13 | | 394,000 |

| Lotto fornitore produttore / Fournisseur lot / Supplier batch | N° Colata / N° de coulée / Schmelz Nr / Heat N° | Trazione - Traction - Zugversuch - Tensile test: Lim. di snervamento / Limite d'Elasticité / Streckgrenze / Yield Strength 0,2 % | Lim. di snervamento / Limite d'Elasticité / Streckgrenze / Yield Strength 1 % | Carico di rottura / Résistance tract. / Zugfestigkeit / Tensile strength | A % | Z % | Resilienza - Résilience - Kerbschlagzaehigkeit - Notch Toughness: Forma / Type / Form / Type | Seme / Sens / Notch / Direct. | Temperatura di prova / Température d'essai / Test Temperature | Valori / Valeurs individuelles / Einzelwerte / Individual values | Media / Moyenne / Mittelwerte / Average | Durezza / Dureté / Haerte / Hardness |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | RP02 N/MM2 | | RM N/MM2 | AL | Z | | | | | | HB |
| 327014 | 4M071000 | 651 | | 774 | 21 | 69 | | | | | | 223 |

| | | C | SI | MN | P | S | N | CR | CU | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 327014 | 4M071000 | 0,105 | 0,380 | 0,380 | 0,022 | 0,023 | 0,056 | 12,030 | 0,171 | | |
| | | NI | | CO | | | | | | | |
| 327014 | 4M071000 | 0,330 | | 0,025 | | | | | | | |

| Test : (1 = OK) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 327014 | | | | | | | | | |

C.INT = Corrosione intergranul. — EDD.C = Controllo non distrutt. — P.PN. = Prova pneumatica — C.MES = Contr. antimassellement
SCHI. = Schiacciamento — FLANG = Flangiatura — REVFL = Applatt. saldatura (Re — P.RET = Essai de retournement

EN 10204 / 3.1.B AISI 410 X12CR13 NF EN10088-3 1.4006 IMA 4006 BARRE A CHAUD RON DE TOL.13 TRAITEE DECALAMINEE.

Note - Notes - Remarks - Bemerkungen

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

Le 7/05/04
Signature de l'Inspecteur

Controllo mercatura, visivo e dimensionale : soddisfacente. Si certifica che i prodotti sopra descritti sono conformi alle prescrizioni dell'ordine (1)
L'analisi chimica è copia conforme a quella presente sul certificato del produttore

Contrôle de marquage, d'aspect et de dimensions satisfaisant. Nous certifions que le présent document reproduit avec exactitude les données du certificat producteur. L'analyse chimique a été relevée du certificat de la matière première.

Bezeichnung, beschichtigung und ausmessung : Ohne beanstandung. Wir bestatigen hiermit dass die obengenannten erzeugnisse den bestellung vorschriften entsprechen. Die chemische zusammensetzung entspricht den lieferanten analyse.

The chemical analysis results are true and correct copy of the raw material supplier's certificate.
Marking, inspection and measurement : Without objections. We certify that the above mentioned products are consistent with the order prescriptions

Resp. controle qualité
Resp. contrôle qualité
Sachverstaendiger
Quality control Mgr

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948

E-mail: maccmorandi@libero.it Codice Fiscale e Partita IVA 01778110129


CERTIFICATO DI COLLAUDO 26250
Inspection certificate N°6137/DCH DATE-02.12.04

CLIENTE- DOUGLAS CHERO Spa ORDINE-831 BOLLA CONSEGNA N-3980
Customer Order Delivery-note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| 1 | 4000 | VITI TE. M 16 X 40 | B7 ASTM A 193/A 193M | AR1982 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Cr | Mo | S | P |
|---|---|---|---|---|---|---|---|---|
| REQUIRED VALUE | min. | 0.37 | 0.65 | 0.15 | 0.75 | 0.15 | | |
| | max. | 0.49 | 1.10 | 0.35 | 1.20 | 0.25 | 0.040 | 0.035 |
| HEAT n. AR1982 | | 0,405 | 0,76 | 0,28 | 0,98 | 0,22 | 0,007 | 0,007 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

| | Rm. min. 860 MPa | Rp. (0,2) min. 720 MPa | A4 min. 16% | Z. min. 50% | Hardness max 35 HRC |
|---|---|---|---|---|---|
| REQUIRED | | | | | |
| ACTUAL VALUE | 974 | 858 | 18,7 | 55,4 | 30 |

HEAT TREATMENT
Quenched at : 860 °C in oil
Tempering : 2 hours at 593 °C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

QUALITY CONTROL
MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

09 DIC. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

2510306

FEAT INDUSTRIALE
divisione della Feat Group S.p.A.
Feat Group S.p.A.
SEDE LEGALE:
I - 20122 MILANO (MI) - Viale Majno, 17
Capitale Sociale € 8.000.000,00 interamente versato
Codice fiscale, Partita IVA e numero di iscrizione Registro delle Imprese di Milano: 08203080157
Codice Identif. IVA CEE IT 08203080157 - R.E.A. Milano 1211374
UFFICI AMMINISTRATIVI:
I - 23842 BOSISIO PARINI (LC) - Via dei Livelli, snc
tel. 031 3581411 - fax 031 876176 - Cod. Mecc. MI240750
STABILIMENTO E UFFICI COMMERCIALI DELLA DIVISIONE:
I - 23801 CESANA BRIANZA (LC) - Via G. Parini, 30 a Via Arosio, 1/3/5/7
tel. 031 8691 - Fax 031 860219 - http://www.featgroup.com

Certificato 2004/3001747
Data 18/03/2004
Pagina 1

DOUGLAS CHERO S.P.A.

LOCALITA' PRADAGLIE

29013 CARPANETO PIACENTINO PC

| Ordine cliente | Bolla | Fattura | Quantita' |
|---|---|---|---|
| O 232365 | 2004/000/0030559 | O 0030623 | 1.734,00 |

| Articolo Feat | Descrizione |
|---|---|
| 292011001021 | CAPP. GR. VS 2" 800 BB A105N<br>Dis. 7/8 REV.5 |

| Cod.Stamp./N.Col. | Tipo Materiale e Specifica |
|---|---|
| BTS | |

| Numero colata | Acciaieria | N.Cert.Acc. |
|---|---|---|
| 03/76258 | RIVA ACCIAIO S.P.A. | |

## ANALISI CHIMICA

| Elem. | Al | C | Cr | Cu | Mn | Mo | Nb | Ni | P | S | Si | V | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Min | 0,015 | 0,180 | | | 0,600 | | | | | | 0,150 | | | | |
| Max | 0,050 | 0,320 | 0,300 | 0,400 | 0,900 | 0,120 | 0,020 | 0,400 | 0,025 | 0,015 | 0,350 | 0,030 | | | |
| Colata | 0,021 | 0,190 | 0,120 | 0,250 | 0,800 | 0,020 | 0,000 | 0,080 | 0,019 | 0,015 | 0,210 | 0,016 | | | |
| C.An. | | | | | | | | | | | | | | | |

Carbonio Equivalente= 0,377

## CARATTERISTICHE MECCANICHE

| Ordine | Laboratorio | N. | Descrizione | UM1 | Min | Max | Valore | UM2 | Valore |
|---|---|---|---|---|---|---|---|---|---|
| 172615 | | 01 | Snerv.Rp0,2% Amb T | N/mm2 | 250,000 | | 329,000 | PSI | 47705,000 |
| 172615 | | 01 | Rottura Amb T | N/mm2 | 485,000 | | 495,000 | PSI | 71775,000 |
| 172615 | | 01 | Allungam.A% T Amb | % | 22,000 | | 35,100 | | |
| 172618 | | 01 | Strizione Amb T | % | 30,000 | | 57,000 | | |
| | | 01 | Durezza HB | HB | 0,000 | 187,000 | 152,000 | | |

Trattamento Termico
NORMALIZZAZIONE:
I PARTICOLARI SONO STATI NORMALIZZATI ALLA TEMPERATURA DI 910 C.,
CON PERMANENZA A TALE VALORE DI 1 ORA PER OGNI 25 mm. DI SPESSORE
E RAFFREDDATI IN ARIA CALMA.-

Note
CERTIFICATO FEAT

23 MAR. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

Resp. Assicurazione Qualita'
E.MARCONI

FEAT INDUSTRIALE division of FEAT Group S.p.A. states that material hereby certified is in compliance with the quality and technical requirements as described in the customer's order, or FEAT order acknowledgement.

1 - The results of chemicals analysis is a true and correct copy of the mill certificate issued by the manufacturer of the steel employed or by the laboratory which has determined it.
2 - The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufacturing process inspection or storage.

FEAT INDUSTRIALE
divisione della Feat Group S.p.A.
Feat Group S.p.A.
SEDE LEGALE:
I - 20122 MILANO (MI) - Viale Majno, 17
Capitale Sociale € 8.000.000,00,interamente versato
Codice fiscale, Partita IVA e numero di iscrizione Registro
delle Imprese di Milano: 00203090157
Codice identif. IVA CEE IT 00203090157 - R.E.A. Milano 1211374
UFFICI AMMINISTRATIVI:
I - 23842 BOSISIO PARINI (LC) - Via dei Livelli, snc
tel. 031 3681411 - fax 031 876176 - Cod. Mecc. MI240760
STABILIMENTO E UFFICI COMMERCIALI DELLA DIVISIONE:
I - 23861 CESANA BRIANZA (LC) - Via G. Parini, 30 e Via Aristo, 1/3/5/7
tel. 031 6691 - Fax 031 859218 -http://www.featgroup.com

26575

Certificato 2004/3006152
Data 19/10/2004
Pagina 1

DOUGLAS CHERO S.P.A.

LOCALITA' PRADAGLIE

29013 CARPANETO PIACENTINO PC

| Ordine cliente | Bolla | Fattura | Quantita' |
|---|---|---|---|
| O 241629 | 2004/000/0032298 | O 0032484 | 2.535,00 |

| Articolo Feat | Descrizione |
|---|---|
| 292011001021 | CAPP. GR. VS 2" 800 BB A105N Dis. 7/8 REV.5 |

| Cod.Stamp./N.Col. | Tipo Materiale e Specifica |
|---|---|
| BVT | |

| Numero colata | Acciaieria | N.Cert.Acc. |
|---|---|---|
| 04/70782 | RIVA ACCIAIO S.P.A. | |

ANALISI CHIMICA

| Elem. | Al | C | Cr | Cu | Mn | Mo | Nb | Ni | P | S | Si | V | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Min | 0,015 | 0,180 | | | 0,600 | | | | | | 0,150 | | | | |
| Max | 0,050 | 0,220 | 0,300 | 0,400 | 0,900 | 0,120 | 0,020 | 0,400 | 0,025 | 0,015 | 0,350 | 0,030 | | | |
| Colata C.An. | 0,020 | 0,185 | 0,110 | 0,180 | 0,880 | 0,020 | 0,000 | 0,060 | 0,010 | 0,015 | 0,220 | 0,002 | | | |

Carbonio Equivalente= 0,374

CARATTERISTICHE MECCANICHE

| Ordine Laboratorio | N. | Descrizione | UM1 | Min | Max | Valore | UM2 | Valore |
|---|---|---|---|---|---|---|---|---|
| 178565 | 01 | Snerv.Rp0,2% Amb T | N/mm2 | 250,000 | | 341,000 | PSI | 49445,000 |
| 178565 | 01 | Rottura Amb T | N/mm2 | 485,000 | | 497,000 | PSI | 72065,000 |
| 178565 | 01 | Allungam.A% T Amb | % | 22,000 | | 31,900 | | |
| 178565 | 01 | Strizione Amb T | % | 30,000 | | 56,700 | | |
| | 01 | Durezza HB | HB | 0,000 | 187,000 | 152,000 | | |

Trattamento Termico
NORMALIZZAZIONE:
I PARTICOLARI SONO STATI NORMALIZZATI ALLA TEMPERATURA DI 910 C., CON PERMANENZA A TALE VALORE DI 1 ORA PER OGNI 25 mm. DI SPESSORE E RAFFREDDATI IN ARIA CALMA.-

Note
CERTIFICATO FEAT

25 OTT. 2004

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

Resp. Assicurazione Qualita'
EMANZONI

FEAT INDUSTRIALE division of FEAT Group S.p.A. states that material hereby certified is in compliance with the quality and technical requirements as described in the customer's order, or FEAT order acknowledgement.

1 - The results of chemicals analysis is a true and correct copy of the mill certificate issued by the manufacturer of the steel employed or by the laboratory which has determined it.
2 - The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufacturing process inspection or storage.

2591300

# ISELFA

STEEL FORGINGS
ELECTRING FITTINGS

S.p.A. - C.F./P.IVA VAT IT 00189520125
21048 SOLBIATE ARNO (Va) Italy - Corso Roma, 22
P.O. BOX 21 - TELELEFONO +39 (0331) 99.30.08
FAX FORGINGS +39 (0331) 99.15.35 - FAX FITTINGS +39 (0331) 99.46.77

## CONTROLLO QUALITÀ

Certificato di conformità
Compliance certificate
Gemaess Zeugnis
UNI EN 10204/3.1.B

| N° | Data / Date |
|---|---|
| 16797 | 29.06.04 |

| CLIENTE / Customer / Kunde | ORDINE N° / Order / Bestellung | DATA / Date / Datum |
|---|---|---|
| DOUGLAS CHERO SPA | 240696 | 25.03.04 |

| RIMESSO N° / Delivery note / Lieferschein | DATA / Date / Datum | N° PEZZI / Pieces / Stuckzahl |
|---|---|---|
| 400983 | 29-06-04 | 3.000 |

| DESCRIZIONE - Description - Dezeichnung | DISEGNO N° - Drawing - Zeichnung | INDICE - Last revision - Verzeichnis |
|---|---|---|
| CAPPELLI | Dis. 7/8 | Rev.5 |

| TIPO ACCIAIO / Steel type / Stahl | COLATA / Heat / Schmelze | FORNITORE / Supplier / Lieferant |
|---|---|---|
| ASTM-A.105 BILL.75 | 04/78727/75 | RIVA ACCIAIO SPA |

COMPOSIZIONE CHIMICA / *Chemical composition / Chemische Zusammensetzung*

CARATTERISTICHE ACCIAIO (FORNITE DALL'ACCIAIERIA)

| % | | C | Mn | Si | Cr | Ni | Mo | V | P | S | Cu | Nb |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA / Requested / Erforderikhe | min | | 0,600 | | | | | | | | | |
| | max | 0,350 | 1,050 | 0,350 | 0,300 | 0,400 | 0,120 | 0,030 | 0,040 | 0,050 | 0,400 | 0,020 |
| FORNITA / Supplied / Wirkliche | | 0,1800 | 0,8900 | 0,2100 | 0,0500 | 0,0500 | 0,0100 | 0,0170 | 0,0100 | 0,0100 | 0,1200 | 0,004 |

PROVA JOMINY / *Jominy test / Stimabschreckversuch*

| HRC | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA / Requested / Erforderikhe | min | | | | | | | | | | | GRANO / Grain size / Korngrosse |
| | max | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | |
| FORNITA / Supplied / Wirkliche | | | | | | | | | | | | 6 |

CARATTERISTICHE MECCANICHE / *Mechanical properties / Mechanische Eigenscheften* — Normalizzato ☐ Bonificato ☐

| Ø PROVETTA / Ø sample / Ø probest | RP 0,2% / Yield stranght 0,2% / 0,2% Grenze | R / Tensile strenght / Zugfestigkeit | Aζ % / Elongation % / Dehnung % | Z % / Reduc. of area % / Einschnurung % | KCU / Impact value / Kerbschlang |
|---|---|---|---|---|---|
| mm | N/mm² | N/mm² | Lo = Ćd | | J (joule) |
| 10 | 311 | 500 | 33 | 58 | 49 / 0 / 0 |

CARATTERISTICHE PRODOTTO

| TRATT. TERMICO / Heat Treatement / Warmebehandlung | NORMALIZZAZIONE | DUREZZA RICHIESTA / Requested hardness / Festigkeit | N/mm² |
|---|---|---|---|

| DUREZZA RISCONTRATA N/mm² / Checked hardness / Finden harte | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CONTROLLI / Tests / Ausmabetest | C.D.C. MAGNAFLUX 100% VISIVO 100% | SI / NO / SI | DIMENSIONALE / ALTRI | POSITIVO DOUGLAS CHERO Spa | NO |
|---|---|---|---|---|---|
| ALLEGATI / Enclosed / Anlage | ANALISI CHIMICA ACCIAIERIA CERTIFICATO TRATT. TERMICO | SI / SI / NO | PRODOTTO AUTOCERTIFICATO | Quality Assurance P.C. STEFANI VITTORIO Sign. | ☐ |

NOTE / *Remarks / Bemerkungen*: TRATT: RISCALDO A 900C PER 1 ORA OGNI 25mm DI SPESSORE E RAFFREDDAMENTO IN ARIA CALMA.
SIGLA DI COLATA "Ia"

06 LUG. 2004

CONTROLLO QUALITÀ / QUALITY CONTROL / QUALITATSSTELLE: ISELFA S.p.A. UFFICIO CONTROLLO QUALITA' — COMPILATORE: ISELFA S.p.A. SOLBIATE ARNO (VA)

STAMPAGGIO

MOD. CF. 17 Rev.4 del 11/04/2002

EMESSO ED ARCHIVIATO DAL RESPONSABILE DEL CONTROLLO FINALE (CFI)

**UGITECH**
Groupe Arcelor

**FRANCE**

5 Usine Productrice / Hersteller / Manufacturer: **UGINE**
F 73403 UGINE CEDEX
Tél : 04.79.89.30.20
Fax : 04.79.89.30.51

4 N. Nr No 80208

11 N. de commande usine-Werksbestellnummer-Works order number: FUGE TEJE 01/01 8Z101000 0

3

# CERTIFICATO COLLAUDO DI ACCETTAZIONE B
# CERTIFICAT DE RECEPTION 3.1.B
# INSPECTION CERTIFICATE B

EN 10204 / 3.1.B

Produit / Erzeugnisform / Product: IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE 6

Client et/ou destinataire - Besteller und/oder Empfaenger - Purchaser and/or Consignee: TECNOMECCANICA SRL 9

N. de commande client - Kundenbestellnummer - Purchaser order number: 364 10

Nuance et spécifications techniques - Stahlsorte und Pruefbedingungen - Quality and Specifications: IMA4006 410 AISI 410 UNS S41000
SPEC. SDA 09 DU 20/11/01 (SAUF MN) 12

Etat de livraison - Lieferzustand - As delivered (1): TEMPRATO RINVENUTO 13

Traitement de Référence - Probestreifenbehandlung - Treatment of test samples (1): 14

| Identification du produit Erzeugnis Benennung-Product identification N. de cde usine Werksbestellnummer Works order number 15 | N. de poste Post Nr Item No 17 | N. de Coulée Schmelz Nr Heat No 16 | Nombre Stueckzahl Pieces Nbr 18 | Profil Profile Shape 19 | Dimension Ausmassung Dimension 20 | Longueur Laenge Length 21 | Masse Gewicht Weight 22 |
|---|---|---|---|---|---|---|---|
| 8Z101 000 | | 350031 | 190 | TONDO | 20,000 | | 1974 KG |

| Prélèvement n° Probenummer Test N. 39 B | Demandé Vorschrift Required [3] 24 | Température d'essai Prueftemperatur Test Temperature 25 °C | Traction - Zugversuch - Tensile test: Limite d'Elasticité Streckgrenze Yield Strength 0,2 % 26 A MPA | 1 % 26 B MPA | Résistance à la traction Zugfestigkeit Tensile strength 27 MPA | Allongement Dehnung Elongation 28 % | Striction Einschnuerung Red of Area 29 % | Dureté Haerte Hardness [4] 30 | Type Form Type 31 | Résilience - Kerbschlagzaehigkeit - Notch Toughness: Direction 32 [3] | Température d'essai Pruefungstemperatur Test Temperature 33 | Valeurs individuelles Einzelwerte Individual Values 35 | Moyenne Mittelwerte Average 36 | Dureté Haerte Hardness [5] 37 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Min | 20 | 275 | | 585 | 20 | 45 | | | | | | HB |
| | | Max | | | | | | | | | | | | 237 |
| | [4] | | | | | | | | | | | | | |
| | [5] | | | 607 | | 684 | 21 | 72 | | | | | | 205 |

| 39 A N. de Prélèvement Probenummer Test N. | Demandé Vorschrift Required | 42 C | 43 SI | 44 MN | 45 NI | 46 CR | 47 S | 48 P | 49 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min | | | 0,30 | | 11,50 | | | | |
| | Max | 0,150 | 0,60 | 0,60 | | 13,50 | 0,030 | 0,040 | | |
| N. de Coulée Schmelz Nr Heat N. 350031 | Analyse/Produit-Stückanalyse-Check Analysis | 0,107 | 0,42 | 0,38 | 0,35 | 12,18 | 0,022 | 0,019 | | |

| 38 Mode d'élaboration Erschmelzungsart Melting process | Demandé Vorschrift Required | 51 | 52 | 53 | 54 | 55 |
|---|---|---|---|---|---|---|
| Electrique Elektrisch Electric | Min | | | | | |
| | Max | | | | | |

IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE

06 MAG. 2004
DOUGLAS CHERO Spa
Quality Assurance
P.C. STEFANI VITTORIO
Sign

56

[3] L = Long / Laengs - Long / T = Travers / Quer-Transverse 58

(1) TE = Trempé à l'eau - Wasserhaerten - Waterquench; TH = Trempé à l'huile - Oelhaerten - Oil Quench; A = Hypertrempé - Loesungsgeglueht - Solution annealed; R = Revenu - Anlassen - Tempered; RT = Recuit - Geglueht - Annealed; TRM = Recuit mixt - Weichgeglueht - Mixt annealed 7

Ugine, le 15-01-04
L'Agent Réceptionnaire de l'usine / Der Werksabnehmende / The Work Inspector
H. Mayet 63

(4) A l'état de référence / Zum Bezug Zustand / As reference condition 60 A

(5) A l'état de livraison / In Lieferzustand / In state of delivery 60 B

Contrôles de marquage, d'aspect et de dimensions: satisfaisants / Bezeichnung, Beschigung und Ausmassung: ohne Beanstandung / Marking, Inspection and measurement: without objection 62

Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande / Wir bestaetigen hiermit dass die obengenannten Erzeugnisse den Bestellungsvorschriften entsprechen / We certify hereby that the above mentioned products are consistent with the order prescriptions 66

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** ***Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt***
Customer:

**Bestell-Nr.:** ***Lurgi Job – No.: 69690-10***
Order no.: ***Lurgi OGC PO.-No.: 4567569-000 to -001/1.69690/136***

*Project Name :* ***2nd Zagros Methanol Plant - Iran***

**Auftrag-Nr.:** ***HH – 02535***
Job no.:

**Lieferumfang** / range:

| **Pos** | **Stck.** pcs. | **Gegenstand** object | **DN** | **PN** | **Werkstoff** material | **Bemerkung** comment |
|---|---|---|---|---|---|---|
| *00160* | *1* | *Gate valve*<br>*FB BB SW*<br>*Seats + Wedge Stell.* | *1/2"* | *Cl.1500* | *ASTM A 105N* | *Valve Ident – No.: " S330 "* |

**Auslegung + Prüfung nach** API 602 – ASME B16.11, ASME 31.1, ASME B16.34
Design and tests acc. To API 598 / BS EN 12266-1

**Sicht- und Funktionsprüfung:** *o.k.*
visual and functional test:

**Festigkeits-/Dichtheitsprüfung:**
strength-/tightness-test:

| | | | |
|---|---|---|---|
| *Festigkeit / shell test* | = | *388 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *285 bar Wasser / water* | (60 sec) |
| *Rückdichtung / backseat* | = | *285 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *6 bar Luft / air* | (60 sec) |

**Prüfungsergebnis:** *ohne Beanstandung !*
result: *no complaint !*

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** *Dokumentation gemäß Material-Dokumentationsdeckblatt*
enclosure *Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter / Person in charge W. Glass

**Kommissions-Nr. / Reference No.**

**HH-02535**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00160 | Gate Valve | " S330 " | 1 | Body | E-SR | ASTM A105N | Evasi e Casteln. | 76028 | | 000061 |
| | 1/2" Cl. 1500 lbs. | Drawing-No.: BX652-7/SW | | Wedge | | A182/F6a C.2 stel. | Valbruna | 238209 | | 128331/2004 |
| | FB, BB, SW | | | Seat | | A182/F6a C.2 stel. | Valbruna | 231414 | | 5097/2000 C |
| | seats+wedge stell. | | | Body Srew | | ASTM A193/B7 | Morandi | AR4273 | | 6128 |
| | | | | Bonnet | B-DHS | ASTM A105N | Bonomi | 1T8541 | | 040775 |
| | | | | Stem | | A182/F6a C.2 | Ugitech | 417024 | | 06902 |
| | | | | | | | | | | |
| | | | | | | | | | | |
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| | | | | | | | | | | |

# Evasi e Castelnuovo s.r.l.

Via Carlo Porta, 1 - 23861 CESANA BRIANZA (LC)
Tel. 031/65.59.36 - Fax 031/65.66.27
Cod. Fisc. e Part. IVA 00209790138
Reg.Soc. Trib. Lecco n. 5932 - C.C.I.A. 121373


Spett.
DOUGLAS CHERO SPA

LOC. PRADAGLIE
29013 CARPANETO PIACENTINO PC

***CERTIFICATO DI COLLAUDO / INSPECTION CERTIFICATE***

| N. | DATA/DATE |
|---|---|
| **000061** | **27-02-2001** |

*D.D.T. / DELIVERY NOTE*

| N. | DATA/DATE |
|---|---|
| | |

001909800

| COLATA /HEAT N. | MATERIALE/MATERIAL | ACCIAIERIA/STEEL PLANT | N.QUANTITY | DESCRIZIONE/DESCRIPTION |
|---|---|---|---|---|
| 76028 | A105 | RIVA | 1.070 | CORPI GR VS 1" 800 BB |

## ANALISI CHIMICA / CHEMICAL ANALYSIS

| C | Mn | Si | P | S | Cr | Ni | Mo | Ti | V | Cu | Al |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,200 | 0,930 | 0,170 | 0,015 | 0,010 | 0,150 | 0,060 | 0,020 | 0,017 | 0,017 | 0,180 | 0,020 |
| **Sn** | **Nb** | **N** | **Fe** | **W** | **Ta** | **Co** | **Ca** | **B** | **Sb** | | **CE** |
| 0,012 | | | | | | | | | | | |

## PROVE MECCANICHE/MECHANICAL TESTS

| RS-YELD | R-TENSILE | A%-ELONG | C%-REDUCT |
|---|---|---|---|
| 323,0 | 521,0 | 32,0 | 56,0 |

*TESTS*

| TEST 1 | TEST 2 | TEST 3 | TEMPERAT. |
|---|---|---|---|
| | | | |

| TRADE MARK | HEAT CODE | MATERIAL CODE | MATERIAL TYPE NR. | DWG |
|---|---|---|---|---|
| E SR | | | | |

0 2 MAR. 2001
DOUGLAS CHERO Spa
Quality Assurance
P.C. STEFANI VITTORIO
Sign.

*TRATTAMENTO TERMICO / HEAT TREATMENT*

| DESCRIPTION | HEATING C. | STAY TIME | COOLING | HARDNESS |
|---|---|---|---|---|
| NORMALIZZAZIONE | 900 | 2,3 | ARIA CALMA | |

1) The result of chemical analisys is a true and correct copy of the mill cerificate issued,by the manufacturer of the steel employed, or by the laboratory which has determined it.

Il risultato delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o del laboratorio che li ha rilevati

2) The material of components shipped under the above order number did not come in direct contact with mercury or any its components; or with any mercury containing devices employing a single boundary of containment, during the manufacturing process inspection of storage.

Il materiale o i particolari spediti per questi ordini non sono mai venuti a contatto diretto con mercurio o con alimenti contenenti mercurio durante la fase di lavorazione, controllo o immagazzinamento.

According to UNI EN 10204 3.1B ☒
According to UNI EN 10204 2.2 ☐

| APPROVATO/APPROVED | |
|---|---|
| EMESSO/ISSUED | COLLAUDATORE/INSPECTOR |


**EVASI E CASTELNUOVO s.r.l.**
*STAMPERIA IN FERRO E ACCIAIO*
Via Carlo Porta, 1 - 23861 CESANA B.ZA (LC)
Tel. 031/65.59.36 - Fax 031/65.66.27
Cod. Fisc. e Part. IVA 00209790138

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

4550

CERTIFICATO DI COLLAUDO
ABNAHMEPRUEFZEUGNIS
INSPECTION CERTIFICATE
CERTIFICAT DE RECEPTION
EN 10204 , 3.1.B

Cliente / Kunde / Client
VERRI & PINA SRL
VIA TERRAROSSA, 10 - C.P. N.26
22035-CANZO (CO)-CO

Avviso di Spedizione: A-BZ04006748

Certificato nr: MEST128331/2004/

Conferma ordine nr: MI04002683

Produttore: STABILIMENTO DI BOLZANO

Ordine nr: 94-85-97-103

Marchio di Fabbrica:

Oggetto Prove: Decapato Ricotto lavorabile Laminato

Tipo di Elaborazione: E+AOD

Punzone del Collaudatore:

Specifiche:
ASTM A182 2000C S41000 CLASS2 (d)
(d) Chemical analysis only and mech.properties(for ASTM A182(M))

Qualità: 410

Marca: VAL1

Punzonatura: S.410

| Pos. nr. | Oggetto | Dimensioni - mm | Tolleranza | | Colata | Pezzi | Peso - | Lotto nr. |
|---|---|---|---|---|---|---|---|---|
| 10 | Tondo | 20,000 | | | 236209 | | 1080,00 | 409202530 |

Sono state soddisfatte tutte le condizioni richieste

Controllo antimescolanza: OK

Controllo visivo e dimensionale: soddisfa le esigenze

## Analisi chimica

| Colata | min - max 0,15 | 1,00 | 1,00 | 11,50 - 13,50 | 0,50 | 0,040 | 0,030 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 236209 | 0,14 | 0,33 | 0,76 | 12,64 | 0,47 | 0,024 | 0,029 | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pr  s Enviroment Directive [97/52/EC] Annex 1,a,4.3 by TUEV and LLOYD

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

Bolzano,27/08/04

Il collaudatore di stabilimento / der Werksachverständige / Works inspector / L'agent d'usine
R. Cristel

# Acciaierie Valbruna s.p.a.

36100 Vicenza (Italia) - V.le della Scienza, 25

Telex 480090 VALVI I - Telegrammi: Acciaierie Valbruna - Fax: (0444) 963836
Telef.: (0444) 968211 (30 linee R.A.) - Casella postale 784 - C.C.I.A.A. 190689
Canc. Tribunale di Vicenza n. 19944 - Cod. Fisc. e Partita IVA 01863340244


**FILIALE DI CORMANO MI**

ATTESTATO DI CONTROLLO / TEST REPORT
EN 10204, 2.2

N. 5097/2000-C

Bolla di consegna n. / delivery note: 00/0821 C

Conferma n. / confirmation: 00 K 9030

Cliente / purchaser: TECNOMECCANICA

Tipo / quality: VAL1A

Ordine n. / purchaser order:

Stato di fornitura / delivery condition: MOLATO RIC.LAV. CL.2

Profilo in mm. / size: TONDO 18.00

Peso Kg. / weight: 1067

| Analisi Richiesta / chemical requirem. | | C | Si | Mn | Cr | Ni | P | S |
|---|---|---|---|---|---|---|---|---|
| | min | | | | 11.5 | | | |
| | max | 0.15 | 1.00 | 1.00 | 13.5 | 0.50 | 0.040 | 0.030 |
| Nr. Colata / heat nr. | | C | Si | Mn | Cr | Ni | P | S |
| 231414 | | 0.11 | 0.56 | 0.71 | 12.8 | 0.18 | 0.014 | 0.001 |

Specifiche applicabili: *ASTM A182,99,S41000

| Trattamento Termico del Saggio / sample heat treatment | °C | Normalizz. / normaliz. | Ricottura / annealing | Ricristallizz. / annealing | Invecchiam. / aging | Solubilizz. / annealing | Tempra / quenching | Mezzo / medium | Rinvenimento / tempering |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

| Caratt. Meccaniche Richieste / mechanical requirements | | Rm N/mm² | Rp0.2% N/mm² | E % | RA % | Lavoro assorbito / Impact value Joule KV | KCU | Durezza / hardness HB | HRC |
|---|---|---|---|---|---|---|---|---|---|
| ☐ colata / heat | min | 585 | 380 | 18 | 35 | | | 167 | |
| ☒ prodotto / as-shipped | max | | | | | | | 229 | |
| Provetta / specimen Ø o ≠ mm | Lo mm | Rm N/mm² | Rp0.2% N/mm² | E % | RA % | Joule KV | KCU | HB | HRC |
| 12.5 | 50 | 625 | 389 | 26 | 52 | | | 189 | |

0 8 MAR. 2001
DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.

Note / remarks:

COPIA CONFORME ALL'ORIGINALE
ACCIAIERIE VALBRUNA S.P.A.

*Solo analisi chimica e caratteristiche meccaniche

Acciaio prodotto al forno elettrico ad arco + AOD.
Melting process : E+AOD

Vicenza, 20/10/2000

Resp. Controllo Qualità / Quality Control: M. RIZZOTTO

Il Collaudatore / Inspector:

cer-01 P

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948

E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129


CERTIFICATO DI COLLAUDO
Inspection certificate

26738

N°6128/DCH DATE-16.11.04

CLIENTE- DOUGLAS CHERO Spa
Customer

ORDINE-242000
Order

BOLLA CONSEGNA N-3750
Delivery note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| 1 | 6733 | VITI TE M 12 X 30,5 | B7 ASTM A 193/A 193M | AR4273 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Cr | Mo | S | P |
|---|---|---|---|---|---|---|---|---|
| REQUIRED VALUE | min. | 0.37 | 0.65 | 0.15 | 0.75 | 0.15 | | |
| | max. | 0.49 | 1.10 | 0.35 | 1.20 | 0.25 | 0.040 | 0.035 |
| HEAT n. AR4273 | | 0,44 | 0,77 | 0,26 | 1,06 | 0,23 | 0,005 | 0,007 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

| | Rm. | Rp.(0,2) | A4 | Z. | Hardness |
|---|---|---|---|---|---|
| REQUIRED | min. 860 MPa | min. 720 MPa | min. 16% | min. 50% | max 35 HRC |
| ACTUAL VALUE | 1032 | 945 | 17,5 | 53,5 | 32 |

HEAT TREATMENT
Quenched at : 860 °C in oil
Tempering : 2 hours at 593 °C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

QUALITY CONTROL

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

22 NOV. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
R.C. STEFANI VITTORIO
Firma .....

MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

**Bonomi srl**
*STAMPAGGIO A CALDO DELL'ACCIAIO*

SINCERT
SISTEMA QUALITA' CERTIFICATO ISO 9001:2000
CERTIFICATO N°143467

23861 CESANA BRIANZA (LC)
Via Carlo Porta, 8
☎ 031/656798 🖷 031/657597
Partita I.V.A. 02418370132
R.I. Lecco N. 15934 R.E.A. Lecco N. 288235

25850

TEST CERTIFICATE N° 040775
CERTIFICATO DI COLLAUDO
3.1B-AS-TO- SECONDO
UNI EN 10204
DATA : 15/11/2004

*Spett.le Ditta*
*DOUGLAS CHERO Spa*
*Loc. Padaglie*
*29013 CARPANETO P.NO (Pc)*

Mod. 28/1

| CUSTOMER ORDER - ORDINE CLIENTE | P.O. | DOCUMENTO DI TRASPORTO | INVOICE-FATTURA |
|---|---|---|---|
| 240741 pos. 1 | | 288 del 04/11/2004 | |

| DESCRIPTION OF PARTICULAR - DESCRIZIONE DEL PARTICOLARE | TYPE AND MATERIAL SPECIFICATIONS-TIPO E SPECIFICA MATERIALE |
|---|---|
| BODY | ASTM A105N |

NUMERO COLATA / HEAT NUMBER: 1T8541
STELL MILL. ACCIAIERIA: LEALI
ST.M. CERT. N. / CERT. ACC. N.: HX 1497

CHEMICAL ANALYSIS - ANALISI CHIMICA

| C | Si | Mn | P | S | Cu | Cr | Ni | Mo | V |
|---|---|---|---|---|---|---|---|---|---|
| 0.190 | 0.270 | 0.830 | 0.009 | 0.010 | 0.170 | 0.070 | 0.120 | 0.010 | 0.001 |

| Al | Sn | Ti | Nb | C.E. |
|---|---|---|---|---|
| 0.025 | 0.13 | 0.002 | 0.002 | 0.360 |

| HEAT CODE ON FORGING - CODICE COLATA | DISEGNO DEL FORGIATO | QUANTITY - QUANTITA' |
|---|---|---|
| BDHS | 4/8 | 9.500 |

MECHANICAL PROPERTIES - CARATTERISTICHE MECCANICHE

| YIELD STRENGTH P.S.I. SNERVAM. N/mm2 | TENS. STRENGTH P.S.I. ROTT. N/mm2 | ELONG 2" 50 ALLUNG % | RED OF AREA % CONTRAZ. | H.B. |
|---|---|---|---|---|
| 482 | 548 | 27,60 | 63,03 | 158<br>156<br>158 |

IMPACT VALUE -RESILIENZA

| TEMPERATURA DI PROVA° C. | RISULTATO DELLA PROVA JOULE | | | |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |

HEAT TREATMENT - TRATTAMENTO TERMICO
Normalizing

REMARKS

1) The result of chemical analisys is a true and correct copy of the mill certificate issued, by the manufacturer of the steel employed, or by the laboratory witch has determined it.
* I risultati delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati.
2) The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufactoring process inspection or storage.
** Il materiale o i particolari spediti per questi ordini non sono mai venuti a contatto diretto con mercurio o con elementi contenenti mercurio durante la fase di lavorazione, controllo o immagazzinamento.

I certify these tests to be correct as contained in the records of the company
certifico che tutti i dati sono corretti e uguali a quelli registrati presso Bonomi

19 NOV. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

Q.A. OFFICE
UFFICIO QUALITA'
Bucca Rosalba

ISPESL Istituto Superiore Prevenzione e Sicurezza del Lavoro
FS Ferrovie dello Stato
RINa Registro Italiano Navale
Lloid's Register of Shipping
Istituto Italiano della Saldatura
BV Bureau Veritas
DNV Det Norske Veritas
MMI Marina Militare Italiana
TUV Technischen Uberwachungs Vereine

Rapporto prova **2004/1898/PM**

Garbagnate M. , giovedì 11 novembre 2004

775

Spett.le
**BONOMI S.r.l.**
Via Carlo Porta, 8
23861 CESANA BRIANZA LC

Bonomi S.r.l.
UFFICIO QUALITA'
Firma
Data 15/11/04

**Dati per RINTRACCIABILITA'**

| | |
|---|---|
| Numero ordine interno | 20041623 |
| Data ricevimento materiale | 08/11/04 |
| Data esecuzione prova | 11/11/04 |
| Grafico prova meccaniche | 1780 |
| Bolla Cliente numero | 266 |
| Data bolla Cliente | 08/11/04 |
| Ordine Cliente | |
| Data ordine Cliente | |
| Campioni archiviati | SI per 12 mesi c/o Lab. |
| Residui archiviati | SI per 2 mesi c/o Off. |

Descrizione campione: Forgiato 4/8 Cod. BDHS

Materiale: Acciaio ASTM A105N - Colata 1T8541

Trattamento:

Dimensioni:

Note:

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

NORMATIVE applicate per lavorazione provette ed esecuzione prova meccaniche

UNI 552
Prove meccaniche dei materiali metallici - Simboli, denominazioni e definizioni
UNI 556
Prove meccaniche dei materiali metallici - Prova di trazione
UNI 564
Prove meccaniche dei materiali metallici - Prova di piegamento
UNI 562
Prove meccaniche dei materiali ferrosi - Prova di durezza Brinell
UNI 562
Prove meccaniche dei materiali ferrosi - Prova di durezza Rockwell (scala B e C)
UNI 1955
Prove meccaniche dei materiali ferrosi - Prova di durezza Vickers
UNI 3916
Prove meccaniche dei materiali ferrosi - Determinazione e verifica del carico unitario di scostamento della proporzionalita' dell'acciaio, ad alta temperatura
UNI 4431
Prove meccaniche dei materiali metallici - Prova di resilienza secondo Charpy, per l'acciaio
UNI 4713
Prove meccaniche dei materiali ferrosi - Prova di resilienza su provette a due appoggi con intaglio a V, per l'acciaio
UNI 4714
Prove meccaniche dei materiali ferrosi - Prova di resilienza per l'acciaio a temperature minori di quella ambiente
ASTM A370
Standard test methods and definitions for mechanical testing of steel products
ASTM E8 -8M
Test methods for tension testing of metallic materials (Metric)
ASTM E10
Test methods for Brinell hardness of metallic materials
ASTM E18
Test methods for Rockwell hardness and Rockwell superficial hardness of metallic materials
ASTM E23
Test methods for notched bar impact testing of metallic materials
ASTM E110
Test methods for Indentation Hardness of metallic materials by portable hardness testers
ASTM E190
Method for guided Bend test for ductility of Welds

Identificazione del campione sottoposto alle prove: 20041623/5

Descrizione prove: **Prove meccaniche di trazione e durezza**

**PROVA DI TRAZIONE - parametri di esecuzione prova**

| Dimensioni provetta | | | | Lunghezza Utile | Temperat. prova | Valori richiesti | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Larghezza | Spessore | Diametro | Sezione | | | Acciaio ASTM A105N - Colata 1T8541 | | | | | |
| b | a | d | So | Lo | t | Rp 0,2% | Rp1 | Rm | | A | Z |
| mm | mm | mm | mm2 | mm | °C | Min | Min | Min | Max | Min | Min |
| 0,00 | 0,00 | 6,25 | 30,68 | 25 | 20 | 250 | 0 | 485 | | 22 | 30 |

**PROVA DI TRAZIONE - Risultati prova**

| carico totale Snervamento | carico Unitario Rp 0,2% | carico totale Rp1 | Unitario Rp1 | carico totale Rottura Fm | carico Unitario Rm | Allungamento totale Lu | Allungamento A | Diametro finale | Strizione Z |
|---|---|---|---|---|---|---|---|---|---|
| kN | N / mm2 | kN | N / mm2 | kN | N / mm2 | mm | % | mm | % |
| 14,80 | 482 | 0,00 | 0 | 16,80 | 548 | 31,90 | 27,60 | 3,80 | 63,03 |

**PROVA DI RESILIENZA**

| Parametri di esecuzione prova | | | Risultati prova | | |
|---|---|---|---|---|---|
| Dimensioni | Intaglio | Temperat. | | | |
| mm | tipo | °C | Rich. > 0 ( 0 ) | | |
| | | | 0 | 0 | 0 |

**PROVA DI PIEGA**

mandrino ed angolo piega: mm / °

Risultati prova

**PROVA DI DUREZZA**

| Tipo di durezza | HB 10/3000 | |
|---|---|---|
| min / max | 137 | 187 |
| Risultati prova | | |
| 158 | 156 | 158 |

Annotazioni :

Il Tecnico di Laboratorio
SIGMATRE s.r.l
Eugenio RIVA

Collaudo presenziato da :

Responsabile Laboratorio

Prova di trazione effettuata con macchina Galdabini 200 kN — Matricola n. 31550 o 31551 — Certificato 2004203/204 Centro SIT n. 30/M
Prova di trazione effettuata con macchina AMSLER 980 kN — Matricola n. 2033 — Certificato 253/6899-6/107-6 Centro SIT 02/M
Prova di resilienza effettuata con Pendolo Charpy 300 J GALDABINI Tipo CH30 — Matricola n. 31055-3 — Certificato 255/6901-6/110 Centro SIT n. 02/M
Prova di durezza effettuata con durometro WOLPERT 20.400 N Tipo DIA TESTOR 3B — Matricola n. 3581 — Certificato 256/6904-3/114 Centro SIT n. 02/M
Prova di durezza effettuata con durometro WOLPERT Tipo DIA TESTOR 2RC — Matricola n. 410025/10330 — Certificato 247/6823-4/99 Centro SIT n. 02/M

Il presente rapporto di prova riguarda solo i campioni sottoposti a prova e non puo' essere riprodotto parzialmente, salvo approvazione scritta del Laboratorio di prova

**SIGMATRE srl**
Via Fornace, 31 - 23846 Garbagnate Monastero (LC)
Tel. 031-87.94.25 - Fax 031-87.94.22 e-mail: sigmatre@sigmatre.it
P. Iva 01516910138 - Cod. Fisc. 06544130153
Cap. Soc. € 99.500 i.v. -
C.C.I.A.A. Como n° 195838 - Iscr. Trib. Como n° 17954

- Prove meccaniche e tecnologiche
- Analisi chimiche e prove corrosione
- Esami metallografici
- Controlli non distruttivi
- Corsi di qualifica personale
- Manuali Sistema Qualità

- Mechanical and technological tests
- Chemical analysis and corrosion tests
- Metallographic examination
- Non destructive tests
- Training for personnel qualification
- Quality System Manuals

UGITECH
Groupe Arcelor

Siege Social : Ugitech S.A.
Avenue Paul Girod
73400 UGINE, FRANCE
IDENT. TVA : FR 89 410 436 158

| Bolla/N°BL/DL N°/Lief. | N° Certificat/Prüf N° | Produttore/Usine produc./Manufact./Herstell. |
|---|---|---|
| 335578 | 06902 | F00002 |

# RELEVE DE CONTROLE (1)

SELON EN 10204 PARAGRAPHE 4
Texte certificat de conformité .
Texte certificat de conformité

Texte type cert. conformité édité - fctc

Prodotto - Erzeugnisform - Produit - Product: BARRE RONDE IMA 4006-410 16,0 K13 — LAMINE DECALAM. RECUIT

Cliente e/o destinatario - Client et/ou destinataire - Besteller und/oder Empfaenger - Purchaser and/or Consignee: UGINE-SAVOIE ITALIA SRL

N° ordine cliente - Votre référence - Ihre Auftrag Nr - Your reference: LVM 407085326 MI/LIMETTI

Qualità e specifiche tecniche - Nuance et spécifications techniques - Stahlsorte und Pruefbedingungen - Quality and Specifications: IMA 4006-410 K13 — X12CR13/NFEN 10088-3 /1.4006 - AISI410/ASTH A182/F6A CLASS 2

Stato di fornitura - Etat de livraison - Lieferzustand - As delivered (1): LAMINE DECALAM.

Stato metallurgico - Etat métallurgique - Heat treatment condition - Lieferzustand: RECUIT

| N° Conferma d'ordine / Accusé de reception / Auftragbest N° / Acknowledgment N° | Posizione / N° Poste / Pos Nr / Item N° | N° lotto interno / N° de lot interne / Interne los Nr / Internal batch N° | Profilo / Profil / Profile / Shape | Dimensione / Dimension / Abmessung / Size | Tolleranza / Tolérance / Toleranz / Tolerance | Lunghezza / Longueur / Laenge / Length | Peso netto / Masse / Gewicht / Weight |
|---|---|---|---|---|---|---|---|
| 407682892 | 3 | 4493044 | BARRE RONDE | 16,0000 | K13 | . | 1040,000 |

| Lotto fornitore / Lot producteur / Lieferant los / Master batch | N° Colata / N° de coulée / Schmelz Nr / Heat N° | Trazione - Traction - Zugversuch - Tensile test: Lim. di snervamento / Limite d'Elasticité / Streckgrenze / Yield Strength 0,2 % | 1 % | Carico di rottura / Résistance tract. / Zugfestigkeit / Tensile strength | Allungamento % | Strozzatura % | Resilienza - Résilience - Kerbschlagzaehigkeit - Notch Toughness: Forma / Type / Form / Type | Valori / Valeurs individuelles / Einzelwerte / Individual values | Media - Moyenne / Mittelwerte / Average | Durezza / Dureté / Haerte / Hardness |
|---|---|---|---|---|---|---|---|---|---|---|
| | | RP02 N/MM2 | | RM N/MM2 | AL | Z | | | | HB |
| 417024 | 2ZH01000 | 586 | | 665 | 22 | 73 | | | | 200 |

| | | C | SI | MN | P | S | N | CR | CU |
|---|---|---|---|---|---|---|---|---|---|
| 417024 | 2ZH01000 | 0,106 | 0,330 | 0,440 | 0,019 | 0,024 | 0,056 | 12,140 | 0,156 |

| | | NI | CO |
|---|---|---|---|
| 417024 | 2ZH01000 | 0,350 | 0,021 |

Test : (1 = OK)

417024

C.INT = Corrosione intergranul — EDD.C = Controllo non distrutt — P.PN. = Prova pneumatica — C.MES = Contr. antimescolament
SCHL. = Schiacciamento — FLANG = Flangiatura — REVFL = Applatt. saldatura (Re — P.RET = Essai de retournement

Note - Notes - Remarks - Bemerkungen

EN 10204 / 3.1.B AISI 410 X12CR13 NF EN10088-3 1.4006 IMA 4006 BARRE A CHAUD RON DE TOL.13 TRAITEE DECALAMINEE

16 LUG. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign .....

Le 12/07/04
Signature de l'inspecteur

Controllo marcatura, visivo e dimensionale : soddisfacente. Si certifica che i prodotti sopra descritti sono conformi alle prescrizioni dell'ordine (1)
L'analisi chimica è copia conforme a quella presente sul certificato del produttore
Contrôle de marquage, d'aspect et de dimensions satisfaisant. Nous certifions que le présent document reproduit avec exactitude les données du certificat

BUREAU VERITAS

| |
|---|
| *Certificate of Inspection*<br>*N° Chrono P3192/05/MM/mm*<br>*BV.ITA 40.05.1234*<br>*Page 1 /2*<br>☐ *Interim*<br>■ *Final* |

# CERTIFICATE OF INSPECTION

| | |
|---|---|
| **PROJECT : 2nd Mega Methanol Plant Zagros Petrochemical Co - IRAN** | **P.O. to BV : G 0133/05/EP/an** |
| **Client : Douglas Chero**<br>**29013 - Carpaneto P,no (PC) - ITALY**<br>**Loc. Predaglie** | **P.O. to Supplier : HH-02535-01** |
| **Supplier : Douglas Chero**<br>**29013 - Carpaneto P,no (PC) - ITALY**<br>**Loc. Predaglie** | **P.O. Final Client to Supplier :**<br>(to Lurgi to Klaus)<br>**45567569-000 / 1.69690/136** |
| **Manufacturer : Douglas Chero**<br>**29013 - Carpaneto P,no (PC) - ITALY**<br>**Loc. Predaglie** | **Job reference : 04.0572** |
| **Supply intended for : Klaus Union Armaturen Int. Germany for Lurgi Oel Gas Chemie GmbH** | |
| **Inspection Required by : Klaus Union Armaturen Int. Germany for Lurgi Oel Gas Chemie GmbH** | |

| **DESCRIPTION:** | **Ident Number** | **QTY** |
|---|---|---|
| Item 160 Gate Valve C.1500 FB BB SW - Seats Wedge Stellited Size 1/2" | S 330 | 1 |
| Item 170 Gate Valve C.1500 FB BB SW - Seats Wedge Stellited Size 3/4" | S 330 | 22 |
| Item 180 Gate Valve C.1500 FB BB SW - Seats Wedge Stellited Size 1.1/2" | S 330 | 9 |

***The undersigned certifies that the here-above mentioned supply was inspected at Douglas Chero (PC) Loc. Predaglie - 29013 Carpaneto P.no (PC) - Italy on March 08, 2005 to in conformity with the applicable requirements of Purchase Order ref.* HH-02535-01, QCP ref. PED-0003/05 Rev. 1 *and contractual requirements governing the mission entrusted to BUREAU VERITAS.***

***Marking and stamping : Not Applicable***

***Enclosures :Douglas Chero certificates ref.: 050235 (total pages 7)***

***Particular mentions: None***

***Diffusion :*** ■ Client ■ Supplier o Manufacturer

Date of Issuance : MARCH 08, 2005 Issued by : BV I

STAMP

This certificate is delivered within the Scope of the General Conditions of Services of Bureau Veritas
Ce Certificat est délivré dans le cadre des Conditions Générales de Service du Bureau Veritas

This certificate is issued further to an inspection whose duration and scope were limited by the terms and conditions of the contract with BV principal. This certificate is NOT an indication that the item(s) is (are) fit for any specific purpose and does not release the manufacturer, supplier and any party from their respective duty, guarantee, obligation and/or indemnity relating to, without limitation, patents, workmanship, materials, safety, performance in operation and/or reliability.

General Conditions of service overleaf.

**INSPECTION CARRIED OUT:**

In accordance with Quality Plan ref. PED - 0003/05 Rev.1, following inspections were performed at spot (10%) of the total quantity:

- Review of the applicable contractual documents, including construction dwgs and specs.
- Review of the material certificates:forgings type: EN 10204 3.1.B
- Witnessed on the hydraulic and pneumatic tests.
  (for details see Douglas Chero certificates ref.: 001/572/04)
- Witnessed on the visual and dimensional test in compliance with applicable construction drawings.
  (for details see Douglas Chero certificates ref.: 001/572/04-V).
- Witness on visual examination of the tagging marking of the name plates.

RESULTS:

All the above mentioned test and inspections of the components above mentioned have been carried out according to the technical specifications, drawings and contractual requirements.

**Mr Massimiliano Morassi**
**ASME Authorized Inspector**
**Comm. MD 1120**

******* **End of Certificate** ********

DOUGLAS CHERO Spa
FORGED VALVES

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV ISO 9001

Cap. Soc. Euro 1.033.000,00 i.v.

**CERTIFICATE ACCORDING TO:**
**DIN EN 10204/3.1B - BS EN 10204/3.1B**

CERTIFICATE NO. 050235 | DATE 28/02/2005 | SHEET 01/002

CUSTOMER
KLAUS UNION ARMATUREN INTERNATIONAL for LURGI OEL GAS CHEMIE GMBH

REF. 04.0572 DTD 09/09/2004 PART. X COMP. ____

P.ORDER HH-02535-01

| ITEM | Q.TY | DESCRIPTION | DIMENS. | CUSTOMER CODE / NOTES |
|---|---|---|---|---|
| 160 | 1 | GATE VALVE c.1500C FB BB SW -Seats+Wedge Stell. | 1/2" | S330 |
| 170 | 22 | GATE VALVE c.1500C FB BB SW -Seats+Wedge Stell. | 3/4" | S330 |

**APPLICABLE STANDARD**

LURGI P.ORDER NO.: 4567569-000 / 1.69690 / 136
2nd MEGA METHANOL PLANT, ZAGROS PETROCHEMICAL CO.
SITE BANDAR ASSALUYEH, IRAN
Lurgi Contract No.: 1.69690-10
API 602 - ASME B16.11
ASME B31.1 - ASME B16.34

| ITEM | PART NAME | MATERIAL | HEAT CODE | HEAT NUMBER | CHEMICAL ANALYSIS C% | Mn% | Si% | S% | P% | Cr% | Mo% | Ni% | Ti% | Cu% | Fe% | Al% | C.E. [redacted] | Cb/Nb% | V% | N% | MECHANICAL PROPERTIES TS MPa | YS | E% | R% | HB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 160 | Body | ASTM A105N | E-SR | 76028 | 0,200 | 0,930 | 0,170 | 0,010 | 0,015 | 0,150 | 0,020 | 0,060 | | 0,180 | | 0,020 | 0,408 | 0,000 | 0,017 | 0,012 | 521 | 323 | 32,00 | 56,00 | 154 |
| | Wedge | A182/F6a C.2 Stel. | | 238209 | 0,140 | 0,760 | 0,330 | 0,029 | 0,024 | 12,640 | | 0,470 | | | | | | | | | 687 | 438 | 32,00 | 68,00 | 210 |
| | Seat | A182/F6a C.2 Stel. | | 231414 | 0,110 | 0,710 | 0,560 | 0,001 | 0,014 | 12,800 | | 0,180 | | | | | | | | | 625 | 389 | 26,00 | 52,00 | 204 |
| | Body Screw | ASTM A193/B7 | | AR4273 | 0,440 | 0,770 | 0,260 | 0,005 | 0,007 | 1,060 | 0,230 | | | | | | | | | | 1032 | 945 | 17,50 | 53,50 | 290 |
| | Bonnet | ASTM A105N | B-DHS | 1T8541 | 0,190 | 0,830 | 0,270 | 0,010 | 0,009 | 0,070 | 0,010 | 0,120 | | 0,170 | | 0,025 | 0,363 | 0,002 | 0,001 | 0,130 | 548 | 482 | 27,60 | 63,03 | 156 |
| | Stem | A182/F6a C.2 | | 417024 | 0,106 | 0,440 | 0,330 | 0,024 | 0,019 | 12,140 | | 0,350 | | | | | | | | | 665 | 586 | 22,00 | 73,00 | 200 |
| 170 | Body | ASTM A105N | B-AU | 04/77895 | 0,220 | 0,940 | 0,170 | 0,023 | 0,010 | 0,090 | 0,010 | 0,050 | | 0,180 | | 0,005 | 0,412 | 0,001 | 0,003 | 0,008 | 507 | 293 | 27,20 | 63,03 | 150 |
| | Wedge | A182/F6a C.2 Stel. | | 238209 | 0,140 | 0,760 | 0,330 | 0,029 | 0,024 | 12,640 | | 0,470 | | | | | | | | | 687 | 438 | 32,00 | 68,00 | 210 |
| | Seat | A182/F6a C.2 Stel. | | 236784 | 0,141 | 0,720 | 0,370 | 0,030 | 0,020 | 12,370 | | 0,340 | | | | | | | | | 670 | 490 | 33,00 | 69,00 | 190 |
| | Body Screw | ASTM A193/B7 | | AR4273 | 0,440 | 0,770 | 0,260 | 0,005 | 0,007 | 1,060 | 0,230 | | | | | | | | | | 1032 | 945 | 17,50 | 53,50 | 290 |
| | Bonnet | ASTM A105N | B-AR | 03/76085 | 0,195 | 0,920 | 0,170 | 0,007 | 0,012 | 0,070 | 0,010 | 0,050 | | 0,160 | | 0,020 | 0,383 | 0,000 | 0,022 | 0,007 | 533 | 359 | 24,40 | 61,67 | 155 |
| | Stem | A182/F6a C.2 | | 350031 | 0,107 | 0,380 | 0,420 | 0,022 | 0,019 | 12,180 | | 0,350 | | | | | | | | | 684 | 607 | 21,00 | 72,00 | 205 |

**HEAT TREATMENT**

| | |
|---|---|
| ASTM A105N | HEATING AT 850÷925°C FOR 1 HOUR EACH 25mm OF THICKNESS; COOLING IN STILL AIR |
| A182/F6a C.2 | HEATING AT 950°C, COOLING IN STILL AIR; RE-HEATING AT 700°C, COOLING IN OVEN |
| ASTM A193/B7 | HEATING AT 855÷865°C, QUENCHING IN OIL; TEMPER. AT 593°C min., COOLING IN AIR |

| PARTICULAR | ITEM | VALUES(J) | TEMP. |
|---|---|---|---|
| E-SR | 160 | 46 53 46 | -29°C |

MASSIMILIANO MORASSI
ASME AUTHORIZED INSPECTOR
STATE COMM. MD 1120
DATE: 08 MAR 2005

**REMARKS**

TEST/DOCUMENTS ACC. TO DOUGLAS CHERO'S Q.C.P. No. PED-0003/05 Rev.1
WE DECLARE THAT THE VALUES INDICATED ARE IN CONFORMITY WITH THE MILL CERTS AVAILABLE c/o Q.C.DEPT. DOUGLAS CHERO SPA.
VALVES MANUFACTURED ACCORDING TO PRESSURE EQUIPMENT DIRECTIVE 97/23/CE.

API 598 / BS EN 12266-1 **TEST CERTIFICATION** D.C. PROCEDURE 140 R.5

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Rating | | c.1500 | c.1500 | | | | |
| Hydrostatic body test | BAR | 388 | 388 | | | | |
| Hydrostatic seat test/backseat test | BAR | 285 | 285 | | | | |
| Air seat test | BAR | 6 | 6 | | | | |

QUALITY CONTROL
DOUGLAS-CHERO S.p.A.
Quality Control
CREDALI STEFANO

QUALITY ASSURANCE

CUSTOMER'S INSPECTOR
DATE: ____

DOUGLAS CHERO Spa

# DIMENSIONAL / VISUAL INSPECTION CERTIFICATE

**N.: 01/572/04-V**

Sheet: 1/2

| CUSTOMER: | Order: | Our Job: |
|---|---|---|
| **KLAUS UNION ARMATUREN INTERNATIONAL for LURGI OEL GAS CHEMIE GMBH** | **HH-02535-01** Lurgi P.O.: **4567569-000 / 1.69690 / 136** | **04.0572** |

Client: 2nd MEGA METHANOL PLANT, ZAGROS PETROCHEMICAL COMPANY, SITE BANDAR ASSALUYEH, IRAN / Contract No.: 1.69690-10

## DIMENSIONAL INSPECTION CERTIFICATE

| *TESTS EXECUTED* | | *APPLICABLE STANDARD* |
|---|---|---|
| Parts Test | | DOUGLAS CHERO DRAWINGS |
| End-to-End Test | | DOUGLAS CHERO DRAWINGS |
| SW Ends Test | | ASME B16.11 |
| NPT Ends Test | **NOT APPLICABLE** | ASME B1.20.1 |
| BW Ends Test | **NOT APPLICABLE** | ASME B16.25 |

Remarks: **FOR VALVES DESCRIPTION SEE ATTACHED SHEET 2/2**

Test executed according to approved Drawings by: **GUIDO SCHIAVETTI**

RESULT: **POSITIVE**

SIGNATURE: Guido Schiavetti

We declare that all components have made according to applicable standard, constructive specifications and DOUGLAS CHERO S.p.A. constructive drawings.

| Quantity Checked: **100%** | Q.A. - Q.C. | **CUSTOMER'S Inspector** |
|---|---|---|
| DATE: **28/02/05** | DOUGLAS-CHERO S.p.A. Quality Control CREDALI STEFANO | |

## VISUAL INSPECTION CERTIFICATE

VISUAL TEST EXECUTED ON ROUGH AND MACHINED SURFACE

RESULT: **POSITIVE**

SIGNATURE: DOUGLAS-CHERO S.p.A. Quality Control CREDALI STEFANO

| Quantity Checked: **100%** | Q.A. - Q.C. | **CUSTOMER'S Inspector** |
|---|---|---|
| DATE: **28/02/05** | DOUGLAS-CHERO S.p.A. Quality Control CREDALI STEFANO | WITNESSED AT 10% 8 MAR 2005 |

| DOUGLAS CHERO Spa | DIMENSIONAL / VISUAL INSPECTION CERTIFICATE | No.: 01/572/04-V<br>Sheet: 2/2 |
|---|---|---|

## LIST OF ITEMS

| ITEM | IDENT NO | DESCRIPTION | SIZE | Q.TY |
|---|---|---|---|---|
| 160 | S330 | GATE VALVE c.1500C FB BB SW -Seats+Wedge Stell. [ TRIM 5 ] | 1/2" | 1 |
| 170 | S330 | GATE VALVE c.1500C FB BB SW -Seats+Wedge Stell. [ TRIM 5 ] | 3/4" | 22 |
| 180 | S330 | GATE VALVE c.1500C FB BB SW -Seats+Wedge Stell. [ TRIM 5 ] | 1.1/2" | 9 |
| | | | | |

WITNESSED AT 10%

08 MAR 2005

DOUGLAS-CHERO S.p.A.
Quality Control
CREDALI STEFANO

DOUGLAS CHERO Spa
FORGED VALVES

STABILIMENTO/FACTORY
UFFICI AMMINISTRATIVI E COMMERCIALI
Località Pradaglie - 29013 Carpaneto P.no (PC) - ITALY
Phone: 0523/854011 - Fax: 0523/850389
E-MAIL: webmaster@douglas-chero.com



# PRESSURE TEST CERTIFICATE

## No. 001/572/04

*Customer:* KLAUS UNION ARMATUREN INTERNATIONAL for LURGI OEL GAS CHEMIE GMBH
*P.Order:* HH-02535-01
*Lurgi P.Order:* 4567569-000 / 1.69690 / 136
*Client Ref.:* 2nd MEGA METHANOL PLANT, ZAGROS PETROCHEMICAL COMPANY, SITE BANDAR ASSALUYEH, IRAN / Contract No.: 1.69690-10
*Object:* DOUGLAS CHERO CERTIFICATE No. 050235 Dtd.: 28/02/05
*Remarks:* TESTS CARRIED OUT ON 100%
TESTS CARRIED OUT ACCORDING TO D.C. PROCEDURE 140 R.5

| ITEM | IDENT No. | DESCRIPTION | SIZE | Q.TY |
|---|---|---|---|---|
| 160 | S330 | GATE VALVE c.1500C FB BB SW -Seats+Wedge Stell. [ TRIM 5 ] | 1/2" | 1 |
| 170 | S330 | GATE VALVE c.1500C FB BB SW -Seats+Wedge Stell. [ TRIM 5 ] | 3/4" | 22 |
| 180 | S330 | GATE VALVE c.1500C FB BB SW -Seats+Wedge Stell. [ TRIM 5 ] | 1.1/2" | 9 |
| | | | | |

| | RATING 1500 | ALL RATINGS |
|---|---|---|
| TYPE OF TEST | PRESSURE | TIME |
| - HYDRAULIC SHELL TEST<br>- BACK-SEAT TEST | 388 BAR | 60 Sec. min. |
| - HYDROSTATIC SEAT TEST | 285 BAR | 60 Sec. min. |
| - AIR SEAT TEST | 6 BAR | 30 Sec. min. |

WITNESSED AT 10%

DOUGLAS-CHERO S.p.A.
Quality Control
CREDALI STEFANO

08 MAR 2005

GENERAL REMARKS: AS PER PROCEDURE DOUGLAS CHERO No. 140 Rev.5, THE BACK SEAT TEST FOR GLOBE VALVES IS CARRIED OUT TOGETHER WITH HYDRAULIC SHELL TEST.

NOTE: NO LEAKAGE DETECTED DURING HYDRAULIC/PNEUMATIC TESTS.

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** / Customer: *Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt*

**Bestell-Nr.:** / Order no.: *Lurgi Job – No.: 69690-10*
*Lurgi OGC PO.-No.: 4567569-000 to -001/1.69690/136*

*Project Name :* *2nd Zagros Methanol Plant - Iran*

**Auftrag-Nr.:** / Job no.: *HH – 02535*

**Lieferumfang** / range:

| Pos | Stck. pcs. | Gegenstand object | DN | PN | Werkstoff material | Bemerkung comment |
|---|---|---|---|---|---|---|
| 00170 | 22 | Gate valve<br>FB BB SW<br>Seats + Wedge Stell. | 3/4" | Cl.1500 | ASTM A 105N | Valve Ident – No.: " S330 " |

**Auslegung + Prüfung nach** / Design and tests acc. To: API 602 – ASME B16.11, ASME 31.1, ASME B16.34
API 598 / BS EN 12266-1

**Sicht- und Funktionsprüfung:** / visual and functional test: *o.k.*

**Festigkeits-/Dichtheitsprüfung:** / strength-/tightness-test:

| | | | |
|---|---|---|---|
| Festigkeit / shell test | = | 388 bar Wasser / water | (60 sec) |
| Dichtheit Sitz / seat | = | 285 bar Wasser / water | (60 sec) |
| Rückdichtung / backseat | = | 285 bar Wasser / water | (60 sec) |
| Dichtheit Sitz / seat | = | 6 bar Luft / air | (60 sec) |

**Prüfungsergebnis:** / result: *ohne Beanstandung !* / *no complaint !*

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** / enclosure: *Dokumentation gemäß Material-Dokumentationsdeckblatt* / *Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter / Person in charge W. Glass

**Kommissions-Nr. / Reference No.**

**HH-02535**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00170 | Gate Valve 3/4" Cl. 1500 lbs. FB, BB, SW seats+wedge stell. | " S330 " | 22 | Body | B-AU | ASTM A105N | Bonomi | 04/77895 | | 040220 |
| | | Drawing-No.: BX652-7/SW | | Wedge | | A182/F6a C.2 stel. | Valbruna | 238209 | | 128331/2004 |
| | | | | Seat | | A182/F6a C.2 stel. | Valbruna | 236784 | | 055587/2003 |
| | | | | Body Srew | | ASTM A193/B7 | Morandi | AR4273 | | 6128 |
| | | | | Bonnet | B-AR | ASTM A105N | Bonomi | 03/76085 | | 040076 |
| | | | | Stem | | A182/F6a C.2 | Ugitech | 350031 | | 80208 |
| | | | | | | | | | | |
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**Bonomi srl**

*STAMPAGGIO A CALDO DELL'ACCIAIO*

23861 CESANA BRIANZA (Lc) Via Carlo Porta, 8

☎ 031/656798 🖷 031/657597

CERTIFICATO N°143467

Partita I.V.A. 02418370132
R.I. Lecco N. 15934
R.E.A. Lecco N. 288235

0042545600

TEST CERTIFICATE N° 040220
CERTIFICATO DI COLLAUDO
3.1B-AS-TO- SECONDO
UNI EN 10204
DATA : 30/04/2004

*Spett.le Ditta*
*DOUGLAS CHERO Spa*
*Loc. Pradaglie*
*29013 CARPANETO P.NO (PC)*

Mod. 28/1

| CUSTOMER ORDER - ORDINE CLIENTE | P.O. | DOCUMENTO DI TRASPORTO | INVOICE-FATTURA |
|---|---|---|---|
| 240405 pos. 2 | | 95 del 16/04/2004 | |

| DESCRIPTION OF PARTICULAR - DESCRIZIONE DEL PARTICOLARE | TYPE AND MATERIAL SPECIFICATIONS-TIPO E SPECIFICA MATERIALE |
|---|---|
| BODY | ASTM A105N |

NUMERO COLATA / HEAT NUMBER: 04/77895
STEEL MILL. ACCIAIERIA: RIVA
ST.M. CERT. N. / CERT. ACC. N.: 16386

CHEMICAL ANALYSIS - ANALISI CHIMICA

| C | Mn | Si | P | S | Cr | Ni | Mo | Cu | Sn |
|---|---|---|---|---|---|---|---|---|---|
| 0.22 | 0.94 | 0.17 | 0.010 | 0.023 | 0.09 | 0.05 | 0.01 | 0.18 | 0.008 |
| **Al** | **Ti** | **V** | **Nb** | **B** | **C.E.** | | | | |
| 0.005 | 0.013 | 0.003 | 0.0010 | 0.000 | 0.41 | | | | |

| HEAT CODE ON FORGING CODICE COLATA | DISEGNO DEL FORGIATO . | QUANTITY QUANTITA' | MECHANICAL PROPERTIES - CARATTERISTICHE MECCANICHE | | | | |
|---|---|---|---|---|---|---|---|
| | | | YIELD STRENGTH P.S.I. SNERVAM. N./mm2 | TENS. STRENGTH P.S.I. ROTT. N/mm2 | ELONG 2" 50 ALLUNG % | RED OF AREA % CONTRAZ. | H.B. |
| BAU | N6/95 | 5.456 | 293 | 507 | 27,20 | 63,03 | 148<br>157<br>148 |

HEAT TREATMENT - TRATTAMENTO TERMICO
Normalizing

REMARKS

1) The result of chemical analisys is a true and correct copy of the mill certificate issued, by the manufacturer of the steel employed, or by the laboratory witch has determined it. ...
* I risultati delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati.
2) The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufactoring process inspection or storage.
** Il materiale o i particolari spediti per questi ordini non sono mai venuti a contatto diretto con mercurio o con elementi contenenti mercurio durante la fase di lavorazione, controllo o immagazzinamento.

I certify these tests to be correct as contained in the records of the company
certifico che tutti i dati sono corretti e uguali a quelli registrati presso Bonomi

05 MAG. 2004

*DOUGLAS CHERO Spa*

Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

Q.A. OFFICE
UFFICIO QUALITA'
Bucca Rosalba

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

4550

**CERTIFICATO DI COLLAUDO**
**ABNAHMEPRUEFZEUGNIS**
**INSPECTION CERTIFICATE**
**CERTIFICAT DE RECEPTION**
**EN 10204 , 3.1.B**

Cliente / Kunde / Client:
VERRI & PINA SRL
VIA TERRAROSSA, 10 - C.P. N.26
22035-CANZO (CO)-CO

Avviso di Spedizione: A-BZ04006748

Certificato nr: MEST128331/2004/

Conferma ordine nr: MI04002883

Produttore: STABILIMENTO DI BOLZANO

Ordine nr: 94-85-97-103

Marchio di Fabbrica:

Oggetto Prove: Decapato Ricotto lavorabile Laminato

Tipo di Elaborazione: E+AOD

Punzone del Collaudatore:

Specifiche:
ASTM A182 2000C S41000 CLASS2 (d)
(D) Chemical analysis only and mecc.properties(for ASTM A182(M))

Qualità: 410

Marca: VAL1

Punzonature: S.410

| Pos. nr. | Oggetto | Dimensioni - mm | Tolleranza | | Colata | Pezzi | Peso - | Lotto nr. |
|---|---|---|---|---|---|---|---|---|
| 0010 | Tondo | 20,000 | EN10088 | | 238209 | | 1080 Kg | 409202530 |

Sono state soddisfatte tutte le condizioni richieste

Controllo antimescolanza: OK

Controllo visivo e dimensionale: soddisfa le esigenze

## Analisi chimica

| Colata | min - max | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0,15 | 1,00 | 1,00 | 11,50 - 13,50 | 0,60 | 0,040 | 0,030 | | | | | | | | | |
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | | |
| 238209 | 0,14 | 0,33 | 0,76 | 12,64 | 0,47 | 0,024 | 0,029 | | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pr  e Environment Directive [97/23/EC] Annex 1,2,4.3 by TUEV and LLOYD

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

Bolzano, 27/08/04

Il collaudatore di stabilimento / der Werksachverständige / Works inspector / L'agent d'usine
R. Cristel

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 26 z.i.

Stab.: 38100 BOLZANO (Italia) - Via A. Volta, 4

# CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION EN 10204 , 3.1.B

Ø20 F6RK

Cliente / Kunde/Purchaser/Client
ACC.VALBRUNA SPA-MAG.CORMANO
VIA BIZZOZZERO, 125
20032 - CORMANO (MI) - MI

Produttore: STABILIMENTO DI BOLZANO
Hersteller/Fabrikant/Usine produttrice

Avviso di Spedizione: A-BZ003005480
Lieferanzeige/Packing list/B.L.

Certificato nr: MEST055587/2003/
Prüfung/Test/Essai

Conferma ordine nr: MI03007175
Werks/Our Order/Bon nr.

Ordine nr: TRASFERIMENTO DA BOLZANO
Bestell/Your order/Commande

Marchio di Fabbrica:
Zeichen des Unternehmens
Trade mark
Sigle de l'usine productrice

Oggetto Prove: Secondo esecuzione Ricotto lavorabile Pelato
Prüfgegenstand/Nom inspection/Passage

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'obtention

Punzone del Collaudatore:
Stempel des Werksabnahmebeamten
Inspector's stamp/Poinçon de l'inspecteur

Specifiche:
Abkommungen / Requirements / Exigences

VALBRUNA 2002 410 A (i)
ASME (1) SA479 2001 S41000 A (1)
ASTM A479 2001 S41000 A (i)
(1) ASME II PT.A 2001 EDITION
(2) ASME II PT.A 2001 EDITION
(2) Chemical analysis only and mecc.properties(for ASTM A182[M])

AISI 410 (i)
ASTM A182 2000C S41000 CLASS2 (2)
EN 10088-3 95 1.4006 A (i)

ASME (1) SA182 2001 S41000 CLASS2 (i)
ASTM A276 2000A S41000 A (i)
EN 10272 2000 1.4006 A (i)

Qualità: 410
Güte/Quality/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Nuance

Punzonatura: 410
Kennzeichnung/Marking/Marquage

| Pos. nr. / Pos. nr. / Rang nr. / Nr. de poste | Oggetto / Gegenstand / Product description / Descrip. du produit | Dimensioni - mm / Abmessungen / Dimension / Dimension | Tolleranza / Toleranz. / Allowance / Tolerance | Lunghezza -mm / Länge / Length / Longueur | Colata / Schmelze / Heat / Coulée | Pezzi / Stückzahl / Pieces / Pièces | Peso - KG / Gewicht / Weight / Poids | Lotto nr. / Losnr. / Lot nr. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0020 | Tondo | 20,000 | K12-MIN | 5000 / 5500 | 236784 | | ~~7521,0~~ 1007 | 310700680 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind fl. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à été trouvé conforme aux exigences

Controllo antimescolanza: OK
Verwechslungsprüfung: einwandfrei/ok Ausgeführt
Antimixing testing performed: OK
Contrôle antimélange: fait c.a.s.

Controllo visivo e dimensionale: soddisfa le esigenze:
Sichtprüfung und Abmessung: ohne Beanstandung
Visual inspection and dimensional check: satisfactory
Contrôle visuel et dimensionel: satisfaisant

| TEST | Provetta/ Probenart / Test piece / Eprouvette mm | °C | Posiz. Saggio / Position / Position | Snervamento / Streck / Yield Strength / Limite élastique Rp 0,2% N/mm2 | Snervamento / Streck / Yield Strength / Limite élastique | Resistenza / Zugfestigkeit / Tensile strength / Résistance à la traction Rm N/mm2 | Allungamento / Bruchdehnung / Elongation / Allongement A5 % | Allungamento / Bruchdehnung / Elongation / Allongement E Z" % | Strizione / Einschnürung / Reduction of area / Striction Z % | Strizione / Einschnürung / Reduction of area / Striction RA % | Resilienza / Kerbschlagarbeit / Impact Value / Resilience °C | Durezza / Härte / Hardness / Dureté HB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 / Anforderungswerte / Required values / Valeurs exigées | | min / max | | 380 | - | 585 / 730 | - | 20 | - | 45 | - | 167 / 220 |
| | 10.00 | 20 | L | 490 | | 670 | 29 | 33 | 69 | 69 | | 190 |

1) L=Längsrichtung/Long., Q=Querrichtung/Transv., T=Tangential/tangential

## Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Colata: Schmelze/Heat/Coulée | 0,080 min 0,150 max | - 1,00 | - 1,00 | 11,50 13,50 | - 0,50 | - 0,040 | - 0,030 | - | - | - | - | - | - | - | - | - | - |
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | | | |
| 236784 | 0,141 | 0,37 | 0,72 | 12,37 | 0,34 | 0,020 | 0,030 | | | | | | | | | | |

The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,3.,4.3 by TUEV and LLOYD'S

29 LUG. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

COPIA CONFORME ALL' ORIGINALE
ACCIAIERIE VALBRUNA S.P.A.
FILIALE DI CORMANO

Bolzano, 23/10/03
Mod./Stil.D06

Il collaudatore di stabilimento
der Werksabnahmebeamte / Inspector / Le contrôleur d'usine
S. Colin



2326/1/01

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948

E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129


CERTIFICATO DI COLLAUDO
Inspection certificate

26738

N°6129/DCH DATE-16.11.04

CLIENTE- DOUGLAS CHERO Spa — ORDINE-242000 — BOLLA CONSEGNA N-3750
Customer — Order — Delivery note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| 1 | 6733 | VITI TE M 12 X 30,5 | B7 ASTM A 193/A 193M | AR4273 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Cr | Mo | S | P |
|---|---|---|---|---|---|---|---|---|
| REQUIRED VALUE | min. | 0.37 | 0.65 | 0.15 | 0.75 | 0.15 | | |
| | max. | 0.49 | 1.10 | 0.35 | 1.20 | 0.25 | 0.040 | 0.035 |
| HEAT n. AR4273 | | 0,44 | 0,77 | 0,26 | 1,06 | 0,23 | 0,005 | 0,007 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

| | Rm. min. 860 MPa | Rp.(0,2) min. 720 MPa | A4 min. 16% | Z. min. 50% | Hardness max 35 HRC |
|---|---|---|---|---|---|
| REQUIRED | | | | | |
| ACTUAL VALUE | 1032 | 945 | 17,5 | 53,5 | 32 |

HEAT TREATMENT
Quenched at : 860 °C in oil
Tempering : 2 hours at 593 °C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

QUALITY CONTROL

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

22 NOV. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
R.C. STAYAMA VITTORIO
Firma .....

MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

**Bonomi srl**
*STAMPAGGIO A CALDO DELL'ACCIAIO*
23861 CESANA BRIANZA (Lc) Via Carlo Porta, 8
☎ 031/656798 🖷 031/657597

CERTIFICATO N°143467

Partita I.V.A. 02418370132
R.I. Lecco N. 15934
R.E.A. Lecco N. 288235

0249300

TEST CERTIFICATE N° 040076
CERTIFICATO DI COLLAUDO
3.1B-AS-TO- SECONDO
UNI EN 10204
DATA: 20/02/2004

*Spett.le Ditta*
*DOUGLAS CHERO Spa*
*Loc. Pradaglie*
*29013 CARPANETO P.NO (Pc)*

Mod. 28/1

| CUSTOMER ORDER - ORDINE CLIENTE | P.O. | DOCUMENTO DI TRASPORTO | INVOICE-FATTURA |
|---|---|---|---|
| 232561 pos. 2 | | 33 del 12/02/2004 | |

| DESCRIPTION OF PARTICULAR - DESCRIZIONE DEL PARTICOLARE | TYPE AND MATERIAL SPECIFICATIONS-TIPO E SPECIFICA MATERIALE |
|---|---|
| BONNET | ASTM A105N |

NUMERO COLATA / HEAT NUMBER: 03/76085
STELL MILL. ACCIAIERIA: RIVA
ST.M. CERT. N. / CERT. ACC. N.: 593

CHEMICAL ANALYSIS - ANALISI CHIMICA

| C | MN | SI | P | S | CR | NI | MO | CU | SN |
|---|---|---|---|---|---|---|---|---|---|
| 0.195 | 0.92 | 0.17 | 0.012 | 0.007 | 0.07 | 0.05 | 0.01 | 0.16 | 0.007 |
| **AL** | **TI** | **V** | **NB** | **B** | **C.E.** | | | | |
| 0.020 | 0.021 | 0.022 | 0.000 | 0.000 | 0.38 | | | | |

| HEAT CODE ON FORGING CODICE COLATA | DISEGNO DEL FORGIATO | QUANTITY QUANTITA' | MECHANICAL PROPERTIES - CARATTERISTICHE MECCANICHE | | | | |
|---|---|---|---|---|---|---|---|
| | | | YIELD STRENGTH P.S.I. SNERVAM. N./mm2 | TENS. STRENGTH P.S.I. ROTT. N/mm2 | ELONG 2" 50 ALLUNG % | RED OF AREA % CONTRAZ. | H.B. |
| BAR | N6/8 | 3.058 | 359 | 533 | 24,40 | 61,67 | 154<br>151<br>154 |

HEAT TREATMENT - TRATTAMENTO TERMICO
Normalizing

REMARKS

1) The result of chemical analisys is a true and correct copy of the mill certificate issued, by the manufacturer of the steel employed, or by the laboratory witch has determined it.
* I risultati delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati.
2) The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufactoring process inspection or storage.
** Il materiale o i particolari spediti per questi ordini non sono mai venuti a contatto diretto con mercurio o con elementi contenenti mercurio durante la fase di lavorazione, controllo o immagazzinamento.

I certify these tests to be correct as contained in the records of the company
certifico che tutti i dati sono corretti e uguali a quelli registrati presso Bonomi

24 FEB. 2004
*DOUGLAS CHERO Spa*
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

Q.A. OFFICE
UFFICIO QUALITA'
Bucca Rosalba

**UGITECH**
Groupe Arcelor

**FRANCE**

5 Usine Productrice / Hersteller / Manufacturer: **UGINE**
F 73403 UGINE CEDEX
Tél : 04.79.89.30.30
Fax : 04.79.89.30.51

4 N. Nr No 80208

11 N. de commande usine-Werksbestellnummer-Works order number: FUGE TEJE 01/01 8Z101000 Q

3

# CERTIFICATO COLLAUDO DI ACCETTAZIONE B
# CERTIFICAT DE RECEPTION 3.1.B
# INSPECTION CERTIFICATE B

EN 10204 / 3.1.B

Produit / Erzeugnisform / Product: IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE 6

Client et/ou destinataire - Besteller und/oder Empfaenger - Purchaser and/or Consignee 9: TECNOMECCANICA SRL

N. de commande client - Kundenbestellnummer - Purchaser order number 10: 364

Nuance et spécifications techniques - Stahlsorte und Pruefbedingungen - Quality and Specifications 12: IMA4006 410 AISI 410 UNS S41000
SPEC. SDA 09 DU 20/11/01 (SAUF MN)

Etat de livraison - Lieferzustand - As delivered (1) 13: TEMPRATO RINVENUTO

Traitement de Référence - Probestreifenbehandlung - Treatment of test samples (1) 14:

| Identification du produit Erzeugnis Benennung-Product Identification N. de cde usine Werksbestellnummer Works order number 15 | N. de poste Kam No 17 | N. de Coulée Schmelz Nr Heat No 16 | Nombre Stueckzahl Pieces Nbr 18 | Profil Profile Shape 19 | Dimension Ausmessung Dimension 20 | Longueur Laenge Length 21 | Masse Gewicht Weight 22 |
|---|---|---|---|---|---|---|---|
| 8Z101 000 | | 350031 | 190 | TONDO | 20,000 | | 1974 KG |

| Prélèvement Probenummer Test N. 39 B | Demandé Vorschrift Required (3) | Traction - Zugversuch - Tensile test: Température d'essai Pruefttemperatur Test Temperature 24 / 25 | Limite d'Elasticité Streckgrenze Yield Strength 0,2 % 26 A | 1 % 26 B | Résistance à la traction Zugfestigkeit Tensile strength 27 | Allongement Dehnung Elongation 28 | Striction Einschnuerung Red of Area 29 | Dureté Haerte Hardness (4) 30 | Type Form Type 31 | Résilience - Kerbschlagzaehigkeit - Notch Toughness: Sens Richtung Direction (3) 32 | Température d'essai Pruefttemperatur Test Temperature 33 | Valeurs individuelles Einzelwerte Individual Values 35 | Moyenne Mittelwerte Average 36 | Dureté Haerte Hardness (5) 37 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | L °C | MPA | MPA | MPA | % | % | | | | | | | HB |
| | Min | 20 | 275 | | 585 | 20 | 45 | | | | | | | |
| | Max | | | | | | | | | | | | | 237 |
| | (4) | | | | | | | | | | | | | |
| | (5) | | 607 | | 684 | 21 | 72 | | | | | | | 205 |

| N. de Prélèvement Probenummer Test N. 39 A | Demandé Vorschrift Required 40 | 42 C | 43 SI | 44 MN | 45 NI | 46 CR | 47 S | 48 P | 49 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min | | | 0,30 | | 11,50 | | | | |
| | Max | 0,150 | 0,60 | 0,60 | | 13,50 | 0,030 | 0,040 | | |
| N. de Coulée Schmelz Nr Heat N. | Analyse Produit-Stückanalyse Check Analysis | 0,107 | 0,42 | 0,38 | 0,35 | 12,18 | 0,022 | 0,019 | | |
| 350031 | | | | | | | | | | |

| 38 Mode d'élaboration Erschmelzungsart Melting process Electrique Elektrisch Electric | Demandé Vorschrift Required 51 | 52 | 53 | 54 | 55 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min | | | | | | | | | |
| | Max | | | | | | | | | |

IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE

06 MAG. 2004

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

56

(3) L = Long / Laengs - Long / T = Travers / Quer-Transverse 58

(1) TE = Trempé à l'eau - Wasserhaerten - Waterquench; TH = Trempé à l'huile - Oelhaerten - Oil Quench; A = Hypertrempé - Losungsgeglueht - Solution annealed; R = Revenu - Anlassen - Tempered; RT = Recuit - Geglueht - Annealed; TRM = Recuit maxi - Weichgeglueht - Maxi annealed 7

Ugine, le 15-01-04
L'Agent Réceptionnaire de l'usine / Der Werksachverstaendige / The Work Inspector
H. Mayet 53

(4) A l'état de référence / Zum Bezug Zustand / At reference condition 60 A

(5) A l'état de livraison / In Lieferzustand / In state of delivery 60 B

Contrôles de marquage, d'aspect et de dimensions: satisfaisants / Bezeichnung, Beschaffenheit und Ausmessung: ohne Beanstandung / Marking, inspection and measurement: without objection 62

Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande / Wir bestaetigen hiermit dass die obengenannten Erzeugnisse den Bestellungsvorschriften entsprechen / We certify hereby that the above mentioned products are consistent with the order prescriptions 66

BUREAU VERITAS

*Certificate of Inspection*
*N° Chrono P3192/05/MM/mm*
*BV.ITA 40.05.1234*
*Page 1 /2*
☐ *Interim*
■ *Final*

# CERTIFICATE OF INSPECTION

| | |
|---|---|
| **PROJECT : 2nd Mega Methanol Plant Zagros Petrochemical Co - IRAN** | **P.O. to BV : G 0133/05/EP/an** |
| **Client : Douglas Chero<br>29013 - Carpaneto P,no (PC) - ITALY<br>Loc. Predaglie** | **P.O. to Supplier : HH-02535-01** |
| **Supplier : Douglas Chero<br>29013 - Carpaneto P,no (PC) - ITALY<br>Loc. Predaglie** | **P.O. Final Client to Supplier :**<br>(to Lurgi to Klaus)<br>**45567569-000 / 1.69690/136** |
| **Manufacturer : Douglas Chero<br>29013 - Carpaneto P,no (PC) - ITALY<br>Loc. Predaglie** | **Job reference : 04.0572** |
| **Supply intended for : Klaus Union Armaturen Int. Germany for Lurgi Oel Gas Chemie GmbH** | |
| **Inspection Required by : Klaus Union Armaturen Int. Germany for Lurgi Oel Gas Chemie GmbH** | |

| **DESCRIPTION:** | **Ident Number** | **QTY** |
|---|---|---|
| Item 160 Gate Valve C.1500 FB BB SW - Seats Wedge Stellited Size 1/2" | S 330 | 1 |
| Item 170 Gate Valve C.1500 FB BB SW - Seats Wedge Stellited Size 3/4" | S 330 | 22 |
| Item 180 Gate Valve C.1500 FB BB SW - Seats Wedge Stellited Size 1.1/2" | S 330 | 9 |

***The undersigned certifies that the here-above mentioned supply was inspected at Douglas Chero (PC) Loc. Predaglie - 29013 Carpaneto P.no (PC) - Italy on March 08, 2005 to in conformity with the applicable requirements of Purchase Order ref.* HH-02535-01, QCP ref. PED-0003/05 Rev. 1 *and contractual requirements governing the mission entrusted to BUREAU VERITAS.***

*Marking and stamping : Not Applicable*

*Enclosures :Douglas Chero certificates ref.: 050235 (total pages 7)*

*Particular mentions: None*

*Diffusion :* ■ Client ■ Supplier o Manufacturer

Date of Issuance : MARCH 08, 2005 Issued by : BV I

STAMP

This certificate is delivered within the Scope of the General Conditions of Services of Bureau Veritas
Ce Certificat est délivré dans le cadre des Conditions Générales de Service du Bureau Veritas

This certificate is issued further to an inspection whose duration and scope were limited by the terms and conditions of the contract with BV principal. This certificate is NOT an indication that the item(s) is (are) fit for any specific purpose and does not release the manufacturer, supplier and any party from their respective duty, guarantee, obligation and/or indemnity relating to, without limitation, patents, workmanship, materials, safety, performance in operation and/or reliability.

General Conditions of service overleaf.

## INSPECTION CARRIED OUT:

In accordance with Quality Plan ref. PED - 0003/05 Rev.1, following inspections were performed at spot (10%) of the total quantity:

- Review of the applicable contractual documents, including construction dwgs and specs.
- Review of the material certificates:forgings type: EN 10204 3.1.B
- Witnessed on the hydraulic and pneumatic tests.
  (for details see Douglas Chero certificates ref.: 001/572/04)
- Witnessed on the visual and dimensional test in compliance with applicable construction drawings.
  (for details see Douglas Chero certificates ref.: 001/572/04-V).
- Witness on visual examination of the tagging marking of the name plates.

RESULTS:

All the above mentioned test and inspections of the components above mentioned have been carried out according to the technical specifications, drawings and contractual requirements.

**Mr Massimiliano Morassi**
**ASME Authorized Inspector**
**Comm. MD 1120**

******* **End of Certificate** ********

DOUGLAS CHERO Spa
FORGED VALVES
COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV ISO 9001
Cap. Soc. Euro 1.033.000,00 i.v.

**CERTIFICATE ACCORDING TO:**
**DIN EN 10204/3.1B - BS EN 10204/3.1B**

CERTIFICATE NO. 050235 | DATE 28/02/2005 | SHEET 01/002

CUSTOMER
KLAUS UNION ARMATUREN INTERNATIONAL for LURGI OEL GAS CHEMIE GMBH

REF. 04.0572 DTD 09/09/2004 PART. X COMP. ____

P.ORDER HH-02535-01

| ITEM | Q.TY | DESCRIPTION | DIMENS. | CUSTOMER CODE / NOTES |
|---|---|---|---|---|
| 160 | 1 | GATE VALVE c.1500C FB BB SW -Seats+Wedge Stell. | 1/2" | S330 |
| 170. | 22 | GATE VALVE c.1500C FB BB SW -Seats+Wedge Stell. | 3/4" | S330 |

APPLICABLE STANDARD
LURGI P.ORDER NO.: 4567569-000 / 1.69690 / 136
2nd MEGA METHANOL PLANT, ZAGROS PETROCHEMICAL CO.
SITE BANDAR ASSALUYEH, IRAN
Lurgi Contract No.: 1.69690-10
API 602 - ASME B16.11
ASME B31.1 - ASME B16.34

| ITEM | PART NAME | MATERIAL | HEAT CODE | HEAT NUMBER | CHEMICAL ANALYSIS C% | Mn% | Si% | S% | P% | Cr% | Mo% | Ni% | Ti% | Cu% | Fe% | Al% | C.E. [redacted] | Cb/Nb% | V% | N% | MECHANICAL PROPERTIES TS MPa | YS | E% | R% | HB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 160 | Body | ASTM A105N | E-SR | 76028 | 0,200 | 0,930 | 0,170 | 0,010 | 0,015 | 0,150 | 0,020 | 0,060 | | 0,180 | | 0,020 | 0,408 | 0,000 | 0,017 | 0,012 | 521 | 323 | 32,00 | 56,00 | 154 |
| | Wedge | A182/F6a C.2 Stel. | | 238209 | 0,140 | 0,760 | 0,330 | 0,029 | 0,024 | 12,640 | | 0,470 | | | | | | | | | 687 | 438 | 32,00 | 68,00 | 210 |
| | Seat | A182/F6a C.2 Stel. | | 231414 | 0,110 | 0,710 | 0,560 | 0,001 | 0,014 | 12,800 | | 0,180 | | | | | | | | | 625 | 389 | 26,00 | 52,00 | 204 |
| | Body Screw | ASTM A193/B7 | | AR4273 | 0,440 | 0,770 | 0,260 | 0,005 | 0,007 | 1,060 | 0,230 | | | | | | | | | | 1032 | 945 | 17,50 | 53,50 | 290 |
| | Bonnet | ASTM A105N | B-DHS | 1T8541 | 0,190 | 0,830 | 0,270 | 0,010 | 0,009 | 0,070 | 0,010 | 0,120 | | 0,170 | | 0,025 | 0,363 | 0,002 | 0,001 | 0,130 | 548 | 482 | 27,60 | 63,03 | 156 |
| | Stem | A182/F6a C.2 | | 417024 | 0,106 | 0,440 | 0,330 | 0,024 | 0,019 | 12,140 | | 0,350 | | | | | | | | | 665 | 586 | 22,00 | 73,00 | 200 |
| 170 | Body | ASTM A105N | B-AU | 04/77895 | 0,220 | 0,940 | 0,170 | 0,023 | 0,010 | 0,090 | 0,010 | 0,050 | | 0,180 | | 0,005 | 0,412 | 0,001 | 0,003 | 0,008 | 507 | 293 | 27,20 | 63,03 | 150 |
| | Wedge | A182/F6a C.2 Stel. | | 238209 | 0,140 | 0,760 | 0,330 | 0,029 | 0,024 | 12,640 | | 0,470 | | | | | | | | | 687 | 438 | 32,00 | 68,00 | 210 |
| | Seat | A182/F6a C.2 Stel. | | 236784 | 0,141 | 0,720 | 0,370 | 0,030 | 0,020 | 12,370 | | 0,340 | | | | | | | | | 670 | 490 | 33,00 | 69,00 | 190 |
| | Body Screw | ASTM A193/B7 | | AR4273 | 0,440 | 0,770 | 0,260 | 0,005 | 0,007 | 1,060 | 0,230 | | | | | | | | | | 1032 | 945 | 17,50 | 53,50 | 290 |
| | Bonnet | ASTM A105N | B-AR | 03/76085 | 0,195 | 0,920 | 0,170 | 0,007 | 0,012 | 0,070 | 0,010 | 0,050 | | 0,160 | | 0,020 | 0,383 | 0,000 | 0,022 | 0,007 | 533 | 359 | 24,40 | 61,67 | 155 |
| | Stem | A182/F6a C.2 | | 350031 | 0,107 | 0,380 | 0,420 | 0,022 | 0,019 | 12,180 | | 0,350 | | | | | | | | | 684 | 607 | 21,00 | 72,00 | 205 |

HEAT TREATMENT

| | |
|---|---|
| ASTM A105N | HEATING AT 850+925°C FOR 1 HOUR EACH 25mm OF THICKNESS; COOLING IN STILL AIR |
| A182/F6a C.2 | HEATING AT 950°C, COOLING IN STILL AIR; RE-HEATING AT 700°C, COOLING IN OVEN |
| ASTM A193/B7 | HEATING AT 855+865°C, QUENCHING IN OIL; TEMPER. AT 593°C min., COOLING IN AIR |

| PARTICULAR | ITEM | VALUES(J) | TEMP. |
|---|---|---|---|
| E-SR | 160 | 46 53 46 | -29°C |

MASSIMILIANO MORASSI
ASME AUTHORIZED INSPECTOR
STATE COMM. MD 1120
DATE: 08 MAR 2005

REMARKS
TEST/DOCUMENTS ACC. TO DOUGLAS CHERO'S Q.C.P. No. PED-0003/05 Rev.1
WE DECLARE THAT THE VALUES INDICATED ARE IN CONFORMITY WITH THE MILL CERTS AVAILABLE c/o Q.C.DEPT. DOUGLAS CHERO SPA.
VALVES MANUFACTURED ACCORDING TO PRESSURE EQUIPMENT DIRECTIVE 97/23/CE.

API 598 / BS EN 12266-1 TEST CERTIFICATION D.C. PROCEDURE 140 R.5

| | | | |
|---|---|---|---|
| Rating | | c.1500C | c.1500C |
| Hydrostatic body test | BAR | 388 | 388 |
| Hydrostatic seat test/backseat test | BAR | 285 | 285 |
| Air seat test | BAR | 6 | 6 |

QUALITY CONTROL
DOUGLAS-CHERO S.p.A.
Quality Control
CREDALI STEFANO

QUALITY ASSURANCE

CUSTOMER'S INSPECTOR
DATE: ____

DOUGLAS CHERO Spa

# DIMENSIONAL / VISUAL INSPECTION CERTIFICATE

N.: 01/572/04-V

Sheet: 1/2

| CUSTOMER: | Order: | Our Job: |
|---|---|---|
| **KLAUS UNION ARMATUREN INTERNATIONAL for LURGI OEL GAS CHEMIE GMBH** | **HH-02535-01** Lurgi P.O.: **4567569-000 / 1.69690 / 136** | **04.0572** |

Client: 2nd MEGA METHANOL PLANT, ZAGROS PETROCHEMICAL COMPANY, SITE BANDAR ASSALUYEH, IRAN / Contract No.: 1.69690-10

## DIMENSIONAL INSPECTION CERTIFICATE

| *TESTS EXECUTED* | | *APPLICABLE STANDARD* |
|---|---|---|
| Parts Test | | DOUGLAS CHERO DRAWINGS |
| End-to-End Test | | DOUGLAS CHERO DRAWINGS |
| SW Ends Test | | ASME B16.11 |
| NPT Ends Test | **NOT APPLICABLE** | ASME B1.20.1 |
| BW Ends Test | **NOT APPLICABLE** | ASME B16.25 |

Remarks: **FOR VALVES DESCRIPTION SEE ATTACHED SHEET 2/2**

Test executed according to approved Drawings by: **GUIDO SCHIAVETTI**

RESULT: **POSITIVE**

SIGNATURE: Guido Schiavetti

We declare that all components have made according to applicable standard, constructive specifications and DOUGLAS CHERO S.p.A. constructive drawings.

| Quantity Checked: **100%** | Q.A. - Q.C. | **CUSTOMER'S Inspector** |
|---|---|---|
| DATE: **28/02/05** | DOUGLAS-CHERO S.p.A. Quality Control CREDALI STEFANO | |

## VISUAL INSPECTION CERTIFICATE

VISUAL TEST EXECUTED ON ROUGH AND MACHINED SURFACE

RESULT: **POSITIVE**

SIGNATURE: DOUGLAS-CHERO S.p.A. Quality Control CREDALI STEFANO

| Quantity Checked: **100%** | Q.A. - Q.C. | **CUSTOMER'S Inspector** |
|---|---|---|
| DATE: **28/02/05** | DOUGLAS-CHERO S.p.A. Quality Control CREDALI STEFANO | WITNESSED AT 10% 8 MAR 2005 |

| DOUGLAS CHERO Spa | DIMENSIONAL / VISUAL INSPECTION CERTIFICATE | No.: 01/572/04-V<br>Sheet: 2/2 |
|---|---|---|

## LIST OF ITEMS

| ITEM | IDENT NO | DESCRIPTION | SIZE | Q.TY |
|---|---|---|---|---|
| 160 | S330 | GATE VALVE c.1500C FB BB SW -Seats+Wedge Stell. [ TRIM 5 ] | 1/2" | 1 |
| 170 | S330 | GATE VALVE c.1500C FB BB SW -Seats+Wedge Stell. [ TRIM 5 ] | 3/4" | 22 |
| 180 | S330 | GATE VALVE c.1500C FB BB SW -Seats+Wedge Stell. [ TRIM 5 ] | 1.1/2" | 9 |
| | | | | |

WITNESSED AT 10%

08 MAR 2005

DOUGLAS-CHERO S.p.A.
Quality Control
CREDALI STEFANO

DOUGLAS CHERO Spa
FORGED VALVES

STABILIMENTO/FACTORY
UFFICI AMMINISTRATIVI E COMMERCIALI
Località Pradaglie - 29013 Carpaneto P.no (PC) - ITALY
Phone: 0523/854011 - Fax: 0523/850389
E-MAIL: webmaster@douglas-chero.com



# PRESSURE TEST CERTIFICATE

## No. 001/572/04

*Customer:* KLAUS UNION ARMATUREN INTERNATIONAL for LURGI OEL GAS CHEMIE GMBH
*P.Order:* HH-02535-01
*Lurgi P.Order:* 4567569-000 / 1.69690 / 136
*Client Ref.:* 2nd MEGA METHANOL PLANT, ZAGROS PETROCHEMICAL COMPANY, SITE BANDAR ASSALUYEH, IRAN / Contract No.: 1.69690-10
*Object:* DOUGLAS CHERO CERTIFICATE No. 050235 Dtd.: 28/02/05
*Remarks:* TESTS CARRIED OUT ON 100%
TESTS CARRIED OUT ACCORDING TO D.C. PROCEDURE 140 R.5

| ITEM | IDENT No. | DESCRIPTION | SIZE | Q.TY |
|---|---|---|---|---|
| 160 | S330 | GATE VALVE c.1500C FB BB SW -Seats+Wedge Stell. [ TRIM 5 ] | 1/2" | 1 |
| 170 | S330 | GATE VALVE c.1500C FB BB SW -Seats+Wedge Stell. [ TRIM 5 ] | 3/4" | 22 |
| 180 | S330 | GATE VALVE c.1500C FB BB SW -Seats+Wedge Stell. [ TRIM 5 ] | 1.1/2" | 9 |
| | | | | |

| | RATING 1500 | ALL RATINGS |
|---|---|---|
| TYPE OF TEST | PRESSURE | TIME |
| - HYDRAULIC SHELL TEST<br>- BACK-SEAT TEST | 388 BAR | 60 Sec. min. |
| - HYDROSTATIC SEAT TEST | 285 BAR | 60 Sec. min. |
| - AIR SEAT TEST | 6 BAR | 30 Sec. min. |

WITNESSED AT 10%

DOUGLAS-CHERO S.p.A.
Quality Control
CREDALI STEFANO

08 MAR 2005

GENERAL REMARKS: AS PER PROCEDURE DOUGLAS CHERO No. 140 Rev.5, THE BACK SEAT TEST FOR GLOBE VALVES IS CARRIED OUT TOGETHER WITH HYDRAULIC SHELL TEST.

NOTE: NO LEAKAGE DETECTED DURING HYDRAULIC/PNEUMATIC TESTS.

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** / Customer: *Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt*

**Bestell-Nr.:** / Order no.: *Lurgi Job – No.: 69690-10*
*Lurgi OGC PO.-No.: 4567569-000 to -001/1.69690/136*

*Project Name :* *2nd Zagros Methanol Plant - Iran*

**Auftrag-Nr.:** / Job no.: *HH – 02535*

**Lieferumfang** / range:

| **Pos** | **Stck.** pcs. | **Gegenstand** object | **DN** | **PN** | **Werkstoff** material | **Bemerkung** comment |
|---|---|---|---|---|---|---|
| *00180* | *9* | *Gate valve*<br>*FB BB SW*<br>*Seats + Wedge Stell.* | *1.1/2"* | *Cl.1500* | *ASTM A 105N* | *Valve Ident – No.: " S330 "* |

**Auslegung + Prüfung nach** / Design and tests acc. To: API 602 – ASME B16.11, ASME 31.1, ASME B16.34
API 598 / BS EN 12266-1

**Sicht- und Funktionsprüfung:** / visual and functional test: *o.k.*

**Festigkeits-/Dichtheitsprüfung:** / strength-/tightness-test:

| | | |
|---|---|---|
| *Festigkeit / shell test* | = | *388 bar Wasser / water* (60 sec) |
| *Dichtheit Sitz / seat* | = | *285 bar Wasser / water* (60 sec) |
| *Rückdichtung / backseat* | = | *285 bar Wasser / water* (60 sec) |
| *Dichtheit Sitz / seat* | = | *6 bar Luft / air* (60 sec) |

**Prüfungsergebnis:** / result: *ohne Beanstandung !* / *no complaint !*

i.A. Walter Glass

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** / enclosure *Dokumentation gemäß Material-Dokumentationsdeckblatt* / *Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter W. Glass
Person in charge

**Kommissions-Nr. / Reference No.**

**HH-02535**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00180 | Gate Valve | " S330 " | 9 | Body | FB-VO | ASTM A105N | Feat | 04/79404 | | 2004/3004578 |
| | 1.1/2" Cl. 1500 lbs. | Drawing-No.: BX652-7/SW | | Wedge | | A182/F6a C.2 stel. | Cogne | 172969 | | 2002013827 |
| | FB, BB, SW seats+wedge stell. | | | Seat | | A182/F6a C.2 stel. | Ugine | 339086 | | 69383 |
| | | | | Body Srew | | ASTM A193/B7 | Morandi | AR1982 | | 6137 |
| | | | | Bonnet | FB-VE | ASTM A105N | Feat | 04/78765 | | 2004/3004094 |
| | | | | Stem | | A182/F6a C.2 | Ugitech | 350031 | | 83641 |
| | | | | | | | | | | |
| | | | | | | | | | | |
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FEAT INDUSTRIALE
divisione della Feat Group S.p.A.
Feat Group S.p.A.
SEDE LEGALE:
I - 20122 MILANO (MI) - Viale Majno, 17
Capitale Sociale € 8.000.000,00 interamente versato
Codice fiscale, Partita IVA e numero di iscrizione Registro
delle Imprese di Milano: 08203090157
Codice Identif. IVA CEE IT 08203090157 - R.E.A. Milano 1211374
UFFICI AMMINISTRATIVI:
I - 23842 BOSISIO PARINI (LC) - Via dei Livelli, snc
tel. 031 3581411 - fax 031 876178 - Cod. Mecc. MI240759
STABILIMENTO E UFFICI COMMERCIALI DELLA DIVISIONE:
I - 23801 CESANA BRIANZA (LC) - Via G. Parini, 30 a Via Arlosio, 1/3/5/7
tel. 031 8691 - Fax 031 869218 -http://www.featgroup.com

26588

Certificato 2004/3004578
Data 20/07/2004
Pagina 1

DOUGLAS CHERO S.P.A.

LOCALITA' PRADAGLIE

29013 CARPANETO PIACENTINO PC

| Ordine cliente | Bolla | Fattura | Quantita' |
|---|---|---|---|
| O 240587 | 2004/000/0031661 | O 0031823 | 1.580,00 |

| Articolo Feat | Descrizione |
|---|---|
| 292001001006 | CORPO GR.VS 2" 800 BB A105N<br>Dis. 7/9S REV.4 |

| Cod.Stamp./N.Col. | Tipo Materiale e Specifica |
|---|---|
| BVO | |

| Numero colata | Acciaieria | N.Cert.Acc. |
|---|---|---|
| 04/79404 | **RIVA ACCIAIO S.P.A. | |

ANALISI CHIMICA

| Elem. | Al | C | Cr | Cu | Mn | Mo | Nb | Ni | P | S | Si | V | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Min | 0,015 | 0,180 | | | 0,600 | | | | | | 0,150 | | | | |
| Max | 0,050 | 0,220 | 0,300 | 0,400 | 0,900 | 0,120 | 0,020 | 0,400 | 0,025 | 0,015 | 0,350 | 0,030 | | | |
| Colata | 0,024 | 0,180 | 0,120 | 0,190 | 0,790 | 0,010 | 0,000 | 0,060 | 0,013 | 0,014 | 0,220 | 0,002 | | | |
| C.An. | | | | | | | | | | | | | | | |

Carbonio Equivalente= 0,355

CARATTERISTICHE MECCANICHE

| Ordine Laboratorio | N. | Descrizione | UM1 | Min | Max | Valore | UM2 | Valore |
|---|---|---|---|---|---|---|---|---|
| 176795 | 01 | Snerv.Rp0,2% Amb T | N/mm2 | 250,000 | | 340,000 | PSI | 49300,000 |
| 176795 | 01 | Rottura Amb T | N/mm2 | 485,000 | | 493,000 | PSI | 71485,000 |
| 176795 | 01 | Allungam.A% T Amb | % | 22,000 | | 35,100 | | |
| 176795 | 01 | Strizione Amb T | % | 30,000 | | 56,100 | | |

Trattamento Termico
NORMALIZZAZIONE:
I PARTICOLARI SONO STATI NORMALIZZATI ALLA TEMPERATURA DI 910 C.,
CON PERMANENZA A TALE VALORE DI 1 ORA PER OGNI 25 mm. DI SPESSORE
E RAFFREDDATI IN ARIA CALMA.-

Note
CERTIFICATO FEAT

23 LUG. 2004

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

Resp. Assicurazione Qualita'
E.MANZONI

FEAT INDUSTRIALE division of FEAT Group S.p.A. states that material hereby certified is in compliance with the quality and technical requirements as described in the customer's order, or FEAT order acknowledgement.

1 - The results of chemicals analysis is a true and correct copy of the mill certificate issued by the manufacturer of the steel employed or by the laboratory which has determined it.
2 - The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufacturing process inspection or storage.

NE ACCIAI SPECIALI S.R.L.
11100 AOSTA[illegible]A PARAVERA, 16
TEL +39.0165[illegible] - FAX +39.0165.302296
CAP. SOC. 40.[illegible].000.000 INT. VERS.
VAT: IT00571320078
P.I. 00571320078 C.F. 02187360967
REG. IMP. AO003[illegible] - 7234 REA 50474

(A02) CERTIFICATO DI COLLAUDO SECONDO DIN 50049/EN 10204 - 3.1.B
(A03) NUMERO DEL DOCUMENTO 2002013827


(A06) COMMITTENTE .: STAMPERIA DI MENZAGO SRL
(A07) ORDINAZIONE DEL COMMITTENTE .: 2651
(A01) STABILIMENTO PRODUTTORE .: AOSTA, VIA PARAVERA 16
(A05) REDATTORE DEL DOCUMENTO .: SERVIZIO QUALITA'
(A08) CONFERMA D'ORDINE DEL PRODUTTORE : 25006199 /40 (A04) SIGLA STABILIMENTO PRODUTTORE .: COGNE

SPECIFICA : CAS-E REGOLA TECNICA : EN 10272(00) PED 97/23/CE
(B01) PRODOTTO .: 721 PEL Pelati Tondi ISOK11
(B04) STATO DI FORNITURA .: RL Ricotto Lavorabile
(B11) DIMENSIONI DEL PRODOTTO (MM): 35,000 (B12) LUNGH. DEL PRODOTTO (MM): 06000 /06200
(B02) QUALITA' ACCIAIO .: WN.1.4006 MARCA INTERNA : 410 6 1.4006
(B08) NUMERO DI COLATA .: 172969 (B07) NUMERO DI SCHEDA .: 634410
(B06) MARCATURA DEL PRODOTTO .: SIGLA SOST. N. COLATA : 441

CONFORMITA' ALLA NORMA EN 10088/3 WN.1.4006
CONFORMITA' ALLA NORMA DIN 17440 (01) W.1.4418
CONFORMITA' ALLA NORMA NFA 35 574 Z10 C 13
CONFORMITA' ALLA NORMA NFA 35 574 Z13 C 13
CONFORMITA' ALLA NORMA ASTM A276 TP. 410 COND. A
CONFORMITA' ALLA NORMA ASTM A479 TP. 410 COND. 1
CONFORMITA' NORMA SS2302
CONFORMITA' ALLA NORMA ASTM A182 F6A CL. 1-2

(C71) COMPOSIZIONE CHIMICA - ANALISI DI COLATA

| Ref. | 020000059901 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEMENTI | C | Si | Mn | P | S | N | Al | Cr | Mo | Ni |
| OTTENUTO | 0,110 | 0,370 | 0,560 | 0,021 | 0,023 | 0,045 | 0,004 | 12,200 | 0,030 | 0,170 |
| ELEMENTI | Cu | | | | | | | | | |
| OTTENUTO | 0,070 | | | | | | | | | |

PROVA DI DUREZZA ALLO STATO DI FORNITURA

| Ref. | 020000060292 | | |
|---|---|---|---|
| NORMA | EN 10003 | PROVA DI DUREZZA | HB |
| OTTENUTO | 182,0 | | |

PROVA DI TRAZIONE ALLO STATO DI FORNITURA

| Ref. | 020000060292 | | | | |
|---|---|---|---|---|---|
| NORMA | EN 10002 | | | (C02) ORIENTAMENTO DELLE PROVETTE: L | |
| UNITA' DI MISURA | RM NMM | RP02 NMM | A5 % 5.0 D | Z % | 20 DIC. 2002 |
| OTTENUTO | 618,00 | 388,00 | 49,00 | 75,00 | [illegible] |

Quality Assurance
P.C. STEFANI VITTORIO
Sign. [signature]

FABBRICAZIONE AL FORNO ELETTRICO + AOD + COLATA CONTINUA
IL MATERIALE NON E' STATO CONTAMINATO DA MERCURIO
IL MATERIALE E' STATO CONTROLLATO AL 100% X ANTIMISCUGLIO
CONTROLLO VISIVO SUPERFICI E DIMENSIONI: CONFORME.

COGNE ACCIAI SPECIALI S.R.L.
11100 AOSTA - STRADA PARAVERA, 16
TEL +39.0165[illegible] - FAX +39.0165.302290
CAP. SOC. 40.[illegible].000.000 INT. VERS.
VAT: IT00571320078
P.I. 00571320078 C.F. 02187380987
REG. IMP. AO003 - 7234 REA 80474



NON E' STATA ESEGUITA ALCUNA RIPARAZ. DEL MATERIALE MEDIANTE SALDATURA
LA FORNITURA E' CONFORME ALLE PRESCRIZIONI CONTRATTUALI
CONFORMITA' ALLA NORMA EN 10278.
MATERIALE PRODOTTO IN UN SISTEMA DI G.D.Q. IN ACCORDO CON LE NORME
UNI EN ISO9002.94 E QS-9000 ED.3 MAR.98 (QUEST'ULTIMA SOLO PER BARRE IN
ACCIAO LAMINATE-PELATE-RETTIFICATE), CERTIFICATO DA I.G.Q.

20 DIC. 2002

[illegible]
Quality Assurance
P.C. STEVANI VITTORIO
Sig. [signature]

STAMPERIA DI MENTASTO S.r.l.
SERVIZIO CONTROLLO QUALITÀ
22/6/02

(Z01) DATA 19.04.2002

FIRMA AUTORIZZATA DALLA A.Q. Cogne Acciai Speciali S.r.l.

UGINE-SAVOIE IMPHY
Groupe Arcelor

Siège Social : Ugine-Savoie Imphy S.A.
Avenue Paul Girod
73400 UGINE, FRANCE
IDENT. TVA : FR 89 410 436 158

| Bolla/N° BL/DL N°/Lief. | N° Certificat./Prot N° | Produttore/Usine produc./Manufact./Hersteil. |
|---|---|---|
| 316698 | 69383 | F00002 |

# RELEVE DE CONTROLE (1)

SELON EN 10204 PARAGRAPHE 4
Texte certificat de conformité
Texte certificat de conformité

Texte type cert. conformité édité - fctc

Prodotto Erzeugnisform / Produit Product: BARRE RONDE IMA 4006-410 40,0 K13 — LAMINE DECALAM. RECUIT

Cliente e/o destinatario - Client et/ou destinataire - Besteller und/oder Empfaenger / Purchaser and/or Consignee: UGINE-SAVOIE ITALIA SRL

N° ordine cliente - Votre référence - Ihre Auftrag Nr - Your reference: TECNOMEC 311080390 MI/LIMETTI

Qualità e specifiche tecniche - Nuance et spécifications techniques - Stahlsorte und Pruefbedingungen - Quality and Specifications: IMA 4006-410 K13 — X12CR13/NFEN 10088-3 /1.4006 - AISI410/ASTM A182/F6A CLASS 2

Stato di fornitura - Etat de livraison - Lieferzustand - As delivered (1): LAMINE DECALAM.

Stato metallurgico - Etat métallurgique - Heat treatment condition - Lieferzustand: RECUIT

| N° Conferma d'ordine / Accusé de reception / Auftragsbest N° / Acknowledgment N° | Posizione / N° Poste / Post Nr / Item N° | N° lotto interno / N° de lot interne / Interne los.Nr / Internal batch N° | Profilo / Profil / Profile / Shape | Dimensione / Dimension / Abmessung / Size | Tolleranza / Tolérance / Toleranz / Tolerance | Lunghezza / Longueur / Laenge / Length | Peso netto / Masse / Gewicht / Weight |
|---|---|---|---|---|---|---|---|
| 311652437 | 1 | 4476446 | BARRE RONDE | 40,0000 | K13 | . | 160,000 |

| N° Colata / N° de coulée / Schmelz Nr / Heat N° | Lotto fornitore / Lot producteur / Lieferant los / Master batch | Trazione - Traction - Zugversuch - Tensile test: Lim. di snervamento / Limite d'Elasticité / Streckgrenze / Yield Strength 0,2 % | 1 % | Carico di rottura / Résistance tract. / Zugfestigkeit / Tensile strength | Allungamento / Allongement / Dehnung / Elongation % | Strizione / Striction / Einschnürung / Reduction of area % | Resilienza - Résilience - Kerbschlagzaehigkeit - Notch Toughness: Forma / Type / Form / Typa | Senso / Sens / Richt. / Direct. | Temperatura di prova / Température d'essai / Pruefungstemperatur / Test Temperature | Valori / Valeurs individuelles / Einzelwerte / Individual values | Media / Moyenne / Mittelwerte / Average | Durezza / Dureté / Haerte / Hardness |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | RP02 N/MM2 | | RM N/MM2 | AL | Z | | | | | | HB |
| 339086 | 7CR61000 | 599 | | 740 | 23 | 73 | | | | | | 222 |

| | | C | SI | MN | P | S | N | CR | CU | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 339086 | 7CR61000 | 0,112 | 0,320 | 0,420 | 0,025 | 0,027 | 0,054 | 12,010 | 0,134 | | |

| | | NI | | CO | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 339086 | 7CR61000 | 0,330 | | 0,019 | | | | | | | |

| Test : (1 = OK) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 339086 | | | | | | | | | | | |

C.INT = Corrosione intergranul — EDD.C = Controllo non distrutt — P.PN. = Prove pneumatics — C.MES = Contr. antimescolement
SCHL. = Schlacciamento — FLANG = Flangiatura — REVFL = Applatt. saldatura (Re — P.RET = Essai de retournement

Note - Notes - Remarks - Bemerkungen

EN 10204 / 3.1.B AISI 410 X12CR13 NF EN10088-3 1.4006 IMA 4006 BARRE A CHAUD RON DE TOL.13 TRAITEE DECALAMINEE

27 APR. 2004

DOUGLAS CHERO Spa

Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

Le 19/11/03
Signature de l'inspecteur

Resp. controllo qualità
Resp. contrôle qualité
Sachverstaendiger
Quality control Mgr

Controllo merceture, visivo e dimensionale : soddisfacente. Si certifica che i prodotti sopra descritti sono conformi alle prescrizioni dell'ordine (1)
L'analisi chimica è copia conforme a quella presente sul certificato del produttore

Contrôle de marquage, d'aspect et de dimensions satisfaisant. Nous certifions que le présent document reproduit avec exactitude les données du certificat producteur. L'analyse chimique a été relevée du certificat de la matière première.

Bezeichnung, besichtigung und ausmessung : Ohne beanstandung. Wir bestatigen hiermit dass die obengenannten erzeugnisse den bestellung vorschriften entsprechen. Die chemische zusammensetzung entspricht den lieferanten analyse.

The chemical analysis results are true and correct copy of the raw material supplier's certificate.
Marking, inspection and measurement : Without objections. We certify that the above mentioned products are consistent with the order prescriptions.

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948

E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129


CERTIFICATO DI COLLAUDO 26250
Inspection certificate

N°6137/DCH DATE-02.12.04

CLIENTE- DOUGLAS CHERO Spa ORDINE-831 BOLLA CONSEGNA N-3980
Customer Order Delivery-note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| 1 | 4000 | VITI TE. M 16 X 40 | B7 ASTM A 193/A 193M | AR1982 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Cr | Mo | S | P |
|---|---|---|---|---|---|---|---|---|
| REQUIRED VALUE | min. | 0.37 | 0.65 | 0.15 | 0.75 | 0.15 | | |
| | max. | 0.49 | 1.10 | 0.35 | 1.20 | 0.25 | 0.040 | 0.035 |
| HEAT n. AR1982 | | 0,405 | 0,76 | 0,28 | 0,98 | 0,22 | 0,007 | 0,007 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

| | Rm. min. | Rp. (0,2) min. | A4 min. | Z. min. | Hardness max |
|---|---|---|---|---|---|
| REQUIRED | 860 MPa | 720 MPa | 16% | 50% | 35 HRC |
| ACTUAL VALUE | 974 | 858 | 18,7 | 55,4 | 30 |

HEAT TREATMENT
Quenched at : 860 °C in oil
Tempering : 2 hours at 593 °C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

QUALITY CONTROL
MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

09 DIC. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

FEAT INDUSTRIALE
divisione della Feat Group S.p.A.
Feat Group S.p.A.
SEDE LEGALE:
I - 20122 MILANO (MI) - Viale Majno, 17
Capitale Sociale € 8.000.000,00 interamente versato
Codice fiscale, Partita IVA e numero di iscrizione Registro
delle Imprese di Milano: 08203080157
Codice Identif. IVA CEE IT 08203080157 - R.E.A. Milano 1211374
UFFICI AMMINISTRATIVI:
I - 23842 BOSISIO PARINI (LC) - Via dei Livelli, snc
tel. 031 3581411 - fax 031 875175 - Cod. Mecc. MI240760
STABILIMENTO E UFFICI COMMERCIALI DELLA DIVISIONE:
I - 23861 CESANA BRIANZA (LC) - Via G. Parini, 30 e Via Ariosto, 1/3/5/7
tel. 031 8601 - Fax 031 860219 - http://www.featgroup.com

26906

Certificato 2004/3004094
Data 30/06/2004
Pagina 1

DOUGLAS CHERO S.P.A.

LOCALITA' PRADAGLIE

29013 CARPANETO PIACENTINO PC

| Ordine cliente | Bolla | Fattura | Quantita' |
|---|---|---|---|
| O 240587 | 2004/000/0031486 | O 0031637 | 1.988,00 |

| Articolo Feat | Descrizione |
|---|---|
| 292011001021 | CAPP. GR. VS 2" 800 BB A105N<br>Dis. 7/8 REV.5 |

| Cod.Stamp./N.Col. | Tipo Materiale e Specifica |
|---|---|
| BVE | |

| Numero colata | Acciaieria | N.Cert.Acc. |
|---|---|---|
| 04/78765 | RIVA ACCIAIO S.P.A. | |

ANALISI CHIMICA

| Elem. | Al | C | Cr | Cu | Mn | Mo | Nb | Ni | P | S | Si | V | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Min | 0,015 | 0,180 | | | 0,600 | | | | | | 0,150 | | | | |
| Max | 0,050 | 0,220 | 0,300 | 0,400 | 0,900 | 0,120 | 0,020 | 0,400 | 0,025 | 0,015 | 0,350 | 0,030 | | | |
| Colata | 0,024 | 0,190 | 0,120 | 0,170 | 0,700 | 0,020 | 0,002 | 0,100 | 0,012 | 0,005 | 0,230 | 0,003 | | | |
| C.An. | | | | | | | | | | | | | | | |

Carbonio Equivalente= 0,353

CARATTERISTICHE MECCANICHE

| Ordine Laboratorio | N. | Descrizione | UM1 | Min | Max | Valore | UM2 | Valore |
|---|---|---|---|---|---|---|---|---|
| 175558 | 01 | Snerv.Rp0,2% Amb T | N/mm2 | 250,000 | | 359,000 | PSI | 52055,000 |
| 175558 | 01 | Rottura Amb T | N/mm2 | 485,000 | | 500,000 | PSI | 72500,000 |
| 175558 | 01 | Allungam.A% T Amb | % | 22,000 | | 29,700 | | |
| 175558 | 01 | Strizione Amb T | % | 30,000 | | 56,000 | | |
| | 01 | Durezza HB | HB | 0,000 | 187,000 | 152,000 | | |

Trattamento Termico
NORMALIZZAZIONE:
I PARTICOLARI SONO STATI NORMALIZZATI ALLA TEMPERATURA DI 910 C.,
CON PERMANENZA A TALE VALORE DI 1 ORA PER OGNI 25 mm. DI SPESSORE
E RAFFREDDATI IN ARIA CALMA.-

Note
CERTIFICATO FEAT

05 LUG. 2004

DOUGLAS CHERO Spa

Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

Resp. Assicurazione Qualita'
EMANUELONI

FEAT INDUSTRIALE division of FEAT Group S.p.A. states that material hereby certified is in compliance with the quality and technical requirements as described in the customer's order, or FEAT order acknowledgement.

1 - The results of chemicals analysis is a true and correct copy of the mill certificate issued by the manufacturer of the steel employed or by the laboratory which has determined it.
2 - The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufacturing process inspection or storage.

UGITECH
Groupe Arcelor

FRANCE

4 N. Nr No 83641

11 N. de commande usine-Werksbestellnummer-Works order number FUGE TEXE 01/01 8Z131000 T

3

# CERTIFICATO COLLAUDO DI ACCETTAZIONE B
# CERTIFICAT DE RECEPTION 3.1.B
# INSPECTION CERTIFICATE B

EN 10204 / 3.1.B

5 Usine Productrice / Hersteller / Manufacturer: **UGINE** F 73403 UGINE CEDEX Tél : 04.79.89.30.30 Fax : 04.79.89.30.51

Produit / Erzeugnisform / Product: IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE 6

Client et/ou destinataire - Besteller und/oder Empfaenger - Purchaser and/or Consignee 9: TECNOMECCANICA SRL

N. de commande client - Kundebestellnummer - Purchaser order number 10: 364

Nuance et spécifications techniques - Stahlsorte und Pruefbedingungen - Quality and Specifications 12: IMA4006 410 AISI 410 UNS S41000
SPEC. SDA 09 DU 20/11/01 (SAUF MN)

Etat de livraison - Lieferzustand - As delivered (1) 13: TEMPRATO RINVENUTO

Traitement de Référence - Probestreifenbehandlung - Treatment of test samples (1) 14:

| Identification du produit Erzeugnis Benennung-Product identification N. de cde usine Werksbestellnummer Works order number 15 | N. de poste Post Nr Item No 17 | N. de Coulée Schmelz Nr Heat No 16 | Nombre Stueckzahl Pieces Nbr 18 | Profil Profile Shape 19 | Dimension Ausmessung Dimension 20 | Longueur Laenge Length 21 | Masse Gewicht Weight 22 |
|---|---|---|---|---|---|---|---|
| 8Z131 | 000 | 350031 | 84 | TONDO | 22,000 | | 1061 KG |

| N. de Prélèvement Probenummer Test N. 39 B | Demandé Vorschrift Required (3) | Sens Richtung Direction 24 | Température d'essai Pruefemperatur Test Temperature 25 | Traction - Zugversuch - Tensile test: Limite d'Elasticité Streckgrenze Yield Strength 0,2 % 26 A | Limite d'Elasticité Streckgrenze Yield Strength 1 % 26 B | Résistance à la traction Zugfestigkeit Tensile strength 27 | Allongement Bruchdehnung Elongation (L0 = 5d) 28 | Striction Einschnuerung Red of Area 29 | Dureté Haerte Hardness (4) 30 | Type Form Type 31 | Résilience - Kerbschlagzaehigkeit - Notch Toughness: Sens Richtung Direction (3) 32 | Température d'essai Pruefemperatur Test Temperature 33 | Valeurs individuelles Einzelwerte Individual Values 35 | Moyenne Mittelwerte Average 36 | Dureté Haerte Hardness (5) 37 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | L | °C | MPA | MPA | MPA | % | % | | | | | | | HB |
| | Min | | 20 | 275 | | 585 | 20 | 45 | | | | | | | |
| | Max | | | | | | | | | | | | | | 237 |
| | (4) | | | | | | | | | | | | | | |
| | (5) | | | 603 | | 661 | 22 | 72 | | | | | | | 200 |

| N. de Prélèvement Probenummer Test N. 39 A | Demandé Vorschrift Required | Analyse/Produit-Check-Analyse Check-Analysis | 42 C | 43 SI | 44 MN | 45 NI | 46 CR | 47 S | 48 P | 49 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Min | | | | 0,30 | | 11,50 | | | | |
| | Max | | 0,150 | 0,60 | 0,60 | | 13,50 | 0,030 | 0,040 | | |
| N. de Coulée Schmelz Nr Heat N. 350031 | | | 0,107 | 0,42 | 0,38 | 0,35 | 12,18 | 0,022 | 0,019 | | |

| 38 Mode d'élaboration Erschmelzungsart Melting process | Demandé Vorschrift Required | 51 | 52 | 53 | 54 | 55 |
|---|---|---|---|---|---|---|
| Electrique Elektrisch Electric | Min | | | | | |
| | Max | | | | | |

IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE

20 MAG. 2004
DOUGLAS CHERO Spa
Quality Assurance
P.C. STEFANI VITTORIO
Sign.

56

(3) L = Long / Laengs- / Long
T = Travers / Quer / Transverse
58

(1) TE = Trempé à l'eau - Wasserhaerten - Waterquench
TH = Trempé à l'huile - Oelhaerten - Oil Quench
A = Hypertrempé - Loesungsgeglueht - Solution annealed
R = Revenu - Anlassen - Tempered
RT = Recuit - Geglueht - Annealed
TRM = Recuit maxi - Weichgeglueht - Maxi annealed
7

Usine, le 03-02-04
L'Agent Réceptionnaire de l'usine / Der Werkssachverstaendige / The Work Inspector
H. Mayet 63

(4) A l'état de référence / Zum Bezug / At reference 60 A

(5) A l'état de livraison / In Lieferzustand / In state of delivery 60 B

Cotes de marquage, d'aspect et de dimensions: satisfaisants
Bezeichnung, Beschilgung und Ausmessung : ohne Beanstandung
Marking, inspection and measurement : without objection 62

Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande
Wir bestaetigen hiermit dass die obengenannten Erzeugnisse den Bestellungvorschriften entsprechen
We certify hereby that the above mentioned products are consistent with the order prescriptions 68

BUREAU VERITAS

*Certificate of Inspection*
*N° Chrono P3192/05/MM/mm*
*BV.ITA 40.05.1234*
*Page 1 /2*
☐ *Interim*
■ *Final*

# CERTIFICATE OF INSPECTION

| | |
|---|---|
| **PROJECT : 2nd Mega Methanol Plant Zagros Petrochemical Co - IRAN** | **P.O. to BV : G 0133/05/EP/an** |
| **Client : Douglas Chero<br>29013 - Carpaneto P,no (PC) - ITALY<br>Loc. Predaglie** | **P.O. to Supplier : HH-02535-01** |
| **Supplier : Douglas Chero<br>29013 - Carpaneto P,no (PC) - ITALY<br>Loc. Predaglie** | **P.O. Final Client to Supplier :**<br>(to Lurgi to Klaus)<br>**45567569-000 / 1.69690/136** |
| **Manufacturer : Douglas Chero<br>29013 - Carpaneto P,no (PC) - ITALY<br>Loc. Predaglie** | **Job reference : 04.0572** |
| **Supply intended for : Klaus Union Armaturen Int. Germany for Lurgi Oel Gas Chemie GmbH** | |
| **Inspection Required by : Klaus Union Armaturen Int. Germany for Lurgi Oel Gas Chemie GmbH** | |

| **DESCRIPTION:** | **Ident Number** | **QTY** |
|---|---|---|
| Item 160 Gate Valve C.1500 FB BB SW - Seats Wedge Stellited Size 1/2" | S 330 | 1 |
| Item 170 Gate Valve C.1500 FB BB SW - Seats Wedge Stellited Size 3/4" | S 330 | 22 |
| Item 180 Gate Valve C.1500 FB BB SW - Seats Wedge Stellited Size 1.1/2" | S 330 | 9 |

***The undersigned certifies that the here-above mentioned supply was inspected at Douglas Chero (PC) Loc. Predaglie - 29013 Carpaneto P.no (PC) - Italy on March 08, 2005 to in conformity with the applicable requirements of Purchase Order ref.* HH-02535-01, QCP ref. PED-0003/05 Rev. 1 *and contractual requirements governing the mission entrusted to BUREAU VERITAS.***

***Marking and stamping : Not Applicable***

***Enclosures :Douglas Chero certificates ref.: 050235 (total pages 7)***

***Particular mentions: None***

***Diffusion :*** ■ Client ■ Supplier o Manufacturer

Date of Issuance : MARCH 08, 2005 Issued by : BV I

STAMP

This certificate is delivered within the Scope of the General Conditions of Services of Bureau Veritas
Ce Certificat est délivré dans le cadre des Conditions Générales de Service du Bureau Veritas

This certificate is issued further to an inspection whose duration and scope were limited by the terms and conditions of the contract with BV principal. This certificate is NOT an indication that the item(s) is (are) fit for any specific purpose and does not release the manufacturer, supplier and any party from their respective duty, guarantee, obligation and/or indemnity relating to, without limitation, patents, workmanship, materials, safety, performance in operation and/or reliability.

General Conditions of service overleaf.

BUREAU VERITAS

*Certificate of Inspection*
*N° Chrono P3192/05/MM/mm*
*BV.ITA 40.05.1234*
*Page 2/2*
☐ *Interim*
■ *Final*

## INSPECTION CARRIED OUT:

In accordance with Quality Plan ref. PED - 0003/05 Rev.1, following inspections were performed at spot (10%) of the total quantity:

- Review of the applicable contractual documents, including construction dwgs and specs.
- Review of the material certificates:forgings type: EN 10204 3.1.B
- Witnessed on the hydraulic and pneumatic tests.
  (for details see Douglas Chero certificates ref.: 001/572/04)
- Witnessed on the visual and dimensional test in compliance with applicable construction drawings.
  (for details see Douglas Chero certificates ref.: 001/572/04-V).
- Witness on visual examination of the tagging marking of the name plates.

RESULTS:

All the above mentioned test and inspections of the components above mentioned have been carried out according to the technical specifications, drawings and contractual requirements.

**Mr Massimiliano Morassi**
**ASME Authorized Inspector**
**Comm. MD 1120**

******* **End of Certificate** ********

DOUGLAS CHERO Spa
FORGED VALVES
Cap. Soc. Euro 1.033.000,00 i.v.

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV ISO 9001

**CERTIFICATE ACCORDING TO:**
**DIN EN 10204/3.1B - BS EN 10204/3.1B**

CERTIFICATE NO. 050235 | DATE 28/02/2005 | SHEET 02/002

CUSTOMER
KLAUS UNION ARMATUREN INTERNATIONAL for LURGI OEL GAS CHEMIE GMBH

REF. 04.0572 DTD 09/09/2004 PART. X COMP. ____

P.ORDER HH-02535-01

| ITEM | Q.TY | DESCRIPTION | DIMENS. | CUSTOMER CODE / NOTES | APPLICABLE STANDARD |
|---|---|---|---|---|---|
| 180 | 9 | GATE VALVE c.1500C FB BB SW -Seats+Wedge Stell. | 1.1/2" | S330 | LURGI P.ORDER NO.: 4567569-000 / 1.69690 / 136<br>2nd MEGA METHANOL PLANT, ZAGROS PETROCHEMICAL CO.<br>SITE BANDAR ASSALUYEH, IRAN<br>Lurgi Contract No.: 1.69690-10<br>API 602 - ASME B16.11<br>ASME B31.1 - ASME B16.34 |

| ITEM | PART NAME | MATERIAL | HEAT CODE | HEAT NUMBER | CHEMICAL ANALYSIS C% | Mn% | Si% | S% | P% | Cr% | Mo% | Ni% | Ti% | Cu% | Fe% | Al% | C.E. [redacted] | Cb/Nb% | V% | N% | MECHANICAL PROPERTIES TS MPa | YS | E% | R% | HB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 180 | Body | ASTM A105N | FB-VO | 04/79404 | 0,180 | 0,790 | 0,220 | 0,014 | 0,013 | 0,120 | 0,010 | 0,060 | | 0,190 | | 0,024 | 0,354 | 0,000 | 0,002 | | 493 | 340 | 35,10 | 56,10 | 148 |
| | Wedge | A182/F6a C.2 Stel. | | 172969 | 0,110 | 0,560 | 0,370 | 0,023 | 0,021 | 12,200 | | 0,170 | | | | | | | | 0,045 | 618 | 388 | 49,00 | 75,00 | 219 |
| | Seat | A182/F6a C.2 Stel. | | 339086 | 0,112 | 0,420 | 0,320 | 0,027 | 0,025 | 12,010 | | 0,330 | | | | | | | | 0,054 | 740 | 599 | 23,00 | 73,00 | 222 |
| | Body Screw | ASTM A193/B7 | | AR1982 | 0,405 | 0,760 | 0,280 | 0,007 | 0,007 | 0,980 | 0,220 | | | | | | | | | | 974 | 858 | 18,70 | 55,40 | 285 |
| | Bonnet | ASTM A105N | FB-VE | 04/78765 | 0,190 | 0,700 | 0,230 | 0,005 | 0,012 | 0,120 | 0,020 | 0,100 | | 0,170 | | 0,024 | 0,353 | 0,002 | 0,003 | | 500 | 359 | 29,70 | 56,00 | 152 |
| | Stem | A182/F6a C.2 | | 350031 | 0,107 | 0,380 | 0,420 | 0,022 | 0,019 | 12,180 | | 0,350 | | | | | | | | | 684 | 607 | 21,00 | 72,00 | 200 |

MASSIMILIANO MORASSI
ASME AUTHORIZED INSPECTOR
STATE COMM: MD 4120
DATE: 08 MAR 2005

**HEAT TREATMENT**

| | |
|---|---|
| ASTM A105N | HEATING AT 850÷925°C FOR 1 HOUR EACH 25mm OF THICKNESS; COOLING IN STILL AIR |
| A182/F6a C.2 | HEATING AT 950°C, COOLING IN STILL AIR; RE-HEATING AT 700°C, COOLING IN OVEN |
| ASTM A193/B7 | HEATING AT 855÷865°C, QUENCHING IN OIL; TEMPER. AT 593°C min., COOLING IN AIR |

| PARTICULAR | ITEM | VALUES(J) | TEMP. |
|---|---|---|---|
| | | | |

**REMARKS**

TEST/DOCUMENTS ACC. TO DOUGLAS CHERO'S Q.C.P. No. PED-0003/05 Rev.1
WE DECLARE THAT THE VALUES INDICATED ARE IN CONFORMITY WITH THE MILL CERTS AVAILABLE c/o Q.C.DEPT. DOUGLAS CHERO SPA.
VALVES MANUFACTURED ACCORDING TO PRESSURE EQUIPMENT DIRECTIVE 97/23/CE.

API 598 / BS EN 12266-1 **TEST CERTIFICATION** D.C. PROCEDURE 140 R.5

| | | |
|---|---|---|
| Rating | | c.1500C |
| Hydrostatic body test | BAR | 388 |
| Hydrostatic seat test/backseat test | BAR | 285 |
| Air seat test | BAR | 6 |

QUALITY CONTROL

DOUGLAS-CHERO S.p.A.
Quality Control
CREDALI STEFANO

QUALITY ASSURANCE

CUSTOMER'S INSPECTOR

DATE: ____

DOUGLAS CHERO Spa

# DIMENSIONAL / VISUAL INSPECTION CERTIFICATE

N.: 01/572/04-V

Sheet: 1/2

| CUSTOMER: | Order: | Our Job: |
|---|---|---|
| **KLAUS UNION ARMATUREN INTERNATIONAL for LURGI OEL GAS CHEMIE GMBH** | Lurgi P.O.: **HH-02535-01** **4567569-000 / 1.69690 / 136** | **04.0572** |

Client: 2nd MEGA METHANOL PLANT, ZAGROS PETROCHEMICAL COMPANY, SITE BANDAR ASSALUYEH, IRAN / Contract No.: 1.69690-10

## DIMENSIONAL INSPECTION CERTIFICATE

| *TESTS EXECUTED* | | *APPLICABLE STANDARD* |
|---|---|---|
| Parts Test | | DOUGLAS CHERO DRAWINGS |
| End-to-End Test | | DOUGLAS CHERO DRAWINGS |
| SW Ends Test | | ASME B16.11 |
| NPT Ends Test | **NOT APPLICABLE** | ASME B1.20.1 |
| BW Ends Test | **NOT APPLICABLE** | ASME B16.25 |

Remarks: **FOR VALVES DESCRIPTION SEE ATTACHED SHEET 2/2**

Test executed according to approved Drawings by: **GUIDO SCHIAVETTI**

RESULT: **POSITIVE**

SIGNATURE: Guido Schiavetti

We declare that all components have made according to applicable standard, constructive specifications and DOUGLAS CHERO S.p.A. constructive drawings.

| Quantity Checked: **100%** | Q.A. - Q.C. | **CUSTOMER'S Inspector** |
|---|---|---|
| DATE: **28/02/05** | DOUGLAS-CHERO S.p.A. Quality Control CREDALI STEFANO | |

## VISUAL INSPECTION CERTIFICATE

VISUAL TEST EXECUTED ON ROUGH AND MACHINED SURFACE

RESULT: **POSITIVE**

SIGNATURE: DOUGLAS-CHERO S.p.A. Quality Control CREDALI STEFANO

| Quantity Checked: **100%** | Q.A. - Q.C. | **CUSTOMER'S Inspector** |
|---|---|---|
| DATE: **28/02/05** | DOUGLAS-CHERO S.p.A. Quality Control CREDALI STEFANO | WITNESSED AT 10% 08 MAR 2005 |

| DOUGLAS CHERO Spa | DIMENSIONAL / VISUAL INSPECTION CERTIFICATE | No.: 01/572/04-V<br>Sheet: 2/2 |
|---|---|---|

## LIST OF ITEMS

| ITEM | IDENT NO | DESCRIPTION | SIZE | Q.TY |
|---|---|---|---|---|
| 160 | S330 | GATE VALVE c.1500C FB BB SW -Seats+Wedge Stell. [ TRIM 5 ] | 1/2" | 1 |
| 170 | S330 | GATE VALVE c.1500C FB BB SW -Seats+Wedge Stell. [ TRIM 5 ] | 3/4" | 22 |
| 180 | S330 | GATE VALVE c.1500C FB BB SW -Seats+Wedge Stell. [ TRIM 5 ] | 1.1/2" | 9 |
| | | | | |

WITNESSED AT 10%

08 MAR 2005

DOUGLAS-CHERO S.p.A.
Quality Control
CREDALI STEFANO

DOUGLAS CHERO Spa
FORGED VALVES

STABILIMENTO/FACTORY
UFFICI AMMINISTRATIVI E COMMERCIALI
Località Pradaglie - 29013 Carpaneto P.no (PC) - ITALY
Phone: 0523/854011 - Fax: 0523/850389
E-MAIL: webmaster@douglas-chero.com



# PRESSURE TEST CERTIFICATE

## No. 001/572/04

*Customer:* KLAUS UNION ARMATUREN INTERNATIONAL for LURGI OEL GAS CHEMIE GMBH
*P.Order:* HH-02535-01
*Lurgi P.Order:* 4567569-000 / 1.69690 / 136
*Client Ref.:* 2nd MEGA METHANOL PLANT, ZAGROS PETROCHEMICAL COMPANY, SITE BANDAR ASSALUYEH, IRAN / Contract No.: 1.69690-10
*Object:* DOUGLAS CHERO CERTIFICATE No. 050235 Dtd.: 28/02/05
*Remarks:* TESTS CARRIED OUT ON 100%
TESTS CARRIED OUT ACCORDING TO D.C. PROCEDURE 140 R.5

| ITEM | IDENT No. | DESCRIPTION | SIZE | Q.TY |
|---|---|---|---|---|
| 160 | S330 | GATE VALVE c.1500C FB BB SW -Seats+Wedge Stell. [ TRIM 5 ] | 1/2" | 1 |
| 170 | S330 | GATE VALVE c.1500C FB BB SW -Seats+Wedge Stell. [ TRIM 5 ] | 3/4" | 22 |
| 180 | S330 | GATE VALVE c.1500C FB BB SW -Seats+Wedge Stell. [ TRIM 5 ] | 1.1/2" | 9 |
| | | | | |

| | RATING 1500 | ALL RATINGS |
|---|---|---|
| TYPE OF TEST | PRESSURE | TIME |
| - HYDRAULIC SHELL TEST<br>- BACK-SEAT TEST | 388 BAR | 60 Sec. min. |
| - HYDROSTATIC SEAT TEST | 285 BAR | 60 Sec. min. |
| - AIR SEAT TEST | 6 BAR | 30 Sec. min. |

WITNESSED AT 10%

DOUGLAS-CHERO S.p.A.
Quality Control
CREDALI STEFANO

08 MAR 2005

GENERAL REMARKS: AS PER PROCEDURE DOUGLAS CHERO No. 140 Rev.5, THE BACK SEAT TEST FOR GLOBE VALVES IS CARRIED OUT TOGETHER WITH HYDRAULIC SHELL TEST.

NOTE: NO LEAKAGE DETECTED DURING HYDRAULIC/PNEUMATIC TESTS.

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** ***Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt***
Customer:

**Bestell-Nr.:** ***Lurgi Job – No.:*** ***69690-10***
Order no.: ***Lurgi OGC PO.-No.:*** ***4567569-000 to -001/1.69690/136***

*Project Name :* ***2nd Zagros Methanol Plant - Iran***

**Auftrag-Nr.:** ***HH – 02535***
Job no.:

**Lieferumfang** / range:

| **Pos** | **Stck.** pcs. | **Gegenstand** object | **DN** | **PN** | **Werkstoff** material | **Bemerkung** comment |
|---|---|---|---|---|---|---|
| *00190* | *25* | *Gate valve long pattern FB BB BW SCH.80, BW 4,55 Seats + Wedge Stell.* | *1"* | *Cl.1500* | *A182/F11 C.2* | *Valve Ident – No.: " S420 "* |

**Auslegung + Prüfung nach** API 602 – ASME B16.34 – B16.25
Design and tests acc. To API 598 / BS EN 12266-1

**Sicht- und Funktionsprüfung:** *o.k.*
visual and functional test:

**Festigkeits-/Dichtheitsprüfung:**
strength-/tightness-test:

| | | | |
|---|---|---|---|
| *Festigkeit / shell test* | = | *388 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *285 bar Wasser / water* | (60 sec) |
| *Rückdichtung / backseat* | = | *285 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *6 bar Luft / air* | (60 sec) |

**Prüfungsergebnis:** *ohne Beanstandung !*
result: *no complaint !*

i.A. Walter Glass

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** *Dokumentation gemäß Material-Dokumentationsdeckblatt*
enclosure *Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter W. Glass
Person in charge Walter Glass

**Kommissions-Nr. / Reference No.**

**HH-02535**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00190 | Gate Valve | " S420 " | 25 | Body | R-M50 | A182/F11 C.2 | Risetti | 408746 | | 250216 |
| | 1" Cl. 1500 lbs. | Drawing-No.: 652-7/150-L8 | | Wedge | | A182/F6a C.2 stel. | Valbruna | 414430 | | 122852/2004 |
| | FB, BB, BW Sch.80 | | | Seat | | A182/F6a C.2 stel. | Valbruna | 238300 | | 127568/2004 |
| | seats+wedge stel. | | | Body Bolt | | ASTM A193/B16 | Molinari | AQ6810 | | 041653/2004 |
| | BW 4,55 long pattern | | | Body Nut | | ASTM A194/GR.4 | Morandi | 041606 | | 5882 |
| | | | | Bonnet | Y-AC | A182/F11 C.2 | Iselfa | 52828/80 | | 9661 |
| | | | | Stem | | A182/F6a C.2 | Ugitech | 350031 | | 80208 |

039 331 992247


# FRATELLI RISETTI S.R.L.

21048 SOLBIATE ARNO (VA) - VIA TRIESTE, 4 - TELEFONO 0331/993.440-993.366 - STAB. VIA COLZANI, 41
TELEFONO 0331/994.088 - FAX 0331/992.247 - TELEGR. RISETTI - SOLBIATE ARNO - CASELLA POSTALE N. 45
REA Varese 206123 Registro Imprese Varese 01773060122
COD MECC VA 010025 PARTITA IVA IT 01773060122 - CODICE FISCALE 01773060122


Certified ISO 9001 by BVQI SINCERT

QUALITY SYSTEM CERTIFIED BY TÜV SÜDWEST

## CERTIFICATO PROVE MATERIALI

TEST CERTIFICATE
WERKSABNAHMEZEUGNIS
CERTIFICAT D'EMPREUVES

ACCORDO DIN 50049 3.1/B
EN 10204 /91-3.1/B

N. 250216
Data - Date - Datum - Date: 31/03/05

Ordine del Cliente - Customer's - Bestellung - Commande du Client: M. 0 242241-16/11/04 DOUGLAS C.

Ns. Commessa - Mill order - Unsere Auftragsbestätigung - Notre Confirmation de Commande:

Bolla di consegna - Delivery bill - Lieferschein - Bulletin de livraison:

| POS ITEM POST | Quantità Quantity Stückzahl Quantité | DESCRIZIONE SPEDIZIONE - DESCRIPTION OF DELIVERY - UMFANG DER LIEFERUNG - DETAILS DU LOT<br>Descrizione - Description - Bezeichnung - Description | Disegno - Drawing - Zeichnung - Dessin | Norma di collaudo - Test specification - Abnahmevorschrift - Spécification |
|---|---|---|---|---|
| 1 | 38 | CORPO GTR.GBV.GABB. | 4/11-150 | FII |

ANALISI CHIMICA - CHEMICAL ANALYSIS - CHEMISCHE ZUSAMMENSETZUNG - COMPOSITION CHIMIQUE

| Codice di identificazione della fusione sui pezzi - Heat identification code stamped on forging pieces | Colata N. - Heat No - Schmelze Nr - No de Coulée | C % | Si % | Mn % | Ni % | Cr % | S % | P % | Mo % | Cu % | Sn % | Al % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N50 | 408746 | 0,110<br>C.E. % | 0,48<br>F.B. % | 0,49<br>Ti % | <br>V % | 1,30 | 0,001 | 0,015 | 0,48 | | | |

PROPRIETÀ MECCANICHE - MECHANICAL PROPERTIES - MECHANISCHE EIGENSCHAFTEN - ESSAIS MÉCANIQUES

| Colata N. - Heat No - Schmelze Nr - No de Coulée | Lega - Alloy - Legierung - Alliage | Provetta - Test bar - Probestab - Eprouvette | Rs (N/mm²) Snervamento - Yield Point - Streckgrenze - Limit d'élasticité | R (N/mm²) Rottura - Tensile strenght - Zugfestigkeit - Rupture | A (%) Allungamento - Elongation - Dehnung - Allongement | Z (%) Strizione - Red. of area - Einschnürung - Striction | HB Hardness on forging piece | Resilienza - Resilience - Kerbschlagzähigkeit - Resil. Charpy V Notch a mm |
|---|---|---|---|---|---|---|---|---|
| 408746 | | | 338 | 536 | 36 | 72 | | |

Trattamento termico - Thermal treatment - Thermische Behandlung - Traitement Thermique: NORMALIZZATO-RINVENUTO

| JOMINY | mm | 1.5 | 3 | 5 | 7 | 9 | 11 | 13 | 15 |
|---|---|---|---|---|---|---|---|---|---|
| Norm. | HRC | | | | | | | | |
| Tempra | mm | 20 | 25 | 30 | 35 | 40 | 45 | 50 | |
| | HRC | | | | | | | | |

GRANO AUSTENTICO - austenite grain size check: Metodo:

ISO 643-UNI3245-ASTM E112

Final Control on forging pieces and found:
Sandblasting SA 2 1/2:
Marking on pieces:
Visual inspection:
Dimensional control:
Hardness test:

UFFICIO COLLAUDI - Inspection Department - Prüfingenieur - Bureau d'inspection
F.lli RISETTI
Quality Assurance
Sign.

AZIENDA CON SISTEMA QUALITÀ CERTIFICATO DA RINA
=UNI EN ISO 9001/2000=
AD 2000 - WO TRD 100

**SORBIT SRL**

# CERTIFICATO DI COLLAUDO DOPO T.T. IN ACCORDO EN 10204–3.1.B

| DOCUMENTO / DOCUMENT | DATA / DATE | |
|---|---|---|
| 1695 | 09/03/05 | Pagina 1 di 2 |

| CLIENTE / CUSTOMER | MATERIALE / Material | SPESS.MAX / thickness | RICHIESTE / Request |
|---|---|---|---|
| 1892 / OFF.MECC. F.LLI RISETTI SRL | F11 Cl 2 | 80 | 143/207 HB |

| N° DdT | Data / Date | Pezzo / Piece | N. disegno / Drawing | Ordine / Order | Commessa / Commision | N. colata / Heat | N. Pz. Trattati / N° Worked Piece | PESO KG / Weight | N°PZ prova / N°Test Piece | DUREZZE RILEVATE / Hardness | Car |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 00 | 25/02/2005 | CORPI | 4/11-150 | | | M50 | 38 | 680 | | HB 163 | 33000 |
| 08 | 28/02/2005 | CORPI | F36-8/9 | | | H34 | 27 | 740 | | HB 150 | 33064 |
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| Scheda n° | Data | Revisione | Chi archivia |
|---|---|---|---|
| S–Pq07/1–1 | 01/02 | 0 | RSA |

ORA RICEZ. 7. APR. 9:38
ORA STAMPA 7 APR 9.44
07-APR. 05(GIO) 09:37 FLLI.RISETTI 039 331 992247 FAX:039 331 992247 P.002

07-APR. '05(GIO) 09:38 FLLI. RISETTI 039 331 992247 FAX:039 331 992247 P. 003
ORA RICEZ. 7. APR. 9:38 ORA STAMPA 7. APR. 9:44

AZIENDA CON SISTEMA QUALITÀ CERTIFICATO DA DNV =UNI EN ISO 9001/2000= AQ 2000 - IMO TRD 100

**SORBIT SRL**

# CERTIFICATO DI COLLAUDO DOPO T.T. IN ACCORDO EN 10204–3.1.B

| DOCUMENTO DOCUMENT | DATA DATE | |
|---|---|---|
| 1695 | 09/03/05 | Pagina 2 di 2 |

LAVORAZIONE E/O TRATTAMENTO TERMICO RICHIESTO / HEAT TREATMENT REQUEST

| Cod. TT | Descrizione / Description | T.Part. (°C) | T Salita (h) | T. Perm. (°C) | T Perm (h) | Raffredd / Cool | Impianto / Ofen | Specifiche / Detailed | Altre Richieste / Other Requests: |
|---|---|---|---|---|---|---|---|---|---|
| ID | NORMALIZZAZIONE / Normalizing | | | 970 | 2 | ARIA | 10/1 | P-07/6 | DTT 15576 |
| R | RINVENIMENTO / Tempering | | | 720 | 4 | ARIA | 1 | | |

**Note / Notes:**

| Scheda n° | Data | Revisione | Chi archivia |
|---|---|---|---|
| S-Pq07/1–1 | 01/02 | 0 | RSA |

# Acciaierie Valbruna S.p.A.

CERTIFICATO DI COLLAUDO
ABNAHMEPRUEFZEUGNIS
INSPECTION CERTIFICATE
CERTIFICAT DE RECEPTION
EN 10204 , 3.1.B

36100-VICENZA (Italia) - Viale della scienza, 25 z.i.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Kunde/Purchaser/Client
VERRI & PINA SRL
VIA TERRAROSSA, 10 - C.P. N.26
22035-CANZO (CO)-CO

Produttore: STABILIMENTO DI BOLZANO
Herstellerwerk/Unità produttiva

Oggetto Prove: - Ricotto lavorabile Pelato
Prüfgegenstand/Inspection inspected/Prelevato

Avviso di Spedizione: A-BZ04005088
Lieferanzeige/Packing list/B.L.

Ordine nr: 94-95-97-103
Bestell/Your order/Commande

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'élaboration

Certificato nr: MEST122862/2004/
Prüfung/Test/Essai

Conferma ordine nr: MI04002883
Werks/Our Order/Ref nr.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'essayeur

SC

4422

Specifiche:
Anforderungen / Requirements / Exigences
ASTM A182 2000C S41000 CLASS2 (0)
(0) Chemical analysis only and mecc.properties(for ASTM A182[M])

Qualità: 410
Werkstoff/Grade/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Nuance

Punzonatura: 410
Kennzeichnung/Marking/Marquage

| Pos. nr. / Pos. nr. / Item nr. / Nr. de poste | Oggetto / Gegenstand / Product description / Descrip. du produit | Dimensioni - mm / Abmessungen / Dimension / Dimension | Tolleranze / Toleranz / Allowance / Tolérance | Lunghezza - mm / Länge / Length / Longueur | Colata / Schmelze / Heat / Coulée | Pezzi / Stück/el / Pieces / Pièces | Peso - Gewicht / Weight / Poids | Lotto nr. / Losnr. / Lot nr. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0050 | Tondo | 25,000 | | 5000 / 5500 | 414430 | | 3707,0 | 409202560 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind in Anlage erfüllt
The material has been furnished in accordance with the requirements
Le produit a été livré conforme aux exigences

Controllo antimescolanza: OK
Verwechslungsprüfung: spektrometrisch durchgeführt
Anti-mixing testing performed: OK
Contrôle anti-mélange fait: c.a.s.

Controllo visivo e dimensionale: soddisfa le esigenze:
Sichtprüfung und Abmessung: ohne Beanstandung
Visual inspection and dimensional checkups: satisfactory
Contrôle visuel et dimensionnel: satisfaisant

| | Provetta/Probestück / Specimen/Eprouvette Lato Asse Spess. / Breite Durch. / Width Diam. / Larg. piatt. / Epais mm | °C | Posiz. Doggia / Position / Position | Snervamento / Streckgrenze / Yield Strength / Limite d'allong. Rp 0,2% N/mm2 | Snervamento / Streckgrenze / Yield Strength / Limite d'allong. | Resistenza / Zugfestigkeit / Tensile strength / Résistance à traction Rm N/mm2 | Allungamento / Dehnung / Elongation / Allongement E 4d % | | Strizione / Einschnürung / Reduction of area / Striction RA % | | Resilienza / Kerbschlagzähigkeit / Impact Value / Résilience | | | Durezza / Härte / Hardness / Dureté HB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TEST | | | | | | | | | | | | | | | | |
| Valori richiesti 1 / Anforderung erfüllt bei/Values demanded | | min / max | | 380 | - | 585 | - | 18 | - | 35 | - | | | 167 / 229 | | |
| A | 10,00 | 20 | L | 534 | | 688 | | 31 | | 70 | | | | 216 | | |

1) Longitudinale/Längs, Quer/Transversale/Transverse, Tangenziale/Tangential

## Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata / Schmelze/Coulée | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | min - max 0,15 | - 1,00 | - 1,00 | 11,50 - 13,50 | - 0,50 | - 0,040 | - 0,030 | - - | - - | - - | - - | - - | - - | - - | - - | - - |
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | | |
| 414430 | 0,13 | 0,44 | 0,72 | 12,36 | 0,24 | 0,024 | 0,030 | | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,2,-4.3 by TUEV and LLOYD'S

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

| | | |
|---|---|---|
| Bolzano,15/07/04 | Il collaudatore di stabilimento / der Werkssachverständige / Works inspector / L'agent d'usine<br>R.Cristel | Pagina - 1 di 1 |

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

CERTIFICATO DI COLLAUDO
ABNAHMEPRUEFZEUGNIS
INSPECTION CERTIFICATE
CERTIFICAT DE RECEPTION
EN 10204 , 3.1.B

Ø 26
F6 Ric

Cliente / Kunde/Purchaser/Client: DOUGLAS

Avviso di Spedizione: A-6Z04506561
Lieferanzeige/Packing list/B.L.: Julo4503

Certificato nr: MEST127568/2004/
Prüfung/Test/Essai

Conferma ordine nr: MI04001328
Werks/Our Order/Ref nr.

Produttore: STABILIMENTO DI BOLZANO
Hersteller/Manufacturer produttore

Ordine nr: DD. 11.2.04
Bestell/Your order/Commande

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigla da fissare produttore

Oggetto Prove: - Ricotto lavorabile Pelato
Prüfgegenstand/Item Inspected/Fabrication

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/mode d'élaboration

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

SC

Specifiche:
Anforderungen / Requirements / Exigences

BELLEBONO 2004 410 HRC<22 A - ASTM A182 2002 S41000 (0)
(0) Chemical analysis only.

Qualità: 410
Grade/Grade/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Nuance

Punzonatura: T.410
Kennzeichnung/Marking/Marquage

| Pos. nr. / Pos. nr. / Item nr. / Nr. de poste | Oggetto / Gegenstand / Product description / Descrip. du produit | Dimensioni - mm / Abmessungen / Dimension / Dimension | Tolleranza / Toleranz. / Allowance / Tolerance | Lunghezza - mm / Länge / Length / Longueur | Colata / Schmelze / Heat / Coulée | Pezzi / Stückzahl / Pieces / Pieces | Peso - Gewicht / Weight / Poids | Lotto nr. / Losnr. / Lot nr. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0100 | Tondo | 26,000 | K12-MIN | 3900 / 4000 | 238300 | | 2462,0 2463 | 405400200 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind d. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le matériel à été livré conformé aux exigences

Controllo antimiscelanza: OK
Verwechslungsprüfung: spanabhebende Abnahmeprüfung durchgeführt
Anticlassing testing performed: OK
Contrôle antimélange fait: c.e.s.

Controllo visivo e dimensionale: soddisfa le esigenze:
Sichtprüfung und Abmessungen ohne Beanstandung
Visual inspection and dimensional checks satisfactory
Contrôle visuel et dimensions: satisfaisant

| TEST | Provetta/Probestab/Test piece/Eprouvette Lato prel./Entnahmestelle/Sampling location/Prélèvement Dir. prel./Entnahmerichtung/Sampling direction/Direction prélèvement Dim. prov./Probenabmessungen/Test piece dimensions/Dimensions éprouvette mm | °C | Pieg. Saggio / Biegeprobe / Bending test / Pliage éprouvette ° | Snervamento / Streckgrenze / Yield Stress / Limite d'élasticité Rp 0,2% N/mm2 | Snervamento / Streckgrenze / Yield Stress / Limite d'élasticité | Resistenza / Zugfestigkeit / Tensile strength / Résistance à traction Rm N/mm2 | Allungamento / Bruchdehnung / Elongation / Allongement E 4d % | | Strizione / Einschnürung / Reduction of area / Striction RA % | | Resilienza / Kerbschlagarbeit / Impact Value / Résilience | | | Durezza / Härte / Hardness / Dureté HRc | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 / Anforderungen/Required values/Valeurs demandées | | min max | | - | - | - | - | - | - | - | - | - | - | - | - 22,0 | |
| A | 10.00 | 20 | L | 412 | | 684 | | 32 | | 68 | | | | 15,0 | | |

1)L=longitudinale/Längs, D=trasversale/quer, T=Tangenziale/Tangential

## Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata / Hitze / Coulée | min - max 0,15 | - 1,00 | - 1,00 | 11,50 13,50 | - 0,50 | - 0,040 | - 0,030 | - | - | - | - | - | - | - | - |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 238300 | 0,14 | 0,49 | 0,78 | 12,25 | 0,29 | 0,023 | 0,028 | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive (97/23/EC) Annex 1,s.4.3 by TUEV and LLOYD'S

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

COPIA CONFORME ALL'ORIGINALE
ACCIAIERIE VALBRUNA S.P.A.
FILIALE DI CORMANO

| Bolzano,27/07/04 | Il collaudatore di stabilimento / der Werkssachverständige / Works inspector / L'agent d'usine: R.Cristel | Pagina - 1 di 1 |
|---|---|---|

241989 01

TORNERIA MECCANICA
VINCENZO MOLINARI
29100 Piacenza Italy - Via S. Bartolomeo, 136
Tel. 0523/59.32.81 - Fax 0523/59.27.47
R.E.A.PC N° 106098 - R.I. PC N° 28139/1996

SINCERT

# CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 3.1 B

N° 041653/2004

DATE 13/05/2004

CLIENTE / PURCHASER: DOUGLAS CHERO S.P.A.

COMMESSA N° / JOB N°: 040396

ORDINE N° / ORDER: 240623 15/03/2004

NOTE / REMARKS:

DESCRIPTION OF MATERIAL: STUD BOLTS B16.5 ASTM A 193 -01b B16 (QT) (MT)
01) N. 100 D.1/2"UNC x 90

## MECHANICAL REQUIREMENT

| | R N/mm2 | Rp N/mm2 | A % 50mm | Z % | KV/J | HB | HB 24h Proof 540C * LoadKN |
|---|---|---|---|---|---|---|---|
| REQUIRED MIN | 860 | 725 | 18 | 50 | | | |
| REQUIRED MAX | | | | | | 321 | |
| 01) | 938 | 794 | 20.6 | 62.0 | | 284 | |

## CHEMICAL ANALYSIS

| HEAT N° | C | Mn | Si | P | S | Ni | Cr | Mo | V | Al |
|---|---|---|---|---|---|---|---|---|---|---|
| REQUIRED MIN | 0.360 | 0.450 | 0.150 | | | | 0.800 | 0.500 | 0.250 | |
| REQUIRED MAX | 0.470 | 0.700 | 0.350 | 0.035 | 0.040 | | 1.150 | 0.650 | 0.350 | 0.015 |
| 01) AQ6810 | 0.390 | 0.600 | 0.240 | 0.013 | 0.012 | | 1.060 | 0.640 | 0.300 | 0.009 |

18 MAG. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

WE CERTIFY THAT OUR TEST RESULTS WITH REQUIREMENTS OF THE PRODUCT DESCRIPTION. CONF. TO DIN 50049 3.1 B.
(QT):HEAT TREATMENT: QUECHED TEMPERED (CST):CARBIDE SOLUTION TREATED
(MT):MINIMUM TEMPERING: 660 C
(H):HARDENED (N):NORMALIZED (SB):STABILIZED (SH):STRAIN HARDENED
(ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED ABOVE HAS BEEN TESTED AND COMPLIES WITH THE TERMS OF THE ORDER CONTRACT

Q. A. MANAGER
Dott. Ing. V. MOLINARI

Officina Meccanica
VINCENZO MOLINARI
Via S. Bartolomeo, 136
29100 PIACENZA

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948
E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129


**CERTIFICATO DI COLLAUDO** 2433260C
Inspection certificate

N°5882/DCH DATE-09.02.04

CLIENTE- DOUGLAS CHERO Spa — ORDINE- 049 — BOLLA CONSEGNA N-430.
Customer — Order — Delivery note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| 1 | 428 | DADI-NUTS 1/2 UNC | Astm A194 GR.4 | 014606 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Mo | S | P |
|---|---|---|---|---|---|---|---|
| REQUIRED | min. | 0,40 | 0,70 | 0,15 | 0,20 | | |
| VALUE | max. | 0,50 | 0,90 | 0,35 | 0,30 | 0,040 | 0,035 |
| HEAT n. 014606 | | 0,416 | 0,789 | 0,175 | 0,275 | 0,028 | 0,012 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

Hardness test during production — Required value : 24-38 Hrc; Actual : 26-29 Hrc

Hardness test after 24 hrs. tempering at 590 °C — Required value : 201 HB min.; Actual : 240-260 HB

Impact test KV - 101 °C — Minimum impact for average test : 27 J min.; Minimum impact for one specimen : 20 J min.

Single values : 36-33-33 J
Average : 34 J

HEAT TREATMENT
Quenched at : 860 °C in oil
Tempering : 2 hours at 595 °C min.

Proof load test: POSITIVE
Visual and dimensional test = SATISFACTORY

13 FEB. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

This certificate has been tested in according with the specification included in your order.

QUALITY CONTROL

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

# ISELFA

STEEL FORGINGS
ELECTRING FITTINGS

S.r.l. - C.F./P.IVA VAT IT 00189520125 S.p.A.
21048 SOLBIATE ARNO (Va) Italy - Corso Roma, 22
P.O. BOX 21 - TELELEFONO +39 (331) 99.30.08
FAX FORGINGS +39 (331) 99.15.35 - FAX FITTINGS +39 (331) 99.46.77

00192110C

ICIM

## CONTROLLO QUALITÀ

Certificato di conformità
Compliance certificate
Gemaess Zeugnis
UNI EN 10204/3.1.B

| N° | Data / Date |
|---|---|
| 9661 | 29.03.01 |

| | | | | | |
|---|---|---|---|---|---|
| CLIENTE *Customer / Kunde* | DOUGLAS CHERO SPA | ORDINE N° *Order / Bestellung* | 215053 | DATA *Date / Datum* | 23.03.01 |
| RIMESSO N° *Delivery note / Lieferschein* | 100492 | DATA *Date / Datum* | 29-03-01 | N° PEZZI *Pieces / Stuckzahl* | 367 |

DESCRIZIONE - *Description - Dezeichnung*: CAPPELLI 1"-1500 Dis.4/10 Rev.0

DISEGNO N° - *Drawing - Zeichnung*:

INDICE - *Last revision - Verzeichnis*:

| TIPO ACCIAIO *Steel type / Stahl* | COLATA *Heat / Schmelze* | FORNITORE *Supplier / Liefarant* |
|---|---|---|
| F.11 BILL.80 | 52826/60 | ACCIAIERIE BERTOLI SAFAU SPA |

CARATTERISTICHE ACCIAIO

COMPOSIZIONE CHIMICA / *Chemical composition / Chemische Zusammensetzung*

| % | | C | Mn | Si | Cr | Mo | P | S | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA *Requested / Erforderikhe* | min | 0,100 | 0,300 | 0,500 | 1,000 | 0,440 | | | | | | |
| | max | 0,200 | 0,800 | 1,000 | 1,500 | 0,650 | 0,040 | 0,040 | | | | |
| FORNITA *Supplied / Wirkliche* | | 0,1300 | 0,4500 | 0,5500 | 1,1200 | 0,4900 | 0,0080 | 0,0010 | | | | |

PROVA JOMINY / *Jominy test / Stimabschreckversuch*

| HRC | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA *Requested / Erforderikhe* | min | | | | | | | | | | | GRANO *Grain size / Korngrosse* |
| | max | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 |
| FORNITA *Supplied / Wirkliche* | | | | | | | | | | | | |

CARATTERISTICHE MECCANICHE / *Mechanical properties / Mechanische Eigenscheften* — Normalizzato ☐ Bonificato ☐

| Ø PROVETTA *Ø sample / Ø probest* | RP 0,2% *Yield strenght 0,2% / 0,2% Grenze* | R *Tensile stranght / Zugfestigkeit* | A% *Elongation % / Dehnung %* | Z % *Reduc. of area % / Einschourung %* | KCU *Impact value / Kerbschlang* |
|---|---|---|---|---|---|
| mm | N/mm² | N/mm² | Lo = 5d | | J (joule) |
| | 282 | 511 | 28 | 59 | 0 / 0 / 0 |

CARATTERISTICHE PRODOTTO

| | | | | |
|---|---|---|---|---|
| TRATT. TERMICO *Heat Treatement / Warmebehandlung* | NORM.+RINV. | DUREZZA RICHIESTA *Requested hardness / Fesligkeit* | N/mm² | |

| DUREZZA RISCONTRATA N/mm² *Checked hardness / Finden harte* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | | |
|---|---|---|---|---|---|
| CONTROLLI *Tests / Ausmabatest* | C.D.C.<br>MAGNAFLUX 100%<br>VISIVO 100% | SI<br>NO<br>SI | DIMENSIONALE<br>ALTRI | POSITIVO | NO |
| ALLEGATI *Enclosed / Anlage* | ANALISI CHIMICA ACCIAIERIA<br>CERTIFICATO TRATT. TERMICO | SI<br>NO | PRODOTTO AUTOCERTIFICATO | 02 APR. 2001 | ☐ |

NOTE *Remarks / Bemerkungen*: TRATT:RISCALDO A 960C PER 1 ORA OGNI 25mm DI SPESSORE E RAFFR. IN ARIA CALMA. RISCALDO A 735-750C PER 2 ORE OGNI 25mm DI SPESSORE E RAFFR. IN ARIA CALMA. SIGLA DI COLATA "A"

DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.

CONTROLLO QUALITÀ
QUALITY CONTROL
QUALITATSSTELLE

ISELFA S.p.A.
UFFICIO CONTROLLO QUALITA'

COMPILATORE

ISELFA S.p.A.
SOLBIATE ARNO (VA)

EMESSO ED ARCHIVIATO DAL RESPONSABILE DEL CONTROLLO FINALE (CFI)

UGITECH
Groupe Arcelor

FRANCE

5 Usine Productrice / Hersteller / Manufacturer: **UGINE** — F 73403 UGINE CEDEX — Tél : 04.79.89.30.20 — Fax : 04.79.89.30.51

4 N. Nr No 80208

11 N. de commande usine-Werksbestellnummer-Works order number: FUGE TEJE 01/01 8Z101000 Q

3

# CERTIFICATO COLLAUDO DI ACCETTAZIONE B
# CERTIFICAT DE RECEPTION 3.1.B
# INSPECTION CERTIFICATE B

EN 10204 / 3.1.B

Produit / Erzeugnisform / Product: IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE 6

Client et/ou destinataire - Besteller und/oder Empfaenger - Purchaser and/or Consignee 9: TECNOMECCANICA SRL

N. de commande client - Kundebestellnummer - Purchaser order number 10: 364

Nuance et spécifications techniques - Stahlsorte und Pruefbedingungen - Quality and Specifications 12: IMA4006 410 AISI 410 UNS S41000
SPEC. SDA 09 DU 20/11/01 (SAUF MN)

Etat de livraison - Lieferzustand - As delivered (1) 13: TEMPRATO RINVENUTO

Traitement de Référence - Probestreifenbehandlung - Treatment of test samples (1) 14:

| Identification du produit Erzeugnis Benennung-Product Identification N. de cde usine Werksbestellnummer Works order number 15 | N. de poste Post Nr kam No 17 | N. de Coulée Schmelz Nr Heat No 16 | Nombre Stueckzahl Pieces Nbr 18 | Profil Profile Shape 19 | Dimension Ausmassung Dimension 20 | Longueur Laenge Length 21 | Masse Gewicht Weight 22 |
|---|---|---|---|---|---|---|---|
| 8Z101 000 | | 350031 | 190 | TONDO | 20,000 | | 1974 KG |

| Prélèvement Probenummer Test N. 39 B | Demandé Vorschrift Required | Sens Direction 24 | Température d'essai Pruefemperatur Test Temperature 25 | Traction - Zugversuch - Tensile test: Limite d'Elasticité Streckgrenze Yield Strength 0,2 % 26 A | Limite d'Elasticité Streckgrenze Yield Strength 1 % 26 B | Résistance à la traction Zugfestigkeit Tensile strength 27 | Allongement Bruchdehnung Elongation 28 | Striction Einschnuerung Red of Area 29 | Dureté Haerte Hardness (4) 30 | Type Form Type 31 | Résilience - Kerbschlagzaehigkeit - Notch Toughness: Sens Direction 32 | Température d'essai Pruefemperatur Test Temperature 33 | Valeurs individuelles Einzelwerte Individual Values 35 | Moyenne Mittelwerte Average 36 | Dureté Haerte Hardness (5) 37 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | °C | MPA | MPA | MPA | % | % | | | | | | | HB |
| | Min | L | 20 | 275 | | 585 | 20 | 45 | | | | | | | |
| | Max | | | | | | | | | | | | | | 237 |
| | (4) | | | | | | | | | | | | | | |
| | (5) | | | 607 | | 684 | 21 | 72 | | | | | | | 205 |

| N. de Prélèvement Probenummer Test N. 39 A | Demandé Vorschrift Required 40 | Analyse Produit-Stück analyse-Check Analysis | 42 C | 43 SI | 44 MN | 45 NI | 46 CR | 47 S | 48 P | 49 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Min | | | | 0,30 | | 11,50 | | | | |
| | Max | | 0,150 | 0,60 | 0,60 | | 13,50 | 0,030 | 0,040 | | |
| N. de Coulée Schmelz Nr Heat N. 350031 | | | 0,107 | 0,42 | 0,38 | 0,35 | 12,18 | 0,022 | 0,019 | | |

| Mode d'élaboration Erschmelzungsart Melting process | Demandé Vorschrift Required | 51 | 52 | 53 | 54 | 55 |
|---|---|---|---|---|---|---|
| Electrique Elektrisch Electric | Min | | | | | |
| | Max | | | | | |

IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE

06 MAG. 2004

DOUGLAS CHERO Spa

Quality Assurance .....

P.C. STEFANI VITTORIO

Sign .....

56

(3) L = Long / Laengs - Long / T = Travers / Quer-Transverse 58

(1) TE = Trempé à l'eau - Wasserhaerten - Waterquench; TH = Trempé à l'huile - Oelharten - Oil Quench; A = Hypertrempé - Losungsgeglueht - Solution annealed; R = Revenu - Anlassen - Tempered; RT = Recuit - Geglueht - Annealed; TRM = Recuit maxi - Weichgeglueht - Maxi annealed 7

Ugine, le 15-01-04

L'Agent Réceptionnaire de l'usine / Der Werksabnahmebeauftragte / The Work Inspector

H. Mayet 83

(4) A l'état de référence / Zum Bezug Zustand / At reference condition 60 A

(5) A l'état de livraison / In Lieferzustand / In state of delivery 60 B

Contrôles de marquage, d'aspect et de dimensions satisfaisants / Bezeichnung, Besichtigung und Ausmessung : ohne Beanstandung / Marking, inspection and measurement : without objection 62

Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande / Wir bestaetigen hiermit dass die obengenannten Erzeugnisse den Bestellungsvorschriften entsprechen / We certify hereby that the above mentioned products are consistant with the order prescriptions 66

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:**
Customer: *Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt*

**Bestell-Nr.:**
Order no.: *Lurgi Job – No.: 69690-10*
*Lurgi OGC PO.-No.: 4567569-000 to -001/1.69690/136*

*Project Name :* *2nd Zagros Methanol Plant - Iran*

**Auftrag-Nr.:**
Job no.: *HH – 02535*

**Lieferumfang /** range:

| Pos | Stck. pcs. | Gegenstand object | DN | PN | Werkstoff material | Bemerkung comment |
|---|---|---|---|---|---|---|
| 00200 | 11 | Gate valve long pattern<br>FB BB BW Sch.80, BW 5,08<br>Seats + Wedge Stell. | 1.1/2" | Cl.1500 | A182/F11 C.2 | Valve Ident – No.: " S420 " |

**Auslegung + Prüfung nach**
Design and tests acc. To: API 602 – BS EN ISO 15761, API 598 / BS EN 12266-1
ASME B16.34 – B16.25 – B16.11 – B1.20.1

**Sicht- und Funktionsprüfung:**
visual and functional test: *o.k.*

**Festigkeits-/Dichtheitsprüfung:**
strength-/tightness-test:

*Festigkeit / shell test = 388 bar Wasser / water* (60 sec)
*Dichtheit Sitz / seat = 285 bar Wasser / water* (60 sec)
*Rückdichtung / backseat = 285 bar Wasser / water* (60 sec)
*Dichtheit Sitz / seat = 6 bar Luft / air* (60 sec)

**Prüfungsergebnis:**
result: *ohne Beanstandung !*
*no complaint !*

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:**
enclosure *Dokumentation gemäß Material-Dokumentationsdeckblatt*
*Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter W. Glass
Person in charge Walk 8/3

**Kommissions-Nr. / Reference No.**

**HH-02535**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00200 | Gate Valve | " S420 " | 11 | Body | FB-RR | A182/F11 C.2 | Feat | 05481 | | 2003/3000829 |
| | 1.1/2" Cl. 1500 lbs. | Drawing-No.: BX652-7/TH-2N8 | | Wedge | | A182/F6a C.2 stel. | Cogne | 172969 | | 2002013827 |
| | FB, BB, BW Sch.80 | | | Seat | | A182/F6a C.2 stel. | Ugine | 339086 | | 69383 |
| | seats+wedge stel. | | | Body Bolt | | ASTM A193/B16 | Molinari | 90620 | | 031265/2003 |
| | BW 5,08 long pattern | | | Body Nut | | ASTM A194/GR.4 | Morandi | T7551A | | 5883 |
| | | | | Bonnet | R-H78 | A182/F11 C.2 | Risetti | 55535 | | 210783 |
| | | | | Stem | | A182/F6a C.2 | Valbruna | 238210 | | 151937/2004 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
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**FEAT INDUSTRIALE**
**divisione della Feat Group S.p.A.**
SEDE LEGALE:
20122 MILANO - Viale Majno, 17
Capitale sociale € 6.000.000,00 i.v.
Reg. Imp. Milano 256796 - R.E.A. Milano 1211374
Codice Fiscale e Partita IVA 09203090157
Codice identif. IVA CEE IT 09203090157
UFFICI AMMINISTRATIVI:
I - 23842 BOSISIO PARINI (LC) - Via dei Livelli
Tel. (031) 3581411 - Fax (031) 876.178
STABILIMENTO E UFFICI COMMERCIALI DELLA DIVISIONE:
I - 23861 CESANA BRIANZA (LC) - Via G. Parini, 30 e Via Ariosto, 1/3/5/7
Tel. (031) 6591 - Fax (031) 659.219 - HTTP: //www.featgroup.com

027680

Certificato 2003/3000829
Data 11/02/2003
Pagina 1

DOUGLAS CHERO S.P.A.

LOCALITA' PRADAGLIE

IN ACCORDO A BS EN 10204 3.1B

29013 CARPANETO PIACENTINO PC

| Ordine cliente | Bolla | Fattura | Quantita' |
|---|---|---|---|
| 222349 | 2003/000/0030237 | D 0030264 | 35,00 |

| Articolo Feat | Descrizione |
|---|---|
| 292003052040t | CORPO 6/11-150 |

| Cod.Stamp./N.Col. | Tipo Materiale e Specifica |
|---|---|
| BRR | F11 Cl. 2-3 ASTM A 182 Last Edition |

| Numero colata | Acciaieria | N.Cert.Acc. |
|---|---|---|
| 05481 | ACCIAIERIE BERTOLI SAFAU SPA | |

ANALISI CHIMICA

| Elem. | C | Cr | Mn | Mo | P | S | Si | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Min | 0,100 | 1,000 | 0,300 | 0,440 | | | 0,500 | | | | | | | | |
| Max | 0,200 | 1,500 | 0,800 | 0,650 | 0,040 | 0,040 | 1,000 | | | | | | | | |
| Colata C.An. | 0,110 | 1,140 | 0,420 | 0,480 | 0,008 | 0,003 | 0,550 | | | | | | | | |

Carbonio Equivalente= 0,531

CARATTERISTICHE MECCANICHE

| Ordine Laboratorio | N. | Descrizione | UM1 | Min | Max | Valore | UM2 | Valore |
|---|---|---|---|---|---|---|---|---|
| 120945 | 01 | Snerv.Rp0,2% Amb T | N/mm2 | 275,000 | | 335,000 | PSI | 48575,000 |
| 120945 | 01 | Rottura Amb T | N/mm2 | 485,000 | | 536,000 | PSI | 77720,000 |
| 120945 | 01 | Allungam.A% T Amb | N/mm2 | 20,000 | | 31,800 | PSI | 4611,000 |
| 120945 | 01 | Strizione Amb T | N/mm2 | 30,000 | | 56,200 | PSI | 8149,000 |
| | 01 | Durezza HB | HB | 143,000 | 207,000 | 165,000 | | |

Trattamento Termico
NORMALIZZATI E RINVENUTI:
I PARTICOLARI SONO STATI PORTATI ALLA TEMPERATURA DI 970 C.,
TENUTI A TALE VALORE PER 1 ORA PER OGNI 25 mm. DI SPESSORE E
RAFFREDDATI. PORTATI DI NUOVO ALLA TEMPERATURA DI 720 C. E
TENUTI A TALE VALORE PER UN MINIMO DI 30 MINUTI PER OGNI 25 mm. DI
SPESSORE. SONO STATI RAFFREDDATI IN ARIA CALMA.-

Note
CERTIFICATO FEAT

Resp.Controllo Certificati
P.SPREAFICO

17 FEB. 2003
DOUGLAS CHERO S.p.A.
Quality Assurance
P.C. STEFANI VITTORIO
Sign.

Resp.Assicurazione Qualita'
E.MANZONI

COGNE ACCIAI SPECIALI S.R.L.
11100 AOSTA - VIA PARAVERA, 16
TEL +39.0165 [illegible] - FAX +39.0165.302296
CAP. SOC. 40.000.000 INT. VERS.
VAT: IT00571320078
P.I. 00571320078 C.F. 02187360967
REG. IMP. AO001 - 7234 REA 50474

(A02) CERTIFICATO DI COLLAUDO SECONDO DIN 50049/EN 10204 - 3.1.B

(A03) NUMERO DEL DOCUMENTO 2002013827



| | | | |
|---|---|---|---|
| (A06) COMMITTENTE .: | STAMPERIA DI MENZAGO SRL | | |
| (A07) ORDINAZIONE DEL COMMITTENTE .: | 2651 | | |
| (A01) STABILIMENTO PRODUTTORE .: | AOSTA, VIA PARAVERA 16 | | |
| (A05) REDATTORE DEL DOCUMENTO .: | SERVIZIO QUALITA' | | |
| (A08) CONFERMA D'ORDINE DEL PRODUTTORE : | 25006199 /40 | (A04) SIGLA STABILIMENTO PRODUTTORE .: | COGNE |

| | | | |
|---|---|---|---|
| SPECIFICA : | CAS-E | REGOLA TECNICA : | EN 10272(00) PED 97/23/CE |
| (B01) PRODOTTO .: | 721 PEL Pelati Tondi ISOK11 | | |
| (B04) STATO DI FORNITURA .: | RL Ricotto Lavorabile | | |
| (B11) DIMENSIONI DEL PRODOTTO (MM): | 35,000 | (B12) LUNGH. DEL PRODOTTO (MM): | 06000 /06200 |
| (B02) QUALITA' ACCIAIO .: | WN.1.4006 | MARCA INTERNA : | 410 6 1.4006 |
| (B08) NUMERO DI COLATA .: | 172969 | (B07) NUMERO DI SCHEDA .: | 634410 |
| (B06) MARCATURA DEL PRODOTTO .: | | SIGLA SOST. N. COLATA : | 441 |

CONFORMITA' ALLA NORMA EN 10088/3 WN.1.4006
CONFORMITA' ALLA NORMA DIN 17440 (01) W.1.4418
CONFORMITA' ALLA NORMA NFA 35 574 Z10 C 13
CONFORMITA' ALLA NORMA NFA 35 574 Z13 C 13
CONFORMITA' ALLA NORMA ASTM A276 TP. 410 COND. A
CONFORMITA' ALLA NORMA ASTM A479 TP. 410 COND. 1
CONFORMITA' NORMA SS2302
CONFORMITA' ALLA NORMA ASTM A182 F6A CL. 1-2

(C71) COMPOSIZIONE CHIMICA - ANALISI DI COLATA

Ref. 020000059901

| ELEMENTI | C | Si | Mn | P | S | N | Al | Cr | Mo | Ni |
|---|---|---|---|---|---|---|---|---|---|---|
| OTTENUTO | 0,110 | 0,370 | 0,560 | 0,021 | 0,023 | 0,045 | 0,004 | 12,200 | 0,030 | 0,170 |
| ELEMENTI | Cu | | | | | | | | | |
| OTTENUTO | 0,070 | | | | | | | | | |

PROVA DI DUREZZA ALLO STATO DI FORNITURA

Ref. 020000060292
NORMA EN 10003 PROVA DI DUREZZA HB
OTTENUTO 182,0

PROVA DI TRAZIONE ALLO STATO DI FORNITURA

Ref. 020000060292
NORMA EN 10002 (C02) ORIENTAMENTO DELLE PROVETTE: L

| | RM | RP02 | A5 | Z |
|---|---|---|---|---|
| UNITA' DI MISURA | NMM | NMM | % | % |
| OTTENUTO | 618,00 | 388,00 | 5.0 D<br>49,00 | 75,00 |

20 DIC. 2002

Quality Assurance
P.C. STEFANI VITTORIO
Sign.

FABBRICAZIONE AL FORNO ELETTRICO + AOD + COLATA CONTINUA
IL MATERIALE NON E' STATO CONTAMINATO DA MERCURIO
IL MATERIALE E' STATO CONTROLLATO AL 100% X ANTIMISCUGLIO
CONTROLLO VISIVO SUPERFICI E DIMENSIONI: CONFORME.

COGNE ACCIAI SPECIALI S.R.L.
11100 AOSTA - STRADA PARAVERA, 16
TEL +39.0165.[illegible] - FAX +39.0165.302296
CAP. SOC. 40.[illegible].000.000 INT. VERS.
VAT: IT00571320076
P.I. 00571320076 C.F. 02187360987
REG. IMP. AO003 - 7234 REA 60474

(A02) CERTIFICATO DI COLLAUDO SECONDO DIN 50049/EN 10204 - 3.1.B

(A03) NUMERO DEL DOCUMENTO 2002013827



NON E' STATA ESEGUITA ALCUNA RIPARAZ. DEL MATERIALE MEDIANTE SALDATURA
LA FORNITURA E' CONFORME ALLE PRESCRIZIONI CONTRATTUALI
CONFORMITA' ALLA NORMA EN 10278.
MATERIALE PRODOTTO IN UN SISTEMA DI G.D.Q. IN ACCORDO CON LE NORME
UNI EN ISO9002.94 E QS-9000 ED.3 MAR.98 (QUEST'ULTIMA SOLO PER BARRE IN
ACCIAO LAMINATE-PELATE-RETTIFICATE), CERTIFICATO DA I.G.Q.

20 DIC. 2002

[illegible]

Quality Assurance

P.C. STEVANI VITTORIO

Sign. [signature]

STAMPERIA DI MENTASTI S.r.l.
SERVIZIO CONTROLLO QUALITA'
22/4/02

(Z01) DATA 19.04.2002

FIRMA AUTORIZZATA DALLA A.Q. Cogne Acciai Speciali S.r.l.

UGINE-SAVOIE IMPHY
Groupe Arcelor

Siège Social : Ugine-Savoie Imphy S.A.
Avenue Paul Girod
73400 UGINE, FRANCE
IDENT. TVA : FR 89 410 436 158

| Bolla/N°BL/DL N°/Lief. | N° Certificat./Prüf N° | Produttore/Usine produc./Manufact./Herstell. |
|---|---|---|
| 316698 | 69383 | F00002 |

# RELEVE DE CONTROLE (1)

SELON EN 10204 PARAGRAPHE 4
Texte certificat de conformité
Texte certificat de conformité

Texte type cert. conformité édité - fctc

Prodotto - Erzeugnisform - Produit - Product: BARRE RONDE IMA 4006-410 40,0 K13 — LAMINE DECALAM. RECUIT

Cliente e/o destinatario - Client et/ou destinataire - Besteller und/oder Empfaenger - Purchaser and/or Consignee: UGINE-SAVOIE ITALIA SRL

N° ordine cliente - Votre référence - Ihre Auftrag Nr - Your reference: TECNOMEC 311080390 MI/LIMETTI

Qualità e specifiche tecniche - Nuance et spécifications techniques - Stalsorte und Pruefbedingungen - Quality and Specifications: IMA 4006-410 K13 — X12CR13/NFEN 10088-3 /1.4006 - AISI410/ASTM A182/F6A CLASS 2

Stato di fornitura - Etat de livraison - Lieferzustand - As delivered (1): LAMINE DECALAM.

Stato metallurgico - Etat métallurgique - Heat treatment condition - Lieferzustand: RECUIT

| N° Conferma d'ordine / Accusé de reception / Auftragsbest N° / Acknowledgment N° | Posizione / N° Poste / Post Nr / Item N° | N° lotto interno / N° de lot interne / Interne los.Nr / Internal batch N° | Profilo / Profil / Profile / Shape | Dimensione / Dimension / Abmessung / Size | Tolleranza / Tolérance / Toleranz / Tolerance | Lunghezza / Longueur / Laenge / Length | Peso netto / Masse / Gewicht / Weight |
|---|---|---|---|---|---|---|---|
| 311652437 | 1 | 4476446 | BARRE RONDE | 40,0000 | K13 | | 160,000 |

| N° Colata / N° de coulée / Schmelz Nr / Heat N° | Lotto fornitore / Lot producteur / Lieferant los / Master batch | Trazione - Traction - Zugversuch - Tensile test: Lim. di snervamento / Limite d'Elasticité / Streckgrenze / Yield Strength 0,2 % | Lim. di snervamento / Limite d'Elasticité / Streckgrenze / Yield Strength 1 % | Carico di rottura / Résistance tract. / Zugfestigkeit / Tensile strength | Allungamento % | Strizione % | Resilienza - Résilience - Kerbschlagzaehigkeit - Notch Toughness: Forma / Type / Form / Type | Valori / Valeurs individuelles / Einzelwerte / Individual values | Media / Moyenne / Mittelwerte / Average | Durezza / Dureté / Haerte / Hardness |
|---|---|---|---|---|---|---|---|---|---|---|
| | | RP02 N/MM2 | | RM N/MM2 | AL | Z | | | | HB |
| 339086 | 7CR61000 | 599 | | 740 | 23 | 73 | | | | 222 |

| | | C | SI | MN | P | S | N | CR | CU | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 339086 | 7CR61000 | 0,112 | 0,320 | 0,420 | 0,025 | 0,027 | 0,054 | 12,010 | 0,134 | | |
| | | NI | | CO | | | | | | | |
| 339086 | 7CR61000 | 0,330 | | 0,019 | | | | | | | |

Test : (1 = OK)

339086

C.INT = Corrosione intergranul — EDD.C = Controllo non distrutt — P.PN. = Prova pneumatica — C.MES = Contr. antimescolement
SCHI. = Schiacciamento — FLANG = Flangiatura — REVFL = Applatt. saldatura (Re — P.RET = Essai de retournement

EN 10204 / 3.1.B AISI 410 X12CR13 NF EN10088-3 1.4006 IMA 4006 BARRE A CHAUD RON DE TOL.13 TRAITEE DECALAMINEE

Note - Notes - Remarks - Bemerkungen

27 APR. 2004

DOUGLAS CHERO Spa

Quality Assurance .....

P.C. STEVANI VITTORIO

Sign. .....

Le 19/11/03

Signature de l'inspecteur

Resp. controllo qualità
Resp. contrôle qualité
Sachverstandiger
Quality control Mgr

Controllo marcatura, visivo e dimensionale : soddisfacente. Si certifica che i prodotti sopra descritti sono conformi alle prescrizioni dell'ordine (1)
L'analisi chimica è copia conforme a quella presente sul certificato del produttore

Contrôle de marquage, d'aspect et de dimensions satisfaisant. Nous certifions que le présent document reproduit avec exactitude les données du certificat producteur. L'analyse chimique a été relevée du certificat de la matière première.

Bezeichnung, besichtigung und ausmessung : Ohne beanstandung. Wir bestatigen hiermit dass die obengenannten erzeugnisse den bestellung vorschriften entsprechen. Die chemische zusammensetzung entspricht den lieferanten analyse.

The chemical analysis results are true and correct copy of the raw material supplier's certificate.
Marking, inspection and measurement : Without objections. We certify that the above mentioned products are consistent with the order prescriptions.

TORNERIA MECCANICA
**VINCENZO MOLINARI**
29100 Piacenza Italy - Via S. Bartolomeo, 136
Tel. 0523/59.32.81 - Fax 0523/59.27.47
R.E.A.PC N° 106098 - R.I. PC N° 28139/1996

SINCERT

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 3.1 B
N° 0312657/2003

DATE 30/04/2003

CLIENTE / *PURCHASER* DOUGLAS CHERO S.P.A. 00433450

COMMESSA N° / *JOB N°* 030617

ORDINE N° / *ORDER* 230826 14/04/2003

NOTE / *REMARKS*

DESCRIPTION OF MATERIAL: STUD BOLTS B16.5 ASTM A 193 -01b B16 (QT) (MT)
01) N. 200 D.5/8"UNC x 110

**MECHANICAL REQUIREMENT**

| | R N/mm2 | Rp N/mm2 | A % 50mm | Z % | KV/J | HB | HB 24h Proof 540C * LoadKN |
|---|---|---|---|---|---|---|---|
| REQUIRED MIN | 860 | 725 | 18 | 50 | | | |
| REQUIRED MAX | | | | | | 321 | |
| 01) | 940 | 820 | 19.6 | 60.0 | | 288 | |

**CHEMICAL ANALYSIS**

| HEAT N° | C | Mn | Si | P | S | Ni | Cr | Mo | V | Ti |
|---|---|---|---|---|---|---|---|---|---|---|
| REQUIRED MIN | 0.360 | 0.450 | 0.150 | | | | 0.800 | 0.500 | 0.250 | |
| REQUIRED MAX | 0.470 | 0.700 | 0.350 | 0.035 | 0.040 | | 1.150 | 0.650 | 0.350 | 0.015 |
| 01) 90620 | 0.430 | 0.550 | 0.280 | 0.019 | 0.003 | | 0.900 | 0.600 | 0.275 | 0.005 |

06 MAG. 2003
**DOUGLAS CHERO Spa**
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

WE CERTIFY THAT OUR TEST RESULTS WITH REQUIREMENTS OF THE PRODUCT DESCRIPTION. CONF. TO DIN 50049 3.1 B.
(QT):HEAT TREATMENT: QUENCHED TEMPERED (CST):CARBIDE SOLUTION TREATED
(MT):MINIMUM TEMPERING: 660 C
(H):HARDENED (N):NORMALIZED (SB):STABILIZED (SH):STRAIN HARDENED
(ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C

WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED ABOVE HAS BEEN TESTED AND COMPLIES WITH THE TERMS OF THE ORDER CONTRACT

Q. A. MANAGER
*Dott. Ing. V. MOLINARI*

Officina Meccanica
**VINCENZO MOLINARI**
Via S. Bartolomeo, 136
29100 PIACENZA

# MECCANICHE MORANDI s.r.l.

**VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM**

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948
E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129


**CERTIFICATO DI COLLAUDO** 3z11170c
Inspection certificate

N°5883/DCH DATE-09.02.04

CLIENTE- DOUGLAS CHERO Spa ORDINE- 049 BOLLA CONSEGNA N-430
Customer Order Delivery note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| 1 | 205 | DADI-NUTS 5/8 UNC | Astm A194 GR.4 | T7551A |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | C | Mn | Si | Mo | S | P |
|---|---|---|---|---|---|---|
| REQUIRED min. | 0,40 | 0,70 | 0,15 | 0,20 | | |
| VALUE max. | 0,50 | 0,90 | 0,35 | 0,30 | 0,040 | 0,035 |
| HEAT n. T7551A | 0,42 | 0,82 | 0,21 | 0,25 | 0,031 | 0,006 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

Hardness test during production
Required value : 24-38 Hrc
Actual : 24-28 Hrc

Hardness test after 24 hrs. tempering at 590 °C
Required value : 201 HB min.
Actual : 235 HB

Impact test KV - 101 °C Minimum impact for average test : 20(27) ft.lbf.(J)
Minimum impact for one specimen : 15(20) ft.lbf.(J)

Single values : 24-22-24 ft.lbf.
Average : 23 ft.lbf.

HEAT TREATMENT
Quenched at : 860 °C in oil
Tempering : 2 hours at 595 °C min.

Proof load test: SATISFACTORY
Visual and dimensional test = SATISFACTORY

13 FEB. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

This certificate has been tested in according with the specification included in your order.

QUALITY CONTROL

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

# FRATELLI RISETTI S.R.L.

21048 SOLBIATE ARNO (VA) - VIA TRIESTE, 4 - TELEFONO 0331/893.440-893.356 - STAB. VIA COLZANI, 41
TELEFONO 0331/994.088 - FAX 0331/992.247 - TELEGR. RISETTI - SOLBIATE ARNO - CASELLA POSTALE N. 15
REG. FOR F. S. 09037 - REG. IMPR. VARESE VA 026.21500 - ISCRIZIONE TRIBUNALE BUSTO A. 21500
COD. MECC. VA 010925 - PARTITA IVA IT 01773060122 - CODICE FISCALE 01773060122


OMOLOGATI TÜV SÜDWEST

## CERTIFICATO PROVE MATERIALI

TEST CERTIFICATE
WERKSABNAHMEZEUGNIS
CERTIFICAT D'EMPREUVES

ACCORDO DIN 50049 3.1/B
EN 10204 /91-3.1/B

N. 210783 00198820

Data - Date - Datum - Date: 14.06.2001

| Ordine del Cliente - Customer's - Bestellung - Commande du Client | Ns. Commessa - Mill order - Unsere Auftragsbestätigun Notre Configuration de Commande | Bolla di consegna - Delivery bill Lieferschein - Bulletin de livraison |
|---|---|---|
| 210242 DEL 21.02.01 DOUGLAS CHERO SPA | › | › |

| POS. ITEM POST | Quantità Quantity Stückzahl Quantité | DESCRIZIONE SPEDIZIONE - DESCRIPTION OF DELIVERY - UMFANG DER LIEFERUNG - DETAILS DU LOT<br>Descrizione - Description - Beschreibung - Description | Disegno - Drawing - Zeichnung - Dessin | Norma di collaudo - Test specification - Abnahmenorma - Specification | |
|---|---|---|---|---|---|
| 1 | 41 | CAPPELLO 1.1/2"1500 BB SIP. | 6/10.1 | A182 F11 | › |
| | › | SBV.SABBIATO | › | › | › |
| | › | › | › | › | › |

ANALISI CHIMICA - CHEMICAL ANALYSIS - CHEMISCHE ZUSAMMENSETZUNG - COMPOSITION CHIMIQUE

| Codice di identificazione forgiato sui pezzi - Heat identification code stamped on forging pieces | Colata N. - Heat No. - Schmelze Nr. - No. de Coulée | C % | Si % | Mn % | Ni % | Cr % | S % | P % | Mo % | Cu % | Sn % | Al % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| H78 | 55535 | 0,131 C.E. % | 0,571 F.B. % | 0,530 Ti % | 0,139 V % | 1,123 | 0,006 | 0,009 | 0,456 | 0,190 | › | 0,0060 |
| › | › | › | › | | 0,006 | › | › | › | › | › | | |
| › | › | | | | | | | | | | | |

PROPRIETÀ MECCANICHE - MECHANICAL PROPERTIES - MECHANISCHE EIGENSCHAFTEN - ESSAIS MECANIQUES

| Colata N. - Heat No. - Schmelze Nr. - No. de Coulée | Lega - Alloy - Legierung - Alliage | Provetta - Test bar - Probestab - Echantillon | Rs (N/mm²) Snervamento - Yield Point - Streckgrenze - Limit d'élasticité | R (N/mm²) Rottura - Tensile strenght - Zugfestigkeit - Rupture | A (%) Allungamento - Elongation - Dehnung - Allongement | Z (%) Contrazione - Red. of area - Einschnürung - Contraction | HB Hardness on forging pieces | Resilienza - Resilience - Kerbschlagzähigkeit - Resil. Charpy V - Notch at minus › |
|---|---|---|---|---|---|---|---|---|
| 55535 | › | › | 464 | 612 | 24,6 | 64 | › | KV(J) › |
| › | › | › | | | | | | KCU(J)› |
| › | › | › | | | | | | |
| › | › | › | | | | | | |
| › | › | › | | | | | | |

18 GIU. 2001
DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.

| Trattamento Termico - Thermal Treatment - Thermische Behandlung - Traitment Thermique | NORMALIZZAZIONE E RINVENIM. › |
|---|---|

| JOMINY Nora. › Tespra › | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | mm | 1,5 | 3 | 5 | 7 | 9 | 11 | 13 | 15 |
| | HRC | › | › | › | › | › | › | › | › |
| | mm | 20 | 25 | 30 | 35 | 40 | 45 | 50 | |
| | HRC | › | › | › | › | › | › | › | |

GRANO AUSTENTICO austenite grain size check: › Metodo: ISO 643-UNI3245-ASTM E112

Final Control on forging pieces and found: ›
Sandblasting SA 2 1/2: ›
Marking on pieces: ›
Visual inspection: ›
Dimensional control: ›
Hardness test: ›

UFFICIO COLLAUDI - Inspection Department - Prüfungsabteilung - Bureau contrôle
Quality Assurance
Sign.

# SORBIT S.R.L.

SINCERT

CERTIFICATO DI COLLAUDO DOPO T.T.

IN ACCORDO EN 10204-3.1.B

| DOCUMENTO / DOKUMENT | DATA / DATUM |
|---|---|
| L 4944/ 1 | 08/06/2001 |
| N. BOLLA / LIEFERSCHEIN NR. | DATA BOLLA / LIEFERSCHEIN DATUM |
| 237 | 06/06/2001 |

| COD. CLIENTE / AUFTRAGGEBER | COD. | MATERIALE / WERKSTOFF | SPESS. MAX / MAX DICKE |
|---|---|---|---|
| 892 OFF.MECC.F.LLI RISETTI SRL | F112 | F11 Cl.2°A182 | 60 |

| PEZZO / STÜCK | N. DISEGNO / ZEICHNUNGS-NR. | ORDINE / BESTELLUNG | COMMESSA / AUFTRAG | N. COLATA / SCHMELZE-NR. | RICHIESTE / ANFRAGEN | QUANTITA' / ANZAHL | PESO Kg. / GEWICHT/Kg. | CONTENITORI / BEHALTER |
|---|---|---|---|---|---|---|---|---|
| CAPPELLI | 6/10.1 | | | H78 | HB 143-207 | 41 | 390,0 | CASSONI 1 |

## LAVORAZIONE E/O TRATTAMENTO TERMICO RICHIESTO / DIE VERLANGTE AUSFUHRUNGV / O WARMEBEHANDLUNGS

| COD. | DESCRIZIONE / BESCHREIBUNG | T. PARTENZA °C / AUSGANGS-TEMP. | t. SALITA h. / AUFHEIZZEIT | T. PERM.°C / BIBBMPERATUR | t. PERM. h / HALTEZEIT | RAFFREDD. / ABKUHLEN | FORNO N. / OFEN | SPECIFICHE / SPEZIFIKATION |
|---|---|---|---|---|---|---|---|---|
| TDH | NORMALIZZAZIONE A.T. | | | 970 | 1,50 | ARIA | 10/1 | P-07/6 |
| R | RINVENIMENTO | | | 680 | 3,00 | ARIA | 8 | |

ALTRE RICHIESTE / SONSTIGE ANFRAGEN

DTT 10057

% PROVA / PROBEN ddc

## COLLAUDO / ABNAHMEPRUFUNG

DUREZZE RILEVATE

HBS 156

PEZZI PROVATI / PRUFGGENSTAND

1

NOTE / BEMERKUNGEN

DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.

ALLEGATI / ANLAGEN

IL RESPONSABILE CONTROLLO QUALITA' / DER WERKSSACHVERSTANDIGE

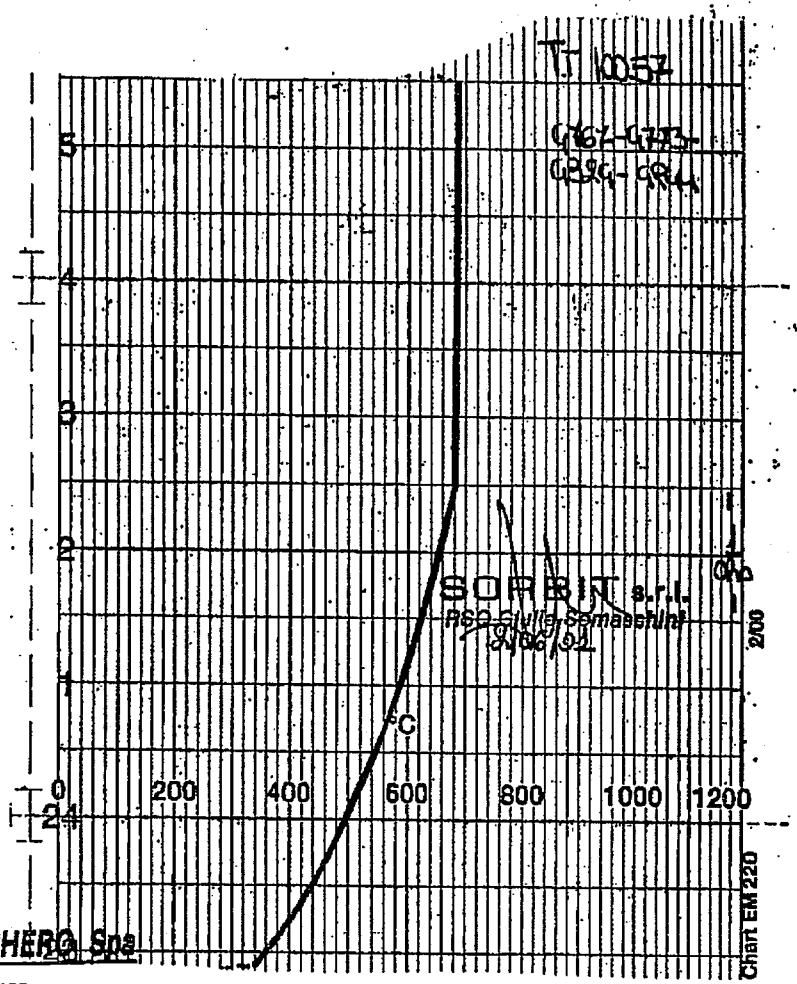
SORBIT S.r.l.
p.p. Somasci

DATA / DATUM 12/ 6/2001

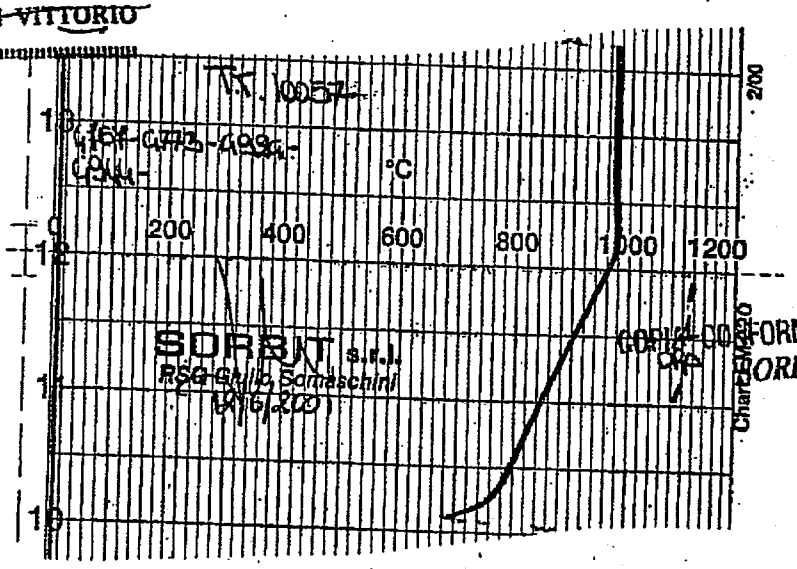
| Scheda n. | Data | Revisione | Chi archivia |
|---|---|---|---|
| S-10/1 | 04/95 | 0 | RSQ |

TÜV

AD-Merkblatt W0/HP 0 /11/TDR 100




DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.




CONFORME ALL'ORIGINALE
SORBIT CQ

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

**CERTIFICATO DI COLLAUDO**
**ABNAHMEPRUEFZEUGNIS**
**INSPECTION CERTIFICATE**
**CERTIFICAT DE RECEPTION**
**EN 10204 , 3.1.B**

Cliente / Bestaller/Purchaser/Client
ARCOSS SNC DEI F.LLI ASSOLARI
VIA LEVATA N.19/A
24068-SERIATE (BG)-BG

Produttore: STABILIMENTO DI BOLZANO
Hersteller/Item/Usine productrice

Avviso di Spedizione: A-
Lieferanzeige/Packing Ref.n.

Ordine nr: ORD.DEL 25 10 04
Bestell/Your order/Commande

Certificato nr: MEST151937/2004/
Prüfung/Test/Essai

Conferma ordine nr: MI04007506
Works/Our Order/Ref nr.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de fusine productrice

Oggetto Prove: - Ricotto lavorabile Pelato
Prüfgegenstand/Item inspected/Finissage

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'elaboration

Punzone del Collaudatore:
Stempel des Werksachverständigen
Inspector's stamp/Poinçon de l'assayeur

Specifiche:
Anforderungen / Requirements / Exigences

VAL STOCK 2004 1.4006/410 A
ASME (1) SA479 2001 S41000 A (1)
ASTM A479 2004 S41000 A
(0) SEC.II PT.A 2001 EDITION ADD.2002
AISI 410
ASTM A182 2002 S41000 CLASS2 (2)
EN 10088-3 95 1.4006 A
ASME (1) SA182 2001 S41000 CLASS2 (0)
ASTM A276 2004 S41000 A
EN 10272 2000 1.4006 A
(1) SEC.II PT.A 2001 EDITION ADD.2002
(2) Chemical analysis only and mecc.properties(for ASTM A182[M])

Qualità: 1.4006/S41000
Werkstoff/Grade/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Nuance

Punzonatura: 1.4006/S41000
Kennzeichnung/Marking/Marquage

| Pos. nr. Pos. nr. Item nr. Nr. de poste | Oggetto Gegenstand Product description Descrip. del produit | Dimensioni - mm Abmessungen Dimension Dimension | Tolleranza Toleranz. Allowance Tolerance | Lunghezza - mm Länge Length Longueur | Colata Schmelze Heat Coulée | Pezzi Stückzahl Pieces Pieces | Peso - KG Gewicht Weight Poids | Lotto nr. Losnr. Lot nr. Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0030 | Tondo | 30,000 | K12-MIN | 5000 / 5500 | 238210 | 1 | 504,0 | 411101050 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind in Anlage erfüllt.
The material has been found in accordance with the requirements
Le materiel a été trouvé conforme aux exigences

Controllo antimescolanza: OK
Verwechslungsanalyse: spektralanalytisch durchgeführt
Anti-mixing test has performed: OK
Contrôle antimélange fait r.a.s.

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional check:satisfactory
Contrôle visuel et dimension: satisfaisant

| TEST | Provetta/Prüfstück Test piece Eprouvette Long./Lem./Lungh. Width/Diam./Thickness Larg./Diam./Epais. mm | | | °C | Pesiz. Saggio Prüfungs Epreuve | Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2 | Snervamento Streckgrenze Yield Stress Limite elastique | Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2 | Allungamento Bruchdehnung Elongation Allongement A5 % | | Strizione Einschnürung Reduction of area Striction Z % | | Resilienza Kerbschlagarbeit Impact Value Resilience | | Durezza Härte Hardness Dureté HB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 Anforderungen/Required values Valeurs demandées | | | | min max | | 380 | - | 585 730 | - | 20 | - | 45 | - | | 167 220 | | |
| A | 10.00 | 20 | L | | | 411 | | 679 | 32 | 34 | 69 | 69 | | | 210 | | |

1)L=longitudinale/Longs, Q=trasversale/quer, T=Tangenziale/tangential

## Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata /Heat Schmelze/Coulée | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min 0,080 max 0,150 | - 1,00 | - 1,00 | 11,50 - 13,50 | - 0,50 | - 0,040 | - 0,030 | - - | - - | - - | - - | - - | - - | - - | - - | - - |
| 238210 | 0,129 | 0,40 | 0,74 | 12,31 | 0,29 | 0,021 | 0,025 | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,s.,4.3 by TUEV and LLOYD'S

COPIA CONFORME ALL' ORIGINALE
ACCIAIERIE VALBRUNA S.P.A.
FILIALE DI GERMANO

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

| Bolzano,05/10/04 Mod.ABBL011 | Il collaudatore di stabilimento / der Werkssachverständige / Works Inspector / L'agent d'usine. R.Cristel | Pagina - 1 di 1 |
|---|---|---|

242389 /01

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** / Customer: *Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt*

**Bestell-Nr.:** / Order no.: *Lurgi Job – No.: 69690-10*
*Lurgi OGC PO.-No.: 4567569-000 to -001/1.69690/136*

*Project Name :* *2nd Zagros Methanol Plant - Iran*

**Auftrag-Nr.:** / Job no.: *HH – 02535*

**Lieferumfang** / range:

| Pos | Stck. pcs. | Gegenstand object | DN | PN | Werkstoff material | Bemerkung comment |
|---|---|---|---|---|---|---|
| 00210 | 38 | Gate valve<br>FB BB NPT+2<br>Weld.Nipples Sch.80. 3,73mm<br>Seats + Wedge Stell. | 1/2" | Cl.1500 | A182/F11 C.2 | Valve Ident – No.: " S422 " |

**Auslegung + Prüfung nach** / Design and tests acc. To: API 602 – BS EN ISO 15761, API 598 / BS EN 12266-1
ASME B16.34 – B16.25 – B16.11 – B1.20.1

**Sicht- und Funktionsprüfung:** / visual and functional test: *o.k.*

**Festigkeits-/Dichtheitsprüfung:** / strength-/tightness-test:

| | | | |
|---|---|---|---|
| *Festigkeit / shell test* | = | *388 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *285 bar Wasser / water* | (60 sec) |
| *Rückdichtung / backseat* | = | *285 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *6 bar Luft / air* | (60 sec) |

**Prüfungsergebnis:** / result: *ohne Beanstandung !* / *no complaint !*

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** / enclosure *Dokumentation gemäß Material-Dokumentationsdeckblatt* / *Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter / Person in charge W. Glass

Kommissions-Nr. / Reference No.: **HH-02535**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 000 to -001/ 1.69690 / 136**

Project Name: **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00210 | Gate Valve 1/2" Cl. 1500 lbs. FB, BB, NPT+2 Weld.Nippl. Sch.80 seats+wedge stel. 3,73mm | " S422 " | 38 | Body | E-YO | A182/F11 C.2 | Evasi e Casteln. | 10094 | | 000455 |
| | | Drawing-No.: BX652-7/TH-2N8 | | Nipp.sc.80 | 587005 | ASTM A335/F11 | Benteler | 587005 | | 41-237486/001 |
| | | | | Wedge | | A182/F6a C.2 stel. | Valbruna | 238209 | | 128331/2004 |
| | | | | Seat | | A182/F6a C.2 stel. | Valbruna | 231414 | | 5097/2000 C |
| | | | | Body Srew | | ASTM A193/B16 | Morandi | AQ2869 | | 6126 |
| | | | | Bonnet | FB-VN | A182/F11 C.2 | Feat | 52828 | | 2004/3004446 |
| | | | | Bonnet | B-DBX | A182/F11 C.2 | Bonomi | 441894 | | 050119 |
| | | | | Stem | | A182/F6a C.2 | Ugitech | 417024 | | 06902 |
| | | | | | | | | | | |
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26834

PAG. 1


# Evasi e Castelnuovo s.r.l.

Via Carlo Porta, 1 - 23861 CESANA BRIANZA (LC)
Tel. 031/65.59.36 - Fax 031/65.66.27
Cod. Fisc. e Part. IVA 00209790138
Reg.Soc. Trib. Lecco n. 5932 - C.C.I.A. 121373


Spett.
DOUGLAS CHERO SPA

LOC. PRADAGLIE
29013 CARPANETO PIACENTINO PC

***CERTIFICATO DI COLLAUDO/INSPECTION CERTIFICATE***
***UNI EN 10204 3.1 B***

***SISTEMA QUALITA' CERTIFICATO UNI EN ISO 9001/2000***
***QUALITY SYSTEM CERTIFIED UNI EN ISO 9001/2000***

| N. | DATA/DATE |
|---|---|
| 000455 | 07-12-2004 |

D.D.T. / DELIVERY NOTE
N. DATA/DATE

| COLATA /HEAT N. | MATERIALE/MATERIAL | ACCIAIERIA/STEEL PLANT | N.QUANTITY | DESCRIZIONE/DESCRIPTION |
|---|---|---|---|---|
| 10094 | F11 | INTERACCIAI | 235 | CORPO 4/9 |

## ANALISI CHIMICA / CHEMICAL ANALYSIS

| C | Mn | Si | P | S | Cr | Ni | Mo | Ti | V | Cu | Al |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,117 | 0,400 | 0,530 | 0,009 | 0,009 | 1,090 | 0,120 | 0,470 | | 0,005 | 0,170 | 0,027 |

| Sn | Nb | N | Fe | W | Ta | Co | Ca | B | Sb | | CE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,011 | | | | | | | | | | | |

## PROVE MECCANICHE/MECHANICAL TESTS

| RS-YELD N./mm² | R-TENSILE N./mm² | A%-ELONG | Z%-REDUCT |
|---|---|---|---|
| 365,0 | 487,0 | 35,0 | 75,0 |

*IMPACT TEST - KV - J*

| TEST 1 | TEST 2 | TEST 3 | TEMP. °C |
|---|---|---|---|
| | | | |

| TRADE MARK | HEAT CODE | MATERIAL CODE | MATERIAL TYPE NR. | DWG |
|---|---|---|---|---|
| E.YO | | | | |

13 DIC. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

*TRATTAMENTO TERMICO / HEAT TREATMENT*

| DESCRIPTION | HEATING °C | STAY TIME | COOLING | HARDNESS |
|---|---|---|---|---|
| NORMALIZZAZIONE | 960 | 2,3 | ARIA CALMA | |
| RINVENIMENTO | 730 | 3,0 | ARIA CALMA | |

1) The result of chemical analisys is a true and correct copy of the mill cerificate issued,by the manufacturer of the steel employed, or by the laboratory which has determined it.
*Il risultato delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati*

2) Visual and dimensional control satisfactory.
*Controlli visivi e dimensionali soddisfacenti.*

3) Results of test effected are in conformance with order's specifications.
*I risultati delle prove eseguite sono conformi alle specifiche richiesta.*

4) We confirm that materials used for the manufacture of supplied products are in conformance with the Directive 97/23/CE (PED); in particular with annex 1 par. 4 "Materials".
*Confermiamo che i materiali usati per lo stampaggio dei prodotti forniti sono conformi alla Direttiva 97/93/CE (PED) e particolarmente all'allegato 1 paragrafo 4 "Materiali".*

| APPROVATO/APPROVED |
|---|
| COLLAUDATORE/INSPECTOR |
| EMESSO/ISSUED |

EVASI E CASTELNUOVO s.r.l.
STAMPERIA IN FERRO E ACCIAIO

TAD COMMERCIALE
QUESTO DOCUMENTO È RIPRODOTTO MEDIANTE UN SISTEMA COMPUTERIZZATO ED È CONFORME ALL'ORIGINALE
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Benteler Stahl/Rohr GmbH & Co. KG
Postfach 1340, D-33043 Paderborn
Tel.: (05254) 81-0 Telex: 936866
Telefax: (05254) 13666

BENTELER

DOUGLAS CHERO SPA
TAD JOB N.1 266676 00 POS. 002 NR 4 MT 31,09 KG P.O. 551-516 VEDI ITEM 50,00 HEAT/COLATA N.587005



# ABNAHMEPRÜFZEUGNIS EN 10204-3.1 B
INSPECTION CERTIFICATE EN 10204-3.1 B
CERTIFICAT DE RECEPTION EN 10204-3.1B

Dokument-Nr.: 41-237486/001/2612
Document No.:
No. de document:



Kunden-Bestell-Nr.: 99 L 991293 3056/BAG/99
Purchaser Order No.:
No. de commande client:

Benteler Stahl/Rohr GmbH & Co. KG - Postfach - D-33043 Paderborn

TAD, VIA CANOVA N. 36
I-20020 LAINATE - MI
QUALITY ASSURANCE, MR. CAPRERA

Benteler-Auftrags-Nr.: 4139-2348
Benteler Order No.:
No. de commande Benteler:

Versandanzeige-Nr.: 41-58232
Dispatch note No.:
No. d'avis d'expédition:

Produkt: NAHTLOSE STAHLROHRE
Product: SEAMLESS STEEL TUBES
Produit: TUBES D'ACIER SANS SOUDURE

Stahlsorte: P 11
Steel grade:
Nuance d'acier:

Hersteller: Benteler Stahl/Rohr GmbH & Co. KG
Manufacturer: WERK SCHLOSS NEUHAUS
Producteur:

Herstellerzeichen:
Manufacturer's brand:
Marque du producteur:

Stahlerschmelzungsverfahren: ELEKTROOFEN
Steelmaking process: ELECTRIC FURNACE
Procédé d'elaboration de l'acier: FOUR ELECTRIQUE

Stempel des Sachverständigen: WA
Inspector's stamp:
Poincon de l'expert:

| | |
|---|---|
| **Lieferbedingungen:**<br>Terms of delivery:<br>Conditions de livraison: | ASTM-A 335-95A-HFS, ASME SA-335-HFS AUS ASME SECTION II PART A EDITION 98 ADDENDA 99, NACE MR 0175-99, TAD DOCUMENT NO: TG.003 REV: 1<br>ASTM-A 335-95A-HFS, ASME SA-335-HFS ACC. TO ASME SECTION II PART A EDITION 98 ADDENDA 99, NACE MR 0175-99, TAD DOCUMENT NO: TG.003 REV: 1 |
| **Maße - Toleranzen:**<br>Dimensions - tolerances:<br>Dimensions - tolérances: | ASME B 36.10 M-96, ASTM-A 530M-96A, ASME SA-530M-98<br>ASME B 36.10 M-96, ASTM-A 530M-96A, ASME SA-530M-98 |
| **Lieferzustand:**<br>Delivery condition:<br>Etat de livraison: | NORMALISIERT UND ANGELASSEN / NORMALISIERT 950 GRD C, / HALTEZEIT 5 MINUTEN, / ANGELASSEN 750 GRD C, / HALTEZEIT 45 MINUTEN, / LUFTABKUEHLUNG<br>NORMALIZED AND TEMPERED / NORMALIZED 950 DEG C, / HOLDING TIME 5 MINUTES, / TEMPERED 750 DEG C, / HOLDING TIME 45 MINUTES / AIR COOLING |
| **Produktkennzeichnung:**<br>Product marking:<br>Marquage du produit: | FS : ▽ A335-SA335-HFS P 11 ABMESSUNG SCHMELZEN-NR S PRUEFDRUCK W A<br>PS : ▽ SCHMELZEN-NR<br>FS : ▽ A335-SA335-HFS P 11 DIMENSION HEAT-NO. S TEST PRESSURE WA<br>PS : ▽ HEAT-NO. |

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P.C. STEVANI VITTORIO
Sign.

FK = Farbkennzeichnung, color marking, marquage par couleur
PS = Prägestempelung, die stamped, marquage par poinçonnage
FS = Farbschablonierung, stenciled paint, marquage par peinture
PKE = Etikettenkennzeichnung, tag marking, marquage sur étiquette
TS = Tintenstrahlkennzeichnung, ink jet spray marking, imprimante à jet d'encre
LS = Längsschablonierung, longitudinal stenciled, marquage par longitudinal peinture

**Es wird bestätigt, daß die gelieferten Erzeugnisse den techn. Lieferbedingungen des Auftrages entsprechen.**
**We certify that the supplied products comply with the order specification.**
Nous certifions que les produits livrés sont conformes aux stipulations de la commande.

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Postfach 1340, D-33043 Paderborn
Tel.: (05254) 81-0 Telex: 936866
Telefax: (05254) 13668

BENTELER

**ABNAHMEPRÜFZEUGNIS EN 10204-3.1 B**
INSPECTION CERTIFICATE EN 10204-3.1 B
CERTIFICAT DE RECEPTION EN 10204-3.1B

**Dokument-Nr.:** 41-237486/001/2612
Document No.:
No. de document:



| Pos. Item Poste | Stück Number Nombre | Maße Dimensions Dimensions | | Länge Length Longueur (m) | Gewicht Weight Poids (kg) | Schmelzen-Nr. Heat No. Coulée No. | Prüfdruck Test pressure Pression d'épreuve |
|---|---|---|---|---|---|---|---|
| 001 | 399 | 21,30 X 3,73 MM | 6,00 - 8,00 M | 3096,24 | 4982 | 587005 | 2500 PSI 5 s |
| 002 | 224 | 21,30 X 4,78 MM | 6,00 - 8,00 M | 1527,68 | 3372 | 587005 | 2500 PSI 5 s |

**Schmelzenanalyse / Heat analysis / Analyse sur coulée [ % ]**

| Pos. Item Poste | Schmelzen-Nr. Heat No. Coulée No. | C | SI | MN | P | S | CR | MO | NI | CU | SN |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 001 | 587005 | 0,100 | 0,580 | 0,47 | 0,008 | 0,005 | 1,18 | 0,54 | 0,05 | 0,08 | 0,009 |
| 002 | 587005 | 0,100 | 0,580 | 0,47 | 0,008 | 0,005 | 1,18 | 0,54 | 0,05 | 0,08 | 0,009 |

**Produktanalyse / Product analysis / Analyse sur produit [ % ]**

| Pos. Item Poste | Schmelzen-Nr. Heat No. Coulée No. | C | SI | MN | P | S | CR | MO | NI | CU | SN |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 001 | 587005 | 0,110 | 0,600 | 0,46 | 0,005 | 0,004 | 1,21 | 0,53 | 0,06 | 0,08 | 0,007 |
| 002 | 587005 | 0,110 | 0,600 | 0,46 | 0,005 | 0,004 | 1,21 | 0,53 | 0,06 | 0,08 | 0,007 |

1.FORMEL J = (SI + MN) * (P + SN) * 10.000 < = 280

**Formelergebnisse / Formula results / Résultats des formules**

| Pos. Item Poste | Schmelzen-Nr. Heat No. Coulée No. | 1.Formel 1.Formula 1.Formule |
|---|---|---|
| 001 | 587005 | 176,500 |
| 001 | 587005 | 133,760 |
| 002 | 587005 | 176,500 |
| 002 | 587005 | 133,760 |

26 MAG. 2000
DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.

DOUGLAS CHERO SPA P.O. 551-516 VEDI ITEM
TAD JOB N.I 266676 00 POS. 002 NR 4 MT 31,09 KG 50,00 HEAT/COLATA N.587005

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Postfach 1340, D-33043 Paderborn
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Telefax: (05254) 13666

BENTELER

**ABNAHMEPRÜFZEUGNIS EN 10204-3.1 B**
INSPECTION CERTIFICATE EN 10204-3.1 B
CERTIFICAT DE RECEPTION EN 10204-3.1B

**Dokument-Nr.:** 41-237486/001/2612
Document No.:
No. de document:



La société Benteler AG garantit que les produits objet du présent certificat sont conforme à l'article 15 de l'arrêté ministeriel du 24 Mars 1976 modifié et respectent en leur totalité les exigences suivantes:
C = max. 0,25 %, P = max. 0,05 %, S = max. 0,05 %
Rm = max. 700 N/mm2, Re = max. 0,9 Rm
A = min. 18 %, Rm x (A-2) = min. 10500.

**Prüfergebnisse / Test results / Résultats d'essais**

| | | | | | |
|---|---|---|---|---|---|
| **Die Rohre sind auf Dichtheit geprüft durch:**<br>The tubes are submitted to a leak tightness test by:<br>Les tubes ont passés un contrôle d'étanchéité par: | WIRBELSTROMPRUEFUNG NACH ASTM-A 335, ASTM-E 309, ASME SA-335, ASME SE-309<br>WASSERDRUCKVERSUCH NACH ASTM A-530, ASME SA-530<br>EDDY CURRENT TEST ACC. TO ASTM-A 335, ASTM-E 309, ASME SA-335, ASME SE-309<br>HYDROSTATIC TEST ACC. TO ASTM-A 530, ASME SA-530 | | | | |
| **Die Rohre wurden zerstörungsfrei geprüft:**<br>The tubes are non destructive tested:<br>Les tubes ont contrôles non-destructif: | NICHT ZUTREFFEND<br>NOT APPLICABLE | | | | |
| **Augensichtkontrolle:**<br>Visual inspection:<br>Examen visuel: | BESTANDEN<br>PASSED | **Maßkontrolle:**<br>Dimension control:<br>Vérification des dimensions: | BESTANDEN<br>PASSED | **Materialverwechslungsprüfung:**<br>Material conformity test:<br>Vérification de la nuance: | BESTANDEN<br>PASSED |
| **Ringaufdornversuch:**<br>Ring expanding test:<br>Essai de dilatation d'anneux: | NICHT ZUTREFFEND<br>NOT APPLICABLE | **Beizscheibenprüfung:**<br>Etching test:<br>L'essai de l'attaque: | NICHT ZUTREFFEND<br>NOT APPLICABLE | **Bördelversuch:**<br>Flanging test:<br>Essai de rabattement de collerette: | NICHT ZUTREFFEND<br>NOT APPLICABLE |
| **Ringfaltversuch:**<br>Flattening test:<br>Essai d'aplatissement: | BESTANDEN<br>PASSED | **Biegeversuch:**<br>Bending test:<br>Essai de pliage: | NICHT ZUTREFFEND<br>NOT APPLICABLE | **Aufweitversuch:**<br>Drift expanding/flaring test:<br>Essai d'évasement: | NICHT ZUTREFFEND<br>NOT APPLICABLE |
| **Drifttest:**<br>Drifttest:<br>Contrôle de Mandrin: | NICHT ZUTREFFEND<br>NOT APPLICABLE | | | | |

**Die Probenahme erfolgte an Vielfachlängen.**
**The sampling was carried out on multiple lengths.**
L'échantillonage était réalisé aux longueurs multiples.

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Quality Assurance
P.C. STEVANI VITTORIO
Sign.

Zugversuch / Tensile test / Essais de traction

| Pos. Item Poste | Proben- Nr. Specimen No. No. d'éprouvette | Schmelzen-Nr. Heat No. Coulée No. | Probenabmessung Test bar dimension Dimensions de l'éprouvette | Streckgrenze Yield strength Limite élastique | Zugfestigkeit Tensile strength Résistance à la traction | Dehnung Elongation Allongement |
|---|---|---|---|---|---|---|
| Anforderungen Requirements Exigence | | | mm | ReH N/mm2 MIN 205 | Rm N/mm2 MIN 416 | A 2" MIN 30 % |
| 001 | 000001 | 587005 | 21,3 X 3,7 | 356 | 493 | 40,0 |

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Postfach 1340, D-33043 Paderborn
Tel.: (05254) 81-0 Telex: 936866
Telefax: (05254) 13666

BENTELER

DOUGLAS CHERO SPA P.O. 551-516 VEDI ITEM
TAD JOB N. 1 266676 00 POS. 002 NR 4 MT 31,09 KG 50,00 HEAT/COLATA N.587005

Pag. 4/5

## ABNAHMEPRÜFZEUGNIS EN 10204-3.1 B
INSPECTION CERTIFICATE EN 10204-3.1 B
CERTIFICAT DE RECEPTION EN 10204-3.1B

**Dokument-Nr.:** 41-237486/001/2612
Document No.:
No. de document:



| Pos. Item Poste | Proben- Nr. Specimen No. No. d'éprouvette | Schmelzen-Nr. Heat No. Coulée No. | Probenabmessung Test bar dimension Dimensions de l'éprouvette | Streckgrenze Yield strength Limite élastique | Zugfestigkeit Tensile strength Résistance à la traction | Dehnung Elongation Allongement |
|---|---|---|---|---|---|---|
| Anforderungen Requirements Exigence | | | mm | ReH N/mm2 MIN 205 | Rm N/mm2 MIN 415 | A 2" MIN 30 % |
| 001 | 000002 | 587005 | 21,3 X 3,7 | 354 | 498 | 40,0 |
| 002 | 000001 | 587005 | 21,3 X 4,7 | 508 | 741 | 34,0 |
| 002 | 000002 | 587005 | 21,3 X 4,7 | 500 | 712 | 34,0 |

**Härteprüfung / Hardness test / Essai de dureté**

| Pos. Item Poste | Proben- Nr. Specimen No. No. d'éprouvette | Schmelzen-Nr. Heat No. Coulée No. | Härte Hardness dureté |
|---|---|---|---|
| Anforderungen Requirements Exigence | | | HB MAX 210 |
| 001 | 000001 | 587005 | 134 |
| 002 | 000001 | 587005 | 149 |

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DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.

**Vermerk / Remark / Remarqué**

| | |
|---|---|
| HAERTE NACH NACE-STD. - MR 0175,<br>HRC MAX 22<br>HARDNESS ACCORDING TO NACE-STD. - MR 0175,<br>HRC MAX 22 | |

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BENTELER

**ABNAHMEPRÜFZEUGNIS EN 10204-3.1 B**
INSPECTION CERTIFICATE EN 10204-3.1 B
CERTIFICAT DE RECEPTION EN 10204-3.1B

**Dokument-Nr.:** 41-237486/001/2612
Document No.:
No. de document:



DOUGLAS CHERO SPA
TAD JOB N.1 266676 00 POS. 002 NR 4 MT 31,09 KG P.O. 551-516 VEDI ITEM 50,00 HEAT/COLATA N.587005
Pag. 5/5

26 MAG. 2000
DOUGLAS CHERO Spa
Quality Assurance
P.C. STEFANI VITTORIO
Sign.

PADERBORN - SCHLOSS NEUHAUS , den 18.10.1999. Tel.: (05254) 81- 1590 Fax: (05254) 81- 2774

Der Werkssachverständige
Work's Inspector
L'expert d'usine

CLAUDIA FANKHÄNEL/GU

**Dieses Dokument wurde mittels EDV erstellt und ist ohne Unterschrift rechtsgültig.**
This document was prepared by means of electronic data processing and is valid without signature.
Ce document a été établi par traitement électronique de l'information et est valide sans signature.

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

4550

CERTIFICATO DI COLLAUDO
ABNAHMEPRUEFZEUGNIS
INSPECTION CERTIFICATE
CERTIFICAT DE RECEPTION
EN 10204 , 3.1.B

Cliente / Kunde/Purchaser/Client
VERRI & PINA SRL
VIA TERRAROSSA, 10 - C.P. N.26
22035-CANZO (CO)-CO

Avviso di Spedizione: A-BZ04008748

Certificato nr: MEST128331/2004/

Conferma ordine nr: MI04002883

Produttore: STABILIMENTO DI BOLZANO

Ordine nr: 94-85-97-103

Marchio di Fabbrica:

Oggetto Prova: Decapato Ricotto lavorabile Laminato

Tipo di Elaborazione: E+AOD

Puntone del Collaudatore:

Specifiche:
ASTM A182 2000C S41000 CLASS2 (0)
(0) Chemical analysis only and mech. properties(for ASTM A182(M))

Qualità: 410

Marca: VAL1

Puzzonatura: S.410

| Pos. nr. | Oggetto | Dimensioni - mm | Tolleranza | | Colata | Pezzi | Peso - | Lotto nr. |
|---|---|---|---|---|---|---|---|---|
| 1 | Tondo | 20,000 | | | 238209 | | 1080,50 | 409202530 |

Sono state soddisfatte tutte le condizioni richieste

Controllo antimescolanza: OK

Controllo visivo e dimensionale: soddisfa le esigenze:

## Analisi chimica

| Colata | min max | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0,15 | 1,00 | 1,00 | 11,50 13,50 | 0,60 | 0,040 | 0,030 | | | | | | | | | |
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | | |
| 238209 | 0,14 | 0,53 | 0,76 | 12,64 | 0,47 | 0,024 | 0,029 | | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pr  o Environment Directive [97/52/EC] Annex 1,a.,4.3 by TUEV and LLOYD

DOUGLAS CHERO Spa
Quality Assurance
P.C. STEFANI VITTORIO
Sign.

Bolzano, 27/08/04

Il collaudatore di stabilimento / der Werksachverständige / Works inspector / L'expert d'usine
R. Cristel

**Acciaierie Valbruna s.p.a.**
36100 Vicenza (Italia) - V.le della Scienza, 25

Telex 480090 VALVI I - Telegrammi: Acciaierie Valbruna - Fax: (0444) 963836
Telef.: (0444) 968211 (30 linee R.A.) - Casella postale 784 - C.C.I.A.A. 190669
Canc. Tribunale di Vicenza n. 19944 - Cod. Fisc. e Partita IVA 01863340244

**FILIALE DI CORMANO MI**

ATTESTATO DI CONTROLLO / TEST REPORT
EN 10204, 2.2

N. 5097/2000-C

Bolla di consegna n. / delivery note: 00/0821 C

Conferma n. / confirmation: 00 K 9030

Cliente / purchaser: TECNOMECCANICA

Tipo / quality: VAL1A

Ordine n. / purchaser order:

Stato di fornitura / delivery condition: MOLATO RIC.LAV. CL.2

Profilo in mm. / size: TONDO 18.00

Peso Kg. / weight: 1067

| Analisi Richiesta / chemical requirem. | | C | Si | Mn | Cr | Ni | P | S |
|---|---|---|---|---|---|---|---|---|
| | min | | | | 11.5 | | | |
| | max | 0.15 | 1.00 | 1.00 | 13.5 | 0.50 | 0.040 | 0.030 |
| Nr. Colata / heat nr. | | C | Si | Mn | Cr | Ni | P | S |
| 231414 | | 0.11 | 0.56 | 0.71 | 12.8 | 0.18 | 0.014 | 0.001 |

Specifiche applicabili: *ASTM A182,99,S41000

| Trattamento Termico del Saggio / sample heat treatment | °C | Normalizz. / normaliz. | Ricottura / annealing | Ricristallizz. / annealing | Invecchiam. / aging | Solubilizz. / annealing | Tempra / quenching | Mezzo / medium | Rinvenimento / tempering |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

| Caratt. Meccaniche Richieste / mechanical requirements | | Rm N/mm² | Rp0.2% N/mm² | E % | RA % | Lavoro assorbito / impact value Joule KV | KCU | Durezza / hardness HB | HRC |
|---|---|---|---|---|---|---|---|---|---|
| ☐ colata / heat | min | 585 | 380 | 18 | 35 | | | 167 | |
| ☒ prodotto / as-shipped | max | | | | | | | 229 | |

| Provetta / specimen Ø o ≠ mm | Lo mm | Rm N/mm² | Rp0.2% N/mm² | E % | RA % | Joule KV | KCU | HB | HRC |
|---|---|---|---|---|---|---|---|---|---|
| 12.5 | 50 | 625 | 389 | 26 | 52 | | | 189 | |

08 MAR. 2001
DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign. .....

Note / remarks: COPIA CONFORME ALL'ORIGINALE
ACCIAIERIE VALBRUNA S.P.A.
*Solo analisi chimica e caratteristiche meccaniche

Acciaio prodotto al forno elettrico ad arco + AOD.
Melting process : E+AOD

Vicenza, 20/10/2000

Resp. Controllo Qualità / Quality Control: M. RIZZOTTO

Il Collaudatore / Inspector:

cer-01 P

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948
E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129


CERTIFICATO DI COLLAUDO
Inspection certificate

26370

N°6126/DCH DATE-09.11.04

CLIENTE- DOUGLAS CHERO Spa
Customer

ORDINE-242000
Order

BOLLA CONSEGNA N-3658
Delivery note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| 1 | 2000 | VITI TE. M 12 X 30,5 | B16 ASTM A 193/A 193M | A02869 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Cr | Mo | S | P | V | Al |
|---|---|---|---|---|---|---|---|---|---|---|
| REQUIRED | min. | 0,36 | 0,45 | 0,15 | 0,80 | 0,50 | | | 0,25 | |
| VALUE | max. | 0,47 | 0,70 | 0,35 | 1,15 | 0,65 | 0,040 | 0,035 | 0,35 | 0,015 |
| HEAT n. A02869 | | 0,415 | 0,57 | 0,26 | 0,98 | 0,60 | 0,003 | 0,007 | 0,28 | 0,008 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

| | Rm. | Rp.(0,2) | A4 | Z. | Hardness |
|---|---|---|---|---|---|
| REQUIRED | min. 860 MPa | min. 725 MPa | min. 18% | min. 50% | max 35 HRC |
| ACTUAL VALUE | 987 | 912 | 20,6 | 59,5 | 31 |

HEAT TREATMENT
Quenched at : 925°C to 954°C oil
Tempering : 2 hours at 650°C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

QUALITY CONTROL

MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

15 NOV. 2004

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

**FEAT INDUSTRIALE**
divisione della Feat Group S.p.A.
Feat Group S.p.A.
SEDE LEGALE:
I - 20122 MILANO (MI) - Viale Majno, 17
Capitale Sociale € 8.000.000,00.interamente versato
Codice fiscale, Partita IVA e numero di iscrizione Registro
della Imprese di Milano: 08203090157
Codice identif. IVA CEE IT 08203090157 - R.E.A. Milano 1211374
UFFICI AMMINISTRATIVI:
I - 23842 BOSISIO PARINI (LC) - Via dei Livelli, snc
tel. 031 3581411 - fax 031 878178 - Cod. Mecc. MI240750
STABILIMENTO E UFFICI COMMERCIALI DELLA DIVISIONE:
I - 23881 CESANA BRIANZA (LC) - Via G. Parini, 30 e Via Ariosto, 1/3/5/7
tel. 031 6591 - Fax 031 859219 -http://www.featgroup.com

Certificato 2004/3004446
Data 13/07/2004
Pagina 1

DOUGLAS CHERO S.P.A.

LOCALITA' PRADAGLIE

29013 CARPANETO PIACENTINO PC

| Ordine cliente | Bolla | Fattura | Quantita' |
|---|---|---|---|
| O 240962 | 2004/000/0031606 | O 0031760 | 190,00 |

| Articolo Feat | Descrizione |
|---|---|
| 292011052018C | CAPPELLO 4/8 |

| Cod.Stamp./N.Col. | Tipo Materiale e Specifica |
|---|---|
| BVN | F11 Cl. 2-3 ASTM A 182 Last Edition |

| Numero colata | Acciaieria | N.Cert.Acc. |
|---|---|---|
| 52828 | ACCIAIERIE BERTOLI SAFAU SPA | 87786/99 |

## ANALISI CHIMICA

| Elem. | C | Cr | Mn | Mo | P | S | Si | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Min | 0,100 | 1,000 | 0,300 | 0,440 | | | 0,500 | | | | | | | |
| Max | 0,200 | 1,500 | 0,800 | 0,650 | 0,040 | 0,040 | 1,000 | | | | | | | |
| Colata | 0,130 | 1,120 | 0,450 | 0,490 | 0,008 | 0,001 | 0,550 | | | | | | | |
| C.An. | | | | | | | | | | | | | | |

Carbonio Equivalente= 0,545

## CARATTERISTICHE MECCANICHE

| Ordine Laboratorio | N. | Descrizione | UM1 | Min | Max | Valore | UM2 | Valore |
|---|---|---|---|---|---|---|---|---|
| 9689S | 01 | Snerv.Rp0,2% Amb T | N/mm2 | 310,000 | | 330,000 | PSI | 47850,000 |
| 9689S | 01 | Rottura Amb T | N/mm2 | 515,000 | | 559,000 | PSI | 81055,000 |
| 9689S | 01 | Allungam.A% T Amb | % | 20,000 | | 28,200 | | |
| 9689S | 01 | Strizione Amb T | % | 30,000 | | 49,300 | | |

Trattamento Termico

Note
CERTIFICATO FEAT

19 LUG. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

Resp. Assicurazione Qualita'
E.MAZZONI

FEAT INDUSTRIALE division of FEAT Group S.p.A. states that material hereby certified is in compliance with the quality and technical requirements as described in the customer's order, or FEAT order acknowledgement.

1 - The results of chemicals analysis is a true and correct copy of the mill certificate issued by the manufacturer of the steel employed or by the laboratory which has determined it.
2 - The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufacturing process inspection or storage.

**Bonomi srl**

*STAMPAGGIO A CALDO DELL'ACCIAIO*

23861 CESANA BRIANZA (Lc) Via Carlo Porta, 8

☎ 031/656798 🖷 031/657597

Certified ISO 9001:2000 by CISQ IMQ SINCERT

SISTEMA QUALITA' CERTIFICATO ISO 9001:2000

CERTIFICATO N°143467

Partita I.V.A. 02418370132
R.I. Lecco N. 15934
R.E.A. Lecco N. 288235

TEST CERTIFICATE N° 050119
CERTIFICATO DI COLLAUDO
3.1B-AS-TO- SECONDO
UNI EN 10204
DATA : 01/03/2005

*Spett.le Ditta*
*DOUGLAS CHERO Spa*
*Loc. Pradaglie*
*29013 CARPANETO P.NO (Pc)*

Mod. 28/1

| CUSTOMER ORDER - ORDINE CLIENTE | P.O. | DOCUMENTO DI TRASPORTO | INVOICE-FATTURA |
|---|---|---|---|
| 250159 pos. 1 | | 46 del 09/02/2005 | |

| DESCRIPTION OF PARTICULAR - DESCRIZIONE DEL PARTICOLARE | TYPE AND MATERIAL SPECIFICATIONS-TIPO E SPECIFICA MATERIALE |
|---|---|
| BONNET | ASTM A182 F11 |

NUMERO COLATA / HEAT NUMBER: 441894
STELL MILL. ACCIAIERIA: DAM STEEL
ST.M. CERT. N. / CERT. ACC. N.: 1652

CHEMICAL ANALYSIS - ANALISI CHIMICA

| | C | MN | SI | P | S | CR | NI | CU | MO | AL |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.16 | 0.49 | 0.63 | 0.010 | 0.003 | 1.17 | 0.10 | 0.24 | 0.49 | 0.020 |
| N | | | | | | | | | | |
| | 0.008 | | | | | | | | | |

| HEAT CODE ON FORGING | DISEGNO DEL FORGIATO . | QUANTITY QUANTITA' |
|---|---|---|
| BDBX | 4/8 | 210 |

MECHANICAL PROPERTIES - CARATTERISTICHE MECCANICHE

| | YIELD STRENGTH P.S.I. SNERVAM. N./mm2 | TENS. STRENGTH P.S.I. ROTT. N/mm2 | ELONG 2" 50 ALLUNG % | RED OF AREA % CONTRAZ. | H.B. |
|---|---|---|---|---|---|
| IMPACT VALUE -RESILIENZA | 374 | 552 | 28,57 | 68,64 | 163<br>170<br>163 |

HEAT TREATMENT - TRATTAMENTO TERMICO

Normalizing 970° C.
Tempering 680° C.

REMARKS

1) The result of chemical analisys is a true and correct copy of the mill certificate issued, by the manufacturer of the steel employed, or by the laboratory witch has determined it.
* I risultati delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati.
2) The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufactoring process inspection or storage.
** Il materiale o i particolari spediti per questi ordini non sono mai venuti a contatto diretto con mercurio o con elementi contenenti mercurio durante la fase di lavorazione, controllo o immagazzinamento.

I certify these tests to be correct as contained in the records of the company
certifico che tutti i dati sono corretti e uguali a quelli registrati presso Bonomi

Q.A. OFFICE
UFFICIO QUALITA'
Bucca Rosalba

AZIENDA CON SISTEMA QUALITÀ CERTIFICATO DA DNV =UNI EN ISO 9001/2000=

AD 2000 - WO TRD 100

SORBIT SRL

# CERTIFICATO DI COLLAUDO DOPO T.T. IN ACCORDO EN 10204–3.1.B

| DOCUMENTO DOCUMENT | DATA DATE | |
|---|---|---|
| 830 | 09/02/05 | Pagina 1 di 2 |

| CLIENTE / CUSTOMER | MATERIALE / Material | SPESS.MAX / thickness | RICHIESTE / Request |
|---|---|---|---|
| 0732 / BONOMI SRL | F11 Cl 2 | 50 | 143/207 HB |

| N° DdT | Data / Date | Pezzo / Piece | N. disegno / Drawing | Ordine / Order | Commessa / Commision | N. colata / Heat | N. Pz. Trattati / N° Worked Piece | PESO KG / Weight | N°PZ prova / N°Test Piece | DUREZZE RILEVATE / Hardness | Car |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 23 | 01/02/2005 | CORPI | GB 13/1 | | BDHX | 441894 | 1084 | 1625 | | HB 170 | 32014 |
| 27 | 04/02/2005 | COPERCHI | GB 14/2 | | BDBX | 441894 | 546 | 685 | | HB 171 | 32166 |
| | | | | | | | | | | | |
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Bonomi srl
UFFICIO QUALITA'
Firma
Data 08/02/05

| Scheda n° | Data | Revisione | Chi archivia |
|---|---|---|---|
| S–Pq07/1–1 | 01/02 | 0 | RSA |

AZIENDA CON SISTEMA QUALITÀ CERTIFICATO DA DNV
=UNI EN ISO 9001/2000=
AD 2000 - WO TRD 100

SORBIT SRL

# CERTIFICATO DI COLLAUDO DOPO T.T. IN ACCORDO EN 10204–3.1.B

| DOCUMENTO DOCUMENT | DATA DATE | |
|---|---|---|
| 830 | 09/02/05 | Pagina 2 di 2 |

LAVORAZIONE E/O TRATTAMENTO TERMICO RICHIESTO / HEAT TREATMENT REQUEST

| Cod. T T | Descrizione / Description | T.Part. (°C) | T Salita (h) | T. Perm. (°C) | T Perm (h) | Raffredd / Cool | Impianto / Ofen | Specifiche / Detailed | Altre Richieste / Other Requests: |
|---|---|---|---|---|---|---|---|---|---|
| TD | NORMALIZZAZIONE / Normalizing | | | 970 | 1 | ARIA | 10/1 | IO 12 Rev. 1 | |
| R | RINVENIMENTO / Tempering | | | 680 | 2 | ARIA | 1 | | |

**Note / Notes:**

| Scheda n° | Data | Revisione | Chi archivia |
|---|---|---|---|
| S–Pq07/1–1 | 01/02 | 0 | RSA |

# UGITECH
Groupe Arcelor

Siège Social : Ugitech S.A.
Avenue Paul Girod
73400 UGINE, FRANCE
IDENT TVA FR 89 410 436 158

| Bolla/N°BL/DL N°/Lief. | N° Certificat/Prot N° | Produttore/Usine produc./Manufact./Herstel. |
|---|---|---|
| 335578 | 06902 | F00002 |

## RELEVE DE CONTROLE (1)
SELON EN 10204 PARAGRAPHE 4
Texte certificat de conformité
Texte certificat de conformité

Texte type cert. conformité édité - fctc

Prodotto - Erzeugnisform - Produit - Product: BARRE RONDE IMA 4006-410 16,0 K13 — LAMINE DECALAM. RECUIT

Cliente-a/c destinatario - Client et/ou destinataire - Besteller und/oder Empfaenger - Purchaser and/or Consignee: UGINE-SAVOIE ITALIA SRL

N° ordine cliente - Votre référence - Ihre Auftrag Nr - Your reference: LVM 407085326 MI/LIMETTI

Qualità e specifiche tecniche - Nuance et spécifications techniques - Stahlsorte und Pruefbedingungen - Quality and Specifications: IMA 4006-410 K13 — X12CR13/NFEN 10088-3 /1.4006 - AISI410/ASTM A182/F6A CLASS 2

Stato di fornitura - Etat de livraison - Lieferzustand - As delivered (1): LAMINE DECALAM.

Stato metallurgico - Etat métallurgique - Heat treatment condition - Lieferzustand: RECUIT

| N° Conferma d'ordine / Accusé de reception / Auftragsbest N° / Acknowledgment N° | Posizione / N° Poste / Post Nr. / Item N° | N° lotto interno / N° de lot interne / Interne los Nr / Internal batch N° | Profilo / Profil / Profile / Shape | Dimensione / Dimension / Abmessung / Size | Tolleranza / Tolérance / Toleranz / Tolerance | Lunghezza / Longueur / Laenge / Length | Peso netto / Masse / Gewicht / Weight |
|---|---|---|---|---|---|---|---|
| 407682892 | 3 | 4493044 | BARRE RONDE | 16,0000 | K13 | . | 1040,000 |

| Lotto fornitore / Lot producteur / Lieferant los / Master batch | N° Colata / N° de coulée / Schmelz Nr / Heat N° | Trazione - Traction - Zugversuch - Tensile test: Lim. di snervamento / Limite d'Elasticité / Streckgrenze / Yield Strength 0,2 % | 1 % | Carico di rottura / Résistance trac. / Zugfestigkeit / Tensile strength | A % | Z % | Resilienza - Résilience - Kerbschlagzaehigkeit - Notch Toughness: Forma / Type / Form / Type | Valori / Valeurs individuelles / Einzelwerte / Individual values | Media - Moyenne / Mittelwerte / Average | Durezza / Dureté / Haerte / Hardness |
|---|---|---|---|---|---|---|---|---|---|---|
| | | RP02 N/MM2 | | RM N/MM2 | AL | Z | | | | HB |
| 417024 | 2ZH01000 | 586 | | 665 | 22 | 73 | | | | 200 |

| | | C | SI | MN | P | S | N | CR | CU |
|---|---|---|---|---|---|---|---|---|---|
| 417024 | 2ZH01000 | 0,106 | 0,330 | 0,440 | 0,019 | 0,024 | 0,056 | 12,140 | 0,156 |

| | | MI | | CO |
|---|---|---|---|---|
| 417024 | 2ZH01000 | 0,350 | | 0,021 |

Test : (1 = OK)

417024

C.INT = Corrosione intergranul — EDD.C = Controllo non distrutt — P.PN. = Prova pneumatica — C.MES = Contr. antimescolamenti
SCHI. = Schiacciamento — FLANG = Flangiatura — REVFL = Applatt. saldatura (Re — P.RET = Essai de retournement

Note - Notes - Remarks - Bemerkungen

EN 10204 / 3.1.B AISI 410 X12CR13 NF EN10088-3 1.4006 IMA 4006 BARRE A CHAUD RON DE TOL.13 TRAITEE DECALAMINEE

16 LUG. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

Le 7/07/04
Signature de l'inspecteur

(1) Controllo merceologico, visivo e dimensionale : soddisfacente. Si certifica che i prodotti sopra descritti sono conformi alle prescrizioni dell'ordine
L'analisi chimica è copia conforme a quella presente sul certificato del produttore
Contrôle de marchandise, d'aspect et de dimensions satisfaisant. Nous certifions que le présent document reproduit avec exactitude les données du certificat

DOUGLAS CHERO Spa
FORGED VALVES

STABILIMENTO/FACTORY
UFFICI AMMINISTRATIVI E COMMERCIALI
Località Pradaglie - 29013 Carpaneto P.no (PC) - ITALY
Phone: 0523/854011 - Fax: 0523/850389
E-MAIL: webmaster@douglas-chero.com

| | |
|---|---|
| Customer | KLAUS UNION ARMATUREN INTERNATIONAL for LURGI OEL GAS CHEMIE GMBH |
| LURGI P.O. NO. | 4567569-000 / 1.69690 / 136 |
| P.Order N. | HH-02535 |
| Ref.: | MEGA METHANOL PLANT, ZAGROS PETROCHEMICAL COMPANY, SITE BANDAR ASSALUYEH, IRAN |
| Contract No. | 1.69690-10 |
| O.Ref./JOB N. | 04.0572 |

Ref.: TABLE 64

HEAT TREATMENT FOR ASTM A182/F11-F22 WELDING:

MACHINE TYPE: AEC TECHNOLOGY - THERMOCONTROL R/6 BT65 THIN/C

A) Heating Temperature is 720 ÷ 730°C.

B) Heating rate over 400°C should be less than 200°C per hour.

C) Holding time at 720 ÷730°C is 1 hour per 25mm of thickness, with a minimum of 2 hours.

D) The Cooling will be performed not overcoming the 200°C for each hour up to 400°C. Then Cooling is in still air.

DESCRIPTION:

BODY MATERIAL: ASTM A182/F11 & NIPPLE MATERIAL: ASTM A335/P11
No. 38 BODY GATE VALVE c.1500 NPT Ø 1/2" + 2 WELDED NIPPLES Sch.80
No. 34 BODY GATE VALVE c.1500 NPT Ø 3/4" + 2 WELDED NIPPLES Sch.80

BODY MATERIAL: ASTM A182/F22 & NIPPLE MATERIAL: ASTM A335/P22
No. 17 BODY GATE VALVE c.1500 NPT Ø 1/2" + 2 WELDED NIPPLES Sch.160
No. 3 BODY GATE VALVE c.1500 NPT Ø 3/4" + 2 WELDED NIPPLES Sch.160
No. 13 BODY GATE VALVE c.1500 NPT Ø 3/4" + 2 WELDED NIPPLES Sch.80

CARPANETO P.NO: 28/02/05

DOUGLAS-CHERO S.p.A.
Quality Control
*CREDALI STEFANO*

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** / Customer: *Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt*

**Bestell-Nr.:** / Order no.: *Lurgi Job – No.: 69690-10*
*Lurgi OGC PO.-No.: 4567569-000 to -001/1.69690/136*

*Project Name :* *2nd Zagros Methanol Plant - Iran*

**Auftrag-Nr.:** / Job no.: *HH – 02535*

**Lieferumfang** / range:

| Pos | Stck. pcs. | Gegenstand object | DN | PN | Werkstoff material | Bemerkung comment |
|---|---|---|---|---|---|---|
| 00220 | 34 | Gate valve<br>FB BB NPT+2<br>Weld.Nipples Sch.80. 3,91mm<br>Seats + Wedge Stell. | 3/4" | Cl.1500 | A182/F22 C.3 | Valve Ident – No.: " S422 " |

**Auslegung + Prüfung nach** / Design and tests acc. To: API 602 – BS EN ISO 15761, API 598 / BS EN 12266-1
ASME B16.34 – B16.25 – B16.11 – B1.20.1

**Sicht- und Funktionsprüfung:** / visual and functional test: *o.k.*

**Festigkeits-/Dichtheitsprüfung:** / strength-/tightness-test:

| | | | |
|---|---|---|---|
| Festigkeit / shell test | = | 388 bar Wasser / water | (60 sec) |
| Dichtheit Sitz / seat | = | 285 bar Wasser / water | (60 sec) |
| Rückdichtung / backseat | = | 285 bar Wasser / water | (60 sec) |
| Dichtheit Sitz / seat | = | 6 bar Luft / air | (60 sec) |

**Prüfungsergebnis:** / result: *ohne Beanstandung !* / *no complaint !*

i.A. Walter Glass

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** / enclosure *Dokumentation gemäß Material-Dokumentationsdeckblatt* / *Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter / Person in charge W. Glass

**Kommissions-Nr. / Reference No.**

**HH-02535**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00220 | Gate Valve 3/4" Cl. 1500 lbs. FB, BB, NPT+2 Weld.Nippl. Sch.80 seats+wedge stel. 3,91mm | " S422 " | 34 | Body | B-AN | A182/F11 C.2 | Bonomi | 2150935 | | 030897 |
| | | Drawing-No.: BX652-7/TH-2N8 | | Body | B-AU | A182/F11 C.2 | Bonomi | 2151039 | | 040250 |
| | | | | Nipp.sc.80 | 61265 | ASTM A335/F11 | Tubos | 61265 | | 0000019210 |
| | | | | Wedge | | A182/F6a C.2 stel. | Valbruna | 238209 | | 128331/2004 |
| | | | | Seat | | A182/F6a C.2 stel. | Valbruna | 236784 | | 055587/2003 |
| | | | | Body Srew | | ASTM A193/B16 | Morandi | AQ2869 | | 6126 |
| | | | | Bonnet | B-AT | A182/F11 C.2 | Bonomi | 441894 | | 040292 |
| | | | | Stem | | A182/F6a C.2 | Ugitech | 350031 | | 80208 |
| | | | | | | | | | | |
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**Bonomi srl**

*STAMPAGGIO A CALDO DELL'ACCIAIO*

23861 CESANA BRIANZA (Lc) Via Carlo Porta, 8

☎ 031/656798 🖷 031/657597

CISQ SINCERT
SISTEMA QUALITÀ CERTIFICATO ISO 9001
Certificato n° 118301

Partita I.V.A. 02418370132
R.I. Lecco N. 15934
R.E.A. Lecco N. 288235

LEA59706

TEST CERTIFICATE N° 030897
CERTIFICATO DI COLLAUDO
3.1B-AS-TO- SECONDO
UNI EN 10204
DATA : 19/12/2003

*Spett.le Ditta*
*DOUGLAS CHERO Spa*
*Loc. Pradaglie*
*29013 CARPANETO P.NO (Pc)*

Mod. 28/1

| CUSTOMER ORDER - ORDINE CLIENTE | P.O. | DOCUMENTO DI TRASPORTO | INVOICE-FATTURA |
|---|---|---|---|
| 232261 pos. 1 + 232459 pos. 2 | | 304 del 04/12/2003 | |

| DESCRIPTION OF PARTICULAR - DESCRIZIONE DEL PARTICOLARE | TYPE AND MATERIAL SPECIFICATIONS-TIPO E SPECIFICA MATERIALE |
|---|---|
| BODY | ASTM A182 F11 |

NUMERO COLATA HEAT NUMBER: 2150935
STELL MILL. ACCIAIERIA: FERRIERA SIDER SCAL
ST.M. CERT. N. CERT. ACC. N.: HS 2205

CHEMICAL ANALYSIS - ANALISI CHIMICA

| C | SI | MN | P | S | CU | CR | NI | MO | V |
|---|---|---|---|---|---|---|---|---|---|
| 0.133 | 0.640 | 0.530 | 0.008 | 0.002 | 0.140 | 1.200 | 0.160 | 0.480 | 0.005 |
| AL | SN | | | | | | | | |
| 0.033 | 0.005 | | | | | | | | |

| HEAT CODE ON FORGING CODICE COLATA | DISEGNO DEL FORGIATO . | QUANTITY QUANTITA' |
|---|---|---|
| BAN | N6/9S | 122 |

MECHANICAL PROPERTIES - CARATTERISTICHE MECCANICHE

| | YIELD STRENGTH P.S.I. SNERVAM. N./mm2 | TENS. STRENGTH P.S.I. ROTT. N/mm2 | ELONG 2" 50 ALLUNG % | RED OF AREA % CONTRAZ. | H.B. |
|---|---|---|---|---|---|
| IMPACT VALUE -RESILIENZA | 368 | 605 | 25,60 | 66,82 | 163<br>163<br>170 |

HEAT TREATMENT - TRATTAMENTO TERMICO

Annealing 970° C.

**REMARKS**

1) The result of chemical analisys is a true and correct copy of the mill certificate issued, by the manufacturer of the steel employed, or by the laboratory witch has determined it.
* I risultati delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati.
2) The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufactoring process inspection or storage.
** Il materiale o i particolari spediti per questi ordini non sono mai venuti a contatto diretto con mercurio o con elementi contenenti mercurio durante la fase di lavorazione, controllo o immagazzinamento.

I certify these tests to be correct as contained in the records of the company
certifico che tutti i dati sono corretti e uguali a quelli registrati presso Bonomi

23 DIC. 2003

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

Q.A. OFFICE
UFFICIO QUALITA'
Bicca Rosalba

AZIENDA CON SISTEMA QUALITÀ CERTIFICATO DA DNV =UNI EN ISO 9001/2000= TÜV

SORBIT SRL

# CERTIFICATO DI COLLAUDO DOPO T.T. IN ACCORDO EN 10204–3.1.B

| DOCUMENTO DOCUMENT | DATA DATE | |
|---|---|---|
| 7851 | 04/12/03 | Pagina 1 di 2 |

| CLIENTE / CUSTOMER | MATERIALE / Material | SPESS.MAX / thickness | RICHIESTE / Request |
|---|---|---|---|
| 0732 / BONOMI SRL | F11 Cl 2 | | 143/207 HB |

| N° DdT | Data / Date | Pezzo / Piece | N. disegno / Drawing | Ordine / Order | Commessa / Commision | N. colata / Heat | N. Pz. Trattati / N° Worked Piece | PESO KG / Weight | N°PZ prova / N°Test Piece | DUREZZE RILEVATE / Hardness | Car |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 338 | 21/11/2003 | COPERCHI+CORPI | N 6/8+N6/9S | | | BAO+BAN | 203 | 725 | | HB 177-207 | 19179 |
| 342 | 28/11/2003 | COPERCHI | HB 15/2 | | BCTD | 441894 | 224 | 415 | | HB 171 | 19289 |
| | | | | | | | | | | | |
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Bonomi s.r.l.
UFFICIO QUALITA'
Firma
Data 04/12/03

**DOUGLAS CHERO Spa**

Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

| Scheda n° | Data | Revisione | Chi archivia |
|---|---|---|---|
| S–Pq07/1–1 | 01/02 | 0 | RSA |

968

AZIENDA CON SISTEMA QUALITÀ CERTIFICATO DA DNV =UNI EN ISO 9001/2000= TUV

SORBIT SRL

# CERTIFICATO DI COLLAUDO DOPO T.T. IN ACCORDO EN 10204–3.1.B

| DOCUMENTO DOCUMENT | DATA DATE | |
|---|---|---|
| 7851 | 04/12/03 | Pagina 2 di 2 |

LAVORAZIONE E/O TRATTAMENTO TERMICO RICHIESTO / HEAT TREATMENT REQUEST

| Cod. TT | Descrizione / Description | T.Part. (°C) | T Salita (h) | T. Perm. (°C) | T Perm (h) | Raffredd / Cool | Impianto / Ofen | Specifiche / Detailed | Altre Richieste / Other Requests: |
|---|---|---|---|---|---|---|---|---|---|
| TC | RICOTTURA / Annealing | | | 970 | 2 | FORNO | 9 | TAB.IL03 | |

**Note / Notes:**

DOUGLAS CHERO Spa

Quality Assurance .....

P.C. STEFANI VITTORIO

Sign .....

| Scheda n° | Data | Revisione | Chi archivia |
|---|---|---|---|
| S-Pq07/I-1 | 01/02 | 0 | RSA |

**Bonomi srl**

*STAMPAGGIO A CALDO DELL'ACCIAIO*

23801 CESANA BRIANZA (Lc) Via Carlo Porta, 8
☎ 031/656798 🖷 031/657597

CERTIFICATO N°143467

Partita I.V.A. 02418370132
R.I. Lecco N. 15934
R.E.A. Lecco N. 288235

02552600

TEST CERTIFICATE N° 040250
CERTIFICATO DI COLLAUDO
3.1B-AS-TO- SECONDO
UNI EN 10204
DATA : 10/05/2004

*Spett.le Ditta*
*DOUGLAS CHERO Spa.*
*Loc. Pradaglie*
*29013 CARPANETO P.NO (Pc)*

Mod. 28/1

| CUSTOMER ORDER - ORDINE CLIENTE | P.O. | DOCUMENTO DI TRASPORTO | INVOICE-FATTURA |
|---|---|---|---|
| 240406 pos. 2 | | 109 del 26/04/2004 | |

| DESCRIPTION OF PARTICULAR - DESCRIZIONE DEL PARTICOLARE | TYPE AND MATERIAL SPECIFICATIONS-TIPO E SPECIFICA MATERIALE |
|---|---|
| BODY | ASTM A182 F11 |

NUMERO COLATA / HEAT NUMBER: 2151039
STEEL MILL. ACCIAIERIA: FERRIERA SIDER SCAL
ST.M. CERT. N. / CERT. ACC. N.: HS 2182

CHEMICAL ANALYSIS - ANALISI CHIMICA

| C | SI | MN | P | S | CU | CR | NI | MO | V |
|---|---|---|---|---|---|---|---|---|---|
| 0.110 | 0.590 | 0.430 | 0.011 | 0.002 | 0.250 | 1.270 | 0.150 | 0.500 | 0.005 |
| **AL** | **SN** | **AS** | **TI** | **B** | **CA** | **NB** | **SB** | **CO** | **PB** |
| 0.015 | 0.009 | 0.007 | 0.0029 | 0.0001 | 0.0019 | 0.001 | 0.002 | 0.010 | 0.020 |

| HEAT CODE ON FORGING / CODICE COLATA | DISEGNO DEL FORGIATO | QUANTITY / QUANTITA' | MECHANICAL PROPERTIES - CARATTERISTICHE MECCANICHE | | | | |
|---|---|---|---|---|---|---|---|
| | | | YIELD STRENGTH P.S.I. SNERVAM. N/mm2 | TENS. STRENGTH P.S.I. ROTT. N/mm2 | ELONG 2" 50 ALLUNG % | RED OF AREA % CONTRAZ. | H.B. |
| BAU | N6/9S | 105 | 326 | 520 | 35,00 | 73,79 | 156<br>154<br>156 |

IMPACT VALUE -RESILIENZA

HEAT TREATMENT - TRATTAMENTO TERMICO

Annealing 970° C.

REMARKS

1) The result of chemical analisys is a true and correct copy of the mill certificate issued, by the manufacturer of the steel employed, or by the laboratory witch has determined it.
* I risultati delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati.
2) The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufactoring process inspection or storage.
** Il materiale o i particolari spediti per questi ordini non sono mai venuti a contatto diretto con mercurio o con elementi contenenti mercurio durante la fase di lavorazione, controllo o immagazzinamento.

I certify these tests to be correct as contained in the records of the company
certifico che tutti i dati sono corretti e uguali a quelli registrati presso Bonomi

14 MAG. 2004

**DOUGLAS CHERO Spa**
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

Q.A. OFFICE
UFFICIO QUALITA'
Bucca Rosalba

250

AZIENDA CON SISTEMA QUALITÀ CERTIFICATO DA DNV =UNI EN ISO 9001/2000= TÜV

SORBIT SRL

# CERTIFICATO DI COLLAUDO DOPO T.T. IN ACCORDO EN 10204–3.1.B

| DOCUMENTO DOCUMENT | DATA DATE |
|---|---|
| 2839 | 22/04/04 |

| CLIENTE / Customer | N.DdT | DATA / Date | MATERIALE / Material | SPESS.MAX / thickness | RICHIESTE / Request |
|---|---|---|---|---|---|
| 0732 / BONOMI SRL | 98 | 16/04/2004 | F11 Cl 2 | | 143/207 HB |

| Pezzo/ Piece | N. disegno/ Drawing | Ordine/ Order | Commessa/ Commision | N. colata/ Heat | N. Pz. Trattati / N° Worked Piece | PESO KG / Weight | N°PZ prova / N°Test Piece | DUREZZE RILEVATE / Hardness | Car |
|---|---|---|---|---|---|---|---|---|---|
| CORPI | N6/9S | | BAU | 2151039 | 105 | 500 | | HB 159 | 23606 |

Bonomi srl
UFFICIO QUALITA'
Firma
Data 22/04/04

LAVORAZIONE E/O TRATTAMENTO TERMICO RICHIESTO / HEAT TREATMENT REQUEST

| Cod. TT | Descrizione/ Description | T.Part. °C | T Salita h | T. Perm. °C | T Perm h | Raffredd/ Cool | Impianto/ Olen | Specifiche/ Detailed | Altre Richieste/ Other Requests: |
|---|---|---|---|---|---|---|---|---|---|
| TC | RICOTTURA / Annealing | | | 970 | 2 | FORNO | 9 | TAB.IL03 | |

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign .....

Note / Notes:

Sorbit S.r.l. Giulio Somaschini

| Scheda n° | Data | Revisione | Chi archivia |
|---|---|---|---|
| S–Pq07/1–1 | 01/02 | 0 | RSA |

# TUBOS REUNIDOS, S.A. - GALINDO

AENOR ER Empresa Registrada — IQNet — ISO 9002

## CERTIFICADO DE CALIDAD S/EN 10204/3.1.B
## MILL TEST CERTIFICATE, AC. TO EN 10204/3.1.B

**Nº 0000019210** Rev. 1

PAG. 1/3

CLIENTE: T.A.D. - TUBI ACCIAIO E DERIVATI COMMERCIALE S.P.A.

Nº PEDIDO/PARTIDA: 99 L 001854 000003

PRODUCTO: TUBO SIN SOLDADURA ESTIRADO EN FRIO / COLD DRAWN SEAMLESS TUBES

REF. FABRICA: 0000920059 000030

EXTREMOS: LISOS A ESCUADRA / SQUARE CUT PLAIN END

PROTECCION SUPERF: SIN PROTECCION / BARE

NORMA / GRADO: ASTM A 335-95a/ASME SA 335.95 Gr. P11

ESPEC. ADICIONALES: SEE ANNEX - DUREZA <22 HRC

DIMENSIONES: 26,7 X 3,911 MM. X 6-11 M.

REQUISITOS SUP.:

PROCESO FUSION: HORNO ELECTRICO ACERO TOTALMENTE CALMADO

MARCAS: ESTAMPADO / DIE STAMPING — TR H.N. (COLADA)

PINTADO / STENCILLED — TR ASTM/ASME A/SA 335 P11 (LONG. TUBO EN MTS) M 2500 PSI S 26,70 X 3,9 11 MM H.N. (COLADA)

CODIGO COLOR / COLOUR CODE

TRAT. TERMICO: NORMALIZADO Y REVENIDO/ NORMALIZED AND TEMPERED 930/720 ºC 15 MIN

ALBARANES: 80026904

DESCRIPCION SUMINISTRO / DESCRIPTION OF DELIVERY

| ITEM FABRICA T.R. ITEM | ITEM CLIENTE CLIENTS ITEM | LONG.INDIV (M) INDIVIDUAL LENGHT | COLADA CAST NR. | Nº TUBOS QUANTITY | LONG.TOTAL(M) LENGHT | PESO(KG) WEIGHT | PROBETAS Nº SPECIMEN NR. |
|---|---|---|---|---|---|---|---|
| 000030 | 3 | 6,000 - 8,000 | 61265 | 328 | 2.243,550 | 4919 | 1 - 17 |
| TOTAL | | | | 328 | 2.243,550 | 4919 | |

20 MAR. 2000

DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.

TUBOS REUNIDOS GARANTIZA QUE TODOS LOS TUBOS CUBIERTOS POR ESTE CERTIFICADO CUMPLEN LOS REQUISITOS DEL PEDIDO Y CON LAS ESPECIFICACIONES ARRIBA MENCIONADAS.
TUBOS REUNIDOS CERTIFY THAT ALL THE TUBES COVERED BY THIS CERTIFICATE COMPLY WITH ORDER REQUIREMENTS AND ABOVE MENTIONED SPECIFICATIONS.

CONTROL DE CALIDAD DE TUBOS REUNIDOS

GALINDO 29.02.2000

P.O. : CA

13-MAR. 00 (LUN) 17:47 T. REUNIDOS AMURRIO 945 897151 P. 002

TAD COMMERCIALE
QUESTO DOCUMENTO È RIPRODOTTO MEDIANTE UN SISTEMA COMPIUTERIZZATO ED È CONFORME ALL'ORIGINALE

THIS DOCUMENT IS REPRODUCED BY A COMPUTERIZED SYSTEM AND IS CONFORM TO THE ORIGINAL

# TUBOS REUNIDOS, S.A. - GALINDO

## CERTIFICADO DE CALIDAD S/EN 10204/3.1.B
## MILL TEST CERTIFICATE, AC. TO EN 10204/3.1.B

AENOR ER Empresa Registrada — IQNet — ISO 9002

**Nº 0000019210 Rev. 1**

PAG. 2/3

### ENSAYOS NO DESTRUCTIVOS / N.D.T.

| ENSAYO /TEST | %CONTROL/TEST RATE(%) | REQUISITOS/REQUIREMENT | RESULTADO |
|---|---|---|---|
| VISUAL Y DIMENSIONAL/VISUAL & DIMENSIONAL INSP. | 100% | | O.K. |
| P.HIDROSTATICA /HYDROTEST | 100% | 2500 PSI 5 SEC. | O.K. |
| CORRIENTES INDUCIDAS /EDDY CURRENTS | 100% | ASTM E 309 | O.K. |
| ENSAYO DE MEZCLA /MIX TEST | 100% | | O.K. |
| ANALISIS QUIMICO UNITARIO/POSITIVE MATERIAL IDENTIF. | 100% | A335 P11 | O.K. |

### ENSAYOS TECNOLOGICOS Y METALURGICOS / TECHNOLOGICAL AND METALLURGICAL TEST

APLASTADO /FLATTENING AC/ SA 335 -OK

DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.
20 MAR. 2000 C.E.

### ANALISIS DE COLADA / CAST ANALYSIS

| | C | Mn | Si | P | S | Cr | Ni | Mo | Cu | V | Sn | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MIN. | 0,05 | 0,30 | 0,50 | 0,000 | 0,000 | 1,000 | | 0,440 | | | | | |
| MAX. | 0,15 | 0,60 | 1,00 | 0,015 | 0,015 | 1,500 | 0,200 | 0,650 | 0,200 | | 0,015 | | |
| 61265 | 0,09 | 0,44 | 0,61 | 0,007 | 0,001 | 1,050 | 0,080 | 0,450 | 0,170 | 0,004 | 0,007 | | 0,48 |

### ANALISIS DE PRODUCTO / PRODUCT ANALYSIS

| | C | Mn | Si | P | S | Cr | Ni | Mo | Cu | V | Sn | (1) | C.E. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MIN. | 0,05 | 0,30 | 0,50 | 0,000 | 0,000 | 1,000 | | 0,440 | | | | | |
| MAX. | 0,15 | 0,60 | 1,00 | 0,015 | 0,015 | 1,500 | 0,200 | 0,650 | 0,200 | | 0,015 | 385,00 | |
| 61265 | 0,09 | 0,44 | 0,59 | 0,008 | 0,001 | 1,050 | 0,080 | 0,460 | 0,170 | 0,006 | 0,007 | 154,50 | 0,48 |

(1) FACTOR J : (Mn+Si) x (P+Sn) x 10000

### ENSAYO DE TRACCION / TENSILE TEST — ENSAYO DE IMPACTO - CHARPY V / IMPACT TEST

| Nº | L/T (*) | DIMENSION (mm) | L.ELAST. YIELD POINT ( Mpa ) | R.TRACC. T.STRENGTH ( Mpa ) | ALARG. ELONG. (%) | DUREZA HARDNESS ( HB) | L/T (*) | DIMENS (mm) | Tª (ºC) | RESILIENCIA IMPACT TEST | A.DUCTIL SHEAR AREA (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 205 | 415 | | 210 | | | 0 | | |
| 1 | L | 26,70 x 4,000 | 310 | 447 | 42,0 | 137 | | | | | |
| 2 | L | 26,70 x 4,000 | 327 | 457 | 42,0 | 133 | | | | | |

CONTROL DE CALIDAD DE TUBOS REUNIDOS

GALINDO 29.02.2000

P.O. : CA

13-MAR.00 (LUN) 17:47 T. REUNIDOS AMURRIO 945 897251 P.003

TAD COMMERCIALE
QUESTO DOCUMENTO È RIPRODOTTO MEDIANTE UN SISTEMA COMPIUTERIZZATO ED È CONFORME ALL'ORIGINALE

THIS DOCUMENT IS REPRODUCED BY A COMPUTERIZED SYSTEM AND IS CONFORM TO THE ORIGINAL

# TUBOS REUNIDOS, S.A. - GALINDO

## CERTIFICADO DE CALIDAD S/EN 10204/3.1.B
## MILL TEST CERTIFICATE, AC. TO EN 10204/3.1.B

AENOR ER Empresa Registrada — IQNet — ISO 9002

**Nº 0000019210 Rev. 1**

PAG. 3/3

| Nº | L/T (*) | DIMENSION (mm) | L.ELAST. YIELD POINT ( Mpa ) | R.TRACC. T.STRENGTH ( Mpa ) | ALARG. ELONG. (%) | DUREZA HARDNESS ( HB) | L/T (*) | DIMENS (mm) | Tª (°C) | RESILIENCIA IMPACT TEST | A.DUCTIL SHEAR AREA (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ENSAYO DE TRACCION TENSILE TEST | | | | | ENSAYO DE IMPACTO - CHARPY V IMPACT TEST | | | |
| | | | 205 | 415 | | 210 | | | 0 | | |
| 3 | L | 26,70 x 4,000 | 315 | 440 | 43,0 | 140 | | | | | |
| 4 | L | 26,70 x 4,000 | 310 | 445 | 42,0 | 135 | | | | | |
| 5 | L | 26,70 x 4,000 | 312 | 445 | 43,0 | 135 | | | | | |
| 6 | L | 26,70 x 4,000 | 320 | 450 | 43,0 | 134 | | | | | |
| 7 | L | 26,70 x 4,000 | 315 | 450 | 42,0 | 135 | | | | | |
| 8 | L | 26,70 x 4,000 | 318 | 445 | 43,0 | 136 | | | | | |
| 9 | L | 26,70 x 4,000 | 320 | 447 | 42,0 | 137 | | | | | |
| 10 | L | 26,70 x 4,000 | 315 | 450 | 42,0 | 133 | | | | | |
| 11 | L | 26,70 x 4,000 | 310 | 447 | 42,0 | 137 | | | | | |
| 12 | L | 26,70 x 4,000 | 327 | 457 | 42,0 | 133 | | | | | |
| 13 | L | 26,70 x 4,000 | 315 | 448 | 42,0 | 135 | | | | | |
| 14 | L | 26,70 x 4,000 | 315 | 445 | 43,0 | 135 | | | | | |
| 15 | L | 26,70 x 4,000 | 328 | 448 | 43,0 | 140 | | | | | |
| 16 | L | 26,70 x 4,000 | 325 | 447 | 43,0 | 139 | | | | | |
| 17 | L | 26,70 x 4,000 | 328 | 446 | 42,0 | 135 | | | | | |

(*): L = LONGITUDINAL // T = TRANSVERSAL

TUBOS REUNIDOS, S.A. GARANTIT QUE TOUS LES TUBES OBJECT DE CETTE CERTIFICAT, SONT CONFORMES EN LEUR TOTALITÉ LES SPECIFICATIONS DE L'ARTICLE 15 DE L'ARRETE MINISTERIEL DU 24.03.1978 MODIFIÉ: DE L'ARRETE MINISTERIEL DU 24.03.1978 MODIFIÉ
C <= 0.25% ; P <= 0.05% ; S <= 0.05%
Rm <= 700 MPa. ; A ( 5.65 sqr(So) ) >= 16% LONG. ; Rm (A-2) >= 10500
RE/Rm <= 0.9 MPa. ; A ( 5.65 sqr(So) ) >= 14% TRANSV. ; R · A >= 10500

ANEXO / ANNEX

REFERENCE DOCUMENTS:

- ASTM A 335-95
- ASME SA 335-98
- NACE MR 01-75-99
- ASTM E 309-95

ASME B 16.25-97
- EN 10204-92
- FULLY KILLED

THE MATERIAL COVERED BY THIS CERTIFICATE MEETS THE REQUIREMENT OF THE TG-003 REV. 1

20 MAR. 2000
DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.

GALINDO 29.02.2000

CONTROL DE CALIDAD DE TUBOS REUNIDOS

P.Q. : CA

13-MAR-00 (LUN) 17:48 T. REUNIDOS AMURRIO 945 897151 P. 004

TAD COMMERCIALE
QUESTO DOCUMENTO È RIPRODOTTO MEDIANTE UN SISTEMA COMPIUTERIZZATO ED È CONFORME ALL'ORIGINALE
THIS DOCUMENT IS REPRODUCED BY A COMPUTERIZED SYSTEM AND IS CONFORM TO THE ORIGINAL

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

4550

## CERTIFICATO DI COLLAUDO
## ABNAHMEPRUEFZEUGNIS
## INSPECTION CERTIFICATE
## CERTIFICAT DE RECEPTION
## EN 10204 , 3.1.B

Cliente / Kunde / Customer / Client:
VERRI & PINA SRL
VIA TERRAROSSA, 10 - C.P. N.26
22035-CANZO (CO)-CO

Avviso di Spedizione: A-BZ04008748

Certificato nr: MEST128331/2004/

Conferma ordine nr: MI04002683

Produttore: STABILIMENTO DI BOLZANO

Ordine nr: 94-85-97-103

Marchio di Fabbrica:

Oggetto Prove: Decapato Ricotto lavorabile Laminato

Tipo di Elaborazione: E+AOD

Puntone del Collaudatore:

Specifiche:
ASTM A182 2000C S41000 CLASS2 (d)
(d) Chemical analysis only and mecc.properties(for ASTM A182(M))

Qualità: 410

Marca: VAL1

Piazzatura: S.410

| Pos. nr. | Oggetto | Dimensioni - mm | Tolleranza | | Colata | Pezzi | Peso - | Lotto nr. |
|---|---|---|---|---|---|---|---|---|
| 1 | Tondo | 20,000 | | | 238209 | | 1080,00 | 409202530 |

Sono state soddisfatte tutte le condizioni richieste

Controllo antimescolanza: OK

Controllo visivo e dimensionale: soddisfa le esigenze:

## Analisi chimica

| Colata | | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | min | | | | 11,50 | | | | | | | | | | | |
| | max | 0,15 | 1,00 | 1,00 | 13,50 | 0,50 | 0,040 | 0,030 | | | | | | | | |
| 238209 | | 0,14 | 0,33 | 0,76 | 12,64 | 0,47 | 0,024 | 0,029 | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pr  e Equipment Directive [97/23/EC] Annex 1,s. 4.3 by TUEV and LLOYD

DOUGLAS CHERO Spa
Quality Assurance
P.C. STEFANI VITTORIO
Sign.

Bolzano, 27/08/04

Il collaudatore di stabilimento / der Werksachverständige / Works inspector / L'agent d'usine
R. Cristel

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.

Stab.: 38100 BOLZANO (Italia) - Via A. Volta, 4

# CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION
EN 10204 , 3.1.B

Ø20 FORC

Cliente / Kunde / Purchaser / Client
ACC.VALBRUNA SPA-MAG.CORMANO
VIA BIZZOZZERO, 125
20032 - CORMANO (MI) - MI

Produttore: STABILIMENTO DI BOLZANO

Avviso di Spedizione: A-BZ03003486
Lieferanzeige/Packing list/B.L.

Certificato nr: MEST055587/2003/
Prüfung/Test/Essai

Conferma ordine nr: MI03007175

Ordine nr: TRASFERIMENTO DA BOLZANO

Marchio di Fabbrica:

Oggetto Prove: Secondo esecuzione Ricotto lavorabile Pelato

Tipo di Elaborazione: E+AOD

Punzone del Collaudatore:

Specifiche:

VALBRUNA 2002 410 A ()
ASME (1) SA479 2001 S41000 A (1)
ASTM A479 2001 S41000 A ()
[illegible] PT.A 2001 EDITION
[illegible] PT.A 2001 EDITION
(2) Chemical analysis only and mecc.properties(for ASTM A182(M))

AISI 410 ()
ASTM A182 2000C S41000 CLASS2 (2)
EN 10088-3 95 1.4006 A ()

ASME (1) SA182 2001 S41000 CLASS2 (2)
ASTM A276 2000A S41000 A ()
EN 10272 2000 1.4006 A ()

Qualità: 410

Marca: VAL1

Punzonatura: 410

| Pos. nr. | Oggetto | Dimensioni - mm | Tolleranza | Lunghezza -mm | Colata | Pezzi | Peso - KG | Lotto nr. |
|---|---|---|---|---|---|---|---|---|
| 0020 | Tondo | 20,000 | K12-MIN | 5000 / 5500 | 236784 | | ~~7521,0~~ 1007 | 310700880 |

Sono state soddisfatte tutte le condizioni richieste

Controllo antimescolanza: OK

Controllo visivo e dimensionale: soddisfa le esigenze:

| TEST | Provetta/Probestück mm | °C | Posiz. Saggio | Snervamento Rp 0,2% N/mm2 | Snervamento | Resistenza Rm N/mm2 | Allungamento A5 % | Allungamento E 2" % | Strizione Z % | Strizione RA % | Resilienza °C | Durezza HB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 | | min | | 380 | - | 585 | - | 20 | - | 45 | - | 167 |
| | | max | | | | 730 | | | | | | 220 |
| | 10.00 | 20 | L | 490 | | 670 | 29 | 33 | 69 | 69 | | 190 |

1)L=Longitudinale/Längs, Q=Trasversale/quer, T=Tangenziale/tangential

## Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata: | C % | Si % | Mn % | Cr % | Ni % | P % | S % |
|---|---|---|---|---|---|---|---|
| | 0,080 min 0,150 max | - 1,00 | - 1,00 | 11,50 13,50 | - 0,50 | - 0,040 | - 0,030 |
| 236784 | 0,141 | 0,37 | 0,72 | 12,37 | 0,34 | 0,020 | 0,030 |

The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,3.,4.3 by TUEV and LLOYD'S

29 LUG. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

COPIA CONFORME ALL' ORIGINALE
ACCIAIERE VALBRUNA S.P.A.
FILIALE DI CORMANO

Bolzano,23/10/03

Il collaudatore di stabilimento

Pagina - 1 di 1

2326/1/01

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948

E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129


CERTIFICATO DI COLLAUDO
Inspection certificate

26370

N°6126/DCH DATE-09.11.04

CLIENTE- DOUGLAS CHERO Spa
Customer

ORDINE-242000
Order

BOLLA CONSEGNA N-3658
Delivery note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| 1 | 2000 | VITI TE. M 12 X 30,5 | B16 ASTM A 193/A 193M | A02869 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Cr | Mo | S | P | V | Al |
|---|---|---|---|---|---|---|---|---|---|---|
| REQUIRED | min. | 0,36 | 0,45 | 0,15 | 0,80 | 0,50 | | | 0,25 | |
| VALUE | max. | 0,47 | 0,70 | 0,35 | 1,15 | 0,65 | 0,040 | 0,035 | 0,35 | 0,015 |
| HEAT n. A02869 | | 0,415 | 0,57 | 0,26 | 0,98 | 0,60 | 0,003 | 0,007 | 0,28 | 0,008 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

| | Rm. | Rp.(0,2) | A4 | Z. | Hardness |
|---|---|---|---|---|---|
| REQUIRED | min. 860 MPa | min. 725 MPa | min. 18% | min. 50% | max 35 HRC |
| ACTUAL VALUE | 987 | 912 | 20,6 | 59,5 | 31 |

HEAT TREATMENT
Quenched at : 925°C to 954°C oil
Tempering : 2 hours at 650°C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

QUALITY CONTROL

MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

15 NOV. 2004

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

**Bonomi srl**

*STAMPAGGIO A CALDO DELL'ACCIAIO*

23861 CESANA BRIANZA (Lc) Via Carlo Porta, 8
☎ 031/656798 🖷 031/657597

RINA CQ 0051 RINA SINCERT
SISTEMA QUALITA' CERTIFICATO ISO 9001:2000
CERTIFICATO N°143467

Partita I.V.A. 02418370132
R.I. Lecco N. 15934
R.E.A. Lecco N. 288235

02551900

TEST CERTIFICATE N° 040292
CERTIFICATO DI COLLAUDO
3.1B-AS-TO- SECONDO
UNI EN 10204
DATA : 21/05/2004

*Spett.le Ditta*
*DOUGLAS CHERO Spa*
*Loc. Pradaglie*
*29013 CARPANETO P.NO (Pc)*

Mod. 28/1

| CUSTOMER ORDER - ORDINE CLIENTE | P.O. | DOCUMENTO DI TRASPORTO | INVOICE-FATTURA |
|---|---|---|---|
| 240406 pos. 1 | | 117 del 07/05/2004 | |

| DESCRIPTION OF PARTICULAR - DESCRIZIONE DEL PARTICOLARE | TYPE AND MATERIAL SPECIFICATIONS-TIPO E SPECIFICA MATERIALE |
|---|---|
| BONNET | ASTM A182 F11 |

NUMERO COLATA / HEAT NUMBER: 441894
STELL MILL. ACCIAIERIA: DAM STEEL
ST.M. CERT. N. / CERT. ACC. N.: 1652

CHEMICAL ANALYSIS - ANALISI CHIMICA

| | C | MN | SI | P | S | CR | NI | CU | MO | AL |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.16 | 0.49 | 0.83 | 0.010 | 0.003 | 1.17 | 0.10 | 0.24 | 0.49 | 0.020 |
| N | | | | | | | | | | |
| | 0.008 | | | | | | | | | |

| HEAT CODE ON FORGING | DISEGNO DEL FORGIATO | QUANTITY QUANTITA' |
|---|---|---|
| BAT | N6/8 | 114 |

MECHANICAL PROPERTIES - CARATTERISTICHE MECCANICHE

| | YIELD STRENGTH P.S.I. SNERVAM. N./mm2 | TENS. STRENGTH P.S.I. ROTT. N/mm2 | ELONG 2" 50 ALLUNG % | RED OF AREA % CONTRAZ. | H.B. |
|---|---|---|---|---|---|
| IMPACT VALUE -RESILIENZA | 375 | 548 | 30,00 | 68,64 | 167<br>164<br>164 |

HEAT TREATMENT - TRATTAMENTO TERMICO

Anneal HT 970° C.

REMARKS

1) The result of chemical analisys is a true and correct copy of the mill certificate issued, by the manufacturer of the steel employed, or by the laboratory witch has determined it.
* I risultati delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati.
2) The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufactoring process inspection or storage.
** Il materiale o i particolari spediti per questi ordini non sono mai venuti a contatto diretto con mercurio o con elementi contenenti mercurio durante la fase di lavorazione, controllo o immagazzinamento.

I certify these tests to be correct as contained in the records of the company
certifico che tutti i dati sono corretti e uguali a quelli registrati presso Bonomi

27 MAG. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign .....

Q.A. OFFICE
UFFICIO QUALITA'
Bucca Rosalba

292

AZIENDA CON SISTEMA QUALITÀ CERTIFICATO DA DNV =UNI EN ISO 9001/2000= TÜV

SORBIT SRL

# CERTIFICATO DI COLLAUDO DOPO T.T. IN ACCORDO EN 10204-3.1.B

| DOCUMENTO DOCUMENT | DATA DATE |
|---|---|
| 3219 | 05/05/04 |

| CLIENTE / Customer | N.DdT | DATA / Date | MATERIALE / Material | SPESS.MAX / thickness | RICHIESTE / Request |
|---|---|---|---|---|---|
| 0732 / BONOMI SRL | 110 | 30/04/2004 | F11 Cl 2 | 50 | 143/207 HB |

| Pezzo/ Piece | N. disegno/ Drawing | Ordine/ Order | Commessa/ Commision | N. colata/ Heat | N. Pz. Trattati / N° Worked Piece | PESO KG / Weight | N°PZ prova / N°Test Piece | DUREZZE RILEVATE / Hardness | Car |
|---|---|---|---|---|---|---|---|---|---|
| COPERCHI | N6/8 | | BAT | 441894 | 114 | 190 | | HB 182 | 24041 |

Bonomi srl
UFFICIO QUALITA'
Firma
Data 05/05/04

LAVORAZIONE E/O TRATTAMENTO TERMICO RICHIESTO / HEAT TREATMENT REQUEST

| Cod. TT | Descrizione/ Description | T.Part. °C | T Salita h | T. Perm. °C | T Perm h | Raffredd/ Cool | Impianto/ Ofen | Specifiche/ Detailed | Altre Richieste/ Other Requests: |
|---|---|---|---|---|---|---|---|---|---|
| TC | RICOTTURA / Annealing | | | 970 | 2 | FORNO | 9 | TAB.IL03 | |

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign .....

Note / Notes:+ PROVETTA

Sorbit S.r.l. Giulio Tomaschini

| Scheda n° | Data | Revisione | Chi archivia |
|---|---|---|---|
| S-Pq07/1--1 | 01/02 | 0 | RSA |

UGITECH
Groupe Arcelor

FRANCE

5 Usine Productrice / Hersteller / Manufacturer
**UGINE**
F 73403 UGINE CEDEX
Tél : 04.79.89.30.20
Fax : 04.79.89.30.51

4 N. Nr No 80208

11 N. de commande usine-Werksbestellnummer-Works order number
FUGE TEJE 01/01 8Z101000 Q

3

# CERTIFICATO COLLAUDO DI ACCETTAZIONE B
# CERTIFICAT DE RECEPTION 3.1.B
# INSPECTION CERTIFICATE B

EN 10204 / 3.1.B

Produit / Erzeugnisform / Product: IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE — 6

Client et/ou destinataire - Besteller und/oder Empfaenger - Purchaser and/or Consignee: TECNOMECCANICA SRL — 9

N. de commande client - Kundenbestellnummer - Purchaser order number: 364 — 10

Nuance et spécifications techniques - Stahlsorte und Pruefbedingungen - Quality and Specifications: IMA4006 410 AISI 410 UNS S41000
SPEC. SDA 09 DU 20/11/01 (SAUF MN) — 12

Etat de livraison - Lieferzustand - As delivered (1): TEMPRATO RINVENUTO — 13

Traitement de Référence - Probestraifenbehandlung - Treatment of test samples (1) — 14

| Identification du produit Erzeugnis Benennung-Product identification N. de cde usine Werksbestellnummer Works order number 15 | N. de poste Post Nr Item No 17 | N. de Coulée Schmelz Nr Heat No 16 | Nombre Stueckzahl Pieces Nbr 18 | Profil Profile Shape 19 | Dimension Ausmassung Dimension 20 | Longueur Laenge Length 21 | Masse Gewicht Weight 22 |
|---|---|---|---|---|---|---|---|
| 8Z101 000 | | 350031 | 190 | TONDO | 20,000 | | 1974 KG |

| Prélèvement Probenummer Test N. 39 B | Demandé Vorschrift Required (3) 24 | Température d'essai Pruefemperatur Test Temperature 25 | Traction - Zugversuch - Tensile test: Limite d'Elasticité Streckgrenze Yield Strength 0,2 % 26 A | 1 % 26 B | Résistance à la traction Zugfestigkeit Tensile strength 27 | Allongement Bruchdehnung Elongation (L = 5d) 28 | Striction Einschnuerung Rod of Area 29 | Dureté Haerte Hardness (4) 30 | Type Form Type 31 | Résilience - Kerbschlagzaehigkeit - Notch Toughness: Eprouvette Kerbform Type d'essai 32 | Température d'essai Pruefemperatur Test Temperature 33 | Valeurs individuelles Einzelwerte Individual Values 35 | Moyenne Mittelwerte Average 36 | Dureté Haerte Hardness (5) 37 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (3) L | °C | MPA | MPA | MPA | % | % | | | | | | | HB |
| | Min | 20 | 275 | | 585 | 20 | 45 | | | | | | | |
| | Max | | | | | | | | | | | | | 237 |
| | (4) | | | | | | | | | | | | | |
| | (5) | | 607 | | 684 21 72 | | | | | | | | | 205 |

| N. de Prélèvement Probenummer Test N. 39 A | Demandé Vorschrift Required | Analyse Produit-Stückanalyse Check Analysis | 42 C | 43 SI | 44 MN | 45 NI | 46 CR | 47 S | 48 P | 49 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Min | | | | 0,30 | | 11,50 | | | | |
| | Max | | 0,150 | 0,60 | 0,60 | | 13,50 | 0,030 | 0,040 | | |
| N. de Coulée Schmelz Nr Heat N. 350031 | | | 0,107 | 0,42 | 0,38 | 0,35 | 12,18 | 0,022 | 0,019 | | |

| 38 Mode d'élaboration Erschmelzungsart Melting process | Demandé Vorschrift Required | 51 | 52 | 53 | 54 | 55 |
|---|---|---|---|---|---|---|
| Electrique Elektrisch Electric | Min | | | | | |
| | Max | | | | | |

IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE

06 MAG. 2004

DOUGLAS CHERO Spa

Quality Assurance .....

P.C. STEFANI VITTORIO

Sign .....

56

(3) L = Long Laengs - Long T = Travers Quer-Transverse 56

(1) TE = Trempé à l'eau - Wasserhaerten - Waterquench; TH = Trempé à l'huile - Oilharten - Oil Quench; A = Hypertrempé - Loesungsgegluecht - Solution annealed; R = Revenu - Anlassen - Tempered; RT = Recuit - Geglueht - Annealed; TRM = Recuit mexi - Weichgegluecht - Maxi annealed 7

Ugine, le 15-01-04
L'Agent Réceptionnaire de l'usine / Der Werksabnahmebeauftragte / The Work Inspector
H. Mayet 63

(4) A l'état de référence / Zum Bezug Zustand / At reference condition 60 A

(5) A l'état de livraison / In Lieferzustand / In state of delivery 60 B

Contrôles de marquage, d'aspect et de dimensions: satisfaisants / Bezeichnung, Beschigung und Ausmessung: ohne Beanstandung / Marking, inspection and measurement: without objection 62

Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande / Wir bestaetigen hiermit dass die obengenannten Erzeugnisse den Bestellungsvorschriften entsprechen / We certify hereby that the above mentioned products are consistant with the order prescriptions 66

DOUGLAS CHERO Spa
FORGED VALVES

STABILIMENTO/FACTORY
UFFICI AMMINISTRATIVI E COMMERCIALI
Località Pradaglie - 29013 Carpaneto P.no (PC) - ITALY
Phone: 0523/854011 - Fax: 0523/850389
E-MAIL: webmaster@douglas-chero.com

| | |
|---|---|
| Customer | KLAUS UNION ARMATUREN INTERNATIONAL for LURGI OEL GAS CHEMIE GMBH |
| LURGI P.O. NO. | 4567569-000 / 1.69690 / 136 |
| P.Order N. | HH-02535 |
| Ref.: | MEGA METHANOL PLANT, ZAGROS PETROCHEMICAL COMPANY, SITE BANDAR ASSALUYEH, IRAN |
| Contract No. | 1.69690-10 |
| O.Ref./JOB N. | 04.0572 |

Ref.: TABLE 64

HEAT TREATMENT FOR ASTM A182/F11-F22 WELDING:

MACHINE TYPE: AEC TECHNOLOGY - THERMOCONTROL R/6 BT65 THIN/C

A) Heating Temperature is 720 ÷ 730°C.

B) Heating rate over 400°C should be less than 200°C per hour.

C) Holding time at 720 ÷730°C is 1 hour per 25mm of thickness, with a minimum of 2 hours.

D) The Cooling will be performed not overcoming the 200°C for each hour up to 400°C. Then Cooling is in still air.

DESCRIPTION:

BODY MATERIAL: ASTM A182/F11 & NIPPLE MATERIAL: ASTM A335/P11
No. 38 BODY GATE VALVE c.1500 NPT Ø 1/2" + 2 WELDED NIPPLES Sch.80
No. 34 BODY GATE VALVE c.1500 NPT Ø 3/4" + 2 WELDED NIPPLES Sch.80

BODY MATERIAL: ASTM A182/F22 & NIPPLE MATERIAL: ASTM A335/P22
No. 17 BODY GATE VALVE c.1500 NPT Ø 1/2" + 2 WELDED NIPPLES Sch.160
No. 3 BODY GATE VALVE c.1500 NPT Ø 3/4" + 2 WELDED NIPPLES Sch.160
No. 13 BODY GATE VALVE c.1500 NPT Ø 3/4" + 2 WELDED NIPPLES Sch.80

CARPANETO P.NO: 28/02/05

DOUGLAS-CHERO S.p.A.
Quality Control
*CREDALI STEFANO*

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** / Customer: *Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt*

**Bestell-Nr.:** / Order no.: *Lurgi Job – No.: 69690-10*
*Lurgi OGC PO.-No.: 4567569-000 to -001/1.69690/136*

*Project Name :* *2nd Zagros Methanol Plant - Iran*

**Auftrag-Nr.:** / Job no.: *HH – 02535*

**Lieferumfang** / range:

| Pos | Stck. pcs. | Gegenstand object | DN | PN | Werkstoff material | Bemerkung comment |
|---|---|---|---|---|---|---|
| 00230 | 7 | Gate valve long pattern<br>FB BB BW Sch.160<br>Seats + Wedge Stell.,<br>BW 6,35 | 1" | Cl.1500 | A182/F22 C.3 | Valve Ident – No.: " S481 " |

**Auslegung + Prüfung nach** / Design and tests acc. To: API 602 – BS EN ISO 15761, API 598 / BS EN 12266-1
ASME B16.34 – B16.25

**Sicht- und Funktionsprüfung:** / visual and functional test: *o.k.*

**Festigkeits-/Dichtheitsprüfung:** / strength-/tightness-test:

| | | |
|---|---|---|
| Festigkeit / shell test | = | 388 bar Wasser / water (60 sec) |
| Dichtheit Sitz / seat | = | 285 bar Wasser / water (60 sec) |
| Rückdichtung / backseat | = | 285 bar Wasser / water (60 sec) |
| Dichtheit Sitz / seat | = | 6 bar Luft / air (60 sec) |

**Prüfungsergebnis:** / result: *ohne Beanstandung !* / *no complaint !*

i.A. Walter Glass

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** / enclosure *Dokumentation gemäß Material-Dokumentationsdeckblatt* / *Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter W. Glass
Person in charge Walter Glass

**Kommissions-Nr. / Reference No.**

**HH-02535**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00230 | Gate Valve<br>1" Cl. 1500 lbs.<br>FB, BB, BW Sch.160<br>BW 6,35 long pattern | " S481 " | 7 | Body | RM-50 | A182/F22 C.3 | Risetti | 16869 | | 250217 |
| | | Drawing-No.: 652-7/150-L6 | | Body | R-G46 | A182/F22 C.3 | Risetti | 51207 | | 990485 |
| | | | | Wedge | | A182/F6a C.2 stel. | Valbruna | 414430 | | 122852/2004 |
| | | | | Seat | | A182/F6a C.2 stel. | Valbruna | 238300 | | 127568/2004 |
| | | | | Body Bolt | | ASTM A193/B16 | Molinari | AQ6810 | | 041653/2004 |
| | | | | Body Nut | | ASTM A194/GR.4 | Morandi | 041606 | | 5882 |
| | | | | Bonnet | Y-AA | A182/F22 C.3 | Iselfa | 51706/80 | | 6672 |
| | | | | Stem | | A182/F6a C.2 | Ugitech | 350031 | | 80208 |
| | | | | | | | | | | |
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FRATELLI RISETTI S.R.L.

21049 SOLBIATE ARNO (VA) - VIA TRIESTE, 4 - TELEFONO 0331/893 440-893 356 - STAB. VIA COLZANI, 41
TELEFONO 0331/894 088 - FAX 0331/892.247 - TELEGR. RISETTI - SOLBIATE ARNO - CASELLA POSTALE N 45
RI-A Varese 200129 Registro Imprese Varese 01773060122
COD. MECC VA 010325 - PARTITA IVA IT 01773060122 - CODICE FISCALE 01773060122

Certified ISO 9001 by BVQI SINCERT

OMOLOGATI TUV SUDWEST

# CERTIFICATO PROVE MATERIALI

TEST CERTIFICATE
WERKSARNAHMEZEUGNIS
CERTIFICAT D'EMPREUVES

ACCORDO DIN 50049 3.1/B
EN 10204 /91-3.1/B

N. 250217

Data - Date - Datum - Data: 31/03/05

Ordine del Cliente - Customer's - Bestellung - Commande du Client: N. 0 242466-22/12/04 DOUGLAS C.

Ns. Commessa - Our order - Unsere Auftrags-Nummer - Notre Configuration de Commande:

Bolla di consegna - Delivery list - Lieferschein - Bulletin de livraison:

## DESCRIZIONE SPEDIZIONE - DESCRIPTION OF DELIVERY - UMFANG DER LIEFERUNG - DETAILS DU LOT

| POS ITEM POST | Quantità Quantity Stückzahl Quantité | Descrizione - Description - Benennung - Description | Disegno - Drawing - Zeichnung - Dessin | Norma di collaudo - Test specification - Abnahmevorschrift - Spécification |
|---|---|---|---|---|
| 1 | 16 | -CORPI GTP.SBV.6ABB. | -4411-150- | F22 |

## ANALISI CHIMICA - CHEMICAL ANALYSIS - CHEMISCHE ZUSAMMENSETZUNG - COMPOSITION CHIMIQUE

| Codice di identificazione sulla fusione - Heat identification cast stamped on forging piece | Colata N. - Heat No. - Schmelze Nr. - No de Coulée | C % | Si % | Mn % | Ni % | Cr % | S % | P % | Mo % | Cu % | Sn % | Al % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M50 | 16869 | 0,113 C.E. % | 0,260 F.B. % | 0,420 Ti % | 0,110 V % 0,007 | 2,270 | 0,002 | 0,020 | 0,920 | 0,230 | | 0,023 |

## PROPRIETA MECCANICHE - MECHANICAL PROPERTIES - MECHANISCHE EIGENSCHAFTEN - ESSAIS MECANIQUES

| Colata N. - Heat No. - Schmelze Nr. - No de Coulée | Lega - Alloy - Legierung - Alliage | Provetta - Test bar - Probestab - Eprouvette | Rs (N/mm²) Snervamento - Yield Point - Streckgrenze - Limite d'élasticité | R (N/mm²) Rottura - Tensile strength - Zugfestigkeit - Rupture | A (%) Allungamento - Elongation - Dehnung - Allongement | Z (%) Contrazione - Red. of area - Einschnürung - Contraction | HB Hardness on forging piece | Resilienza - Resilience - Kerbschlagzähigkeit - Resil. Charpy V - Notch at mm |
|---|---|---|---|---|---|---|---|---|
| 16869 | | | 513 | 614 | 23 | 72 | | |

Trattamento termico - Thermal treatment - Wärmebehandlung - Traitement thermique: NORMALIZZATO-RINVENUTO

| JOMINY | mm | 1,5 | 3 | 5 | 7 | 9 | 11 | 13 | 15 |
|---|---|---|---|---|---|---|---|---|---|
| Norm. | HRC | | | | | | | | |
| Teopra | mm | 20 | 25 | 30 | 35 | 40 | 45 | 50 | |
| | HRC | | | | | | | | |

GRANO AUSTENTICO - austenite grain size check: Metodo:

ISO 643-UNI3245-ASTM E112

Final Control on forging pieces and found:
Sandblasting SA 2 1/2:
Marking on pieces:
Visual inspection:
Dimensional control:
Hardness test:

UFFICIO COLLAUDI - Inspection Department - Prüfungsabteilung - Bureau d'inspection
FLLI RISETTI
Quality Assurance
Sign.

AZIENDA CON SISTEMA QUALITÀ CERTIFICATO DA DNV =ISO EN ISO 9001/2000=

AD 2000-WO TRD 100

SORBIT SRL

# CERTIFICATO DI COLLAUDO DOPO T.T. IN ACCORDO EN 10204-3.1.B

| DOCUMENTO DOCUMENT | DATA DATE |
|---|---|
| 1696 | 09/03/05 |

| CLIENTE / Customer | N.DdT | DATA / Date | MATERIALE / Material | SPESS.MAX / thickness | RICHIESTE / Request |
|---|---|---|---|---|---|
| 0892 / OFF.MECC. F.LLI RISETTI SRL | 100 | 25/02/2005 | F22 Cl 3 | 100 | 156/207 HB |

| Pezzo/ Piece | N. disegno/ Drawing | Ordine/ Order | Commessa/ Commision | N. colata/ Heat | N. Pz. Trattati / N° Worked Piece | PESO KG / Weight | N°PZ prova / N°Test Piece | DUREZZE RILEVATE / Hardness | Car |
|---|---|---|---|---|---|---|---|---|---|
| CORPI | 4/11-150 | | | M60 | 16 | 280 | | HB 170 | 33001 |

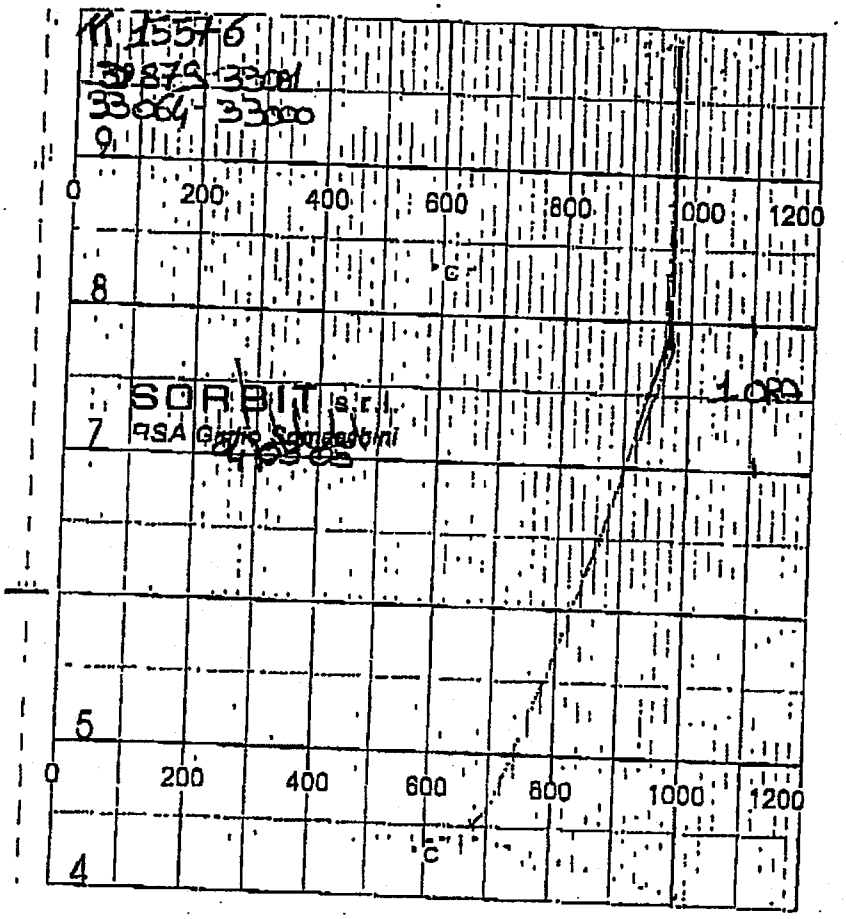
LAVORAZIONE E/O TRATTAMENTO TERMICO RICHIESTO / HEAT TREATMENT REQUEST

| Cod. T T | Descrizione/ Description | T.Part. °C | T Salita h | T. Perm. °C | T Perm h | Raffredd/ Cool | Impianto/ Ofen | Specifiche/ Detailed | Altre Richieste/ Other Requests: |
|---|---|---|---|---|---|---|---|---|---|
| TD | NORMALIZZAZIONE / Normalizing | | | 970 | 2 | ARIA | 10/1 | P-07/6 | DTT 15578 |
| R | RINVENIMENTO / Tempering | | | 720 | 4 | ARIA | 1 | | |

Note / Notes:

Sorbit S.r.l. Via Giulio Romagnoni

| Scheda n° | Data | Revisione | Chi archivia |
|---|---|---|---|
| S-Pg07/1-1 | 01/02 | 0 | RSA |


15576
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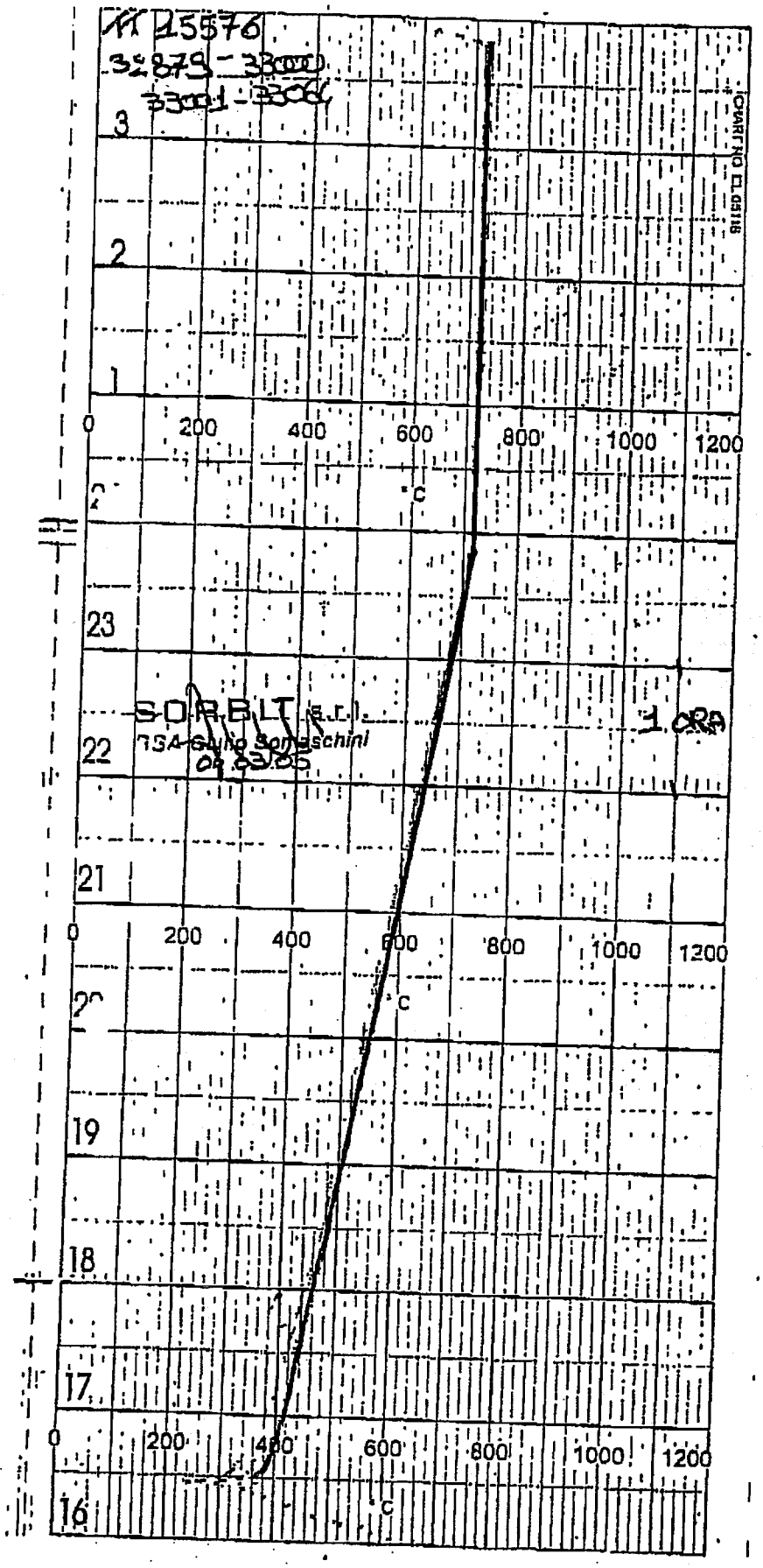
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33001-33064
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# FRATELLI RISETTI S.R.L.

21048 SOLBIATE ARNO (VA) - VIA TRIESTE, 4 - TELEFONO 0331/993.440-993.356 - STAB. VIA COLZANI, 41
TELEFONO 0331/994.088 - FAX 0331/992.247 - TELEGR. RISETTI - SOLBIATE ARNO
FF.SS. ALBIZZATE - SOLBIATE A. - CASELLA POSTALE N. 15 - C.C. POSTALE 19228216 - REG. FOR F. S. 09037
C.C.I.A.A. VARESE N. 206123 - ISCR. TRIB. BUSTO A. N. 21500 - C.F. P.IVA 01773060122


OMOLOGATI TÜV SÜDWEST

## CERTIFICATO PROVE MATERIALI

TEST CERTIFICATE
WERKSABNAHMEZEUGNIS
CERTIFICAT D'EMPREUVES

ACCORDO DIN 50049 3.1/B
EN 10204 /91-3.1/B

N. 990485 00162930

Data - Date - Datum - Date: 10.05.99

| Ordine del Cliente - Customer's - Bestellung - Commande du Client | Ns. Commessa - Mill order - Unsere Auftragsbestätigung Notre Configuration de Commande | Bolla di consegna - Delivery bill Lieferschein - Bulletin de livraison |
|---|---|---|
| 990242 DEL 4.3.99 DOUGLAS CHERO SPA | › | › |

| POS. ITEM POST | Quantità Quantity Stückzahl Quantité | DESCRIZIONE SPEDIZIONE - DESCRIPTION OF DELIVERY - UMFANG DER LIEFERUNG - DETAILS DU LOT | | | |
|---|---|---|---|---|---|
| | | Descrizione - Description Beschreibung - Description | Disegno - Drawing Zeichnung - Dessin | Norma di collaudo - Test specification Abnahmenorme - Specification | |
| 1 | 35 | CORPI I°1500 STP.SRV.SABB. | 4/11-150 | A182 F22 | › |
| | › | › | › | › | › |
| | › | › | › | › | › |

ANALISI CHIMICA - CHEMICAL ANALYSIS - CHEMISCHE ZUSAMMENSETZUNG - COMPOSITION CHIMIQUE

| Codice di identificazione forgiato sui pezzi Heat identification code stamped on forging pieces | Colata N. Heat No. Schmelze Nr. No. de Coulée | C % | Si % | Mn % | Ni % | Cr % | S % | P % | Mo % | Cu % | Sn % | Al % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 646 | 51207 | 0,120 C.E. % | 0,168 F.B. % | 0,424 V% 0,009 | 0,108 | 2,164 | 0,011 | 0,008 | 0,911 | 0,111 | | 0,016 |
| › | › | | | | | | | | | | | |
| › | › | | | | | | | | | | | |

PROPRIETÀ MECCANICHE - MECHANICAL PROPERTIES - MECHANISCHE EIGENSCHAFTEN - ESSAIS MECANIQUES

| Colata N. Heat No. Schmelze Nr. No. de Coulée | Lega Alloy Legierung Alliage | Provetta Test bar Probestab Echantillon | Rs (N/mm²) Snervamento Yeld Point Streckgrenze Limit d'élasticité | R (N/mm²) Rottura Tensile strenght Zugfestigkeit Rupture | A (%) Allungamento Elongation Dehnung Allongement | Z (%) Contrazione Red. of area Einschnürung Contraction | HB Hardness on forging pieces | Resilienza - Resilience Kerbschlagzähigkeit - Resil. Charpy V - Notch at minus |
|---|---|---|---|---|---|---|---|---|
| 51207 | › | › | 469 | 581 | 27 | 64,2 | | KV(J) |
| | | › | | | | | | KCU(J |
| | | › | | | | | | |
| | | › | | | | | | |
| | | › | | | | | | |

14 MAG. 1999

DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.

| Trattamento Termico Thermal Treatment Thermische Behandlung Traitment Thermique | NORMALIZZATI E RINVENUTI › |
|---|---|

| JOMINY | mm | 1,5 | 3 | 5 | 7 | 9 | 11 | 13 | 15 |
|---|---|---|---|---|---|---|---|---|---|
| Norm. | HRC | | | | | | | | |
| Tempra | mm | 20 | 25 | 30 | 35 | 40 | 45 | 50 | |
| | HRC | | | | | | | | |

GRANO AUSTENTICO austenite grain size check — Metodo: ISO 643-UNI3245-ASTM E112

Final Control on forging pieces and found: _____
Sandblasting SA 2 1/2: _____
Marking on pieces: _____
Visual inspection: _____
Dimensional control: _____
Hardness test: _____

UFFICIO COLLAUDI - Inspection Department
Prüfungsabteil - Bureau d'inspection
F.lli RISETTI
Quality Assurance
VALERIO RISETTI
Sign.

**SORBIT** S.R.L.

SINCERT

# CERTIFICATO DI COLLAUDO DOPO T.T.

IN ACCORDO EN 10204-3.1.B

| DOCUMENTO / DOKUMENT | DATA / DATUM |
|---|---|
| L 3384/99 | 23/04/1999 |
| N. BOLLA / LIEFERSCHEIN NR. 147 | DATA BOLLA / LIEFERSCHEIN DATUM 22/04/1999 |

| COD. CLIENTE / AUFTRAGGEBER | COD. | MATERIALE / WERKSTOFF | SPESS. MAX / MAX DICKE |
|---|---|---|---|
| 892 OFF.MECC.F.LLI RISETTI SRL | F223 | F22 Cl.3 A182 | 60 |

| PEZZO / STÜCK | N. DISEGNO / ZEICHNUNGS-NR. | ORDINE / BESTELLUNG | COMMESSA / AUFTRAG | N. COLATA / SCHMELZE-NR. | RICHIESTE / ANFRAGEN | QUANTITA' / ANZAHL | PESO Kg. / GEWICHT/Kg. | CONTENITORI / BEHALTER |
|---|---|---|---|---|---|---|---|---|
| CORPI | 4/11-150 | | | G46 | HB 156-207 | 35 | 630,0 | CASSONE 1 |

## LAVORAZIONE E/O TRATTAMENTO TERMICO RICHIESTO / DIE VERLANGTE AUSFUHRUNGV / O WARMEBEHANDLUNGS

| COD. | DESCRIZIONE / BESCHREIBUNG | T. PARTENZA °C / AUSGANGS-TEMP. | I. SALITA h. / AUFHEIZZEIT | T. PERM.°C / HALTETEMPERATUR | L. PERM. h / HALTEZEIT | RAFFREDD. / ABKUHLEN | FORNO N. / OFEN | SPECIFICHE / SPEZIFIKATION |
|---|---|---|---|---|---|---|---|---|
| TDH | NORMALIZZAZIONE A.T. | | | 970 | 1,50 | ARIA | 10/2 | P-07/6 REV.0 |
| R | RINVENIMENTO | | | 680 | 3,00 | ARIA | 8 | |

ALTRE RICHIESTE / SONSTIGE ANFRAGEN

dit X

TUV

ddc

rem

rcp

% PROVA / PROBEN

## COLLAUDO / ABNAHMEPRUFUNG

DUREZZE RILEVATE

HBS 163

PEZZI PROVATI / PRUFGGENSTAND

2

NOTE / BEMERKUNGEN

DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.....

ALLEGATI / ANLAGEN

DIAGRAMMA N°6903

IL RESPONSABILE CONTROLLO QUALITA' / DER WERKSSACHVERSTANDIGE

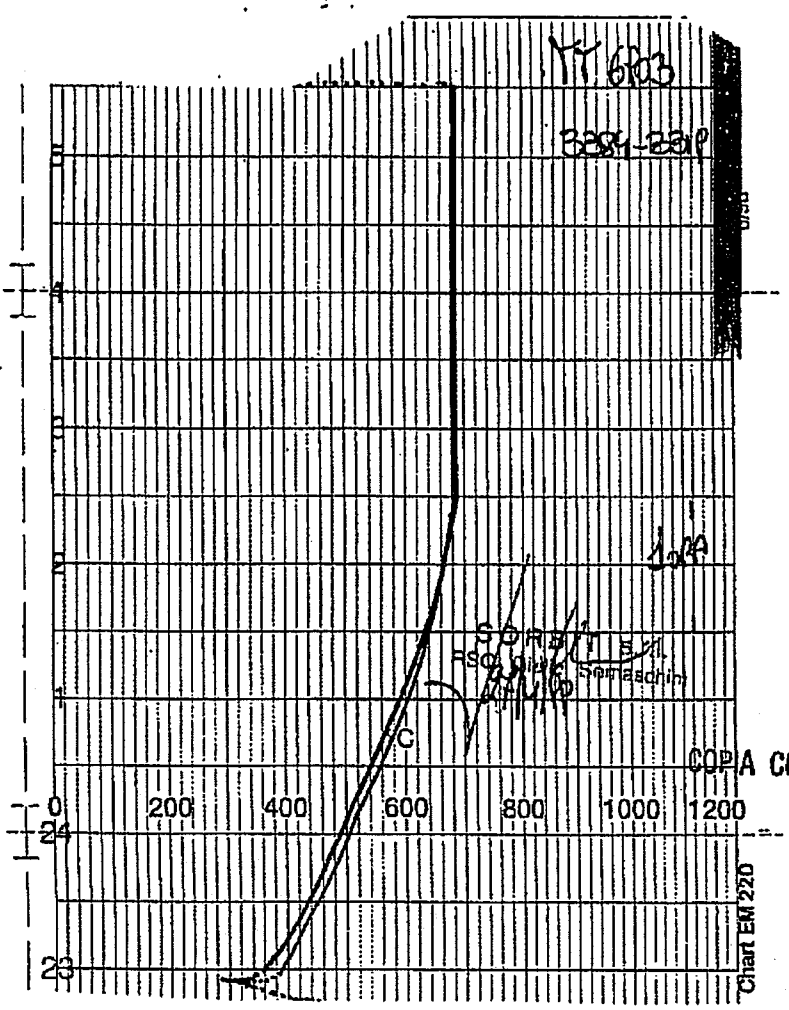
SORBIT s.r.l.
RSQ Giulio Somaschini

DATA / DATUM 27/ 4/1999

| Scheda n. | Data | Revisione | Chi archivia |
|---|---|---|---|
| S-10/1 | 04/95 | 0 | RSQ |

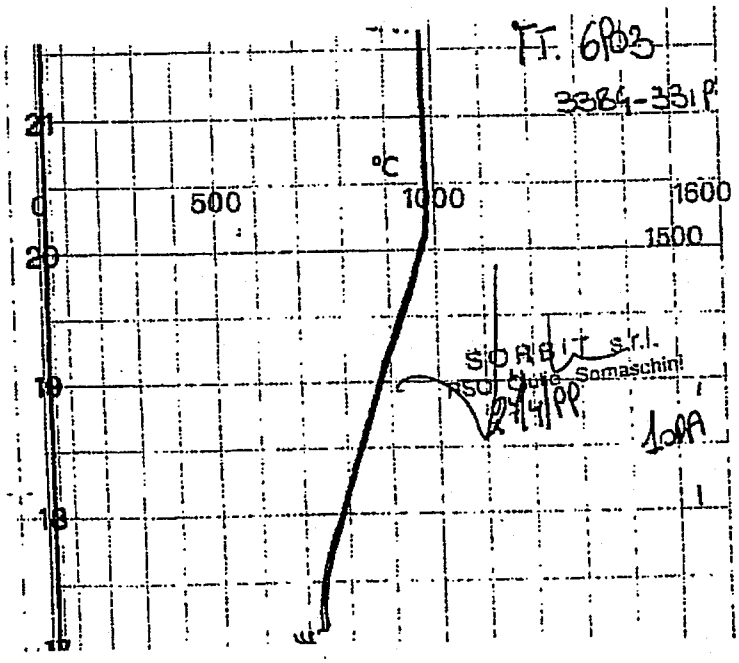
TÜV

AD-Merkblatt W0/HP 0 /7/1/TDR 100




COPIA CONFORME ALL'ORIGINALE
*SORBIT CQ*

**DOUGLAS CHERO Spa**
Quality Assurance
P.C. STEVANI VITTORIO
Sign. .....



# Acciaierie Valbruna S.p.A.

# CERTIFICATO DI COLLAUDO
# ABNAHMEPRUEFZEUGNIS
# INSPECTION CERTIFICATE
# CERTIFICAT DE RECEPTION
# EN 10204 , 3.1.B


36100-VICENZA (Italia) - Viale della scienza, 25 z.i.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4


Cliente / Kunde/Purchaser/Client
VERRI & PINA SRL
VIA TERRAROSSA, 10 - C.P. N.26
22035-CANZO (CO)-CO

Produttore: STABILIMENTO DI BOLZANO
Herstellerwerk/Usine productrice

Avviso di Spedizione: A-BZ04006088
Lieferanzeige/Packing List n.

Ordine nr: 94-95-97-103
Besuel/Your order/Commande

Certificato nr: MEST122862/2004/
Prüfung/Test/Essai

Conferma ordine nr: MI04002883
Werks/Our Order/Ref nr.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice

Oggetto Prova: - Ricotto lavorabile Pelato
Prüfgegenstand/material en inspection/Prélevage

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'élaboration

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'acheteur

5C

4422

Specifiche:
Anforderungen / Requirements / Exigences
ASTM A182 2000C S41000 CLASS2 (0)
(0) Chemical analysis only and mecc.properties(for ASTM A182[M])

Qualità: 410
Werkstoff/Grade/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Nuance

Punzonatura: 410
Kennzeichnung/Marking/Marquage

| Pos. nr. Pos.-nr. Item nr. N/r. del pezzo | Oggetto Gegenstand Product description Dessin. du produit | Dimensioni - mm Abmessungen Dimension Dimension | Tolleranza Toleranz. Allowance Tolerance | Lunghezza - mm Länge Length Longueur | Colata Schmelze Heat Coulée | Pezzi Stückzahl Pieces Pièces | Peso - Gewicht Weight Poids | Lotto nr. Losnr. Lot nr. Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0050 | Tondo | 25,000 | | 5000 / 5500 | 414430 | | 3707,0 | 409202580 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind in Anlage erfüllt
The material has been tested in accordance with the requirements
La matière a été soumis conformes aux exigences

Controllo antimescolanza: OK
Verwechslungsprüfung: spectroanalytisch durchgeführt
Anti-mixing testing performed: OK
Contrôle anti-mélange fait: o.k.

Controllo visivo e dimensionale: soddisfa le esigenze:
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checkings: satisfactory
Contrôle visuel et dimensionnel: satisfaisant

| TEST | Provetta/Probestab Sezione trasversale Long. diam. Spess. Round Quad. Octa Width Diam. Thickness Long. diam. spess. mm | °C | Prova Doppia Retest Contre-essai % | Snervamento Streckgrenze Yield Point Limite d'allongt. Rp 0,2% N/mm2 | Snervamento Streckgrenze Yield Point Limite d'allongt. | Resistenza Zugfestigkeit Tensile Strength Résistance à rupture Rm N/mm2 | Allungamento Bruchdehnung Elongation Allongement E 4d % | | Strizione Einschnürung Reduction of area Striction RA % | | Resilienza Kerbschlagarbeit Impact Value Resilience | | | Durezza Härte Hardness Dureté HB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 Anforderung erfüllt/required values Valeurs demandées | | min max | | 380 | - | 585 | - | 18 | - | 35 | - | | | 167 229 | | |
| A | 10.00 | 20 | L | 534 | | 688 | | 31 | | 70 | | | | 216 | | |

1)L=Längsrichtung/Long. Q=transversale/oper. T=Tangentiale/tangential

## Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata Heat Schmelze/Coulée | min - max 0,15 | - 1,00 | - 1,00 | 11,50 13,50 | - 0,90 | - 0,040 | - 0,030 | - | - | - | - | - | - | - | - |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 414430 | 0,13 | 0,44 | 0,72 | 12,36 | 0,24 | 0,024 | 0,030 | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,s.,4.3 by TUEV and LLOYD'S

**DOUGLAS CHERO Spa**
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

| Bolzano, 15/07/04 Ort/Datum/Lieu | Il collaudatore di stabilimento / der Werkssachverständige / Works inspector / L'agent d'usine<br>R.Cristel | Pagina - 1 di 1 |
|---|---|---|

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

**CERTIFICATO DI COLLAUDO**
**ABNAHMEPRUEFZEUGNIS**
**INSPECTION CERTIFICATE**
**CERTIFICAT DE RECEPTION**
**EN 10204 , 3.1.B**

Ø 26
F6 Ric

Cliente / Kunde/Purchaser/Client: NCOSS

Avviso di Spedizione: A-8Z04606561
Lieferanzeige/Packing list/B.L.: Julo4503

Certificato nr: MEST127568/2004/
Prüfung/Test/Essai

Conferma ordine nr: MI04001328
Werks/Our Order/Ref nr.

Produttore: STABILIMENTO DI BOLZANO
Hersteller/Name/Usine producteur

Ordine nr: DD. 11.2.04
Bestell/Your order/Commande

Marchio di Fabbrica:
Zeichen des Herstellers
Trade mark
Sigle de l'usine productrice

Oggetto Prove: - Ricotto lavorabile Pelato
Prüfgegenstand/Item inspected/Réalisage

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'élaboration

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'essayeur

Specifiche:
Anforderungen / Requirements / Exigences

BELLEBONO 2004 410 HRC<22 A - ASTM A182 2002 S41000 (o)
(O) Chemical analysis only.

Qualità: 410
Art/Grade/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Marque

Punzonatura: T.410
Kennzeichnung/Marking/Marquage

| Pos. nr. / Pos. nr. / Item no. / Nr. de poste | Oggetto / Bezeichnung / Description / Désignation | Dimensioni - mm / Abmessungen / Dimensions / Dimension | Tolleranza / Toleranz / Allowance / Tolerance | Lunghezza - mm / Länge / Length / Longueur | Colata / Schmelze / Heat / Coulée | Pezzi / Stückzahl / Pieces / Pièces | Peso - Gewicht / Weight / Poids | Lotto nr. / Losnr. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0100 | Tondo | 26,000 | K12-MIN | 3900 / 4000 | 238300 | | 2402,8 3013 | 405400200 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind lt. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le matériel a été livré conformément aux exigences

Controllo antimescolanza: OK
Verwechslungsprüfung: spektralanalytisch durchgeführt
Analysing testing performed: OK
Contrôle antimélange fait: p.s.a.

Controllo visivo e dimensionale: soddisfacente
Sichtprüfung und Ausmessung ohne Beanstandung
Visual inspection and dimensional checks satisfactory
Contrôle visuel et dimensions: satisfaisant

| TEST | Provetta/Probe/Eprouvette Direzione Campione/Lage/Sens Lung. misur. Aperta/Länge/Longueur Diam. Esterno/Durchm./Diamètre Diam. Interno/Innendurchm./Diamètre intérieur Lung. utile/Messlänge/Longueur utile mm | °C | Prov. Saggio/Kerbschlagprobe/Eprouvette Resilienza/Kerbschlagarbeit/Résilience J | Snervamento/Streckgrenze/Yield Stress/Limite élastique Rp 0,2% N/mm2 | Snervamento/Streckgrenze/Yield Stress/Limite élastique | Resistenza/Zugfestigkeit/Tensile strength/Résistance à traction Rm N/mm2 | Allungamento/Bruchdehnung/Elongation/Allongement E 4d % | | Strizione/Einschnürung/Reduction of area/Striction RA % | | Resilienza/Kerbschlagarbeit/Impact Value/Résilience | | | Durezza/Härte/Hardness/Dureté HRc | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 / Anforderungen/Required values/Valeurs demandées | | min / max | | - | - | - | - | - | - | - | | | | - | 22,0 | |
| A | 10.00 | 20 | L | 412 | | 684 | | 32 | | 68 | | | | 15,0 | | |

1) L=long./Laängs/Longit., Q=trasversale/quer/Transversale, T=Tangenziale/Tangential

## Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata / Heat / Coulée | mm - max 0,75 | - 1,00 | - 1,00 | 11,50 - 13,50 | - 0,50 | - 0,040 | - 0,030 | - | - | - | - | - | - | - | - | - |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | | |
| 238300 | 0,14 | 0,49 | 0,78 | 12,25 | 0,29 | 0,023 | 0,028 | | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive (97/23/EC) Annex 1,s.4.3 by TUEV and LLOYD'S

DOUGLAS CHERO Spa
Quality Assurance
P.C. STEFANI VITTORIO
Sign.

COPIA CONFORME ALL'ORIGINALE
ACCIAIERIE VALBRUNA S.P.A.
FILIALE DI CORMANO

| Bolzano,27/07/04 | Il collaudatore di stabilimento / der Werkssachverständige / Works inspector / L'agent d'usine: R.Cristel | Pagina - 1 di 1 |
|---|---|---|

241989 01

TORNERIA MECCANICA
**VINCENZO MOLINARI**
29100 Piacenza Italy - Via S. Bartolomeo, 136
Tel. 0523/59.32.81 - Fax 0523/59.27.47
R.E.A.PC N° 106098 - R.I. PC N° 28139/1996

SINCERT

# CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 3.1 B

N° 041653/2004

DATE 13/05/2004

CLIENTE / *PURCHASER*: DOUGLAS CHERO S.P.A.

COMMESSA N° / *JOB N°*: 040396

ORDINE N° / *ORDER*: 240623 15/03/2004

NOTE / *REMARKS*:

DESCRIPTION OF MATERIAL: STUD BOLTS B16.5 ASTM A 193 -01b B16 (QT) (MT)
01) N. 100 D.1/2"UNC x 90

## MECHANICAL REQUIREMENT

| | R N/mm2 | Rp N/mm2 | A % 50mm | Z % | KV/J | HB | HB 24h Proof 540C * LoadKN |
|---|---|---|---|---|---|---|---|
| REQUIRED MIN | 860 | 725 | 18 | 50 | | | |
| REQUIRED MAX | | | | | | 321 | |
| 01) | 938 | 794 | 20.6 | 62.0 | | 284 | |

## CHEMICAL ANALYSIS

| HEAT N° | C | Mn | Si | P | S | Ni | Cr | Mo | V | Al |
|---|---|---|---|---|---|---|---|---|---|---|
| REQUIRED MIN | 0.360 | 0.450 | 0.150 | | | | 0.800 | 0.500 | 0.250 | |
| REQUIRED MAX | 0.470 | 0.700 | 0.350 | 0.035 | 0.040 | | 1.150 | 0.650 | 0.350 | 0.015 |
| 01) AQ6810 | 0.390 | 0.600 | 0.240 | 0.013 | 0.012 | | 1.060 | 0.640 | 0.300 | 0.009 |

18 MAG. 2004
*DOUGLAS CHERO Spa*
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

WE CERTIFY THAT OUR TEST RESULTS WITH REQUIREMENTS OF THE PRODUCT DESCRIPTION. CONF. TO DIN 50049 3.1 B.
(QT):HEAT TREATMENT: QUECHED TEMPERED (CST):CARBIDE SOLUTION TREATED
(MT):MINIMUM TEMPERING: 660 C
(H):HARDENED (N):NORMALIZED (SB):STABILIZED (SH):STRAIN HARDENED
(ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED ABOVE HAS BEEN TESTED AND COMPLIES WITH THE TERMS OF THE ORDER CONTRACT

Q. A. MANAGER
Dott. Ing. V. MOLINARI

Officina Meccanica
VINCENZO MOLINARI
Via S. Bartolomeo, 136
29100 PIACENZA

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948
E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129


CERTIFICATO DI COLLAUDO
Inspection certificate

N°5882/DCH DATE-09.02.04

CLIENTE- DOUGLAS CHERO Spa ORDINE- 049 BOLLA CONSEGNA N-430.
Customer Order Delivery note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| 1 | 428 | DADI-NUTS 1/2 UNC | Astm A194 GR.4 | 014606 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Mo | S | P |
|---|---|---|---|---|---|---|---|
| REQUIRED | min. | 0,40 | 0,70 | 0,15 | 0,20 | | |
| VALUE | max. | 0,50 | 0,90 | 0,35 | 0,30 | 0,040 | 0,035 |
| HEAT n. 014606 | | 0,416 | 0,789 | 0,175 | 0,275 | 0,028 | 0,012 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

Hardness test during production
Required value : 24-38 Hrc
Actual : 26-29 Hrc

Hardness test after 24 hrs. tempering at 590 °C
Required value : 201 HB min.
Actual : 240-260 HB

Impact test KV - 101 °C
Minimum impact for average test : 27 J min.
Minimum impact for one specimen : 20 J min.
Single values : 36-33-33 J
Average : 34 J

HEAT TREATMENT
Quenched at : 860 °C in oil
Tempering : 2 hours at 595 °C min.

Proof load test: POSITIVE
Visual and dimensional test = SATISFACTORY

13 FEB. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

This certificate has been tested in according with the specification included in your order.

QUALITY CONTROL

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

# ISELFA

STEEL FORGINGS
ELECTRING FITTINGS

00170180C

S.r.l. - C.F./P.IVA VAT IT 00189520125
21048 SOLBIATE ARNO (Va) Italy - Corso Roma, 22
P.O. BOX 21 - TELELEFONO +39 (331) 99.30.08
FAX FORGINGS +39 (331) 99.15.35 - FAX FITTINGS +39 (331) 99.46.77

## CONTROLLO QUALITÀ

Certificato di conformità
Compliance certificate
Gemaess Zeugnis
UNI EN 10204/3.1.B

| N° | Data / Date |
|---|---|
| 6672 | 22.11.99 |

| | | | | | |
|---|---|---|---|---|---|
| CLIENTE *Customer / Kunde* | DOUGLAS CHERO SPA | ORDINE N° *Order / Bestellung* | 995073 | DATA *Date / Datum* | 15.09.99 |
| RIMESSO N° *Delivery note / Lieferschein* | 2343 | DATA *Date / Datum* | 22-11-99 | N° PEZZI *Pieces / Stuckzahl* | 127 |

DESCRIZIONE - *Description - Dezeichnung*: CAPPELLI 1"-1500 Dis.4/10 Rev.0

DISEGNO N° - *Drawing - Zeichnung*:

INDICE - *Last revision -Verzeichnis*:

| TIPO ACCIAIO *Steel type / Stahl* | COLATA *Heat / Schmelze* | FORNITORE *Supplier / Lieferant* |
|---|---|---|
| F.22 BILL.80 | 51706/80 | ACCIAIERIE BERTOLI SAFAU SPA |

COMPOSIZIONE CHIMICA / *Chemical composition / Chemische Zusammensetzung*

CARATTERISTICHE ACCIAIO

| % | C | Mn | Si | Cr | Mo | P | S | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA min *Requested* | 0,050 | 0,300 | | 2,000 | 0,870 | | | | | | |
| *Erforderikhe* max | 0,150 | 0,600 | 0,500 | 2,500 | 1,130 | 0,040 | 0,040 | | | | |
| FORNITA *Supplied / Wirkliche* | 0,1030 | 0,3400 | 0,1000 | 2,2700 | 0,9300 | 0,0140 | 0,0050 | | | | |

PROVA JOMINY / *Jominy test / Stimabschreckversuch*

| HRC | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA min *Requested* | | | | | | | | | | | | GRANO *Grain size* |
| *Erforderikhe* max | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | *Komgrosse* |
| FORNITA *Supplied / Wirkliche* | | | | | | | | | | | | |

CARATTERISTICHE MECCANICHE / *Mechanical properties / Mechanische Eigenschaften* — Normalizzato ☐ Bonificato ☐

| Ø PROVETTA *Ø sample / Ø probest* | RP 0,2% *Yield strenght 0,2% / 0,2% Grenze* | R *Tensile strenght / Zugfestigkeit* | A% *Elongation % / Dehnung %* | Z % *Reduc. of area % / Einschnurung %* | KCU *Impact value / Kerbschlang* |
|---|---|---|---|---|---|
| mm | N/mm² | N/mm² | Lo = 5d | | J (joule) |
| | 432 | 538 | 27 | 77 | 0 / 0 / 0 |

CARATTERISTICHE PRODOTTO

| | | | | | |
|---|---|---|---|---|---|
| TRATT. TERMICO *Heat Treatement / Warmebehandlung* | NORMALIZZ+RINV | DUREZZA RICHIESTA *Requested hardness / Fesligkeit* | N/mm² | | |

| DUREZZA RISCONTRATA N/mm² *Checked hardness / Finden harte* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | |
|---|---|---|---|---|
| CONTROLLI *Tests / Ausmabetest* | C.D.C. | SI | DIMENSIONALE | POSITIVO |
| | MAGNAFLUX 100% | NO | ALTRI | **DOUGLAS CHERO Spa** NO |
| | VISIVO 100% | SI | | Quality Assurance |
| ALLEGATI *Enclosed / Anlage* | ANALISI CHIMICA ACCIAIERIA | SI | PRODOTTO AUTOCERTIFICATO | P.C. STEVANI VITTORIO ☐ |
| | CERTIFICATO TRATT. TERMICO | NO | 25 NOV. 1999 | Sign. |

NOTE *Remarks / Bemerkungen*: TRATT:RISCALDO A 960C PER1 ORA OGNI 25 mm. DI SPESSORE E RAFFR. IN ARIA CALMA. SUCCESSIVO RISCALDO A 735-750C PER 2 ORE OGNI 25 mm. DI SPESSORE E RAFFREDDAMENTO IN ARIA CALMA. /SIGLA COLATA "AA"

CONTROLLO QUALITÀ / QUALITY CONTROL / QUALITATSSTELLE: ISELFA UFFICIO CONTROLLO QUALITÀ

COMPILATORE: ISELFA SOLBIATE ARNO

EMESSO ED ARCHIVIATO DAL RESPONSABILE DEL CONTROLLO FINALE (CFI)

 STAMPAGGIO

UGITECH
Groupe Arcelor

FRANCE

5 Usine Productrice / Hersteller / Manufacturer: **UGINE** F 73403 UGINE CEDEX Tél : 04.79.89.30.20 Fax : 04.79.89.30.51

4 N. Nr No 80208

11 N. de commande usine-Werksauftragsnummer-Works order number: FUGE TEJE 01/01 8Z101000

3

# CERTIFICATO COLLAUDO DI ACCETTAZIONE B
# CERTIFICAT DE RECEPTION 3.1.B
# INSPECTION CERTIFICATE B

EN 10204 / 3.1.B

Produit / Erzeugnisform / Product: IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE — 6

Client et/ou destinataire - Besteller und/oder Empfaenger - Purchaser and/or Consignee: TECNOMECCANICA SRL — 9

N. de commande client - Kundenauftragsnummer - Purchaser order number: 364 — 10

Nuance et spécifications techniques - Stahlsorte und Pruefbedingungen - Quality and Specifications: IMA4006 410 AISI 410 UNS S41000
SPEC. SDA 09 DU 20/11/01 (SAUF MN) — 12

Etat de livraison - Lieferzustand - As delivered (1): TEMPRATO RINVENUTO — 13

Traitement de Référence - Probestraffenbehandlung - Treatment of test samples (1): — 14

| Identification du produit Erzeugnis Benennung-Product Identification N. de cde usine Werksauftragsnummer Works order number 15 | N. de poste Post Nr Item No 17 | N. de Coulée Schmelz Nr Heat No 16 | Nombre Stueckzahl Pieces Nbr 18 | Profil Profile Shape 19 | Dimension Ausmassung Dimension 20 | Longueur Laenge Length 21 | Masse Gewicht Weight 22 |
|---|---|---|---|---|---|---|---|
| 8Z101 000 | | 350031 | 190 | TONDO | 20,000 | | 1974 KG |

| Prélèvement Probenummer Test N. 39 B | Demandé Vorschrift Required (3) 24 | Température d'essai Pruefemperatur Test Temperature 25 | Traction - Zugversuch - Tensile test: Limite d'Elasticité Streckgrenze Yield Strength 0,2 % 26 A | 1 % 26 B | Résistance à la traction Zugfestigkeit Tensile strength 27 | Allongement Bruchdehnung Elongation (L = 5d0) 28 | Striction Einschnuerung Red of Area 29 | Dureté Haerte Hardness (4) 30 | Type Form Type 31 | Résilience: Dimension Abmessung 32 | Température d'essai Pruefemperatur Test Temperature 33 | Résilience - Kerbschlagzaehigkeit - Notch Toughness: Valeurs individuelles Einzelwerte Individual Values 36 | Moyenne Mittelwerte Average 38 | Dureté Haerte Hardness (5) 37 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | °C | MPA | MPA | MPA | % | % | | | | | | | HB |
| | Min | 20 | 275 | | 585 | 20 | 45 | | | | | | | |
| | Max | | | | | | | | | | | | | 237 |
| | (4) | | | | | | | | | | | | | |
| | (5) | | 607 | | 684 | 21 | 72 | | | | | | | 205 |

| N. de Prélèvement Probenummer Test N. 39 A | Demandé Vorschrift Required | 42 C | 43 SI | 44 MN | 45 NI | 46 CR | 47 S | 48 P | 49 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min | | | 0,30 | | 11,50 | | | | |
| | Max | 0,150 | 0,60 | 0,60 | | 13,50 | 0,030 | 0,040 | | |
| N. de Coulée Schmelz Nr Heat N. 350031 | Analyse/Produit-Stück-analyse-Check Analysis | 0,107 | 0,42 | 0,38 | 0,35 | 12,18 | 0,022 | 0,019 | | |

| 38 Mode d'élaboration Erschmelzungsart Melting process | Demandé Vorschrift Required | 51 | 52 | 53 | 54 | 55 |
|---|---|---|---|---|---|---|
| Electrique Elektrisch Electric | Min | | | | | |
| | Max | | | | | |

IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE

06 MAG. 2004

DOUGLAS CHERO Spa

Quality Assurance .....

P.C. STEFANI VITTORIO

Sign .....

(3) L = Long Laengs - Long T = Travers Quer-Transverse 58

(1) TE = Trempé à l'eau - Wasserhaerten - Waterquench; TH = Trempé à l'huile - Oelhaerten - Oil Quench; A = Hypertrempé - Losungsgegluecht - Solution annealed; R = Revenu - Anlassen - Tempered; RT = Recuit - Gegluecht - Annealed; TRM = Recuit maxi - Weichgegluecht - Maxi annealed 7

(4) A l'état de référence - Zum Bezug Zustand - At reference condition 60 A

(5) A l'état de livraison - In Lieferzustand - In state of delivery 60 B

Contrôles de marquage, d'aspect et de dimensions: satisfaisants - Bezeichnung, Beschigung und Ausmessung: ohne Beanstandung - Marking, inspection and measurement: without objection 62

Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande - Wir bestaetigen hiermit dass die obengenannten Erzeugnisse den Bestellungsvorschriften entsprechen - We certify hereby that the above mentioned products are consistent with the order prescriptions 66

Usine, le 15-01-04

L'Agent Réceptionnaire de l'usine - Der Werksabnehmerbeauftragte - The Work Inspector

H. Mayet 65

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** ***Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt***
Customer:

**Bestell-Nr.:** ***Lurgi Job – No.:*** ***69690-10***
Order no.: ***Lurgi OGC PO.-No.:*** ***4567569-000 to -001/1.69690/136***

*Project Name :* ***2nd Zagros Methanol Plant - Iran***

**Auftrag-Nr.:** ***HH – 02535***
Job no.:

**Lieferumfang** / range:

| **Pos** | **Stck.** pcs. | **Gegenstand** object | **DN** | **PN** | **Werkstoff** material | **Bemerkung** comment |
|---|---|---|---|---|---|---|
| *00240* | *34* | *Gate valve*<br>*FB BB NPT+2*<br>*Weld.Nipples Sch.160. 4,78mm*<br>*Seats + Wedge Stell.* | *1/2"* | *Cl.1500* | *A182/F22 C.3* | *Valve Ident – No.: " **S480** "* |

**Auslegung + Prüfung nach** API 602 – BS EN ISO 15761, API 598 / BS EN 12266-1
Design and tests acc. To ASME B16.34 – B16.25 – B16.11 – B1.20.1

**Sicht- und Funktionsprüfung:** *o.k.*
visual and functional test:

**Festigkeits-/Dichtheitsprüfung:**
strength-/tightness-test:

| | | | |
|---|---|---|---|
| *Festigkeit / shell test* | = | *388 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *285 bar Wasser / water* | (60 sec) |
| *Rückdichtung / backseat* | = | *285 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *6 bar Luft / air* | (60 sec) |

**Prüfungsergebnis:** *ohne Beanstandung !*
result: *no complaint !*

*Bochum, den 28.02.2005 - WG* **KLAUS-UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** *Dokumentation gemäß Material-Dokumentationsdeckblatt*
enclosure *Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter / Person in charge W. Glass

**Kommissions-Nr. / Reference No.**

**HH-02535**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00240 | Gate Valve 1/2" Cl. 1500 lbs. FB, BB, NPT+2 Weld.Nippl. Sch.160 seats+wedge stel. 4,78mm | " S480 " | 17 | Body | E-YO | A182/F22 C.3 | Evasi e Casteln. | 414853 | | 000441 |
| | | Drawing-No.: BX652-7/TH-2N6 | | Nipp.sc.160 | 843079 | ASTM A335/F22 | Dalmine | 843079 | | 95/01067 |
| | | | | Wedge | | A182/F6a C.2 stel. | Valbruna | 238209 | | 128331/2004 |
| | | | | Seat | | A182/F6a C.2 stel. | Ugitech | 417024 | | 06902 |
| | | | | Body Srew | | ASTM A193/B16 | Morandi | AQ2869 | | 6126 |
| | | | | Bonnet | FB-VN | A182/F22 C.3 | Feat | 50409 | | 2004/3004445 |
| | | | | Stem | | A182/F6a C.2 | Ugitech | 417024 | | 06902 |
| | | | | | | | | | | |
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26836



**Evasi e Castelnuovo s.r.l.**
Via Carlo Porta, 1 - 23861 CESANA BRIANZA (LC)
Tel. 031/65.59.36 - Fax 031/65.66.27
Cod. Fisc. e Part. IVA 00209790138
Reg.Soc. Trib. Lecco n. 5932 - C.C.I.A. 121373

Spett.
DOUGLAS CHERO SPA

LOC. PRADAGLIE
29013 CARPANETO PIACENTINO PC

***CERTIFICATO DI COLLAUDO/INSPECTION CERTIFICATE***
***UNI EN 10204 3.1 B***

***SISTEMA QUALITA' CERTIFICATO UNI EN ISO 9001/2000***
***QUALITY SYSTEM CERTIFIED UNI EN ISO 9001/2000***

| N. | DATA/DATE |
|---|---|
| 000441 | 27-11-2004 |

D.D.T. / DELIVERY NOTE
N. DATA/DATE

| COLATA /HEAT N. | MATERIALE/MATERIAL | ACCIAIERIA/STEEL PLANT | N.QUANTITY | DESCRIZIONE/DESCRIPTION |
|---|---|---|---|---|
| 414853 | F22 | ACC. VALBRUNA | 288 | CORPO 4/9 |

## ANALISI CHIMICA / CHEMICAL ANALYSIS

| C | Mn | Si | P | S | Cr | Ni | Mo | Ti | V | Cu | Al |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,090 | 0,450 | 0,410 | 0,024 | 0,003 | 2,220 | | 0,910 | | | | |
| **Sn** | **Nb** | **N** | **Fe** | **W** | **Ta** | **Co** | **Ca** | **B** | **Sb** | | **CE** |
| | | | | | | | | | | | |

## PROVE MECCANICHE/MECHANICAL TESTS

| RS-YELD N./mm² | R-TENSILE N./mm² | A%-ELONG | Z%-REDUCT |
|---|---|---|---|
| 464,0 | 623,0 | 29,0 | 75,0 |

*IMPACT TEST - KV - J*

| TEST 1 | TEST 2 | TEST 3 | TEMP. °C |
|---|---|---|---|
| | | | |

| TRADE MARK | HEAT CODE | MATERIAL CODE | MATERIAL TYPE NR. | DWG |
|---|---|---|---|---|
| E.YO | | | | |

03 DIC. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

*TRATTAMENTO TERMICO / HEAT TREATMENT*

| DESCRIPTION | HEATING °C | STAY TIME | COOLING | HARDNESS |
|---|---|---|---|---|
| NORMALIZZAZIONE | 960 | 2,3 | ARIA CALMA | |
| RINVENIMENTO | 730 | 3,0 | ARIA CALMA | |

1) The result of chemical analisys is a true and correct copy of the mill cerificate issued, by the manufacturer of the steel employed, or by the laboratory which has determined it.
*Il risultato delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati*

2) Visual and dimensional control satisfactory.
*Controlli visivi e dimensionali soddisfacenti.*

3) Results of test effected are in conformance with order's specifications.
*I risultati delle prove eseguite sono conformi alle specifiche richieste.*

4) We confirm that materials used for the manufacture of supplied products are in conformance with the Directive 97/23/CE (PED); in particular with annex 1 par. 4 "Materials".
*Confermiamo che i materiali usati per lo stampaggio dei prodotti forniti sono conformi alla Direttiva 97/93/CE (PED) e particolarmente all'allegato 1 paragrafo 4 "Materiali".*

| APPROVATO/APPROVED |
|---|
| COLLAUDATORE/INSPECTOR |
| EMESSO/ISSUED |

EVASI E CASTELNUOVO s.r.l.
STAMPERIA IN FERRO E ACCIAIO

DOUGLAS CHERO SPA P.O 960374
TAD JOB N.I 215421 96 POS. 001 NR 2 MT 14,40 KG 27,00 HEAT/COLATA N.843079

01189300

| | | |
|---|---|---|
| **Dalmine Tubi Precisione s.r.l.** Sist con un unico socio 24062 COSTA VOLPINO (BG) | INSPECTION CERTIFICATE (UNI EN 10204 3.1.B) | N. 95/01067 Page 1 |

CUSTOMER'S ORDER C 941948

MILL ORDER / ITEM 4790529/004

T.A.D. TUBI ACCIAIO E DERIVATI COMMERCIALE SPA
VIA CANOVA,36
20020 LAINATE MI

PRODUCT SEAMLESS COLD DRAWN STEEL TUBES FOR HIGH TEMPERATURE PURPOSES ACC TO ASTM A 335 AND ASME SA 335 SEC. II - STEEL GR. P 22 ASME SA 335 - TREATED ACC. TO SPEC - BLACK - PLAIN ENDS

DIMENSIONS:

| Lg. From | Lg. To | O.D. mm | W.T. mm |
|---|---|---|---|
| 6000 | 8000 | 21,300 | 4,780 |

QUANTITY : Nr 283 Mt 2037 Kg 3852 Ft 6683' 1" Lbs 8492,2

TEST N. 57078 HEAT N. 843079

TENSION TEST + 20,0^C
TEST SPEC. : LONGITUDINAL — SECTION 238,9 mm2
YIELD POINT 0,2% (MPA ): requir min 205 — result 526,2
TENSILE STRENGTH (MPA ): requir min 415 — result 655,1
ELONGATION : CALIBRATED ON 2" 50,0 mm
(%): requir.min 30,0 — result 31,0
HARDNESS HB requ. max 210,0 result from 174,0 to 177,0
TECNOLOGICAL TESTS PERFORMED WITH SATISFACTORY RESULTS:
FLATTENING TEST

TEST N. 57079 HEAT N. 843079

TENSION TEST + 20,0^C
TEST SPEC. : LONGITUDINAL — SECTION 237,6 mm2
YIELD POINT 0,2% (MPA ): requir min 205 — result 526,1
TENSILE STRENGTH (MPA ): requir min 415 — result 656,6
ELONGATION : CALIBRATED ON 2" 50,0 mm
(%): requir.min 30,0 — result 31,0
HARDNESS HB requ. max 210,0 result from 174,0 to 177,0
TECNOLOGICAL TESTS PERFORMED WITH SATISFACTORY RESULTS:
FLATTENING TEST

TEST N. 57080 HEAT N. 843079

TENSION TEST + 20,0^C
TEST SPEC. : LONGITUDINAL — SECTION 237,2 mm2
YIELD POINT 0,2% (MPA ): requir min 205 — result 520,7
TENSILE STRENGTH (MPA ): requir min 415 — result 657,7
ELONGATION : CALIBRATED ON 2" 50,0 mm
(%): requir.min 30,0 — result 31,0
HARDNESS HB requ. max 210,0 result from 174,0 to 177,0

Questo certificato è emesso da un sistema computerizzato ed è valido senza firma. Il certificato originale riporta il marchio "C" in colore verde lungo una diagonale. Il possessore dell'originale, qualora desiri copia, deve attestarne la sua rispondenza, assumendone ogni responsabilità per un diverso o complicamente non consentito dalla Dalmine Tubi Precisione s.r.l.

Alterazioni e/o falsificazioni saranno perseguite a termini di legge.

This certificate is issued by a computerized system and is valid without signature. On the original certificate the trademark "C" green coloured along the diagonal is stamped. In case the owner of the original certificate would require a copy of it, he must stand in conformity to the original one, taking upon himself the responsibility for any unlawful or not allowed use.

Any alteration and/or falsification will be subject to the law.

Ce certificat est rédigé par un système d'ordinateur et il est valable sans signature. Le certificat original mentionne la marque "C" de couleur verte en diagonal. Dans le cas où le possesseur de l'original désirerait une copie, il devra assumer la responsabilité en son nom, et s'engagerait toute la responsabilité pour des usages illégaux ou, tout simplement, pas permis par Dalmine Tubi Precisione s.r.l.

Toute altération ou contrefaction seront susceptibles d'entraîner des poursuites légales.

| DATE | D.T.P. Srl | CHIEF OF INSPECTION DPT |
|---|---|---|
| 02/02/1995 | CON UN UNICO SOCIO | Diego BETTONI |

DOUGLAS CHERO G.Q. STEVANOVIC V.

TAD COMMERCIALE
QUESTO DOCUMENTO È RIPRODOTTO MEDIANTE UN SISTEMA COMPIUTERIZZATO ED È CONFORME ALL'ORIGINALE
THIS DOCUMENT IS REPRODUCED BY A COMPUTERIZED SYSTEM AND IS CONFORM TO THE ORIGINAL

TECNOLOGICAL TESTS PERFORMED WITH SATISFACTORY RESULTS:
FLATTENING TEST

TEST N. 57081 HEAT N. 843079

TENSION TEST + 20,0^C
TEST SPEC. : LONGITUDINAL SECTION 238,4 mm2
YIELD POINT 0,2% (MPA ): requir min 205 result 482,4
TENSILE STRENGTH (MPA ): requir min 415 result 631,3
ELONGATION : CALIBRATED ON 2" 50,0 mm
(%): requir.min 30,0 result 32,0
HARDNESS HB requ. max 210,0 result from 167,0 to 170,0
TECNOLOGICAL TESTS PERFORMED WITH SATISFACTORY RESULTS:
FLATTENING TEST

TEST N. 57082 HEAT N. 843079

TENSION TEST + 20,0^C
TEST SPEC. : LONGITUDINAL SECTION 240,1 mm2
YIELD POINT 0,2% (MPA ): requir min 205 result 439,4
TENSILE STRENGTH (MPA ): requir min 415 result 603,1
ELONGATION : CALIBRATED ON 2" 50,0 mm
(%): requir.min 30,0 result 33,0
HARDNESS HB requ. max 210,0 result from 167,0 to 170,0
TECNOLOGICAL TESTS PERFORMED WITH SATISFACTORY RESULTS:
FLATTENING TEST

TEST N. 57083 HEAT N. 843079

TENSION TEST + 20,0^C
TEST SPEC. : LONGITUDINAL SECTION 240,1 mm2
YIELD POINT 0,2% (MPA ): requir min 205 result 492,7
TENSILE STRENGTH (MPA ): requir min 415 result 622,7
ELONGATION : CALIBRATED ON 2" 50,0 mm
(%): requir.min 30,0 result 32,0
HARDNESS HB requ. max 210,0 result from 167,0 to 170,0
TECNOLOGICAL TESTS PERFORMED WITH SATISFACTORY RESULTS:
FLATTENING TEST

HEAT N. 843079

HEAT ANALYSIS %

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C | 0,140 | Mn | 0,42 | Si | 0,24 | P | 0,009 | S | 0,002 | Sn | 0,009 |
| Cr | 2,19 | Mo | 0,93 | | | | | | | | |

PRODUCT ANALYSIS % TEST N. 57078/01

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C | 0,145 | Mn | 0,45 | Si | 0,25 | P | 0,010 | S | 0,003 | Cr | 2,18 |
| Mo | 0,94 | | | | | | | | | | |

Questo certificato è emesso da un sistema computerizzato ed è valido senza firma. Il certificato originale riporta il marchio [C] in colore verde lungo una diagonale. Il possessore dell'originale, qualora rilasci copia, deve attestarne a sua norma la conformità, assumendosi ogni responsabilità per usi illeciti o semplicemente non consentiti dalla Dalmine Tubi Precisione s.r.l.

Alterazioni e/o falsificazioni saranno perseguite a termini di legge.

This certificate is issued by a computerized system and it is valid without signature. On the original certificate the trade-mark [C] green coloured along the diagonal is stamped. In case the owner of the original certificate would release a copy of it, he must attest its conformity to the original one taking upon himself the responsibility for any unlawful or not allowed use.

Any alteration and/or falsification will be subject to the law

Le certificat est rédigé par un système d'ordinateur et il est valable sans signature. Le certificat original mentionne la marque [C] de couleur verte en diagonal. Dans le cas ou le possesseur de l'original délivrera une copie, il devra attester la conformité en son nom, en s'endossant toute la responsabilité pour des usages illicites ou, tout simplement, pas permis par Dalmine Tubi Precisione s.r.l.

Toute altération ou contrefaction seront susceptibles d'entraîner des poursuites légales.

| DATE | D.T.P. Srl | CHIEF OF INSPECTION DPT |
|---|---|---|
| 02/02/1995 | CON UN UNICO SOCIO | Diego BETTONI |

DOUGLAS CHERO
G.Q.
STEVANATO

TAD COMMERCIALE
QUESTO DOCUMENTO È RIPRODOTTO MEDIANTE UN SISTEMA COMPIUTERIZZATO ED È CONFORME ALL'ORIGINALE

THIS DOCUMENT IS REPRODUCED BY A COMPUTERIZED SYSTEM AND IS CONFORM TO THE ORIGINAL

| **Dalmine Tubi Precisione s.r.l.**<br>**SRL con un unico socio**<br>24062 COSTA VOLPINO (BG) | INSPECTION CERTIFICATE<br>(UNI EN 10204 3.1.B) | N. 95/01067<br>Page 3 |
|---|---|---|

PRODUCT ANALYSIS %  TEST N. 57081/01

| C | Mn | Si | P | S | Cr | Mo |
|---|---|---|---|---|---|---|
| 0,145 | 0,45 | 0,25 | 0,010 | 0,003 | 2,18 | 0,94 |

* La Societe' DALMINE garantit que tous les produits, objet du Certificat susdit, respectent en leur totalite' les Specifications de l' Article 15 de l' Arrete' Ministeriel du 24 Mars 1978 modifie':
* C max 0.25% P max 0.05% S max 0.05%
* Rm (N/mm2) max 700 A (Lo=5.65VSo) min 16% long Rm (A-2) min 10500

LEAK-TIGHTNESS TEST PERFORMED WITH SATISFACTORY RESULTS BY:
HYDRAULIC TEST PRESSURE 17,0 MPA

VISUAL AND DIMENSIONAL CONTROL OF THE TUBES HAS BEEN CARRIED OUT WITH SATISFACTORY RESULT

REMARKS:

THE STEEL IS FULLY KILLED PRODUCED BY ELECRIC FURNACE

THE TUBES HAVE BEEN NORMALIZED AT 920^C. AND TEMPERED AT 720^C. CONTINUOUS FURNACE
ALL TUBES HAVE BEEN SUBJECTED TO P.M.I. EXAMINATION WITH SATISFACTORY RESULT.

NO WELDED REPAIR HAS BEEN PERFORMED

MATERIAL ACC.TO ASTM/A335/92/ASME SA 335 SECT.II PART.A+ADD.92/93 U.E.

THE TESTS HAVE BEEN SELECTED BEFORE CUTTING TUBES TO FINISHED LENGTH

* CERTIFIED FACTORY UNI EN 29001 (ISO 9001): I.G.Q. Nr. 8606 *

24 GIU. 1996

**DOUGLAS CHERO Spa**
Quality Assurance
P.C. STEVANI VITTORIO
Sign. .....

Questo certificato è emesso da un sistema computerizzato ed è valido senza firma. Il certificato originale riporta il marchio ☐ in colore verde lungo una diagonale. Il possessore dell'originale, qualora rilasci copie, deve attestarne a sua volta la conformità, assumendosi ogni responsabilità per usi illeciti o semplicemente non consentiti dalla Dalmine Tubi Precisione s.r.l.
Alterazioni e/o falsificazioni saranno perseguite a termini di legge

This certificate is issued by a computerized system and it is valid without signature. On the original certificate the trade-mark ☐ green coloured along the diagonal is stamped. In case the owner of the original certificate would release a copy of it, he must assume its conformity to the original one taking upon himself the responsibility for any unlawful or not allowed use.
Any alteration and/or falsification will be subject to the law

Le certificat est rédigé par un système d'ordinateur et il est valable sans signature. Le certificat original mentionne la marque ☐ de couleur verte en diagonal. Dans le cas où le possesseur de l'original délivrera une copie, il devra attester la conformité en son nom, en s'endossant toute la responsabilité pour des usages illicites ou, tout simplement, pas permis par Dalmine Tubi Precisione s.r.l.
Toute altération ou contrefaction seront susceptibles d'entraîner des poursuites légales.

| DATE | D.T.P. Srl | CHIEF OF INSPECTION DPT |
|---|---|---|
| 02/02/1995 | CON UN UNICO SOCIO | Diego BETTONI |

TAD COMMERCIALE
QUESTO DOCUMENTO È RIPRODOTTO MEDIANTE UN SISTEMA COMPIUTERIZZATO ED È CONFORME ALL'ORIGINALE
THIS DOCUMENT IS REPRODUCED BY A COMPUTERIZED SYSTEM AND IS CONFORM TO THE ORIGINAL

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Kunde / Client
VERRI & PINA SRL
VIA TERRAROSSA, 10 - C.P. N.26
22035-CANZO (CO)-CO

Produttore: STABILIMENTO DI BOLZANO
Herstellwerk/Usine productrice

Oggetto Prove: Decapato Ricotto lavorabile Laminato
Prüfgegenstand/Objet de l'essai

Avviso di Spedizione: A-BZ04008748
Lieferschein/Packing list/B.L.

Ordine nr: 94-85-97-103
Bestell/Your order/Commande

Tipo di Elaborazione: E+AOD
Erzeugnisart/Melting process/Mode d'élaboration

4550

CERTIFICATO DI COLLAUDO
ABNAHMEPRUEFZEUGNIS
INSPECTION CERTIFICATE
CERTIFICAT DE RECEPTION
EN 10204 , 3.1.B

Certificato nr: MEST128331/2004/
Prüfbescheinigung/Certificat

Conferma ordine nr: MI04002683
Werks/Our Order/Ref nr.

Marchio di Fabbrica:
Zeichen des Unternehmens
Trade mark
Sigle de l'usine productrice

Punzone del Collaudatore:
Stempel des Werksabnahmebeauftragten
Inspector's stamp/Poinçon de l'expert

Specifiche:
Abmessungen / Norme/Normes / Exigences
ASTM A182 2000C S41000 CLASS2 (0)
(0) Chemical analysis only and mech.properties(for ASTM A182(M))

Qualità: 410
Werkstoff/Grade/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Marque

Puncconatura: S.410
Kennzeichnung/Marking/Marquage

| Pos. nr. / Pos. nr. / Nro pz. / Nr. de pièce | Oggetto / Gegenstand / Specie di lavorazione / Lavorab. di prodotti | Dimensioni - mm / Abmessungen / Dimensions / Dimension | Tolleranza / Toleranz / Allowance / Tolérance | | Colata / Schmelze / Heat / Coulée | Pezzi / Stück/zahl / Pieces / Pièces | Peso - / Gewicht / Weight / Poids | Lotto nr. / Losnr. / Lot nr. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 10 C | Tondo | 20,000 | EN 10 | A61 | 238209 | | 1088 | 4092025 30 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind lt. Anlage erfüllt
The material has been found in accordance with the requirements
Le matériel a été trouvé conforme aux exigences *

Controllo antimescolanza: OK
Vermechslungsprüfung: spektralanalytisch durchgeführt
Antimixing is carry performed: OK
Contrôle antimélange fait: p.a.s.

Controllo visivo e dimensionale: soddisfa le esigenze:
Sichtprüfung und Abmessungen ohne Beanstandung
Visual inspection and dimensional check satisfactory
Contrôle visuel et dimensionnel satisfaisant

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ST | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
|

# UGITECH
Groupe Arcelor

Siège Social : Ugitech S.A.
Avenue Paul Girod
73400 UGINE, FRANCE
IDENT TVA : FR 89 410 436 158

| Bolla/N°BL/DL N°/Lief. | N° Certificat/Prof N° | Produttore/Usine produc./Manufact./Herstell. |
|---|---|---|
| 335578 | 06902 | F00002 |

## RELEVE DE CONTROLE (1)
SELON EN 10204 PARAGRAPHE 4
Texte certificat de conformité
Texte certificat de conformité

Texte type cert. conformité édité - fctc

Prodotto - Erzeugnisform - Produit - Product: BARRE RONDE IMA 4006-410 16,0 K13 — LAMINE DECALAM. RECUIT

Cliente e/o destinatario - Client et/ou destinataire - Besteller und/oder Empfaenger - Purchaser and/or Consignee: UGINE-SAVOIE ITALIA SRL

N° ordine cliente - Votre référence - Ihre Auftrag Nr - Your reference: LVM 407085326 MI/LIMETTI

Qualità e specifiche tecniche - Nuance et spécifications techniques - Stahlsorte und Pruefbedingungen - Quality and Specifications: IMA 4006-410 K13 — X12CR13/NFEN 10088-3 /1.4006 - AISI410/ASTM A182/F6A CLASS 2

Stato di fornitura - Etat de livraison - Lieferzustand - As delivered (1): LAMINE DECALAM.

Stato metallurgico - Etat métallurgique - Heat treatment condition - Lieferzustand: RECUIT

| N° Conferma d'ordine / Accusé de reception / Auftragsbest N° / Acknowledgment N° | Posizione / N° Poste / Post Nr / Item N° | N° lotto interno / N° de lot interne / Interne los Nr / Internal batch N° | Profilo / Profil / Profile / Shape | Dimensione / Dimension / Abmessung / Size | Tolleranza / Tolérance / Toleranz / Tolerance | Lunghezza / Longueur / Laenge / Length | Peso netto / Masse / Gewicht / Weight |
|---|---|---|---|---|---|---|---|
| 407682892 | 3 | 4493044 | BARRE RONDE | 16,0000 | K13 | . | 1040,000 |

| Lotto fornitore / Lot producteur / Lieferant los / Master batch | N° Colata / N° de coulée / Schmelz Nr / Heat N° | Trazione - Traction - Zugversuch - Tensile test: Lim. di snervamento / Limite d'Elasticité / Streckgrenze / Yield Strength 0,2 % | Lim. di snervamento / Limite d'Elasticité / Streckgrenze / Yield Strength 1 % | Carico di rottura / Résistance tract. / Zugfestigkeit / Tensile strength | A % | Z % | Resilienza - Résilience - Kerbschlagzaehigkeit - Notch Toughness: Forma / Type / Form / Type | Valori / Valeurs individuelles / Einzelwerte / Individual values | Media - Moyenne / Mittelwerte / Average | Durezza / Dureté / Haerte / Hardness |
|---|---|---|---|---|---|---|---|---|---|---|
| | | RP02 N/MM2 | | RM N/MM2 | AL | Z | | | | HB |
| 417024 | 2ZH01000 | 586 | | 665 | 22 | 73 | | | | 200 |

| | | C | SI | MN | P | S | N | CR | CU |
|---|---|---|---|---|---|---|---|---|---|
| 417024 | 2ZH01000 | 0,106 | 0,330 | 0,440 | 0,019 | 0,024 | 0,056 | 12,140 | 0,156 |

| | | NI | | CO |
|---|---|---|---|---|
| 417024 | 2ZH01000 | 0,350 | | 0,021 |

Test : (1 = OK)

417024

C.INT = Corrosione intergranul — EDD.C = Controllo non distrutt — P.PN. = Prova pneumatica — C.MES = Contr. antimescolamant
SCHI. = Schiacciamento — FLANG = Flangiatura — REVFL = Applatt. saldatura /Re — P.RET = Essai de retournement

Note - Notes - Remarks - Bemerkungen

EN 10204 / 3.1.B AISI 410 X12CR13 NF EN10088-3 1.4006 IMA 4006 BARRE A CHAUD RON DE TOL.13 TRAITEE DECALAMINEE

16 LUG. 2004
DOUGLAS CHERO SpA
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

7/07/04
Signature de l'inspecteur

(1) Controllo mercatura, visivo e dimensionale : soddisfacente. Si certifica che i prodotti sopra descritti sono conformi alle prescrizioni dell'ordine
L'analisi chimica è copia conforme a quella presente sul certificato del produttore
Contrôle de marchande, d'aspect et de dimensions satisfaisant. Nous certifions que les présent donnent reproduit avec exactitude les données du certificat

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948
E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129


CERTIFICATO DI COLLAUDO
Inspection certificate

26370

N°6126/DCH DATE-09.11.04

CLIENTE- DOUGLAS CHERO Spa
Customer

ORDINE-242000
Order

BOLLA CONSEGNA N-3658
Delivery note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| 1 | 2000 | VITI TE. M 12 X 30,5 | Bi6 ASTM A 193/A 193M | A02869 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Cr | Mo | S | P | V | Al |
|---|---|---|---|---|---|---|---|---|---|---|
| REQUIRED | min. | 0,36 | 0,45 | 0,15 | 0,80 | 0,50 | | | 0,25 | |
| VALUE | max. | 0,47 | 0,70 | 0,35 | 1,15 | 0,65 | 0,040 | 0,035 | 0,35 | 0,015 |
| HEAT n. A02869 | | 0,415 | 0,57 | 0,26 | 0,98 | 0,60 | 0,003 | 0,007 | 0,28 | 0,008 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

| | Rm. | Rp.(0,2) | A4 | Z. | Hardness |
|---|---|---|---|---|---|
| REQUIRED | min. 860 MPa | min. 725 MPa | min. 18% | min. 50% | max 35 HRC |
| ACTUAL VALUE | 987 | 912 | 20,6 | 59,5 | 31 |

HEAT TREATMENT
Quenched at : 925°C to 954°C oil
Tempering : 2 hours at 650°C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

QUALITY CONTROL

MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

15 NOV. 2004

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

**FEAT INDUSTRIALE**
divisione della Feat Group S.p.A.
Feat Group S.p.A.
SEDE LEGALE:
I - 20122 MILANO (MI) - Viale Majno, 17
Capitale Sociale € 8.000.000,00 interamente versato
Codice fiscale, Partita IVA e numero di iscrizione Registro
delle Imprese di Milano: 09203090157
Codice Identif. IVA CEE IT 00203090157 - R.E.A. Milano 1211374
UFFICI AMMINISTRATIVI:
I - 23842 BOSISIO PARINI (LC) - Via dei Livelli, snc
tel. 031 3581411 - fax 031 876176 - Cod. Mecc. MI240750
STABILIMENTO E UFFICI COMMERCIALI DELLA DIVISIONE:
I - 23881 CEBANA BRIANZA (LC) - Via G. Parini, 30 e Via Arlosio, 1/3/5/7
tel. 031 8591 - Fax 031 859219 - http://www.featgroup.com

26436

Certificato 2004/3004445
Data 13/07/2004
Pagina 1

DOUGLAS CHERO S.P.A.

LOCALITA' PRADAGLIE

29013 CARPANETO PIACENTINO PC

| Ordine cliente | Bolla | Fattura | Quantita' |
|---|---|---|---|
| O 241220 | 2004/000/0031606 | O 0031760 | 199,00 |

| Articolo Feat | Descrizione |
|---|---|
| 292011053018C | CAPPELLO 4/8 |

| Cod.Stamp./N.Col. | Tipo Materiale e Specifica |
|---|---|
| BVN | F22 ASTM A182 Last Edition |

| Numero colata | Acciaieria | N.Cert.Acc. |
|---|---|---|
| 50409 | ACCIAIERIE BERTOLI SAFAU SPA | 77787/98 |

## ANALISI CHIMICA

| Elem. | C | Cr | Mn | Mo | P | S | Si | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Min | 0,050 | 2,000 | 0,300 | 0,870 | | | | | | | | | | | |
| Max | 0,150 | 2,500 | 0,600 | 1,130 | 0,040 | 0,040 | 0,500 | | | | | | | | |
| Colata | 0,097 | 2,160 | 0,360 | 0,950 | 0,011 | 0,002 | 0,210 | | | | | | | | |
| C.An. | | | | | | | | | | | | | | | |

Carbonio Equivalente= 0,802

## CARATTERISTICHE MECCANICHE

| Ordine Laboratorio | N. | Descrizione | UM1 | Min | Max | Valore | UM2 | Valore |
|---|---|---|---|---|---|---|---|---|
| 86288 | 01 | Snerv.Rp0,2% Amb T | N/mm2 | 310,000 | | 375,000 | PSI | 54375,000 |
| 86288 | 01 | Rottura Amb T | N/mm2 | 515,000 | | 616,000 | PSI | 89320,000 |
| 86288 | 01 | Allungam.A% T Amb | % | 20,000 | | 26,000 | | |
| 86288 | 01 | Strizione Amb T | % | 30,000 | | 71,200 | | |

Trattamento Termico

Note
CERTIFICATO FEAT

03 AGO. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

Resp. Assicurazione Qualita'
EMANUELONI

FEAT INDUSTRIALE division of FEAT Group S.p.A. states that material hereby certified is in compliance with the quality and technical requirements as described in the customer's order, or FEAT order acknowledgement.

1 - The results of chemicals analysis is a true and correct copy of the mill certificate issued by the manufacturer of the steel employed or by the laboratory which has determined it.
2 - The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufacturing process inspection or storage.

TIMAF snc
di SIRACUSA MARIO e INES
Via Clauri, 15
29100 PIACENZA
Tel. 0523 499540 - Fax 0523 490209
R.E.A. 109743
Registro Imprese PC 00723880332
Cod. Fisc./P. IVA 00723880332

Piacenza, li 28-07-04

Spett.le Ditta

DOUGLAS CHERO SpA
Loc. Pradaglie
29013 CARPANETO PC

Ogg.: Certificato di t.t. n° *085/04*
Rif. : TABELLA 56
VS/DDT N° 241107 DEL 23/07/04

TRATTAMENTO TERMICO ACCIAI FERRITICI SECONDO ASTM A182.

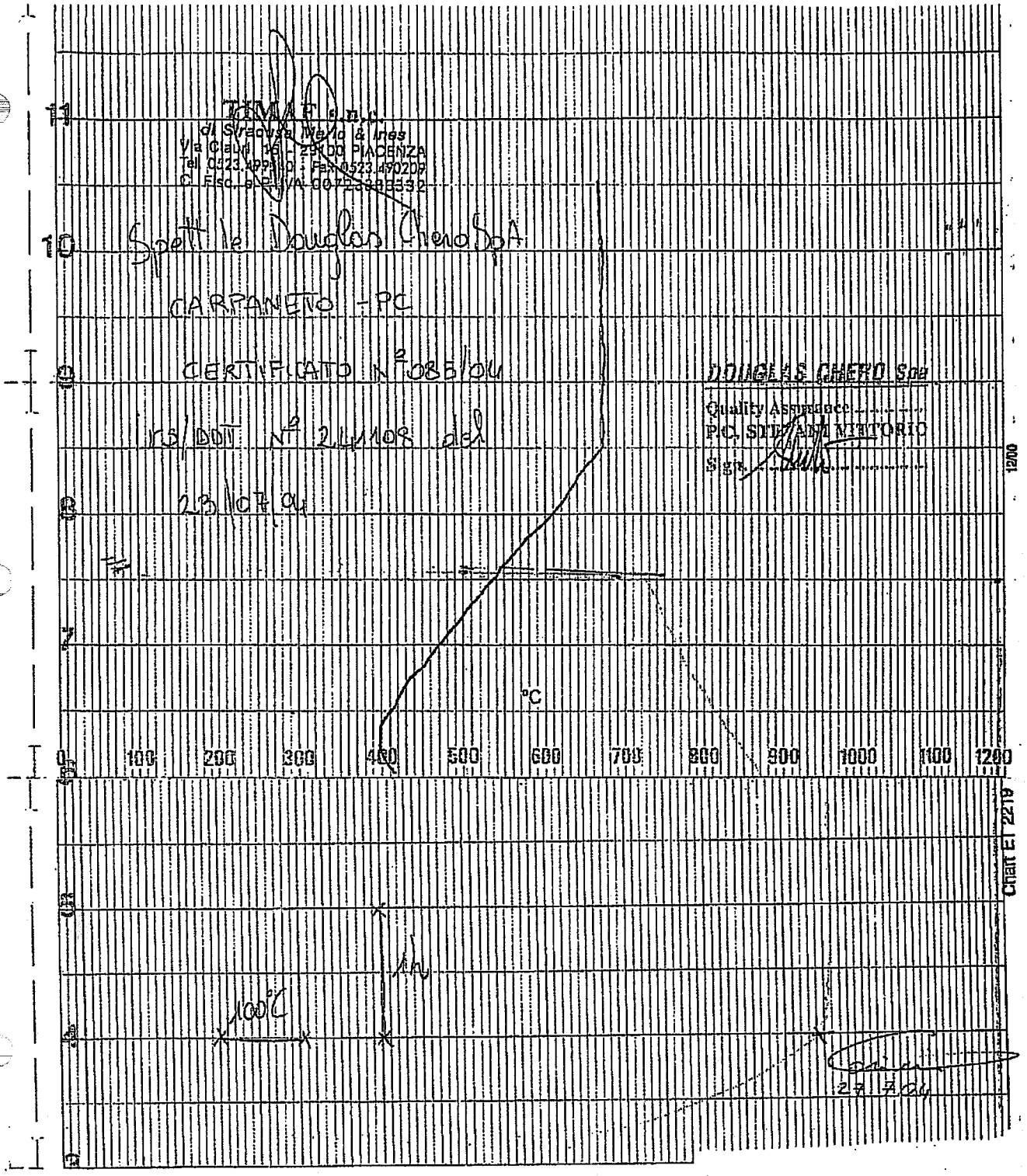
Normalizzazione e Rinvenimento.
Riscaldo dei particolari alla temperatura di 960°C, mantenuti a tale valore per 2h.
Successivo riscaldo a 675°C,mantenuti a tale valore per 2h, raffreddati in aria calma.
Eseguita sabbiatura finale

DESCRIZIONE.

N° 199 G11-G-084RB—h2 CAPP. GR. VS 1" 800 BB F22 F. J D. 4/8 COL. FBVN

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign.....

TIMAF s.n.c.
di Siracusa Mario & Ines
Via Clauri, 15 - 29100 PIACENZA
Tel. 0523.499540 Fax 0523.490209
C. Fisc. e P. IVA 00723880332


TIMAF s.n.c.
di Straova Nella & Ines
Via Claudia 16 - 29100 PIACENZA
Tel. 0523.499410 - Fax 0523.490209
C. Fisc. e P. IVA 00723880332
Spett.le Douglas Chero SpA
CARPANETO - PC
CERTIFICATO N° 088/04
RS/DOU N° 2404108 del
23/07/04
DOUGLAS CHERO Spa
Quality Assurance
P.I. STEFANI VITTORIO
°C
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
100°C
2 ore a 0°
Chart ET 2219

DOUGLAS CHERO Spa
FORGED VALVES

STABILIMENTO/FACTORY
UFFICI AMMINISTRATIVI E COMMERCIALI
Località Pradaglie - 29013 Carpaneto P.no (PC) - ITALY
Phone: 0523/854011 - Fax: 0523/850389
E-MAIL: webmaster@douglas-chero.com

| | |
|---|---|
| Customer | KLAUS UNION ARMATUREN INTERNATIONAL for LURGI OEL GAS CHEMIE GMBH |
| LURGI P.O. NO. | 4567569-000 / 1.69690 / 136 |
| P.Order N. | HH-02535 |
| Ref.: | MEGA METHANOL PLANT, ZAGROS PETROCHEMICAL COMPANY, SITE BANDAR ASSALUYEH, IRAN |
| Contract No. | 1.69690-10 |
| O.Ref./JOB N. | 04.0572 |

Ref.: TABLE 64

HEAT TREATMENT FOR ASTM A182/F11-F22 WELDING:

MACHINE TYPE: AEC TECHNOLOGY - THERMOCONTROL R/6 BT65 THIN/C

A) Heating Temperature is 720 ÷ 730°C.

B) Heating rate over 400°C should be less than 200°C per hour.

C) Holding time at 720 ÷730°C is 1 hour per 25mm of thickness, with a minimum of 2 hours.

D) The Cooling will be performed not overcoming the 200°C for each hour up to 400°C. Then Cooling is in still air.

DESCRIPTION:

BODY MATERIAL: ASTM A182/F11 & NIPPLE MATERIAL: ASTM A335/P11
No. 38 BODY GATE VALVE c.1500 NPT Ø 1/2" + 2 WELDED NIPPLES Sch.80
No. 34 BODY GATE VALVE c.1500 NPT Ø 3/4" + 2 WELDED NIPPLES Sch.80

BODY MATERIAL: ASTM A182/F22 & NIPPLE MATERIAL: ASTM A335/P22
No. 17 BODY GATE VALVE c.1500 NPT Ø 1/2" + 2 WELDED NIPPLES Sch.160
No. 3 BODY GATE VALVE c.1500 NPT Ø 3/4" + 2 WELDED NIPPLES Sch.160
No. 13 BODY GATE VALVE c.1500 NPT Ø 3/4" + 2 WELDED NIPPLES Sch.80

CARPANETO P.NO: 28/02/05

DOUGLAS-CHERO S.p.A.
Quality Control
*CREDALI STEFANO*

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** ***Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt***
Customer:

**Bestell-Nr.:** ***Lurgi Job – No.:*** ***69690-10***
Order no.: ***Lurgi OGC PO.-No.:*** ***4567569-000 to -001/1.69690/136***

*Project Name :* ***2nd Zagros Methanol Plant - Iran***

**Auftrag-Nr.:** ***HH – 02535***
Job no.:

**Lieferumfang** / range:

| **Pos** | **Stck.** pcs. | **Gegenstand** object | **DN** | **PN** | **Werkstoff** material | **Bemerkung** comment |
|---|---|---|---|---|---|---|
| *00250* | *3* | *Gate valve*<br>*FB BB NPT+2*<br>*Weld.Nipples Sch.160. 5,56mm*<br>*Seats + Wedge Stell.* | *3/4"* | *Cl.1500* | *A182/F22 C.3* | *Valve Ident – No.: " S480 "* |

**Auslegung + Prüfung nach** API 602 – BS EN ISO 15761, API 598 / BS EN 12266-1
Design and tests acc. To ASME B16.34 – B16.25 – B16.11 – B1.20.1

**Sicht- und Funktionsprüfung:** *o.k.*
visual and functional test:

**Festigkeits-/Dichtheitsprüfung:**
strength-/tightness-test:

| | | | |
|---|---|---|---|
| *Festigkeit / shell test* | = | *388 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *285 bar Wasser / water* | (60 sec) |
| *Rückdichtung / backseat* | = | *285 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *6 bar Luft / air* | (60 sec) |

**Prüfungsergebnis:** *ohne Beanstandung !*
result: *no complaint !*

i.A. Walter Glass

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** *Dokumentation gemäß Material-Dokumentationsdeckblatt*
enclosure *Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter / Person in charge W. Glass

**Kommissions-Nr. / Reference No.**

**HH-02535**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00250 | Gate Valve<br>3/4" Cl. 1500 lbs.<br>FB, BB, NPT+2<br>Weld.Nippl. Sch.160<br>seats+wedge stel.<br>5,56mm | " S480 " | 3 | Body | Y-BH | A182/F22 C.3 | Iselfa | 408714/80 | | 17934 |
| | | Drawing-No.: BX652-7/TH-2N6 | | Nipp.sc.160 | 580701 | ASTM A335/F22 | Benteler | 580701 | | 41-170009/001 |
| | | | | Wedge | | A182/F6a C.2 stel. | Valbruna | 238209 | | 128331/2004 |
| | | | | Seat | | A182/F6a C.2 stel. | Valbruna | 236784 | | 055587/2003 |
| | | | | Body Srew | | ASTM A193/B16 | Morandi | AQ2869 | | 6126 |
| | | | | Bonnet | Y-BA | A182/F22 C.3 | Iselfa | 414853/60 | | 17900 |
| | | | | Stem | | A182/F6a C.2 | Ugitech | 350031 | | 80208 |
| | | | | | | | | | | |
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ISELFA
S.p.A. - C.F./P. IVA IT 00189520125
21048 SOLBIATE ARNO (Va) Italy - Corso Roma, 22
Casella Postale n. 57 - TELEFONO +39 0331 99 30 08
FAX FORGINGS +39 0331 99 15 35 - FAX FITTINGS +39 0331 99 46 77

STEEL FORGINGS
ELECTRING FITTINGS

ICIM ISO 9001 - Cert. n° 01802

# CONTROLLO QUALITÀ

Certificato di conformità
Compliance certificate
Gemaess Zeugnis
UNI EN 10204/3.1.B

N° 17934 — Data / Date 24.01.05

CLIENTE / *Customer* / *Kunde*: DOUGLAS CHERO SPA
ORDINE N° / *Order* / *Bestellung*: 241946
DATA / *Date* / *Datum*: 01.10.04
RIMESSO N° / *Delivery note* / *Lieferschein*: 500086
DATA / *Date* / *Datum*: 24-01-05
N° PEZZI / *Pieces* / *Stuckzahl.*: 103
DESCRIZIONE - *Description* - *Dezelchnung*: CORPI
DISEGNO N° - *Drawing* - *Zelchnung*: Dis. N6/98
INDICE - *Last revision* - *Verzelchnis*: Rev.1
TIPO ACCIAIO / *Steel type* / *Stahl*: ASTM-A.182 F.22 C/LAVORAZIONE
COLATA / *Heat* / *Schmelze*: 406714/60
FORNITORE / *Supplier* / *Lieferant*: ACCIAIERIE VALBRUNA SPA

COMPOSIZIONE CHIMICA / *Chemical composition* / *Chemische Zusammensetzung*

CARATTERISTICHE ACCIAIO (FORNITE DALL'ACCIAIERIA)

| % | C | Mn | Si | Cr | Mo | P | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA min / *Requested* / *Erforderikhe* max | | | | | | | | | | | |
| FORNITA / *Supplied* / *Wirklche* | 0,09 | 0,46 | 0,39 | 2,34 | 0,94 | 0,016 | | | | | |

PROVA JOMINY / *Jominy test* / *Stimabschreckversuch*

| HRC | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA min / *Requested* / *Erforderikhe* max | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | GRANO / *Grain size* / *Korngrosse* |
| FORNITA / *Supplied* / *Wirklche* | | | | | | | | | | | | |

CARATTERISTICHE MECCANICHE / *Mechanical properties* / *Mechanische Eigenscheften* — Normalizzato ☐ Bonificato ☐

| Ø PROVETTA / *Ø sample* / *Ø probest* mm | RP 0,2% / *Yield strenght 0,2%* / *0,2% Grenze* N/mm² | R / *Tensile strenght* / *Zugfestigkeit* N/mm² | A% / *Elongation %* / *Dehnung %* Lo = 5d | Z % / *Reduc. of area %* / *Einschnurung %* | KCU / *Impact value* / *Kerbschlang* J (joule) |
|---|---|---|---|---|---|
| 12,5 | 456 | 621 | 35 | 78 | 0 / 0 / 0 |

CARATTERISTICHE PRODOTTO

| | | | | | |
|---|---|---|---|---|---|
| TRATT. TERMICO / *Heat Treatement* / *Warmebehandlung* | NORMALIZ RINVEN | DUREZZA RICHIESTA / *Requested hardness* / *Fesligkeit* | N/mm² | | |
| DUREZZA RISCONTRATA N/mm² / *Checked hardness* / *Finden harte* | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 |
| CONTROLLI / *Tests* / *Ausmabetest* | C.D.C. MAGNAFLUX 100% VISIVO 100% | SI NO SI | DIMENSIONALE POSITIVO<br>ALTRI NO | | |
| ALLEGATI / *Enclosed* / *Anlage* | ANALISI CHIMICA ACCIAIERIA<br>CERTIFICATO TRATT. TERMICO | SI NO | PRODOTTO AUTOCERTIFICATO ☐ | | |
| NOTE / *Remarks* / *Bemerkungen* | TRATT: RISCALDO A 960C PER 1 ORA OGNI 25MM E RAFFREDDATI IN ARIA<br>RISCALDO A 735/750C PER 2H OGNI 25MM E RAFFREDDATI IN ARIA.<br>SIGLA DI COLATA "BH" | | | | |

CONTROLLO QUALITÀ / *QUALITY CONTROL* / *QUALITATSSTELLE*: ISELFA S.p.A. SOLBIATE ARNO (VA)
COMPILATORE
ISELFA S.p.A. UFFICIO CONTROLLO QUALITA' STAMPAGGIO

* EMESSO ED ARCHIVIATO DAL RESPONSABILE DEL CONTROLLO FINALE (CFI)

TAD COMMERCIALE
QUESTO DOCUMENTO È RIPRODOTTO MEDIANTE UN SISTEMA COMPUTERIZZATO ED È CONFORME ALL'ORIGINALE

Benteler Aktiengesellschaft
Postfach 1340, D-33043 Paderborn
Tel.: (05254) 81-0 Telex: 936866
Telefax: (05254) 13666

BENTELER

# ABNAHMEPRÜFZEUGNIS EN 10204-3.1 B
INSPECTION CERTIFICATE EN 10204-3.1 B
CERTIFICAT DE RECEPTION EN 10204-3.1B



**Dokument-Nr.:** 41-170009/001/2612
Document No.:
No. de document:

**Kunden-Bestell-Nr.:** L 980139, 2512/BAG/98
Purchaser Order No.:
No. de commande client:

**Benteler-Auftrags-Nr.:** 4139-1409
Benteler Order No.:
No. de commande Benteler:

**Versandanzeige-Nr.:** 41-20085
Dispatch note No.:
No. d'avis d'expédition:

**Produkt:** NAHTLOSE STAHLROHRE
Product: SEAMLESS STEEL TUBES
Produit: TUBES D'ACIER SANS SOUDURE

**Stahlsorte:** P 22
Steel grade:
Nuance d'acier:

Benteler AG - Postfach - D-33043 Paderborn

TAD, VIA CANOVA N. 36
I-20020 LAINATE - MI
QUALITY ASSURANCE, MR. CAPRERA

**Hersteller:** Benteler AG
Manufacturer: WERK SCHLOSS NEUHAUS
Producteur:

**Herstellerzeichen:**
Manufacturer's brand:
Marque du producteur:

**Stahlerschmelzungsverfahren:** ELEKTROOFEN
Steelmaking process: ELECTRIC FURNACE
Procédé d'élaboration de l'acier: FOUR ELECTRIQUE

**Stempel des Sachverständigen:** WA
Inspector's stamp:
Poinçon de l'expert:

| | |
|---|---|
| **Lieferbedingungen:**<br>Terms of delivery:<br>Conditions de livraison: | ASTM-A 335-95A, ASME-SA 335-95, HFS, TAD DOCUMENT NO. SSQ 01 REV. 1, NACE MR 0175-97<br>ASTM-A 335-95A, ASME-SA 335-95, HFS, TAD DOCUMENT NO. SSQ 01 REV. 1, NACE MR 0175-97 |
| **Maße - Toleranzen:**<br>Dimensions - tolerances:<br>Dimensions - tolérances: | ANSI B 36.10 M-85, ASTM-A 530-96<br>ANSI B 36.10 M-85, ASTM-A 530-96 |
| **Lieferzustand:**<br>Delivery condition:<br>Etat de livraison: | NORMALISIERT UND ANGELASSEN / N 950 GRD C, HALTEZEIT 5 MINUTEN. / AT 750 GRD C, HALTEZEIT 45 MINUTEN, / LUFTABKUEHLUNG<br>NORMALIZED AND TEMPERED / N 950 DEG C, HOLDING TIME 5 MIN, / AT 750 DEG C, HOLDING TIME 45 MIN, / COOLING IN STILL AIR |
| **Produktkennzeichnung:**<br>Product marking:<br>Marquage du produit: | FS : ▽ A335-SA335 P22 SCHMELZEN-NR PRUEFDRUCK ABMESSUNG WA<br>FS : ▽ A335-SA335 P22 HEAT-NO. TEST PRESSURE DIMENSION WA |

FK = Farbkennzeichnung, colour marking, marquage par couleur
PS = Prägestempelung, die stamped, marquage par poinçonnage
FS = Farbschablonierung, stenciled paint, marquage par peinture
PKE = Etikettenkennzeichnung, tag marking, marquage sur étiquette
TS = Tintenstrahlkennzeichnung, ink jet spray marking, impression à jet d'encre
LS = Längsschablonierung, longitudinal stenciled, marquage par longitudinal peinture

21 GEN. 1999
DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.

**Es wird bestätigt, daß die gelieferten Erzeugnisse den techn. Lieferbedingungen des Auftrages entsprechen.**
**We certify that the supplied products comply with the order specification.**
Nous certifions que les produits livrés sont conformes aux stipulations de la commande.

THIS DOCUMENT IS REPRODUCED BY A COMPUTERIZED SYSTEM AND IS CONFORM TO THE ORIGINAL

DOUGLAS CHERO SPA P.O. 981373
TAD JOB N.1 251430 99 POS. 005 NR 3 MT 21.30 KG 41.00 HEAT/COLATA N.580701
Pag. 1/4

TAD COMMERCIALE
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Telefax: (05254) 13666

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DOUGLAS CHERO SPA
TAD JOB N. I 251430 99 POS. 005 NR 3 MT 21.30 KG 41.00 HEAT/COLATA N.580701
P.O. 981373
Pag. 2/4

## ABNAHMEPRÜFZEUGNIS EN 10204-3.1 B
INSPECTION CERTIFICATE EN 10204-3.1 B
CERTIFICAT DE RECEPTION EN 10204-3.1B

**Dokument-Nr.:** 41-170009/001/2612
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No. de document:

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| Pos. Item Poste | Stück Number Nombre | Maße Dimensions Dimensions | | Länge Length Longueur (m) | Gewicht Weight Poids (kg) | Schmelzen-Nr. Heat No. Coulée No. | Prüfdruck Test pressure Pression d'épreuve |
|---|---|---|---|---|---|---|---|
| 001 | 228 | 26,70 X 5,56 MM | 6,00 - 8,00 M | 1578,00 | 4658 | 580701 | 2500 PSI 5 s |

**Schmelzenanalyse / Heat analysis / Analyse sur coulée [ % ]**

| Pos. Item Poste | Schmelzen-Nr. Heat No. Coulée No. | C | SI | MN | P | S | CR | MO | NI | CU | SN |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 001 | 580701 | 0,120 | 0,220 | 0,41 | 0,009 | 0,004 | 2,20 | 0,98 | 0,06 | 0,07 | 0,008 |

**Produktanalyse / Product analysis / Analyse sur produit [ % ]**

| Pos. Item Poste | Schmelzen-Nr. Heat No. Coulée No. | C | SI | MN | P | S | CR | MO | NI | CU | SN |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 001 | 580701 | 0,110 | 0,220 | 0,41 | 0,008 | 0,002 | 2,24 | 0,95 | 0,06 | 0,05 | 0,005 |

1.FORMEL (SI + MN) * (P + SN) * 10.000 = MAX 200 >> J-FAKTOR <<

**Formelergebnisse / Formula results / Résultats des formules**

| Pos. Item Poste | Schmelzen-Nr. Heat No. Coulée No. | 1.Formel 1.Formula 1.Formule |
|---|---|---|
| | | |
| 001 | 580701 | 56,700 |

BENTELER
Qualitätsstelle
Der Werkssachverständige

21 GEN. 1999
DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.

La société Benteler AG garantit que les produits objet du présent certificat sont conforme á l'article 15 de l'arrêté ministeriel du 24 Mars 1978 modifié et respectent en leur totalité les exigences suivantes:
C = max. 0,25 %, P = max. 0,05 %, S = max. 0,05 %
Rm = max. 700 N/mm2, Re = max. 0,9 Rm
A = min. 16 %, Rm x (A-2) = min. 10500.

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Telefax: (05254) 13666

BENTELER

**ABNAHMEPRÜFZEUGNIS EN 10204-3.1 B**
INSPECTION CERTIFICATE EN 10204-3.1 B
CERTIFICAT DE RECEPTION EN 10204-3.1B

**Dokument-Nr.:** 41-170009/001/2612
Document No.:
No. de document:



DOUGLAS CHERO SPA P.O. 981373
TAD JOB N. I 251430 99 POS. 005 NR 3 MT 21,30 KG 41,00 HEAT/COLATA N.580701


**Prüfergebnisse / Test results / Résultats d'essais**

| | | | | | |
|---|---|---|---|---|---|
| **Die Rohre sind auf Dichtheit geprüft durch:**<br>**The tubes are submitted to a leak tightness test by:**<br>Les tubes ont passés un contrôle d'étanchéité par: | WASSERINNENDRUCKVERSUCH NACH ASTM-A 530, ASME-SA 530<br>HYDRAULIC TEST ACC. TO ASTM-A 530, ASME-SA 530 | | | | |
| **Die Rohre wurden zerstörungsfrei geprüft:**<br>**The tubes are non destructive tested:**<br>Les tubes ont contrôles non-destructif: | NICHT ZUTREFFEND<br>NOT APPLICABLE | | | | |
| **Augensichtkontrolle:**<br>**Visual inspection:**<br>Examen visuel: | BESTANDEN<br>PASSED | **Maßkontrolle:**<br>**Dimension control:**<br>Vérification des dimensions: | BESTANDEN<br>PASSED | **Materialverwechslungsprüfung:**<br>**Material conformity test:**<br>Vérification de la nuance: | NICHT ZUTREFFEND<br>NOT APPLICABLE |
| **Ringaufdornversuch:**<br>**Ring expanding test:**<br>Essai de dilatation d'anneux: | NICHT ZUTREFFEND<br>NOT APPLICABLE | **Beizscheibenprüfung:**<br>**Etching test:**<br>L'essai de l'attaque: | NICHT ZUTREFFEND<br>NOT APPLICABLE | **Bördelversuch:**<br>**Flanging test:**<br>Essai de rabattement de collerette: | NICHT ZUTREFFEND<br>NOT APPLICABLE |
| **Ringfaltversuch:**<br>**Flattening test:**<br>Essai d'aplatissement: | BESTANDEN<br>PASSED | **Biegeversuch:**<br>**Bending test:**<br>Essai de pliage: | NICHT ZUTREFFEND<br>NOT APPLICABLE | **Aufweitversuch:**<br>**Drift expanding/flaring test:**<br>Essai d'évasement: | NICHT ZUTREFFEND<br>NOT APPLICABLE |
| **Drifttest:**<br>**Drifttest:**<br>Contrôle de Mandrin: | NICHT ZUTREFFEND<br>NOT APPLICABLE | | | | |

**Die Probenahme erfolgte an Vielfachlängen.**
**The sampling was carried out on multiple lengths.**
L'échantillonage était réalisé aux longueurs multiples.

**Zugversuch / Tensile test / Essais de traction**

| **Pos.**<br>Item<br>Poste | **Proben- Nr.**<br>**Specimen No.**<br>No. d'éprouvette | **Schmelzen-Nr.**<br>**Heat No.**<br>Coulée No. | **Probenabmessung**<br>**Test bar dimension**<br>Dimensions de l'éprouvette | **Streckgrenze**<br>**Yield strength**<br>Limite élastique | **Zuglestigkeit**<br>**Tensile strength**<br>Résistance à la traction | **Dehnung**<br>**Elongation**<br>Allongement |
|---|---|---|---|---|---|---|
| **Anforderungen**<br>**Requirements**<br>Exigence | | | mm | **ReH**<br>N/mm2<br>MIN 205 | **Rm**<br>N/mm2<br>415 - 700 | **A 2"**<br>MIN 30 % |
| 001 | 000001 | 580701 | 26,7 X 5,5 | 444 | 579 | 44,0 |
| 001 | 000002 | 580701 | 26,7 X 5,5 | 442 | 580 | 44,0 |

Härtewert nach NACE-STD. - MR 0175, max 22 HRC
Hardness according to NACE-STD. - MR 0175, max 22 HRC

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Quality Assurance
P.C. STEVANI VITTORIO
Sign.

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Telefax: (05254) 13666

BENTELER

DOUGLAS CHERO SPA P.O. 981373
TAD JOB N. 1 251430 99 POS. 005 NR. 3 MT. 21,30 KG 41,00 HEAT/COLATA N.580701

**ABNAHMEPRÜFZEUGNIS EN 10204-3.1 B**
INSPECTION CERTIFICATE EN 10204-3.1 B
CERTIFICAT DE RECEPTION EN 10204-3.1B

**Dokument-Nr.:** 41-170009/001/2612
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**Härteprüfung / Hardness test / Essai de dureté**

| Pos. Item Poste | Proben- Nr. Specimen No. No. d'éprouvette | Schmelzen-Nr. Heat No. Coulée No. | Härte Hardness dureté |
|---|---|---|---|
| Anforderungen Requirements Exigence | | | HB MAX 210 |
| 001 | 000001 | 580701 | 147 |

**Vermerk / Remark / Remarqué**

| | |
|---|---|
| AUS STRANGGEGOSSENEM VORMATERIAL<br>MADE FROM STRAND CAST PRE-MATERIAL | BERUHIGTER STAHL<br>KILLED STEEL |
| DURCHLAUFOFEN<br>CONTINUOUS FURNACE | |

21 GEN. 1999
DOUGLAS CHERO Spa
Quality Assurance
P.C. STEFANI VITTORIO
Sign.:

PADERBORN - SCHLOSS NEUHAUS , den 05.06.1998. Tel.: (05254) 81- 1590 Fax: (05254) 81- 2774

Der Werkssachverständige
Work's Inspector
L'expert d'usine

CLAUDIA FANKHÄNEL/JÄ

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This document was prepared by means of electronic data processing and is valid without signature.
Ce document a été établi par traitement électronique de l'information et est valide sans signature.

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

4550

**CERTIFICATO DI COLLAUDO**
**ABNAHMEPRUEFZEUGNIS**
**INSPECTION CERTIFICATE**
**CERTIFICAT DE RECEPTION**
**EN 10204 , 3.1.B**

Cliente / Kunde / Customer / Client:
VERRI & PINA SRL
VIA TERRAROSSA, 10 - C.P. N.26
22035-CANZO (CO)-CO

Avviso di Spedizione: A-BZ04006748

Certificato nr: MEST128331/2004/

Conferma ordine nr: MI04002883

Produzione: STABILIMENTO DI BOLZANO

Ordine nr: 94-85-97-103

Marchio di Fabbrica:

Oggetto Prova: Decapato Ricotto lavorabile Laminato

Tipo di Elaborazione: E+AOD

Punzone del Collaudatore:

Specifiche:
ASTM A182 2000C S41000 CLASS2 (D)
(D) Chemical analysis only and mech. properties(for ASTM A182(M))

Qualità: 410

Marca: VAL1

Punzonatura: S.410

| Pos. nr. | Oggetto | Dimensioni - mm | Tolleranza | | Colata | Pezzi | Peso - | Lotto nr. |
|---|---|---|---|---|---|---|---|---|
| 0002 | Tondo | 20,000 | EN10 | AH | 236209 | | 1086 | 409202530 |

Sono state soddisfatte tutte le condizioni richieste

Controllo antimescolanza: OK

Controllo visivo e dimensionale: soddisfa le esigenze

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ST | | | | | | | | | | | | | | | | | | | |
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|

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.

Stab.: 38100 BOLZANO (Italia) - Via A. Volta, 4

# CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION EN 10204, 3.1.B

Ø20 FORK

Cliente / Kunde/Purchaser/Client
ACC.VALBRUNA SPA-MAG.CORMANO
VIA BIZZOZZERO, 125
20032 - CORMANO (MI) - MI

Produttore: STABILIMENTO DI BOLZANO
Herstellwerk/Usine produttrice

Avviso di Spedizione: A-BZ03005480
Lieferanzeige/Packing list/B.L.

Certificato nr: MEST055587/2003/
Prüfbescheinigung/Certificat

Conferma ordine nr: MI03007175
Werks/Our Order/Ref nr.

Ordine nr: TRASFERIMENTO DA BOLZANO
Bestell/Your order/Commande

Marchio di Fabbrica:
Zeichen des Lieferanten/Trade mark/Sigle de l'usine productrice

Oggetto Prove: Secondo esecuzione Ricotto lavorabile Pelato
Prüfgegenstand/Objet inspection/Passage

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'elaboration

Punzone del Collaudatore:
Stempel des Werksabnahmebeauftragten/Inspector's stamp/Poinçon de l'expert

Specifiche:
Anforderungen / Requirements / Exigences

VALBRUNA 2002 410 A ()
ASME (1) SA479 2001 S41000 A (1)
ASTM A479 2001 S41000 A ()
[illegible] PT.A 2001 EDITION
[illegible] PT.A 2001 EDITION
(2) chemical analysis only and mecc.properties(for ASTM A182[M])

AISI 410 ()
ASTM A182 2000C S41000 CLASS2 (2)
EN 10088-3 95 1.4006 A ()

ASME (1) SA182 2001 S41000 CLASS2 (2)
ASTM A276 2000A S41000 A ()
EN 10272 2000 1.4006 A ()

Qualità: 410
Art/Qualität/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Nuance

Punzonatura: 410
Kennzeichnung/Marking/Marquage

| Pos. nr. Pos. nr. Rest nr. Nr. de poste | Oggetto Gegenstand Product description Descrip. du produit | Dimensioni - mm Abmessungen Dimension Dimension | Tolleranza Toleranz. Allowance Tolerance | Lunghezza -mm Länge Length Longueur | Colata Schmelze Heat Coulée | Pezzi Stückzahl Pieces Pieces | Peso - KG Gewicht Weight Poids | Lotto nr. Losnr. Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0020 | Tondo | 20,000 | K12-MIN | 5000 / 5500 | 236784 | | ~~7521,0~~ 1007 | 310700680 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind lt. Anlage erfüllt
The material has been furnished in accordance with the requirements
La matériel à été trouvé conforme aux exigences

Controllo antimascalenze: OK
Verwechslungsprüfung: spektralanalytisch durchgeführt
Austesting testing performed: OK
Contrôle compositions faite

Controllo visivo e dimensionale: soddisfa le esigenze:
Sichtprüfung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional check: satisfactory
Contrôle visuel et dimensionnel: satisfaisant

| TEST | Provetta/Probe Sens prov. Estr.a. Sens Orien. Chute Work Dirn. Direction Lung. diam. spess mm | °C | Pos. Sagola Position Lage Position | Snervamento Streck Yield Point Limite élastique Rp 0,2% N/mm2 | Snervamento Streck Yield Point Limite élastique | Resistenza Zugfestigkeit Tensile strength Résistance à traction Rm N/mm2 | Allungamento Dehnung Elongation Allongement A5 % | Allungamento Dehnung Elongation Allongement A2" % | Strizione Einschnürung Reduction of area Striction Z % | Strizione Einschnürung Reduction of area Striction RA % | Resilienza Kerbschlagarbeit Impact Value Résilience °C | Durezza Härte Hardness Dureté HB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 | | min | | 380 | - | 585 | - | 20 | - | 45 | - | 167 |
| | | max | | - | | 730 | | - | | | | 220 |
| | 10.00 | 20 | L | 490 | | 670 | 29 | 33 | 69 | 69 | | 190 |

1) L=Längsrichtung/Longit., Q=Querrichtung/quer, T=Tangential/tangential

## Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata: Schmelze/Heat Coulée | 0,080 min 0,150 max | - 1,00 | - 1,00 | 11,50 13,50 | - 0,50 | - 0,040 | - 0,030 | - | - | - | - | - | - | - | - |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 236784 | 0,141 | 0,37 | 0,72 | 12,37 | 0,34 | 0,020 | 0,030 | | | | | | | | |

The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,s_4.3 by TUEV and LLOYD'S

29 LUG. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

COPIA CONFORME ALL' ORIGINALE
ACCIAIERIE VALBRUNA S.P.A.
FILIALE DI CORMANO

Bolzano, 23/10/03
Mod./Stil.006

Il collaudatore di stabilimento
der Werksabnahmebeauftragte / Inspector / Le contrôleur d'usine
S. Colin



2326/1/01

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948
E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129


CERTIFICATO DI COLLAUDO
Inspection certificate

26370

N°6126/DCH DATE-09.11.04

CLIENTE- DOUGLAS CHERO Spa
Customer

ORDINE-242000
Order

BOLLA CONSEGNA N-3658
Delivery note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| | | | B16 | |
| 1 | 2000 | VITI TE. M 12 X 30,5 | ASTM A 193/A 193M | A02869 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Cr | Mo | S | P | V | Al |
|---|---|---|---|---|---|---|---|---|---|---|
| REQUIRED | min. | 0,36 | 0,45 | 0,15 | 0,80 | 0,50 | | | 0,25 | |
| VALUE | max. | 0,47 | 0,70 | 0,35 | 1,15 | 0,65 | 0,040 | 0,035 | 0,35 | 0,015 |
| HEAT n. A02869 | | 0,415 | 0,57 | 0,26 | 0,98 | 0,60 | 0,003 | 0,007 | 0,28 | 0,008 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

| | Rm. | Rp.(0,2) | A4 | Z. | Hardness |
|---|---|---|---|---|---|
| REQUIRED | min. 860 MPa | min. 725 MPa | min. 18% | min. 50% | max 35 HRC |
| ACTUAL VALUE | 987 | 912 | 20,6 | 59,5 | 31 |

HEAT TREATMENT
Quenched at : 925°C to 954°C oil
Tempering : 2 hours at 650°C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

QUALITY CONTROL

MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

15 NOV. 2004

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANO VITTORIO
Sign. .....

# ISELFA

STEEL FORGINGS
ELECTRING FITTINGS

S.p.A. - C.F./P. IVA IT 00189520125
21048 SOLBIATE ARNO (Va) Italy - Corso Roma, 22
Casella Postale n. 57 - TELEFONO +39 0331 99 30 08
FAX FORGINGS +39.0331 99 15 35 - FAX FITTINGS +39 0331 99 46 77

ICIM ISO 9001 - Cert. n° 0163/2

## CONTROLLO QUALITÀ

Certificato di conformità
Compliance certificate
Gemaess Zeugnis
UNI EN 10204/3.1.B

| N° | Data / Date |
|---|---|
| 17900 | 19.01.05 |

CLIENTE / *Customer* / *Kunde*: DOUGLAS CHERO SPA

ORDINE N° / *Order* / *Bestellung*: 241946

DATA / *Date* / *Datum*: 01.10.04

RIMESSO N° / *Delivery note* / *Lieferschein*: 500066

DATA / *Date* / *Datum*: 19-01-05

N° PEZZI / *Pieces* / *Stuckzahl.*: 96

DESCRIZIONE - *Description* - *Dezeichnung*: CAPPELLI 1.1/2"-8008B Dis. N6/8

DISEGNO N° - *Drawing* - *Zeichnung*:

INDICE - *Last revision* - *Verzeichnis*:

TIPO ACCIAIO / *Steel type* / *Stahl*: ASTM-A.182 F.22 C/LAVORAZIONE

COLATA / *Heat* / *Schmelze*: 414853/60

FORNITORE / *Supplier* / *Lieferant*: ACCIAIERIE VALERUNA SPA

COMPOSIZIONE CHIMICA / *Chemical composition* / *Chemische Zusammensetzung*

CARATTERISTICHE ACCIAIO (FORNITE DALL'ACCIAIERIA)

| % | C | Mn | Si | Cr | Mo | P | S | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA min / *Requested* / *Erforderikhe* max | | | | | | | | | | | |
| FORNITA / *Supplied* / *Wirklche* | 0,09 | 0,45 | 0,41 | 2.22 | 0,91 | 0,024 | 0,003 | | | | |

PROVA JOMINY / *Jominy test* / *Stimabschreckversuch*

| HRC | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA min / *Requested* / *Erforderikhe* max | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | GRANO / *Grain size* / *Korngrosse* |
| FORNITA / *Supplied* / *Wirklche* | | | | | | | | | | | | |

CARATTERISTICHE MECCANICHE / *Mechanical properties* / *Mechanische Eigenscheften* — Normalizzato ☐ Bonificato ☐

| Ø PROVETTA / *Ø sample* / *Ø probest* mm | RP 0,2% / *Yield strenght 0,2%* / *0,2% Grenze* N/mm² | R / *Tensile strenght* / *Zugfestigkeit* N/mm² | A% / *Elongation %* / *Dehnung %* Lo = 5d | Z% / *Reduc. of area %* / *Einschnurung %* | KCU / *Impact value* / *Kerbschlang* J (Joule) |
|---|---|---|---|---|---|
| 12.5 | 462 | 621 | 30 | 74 | 0 / 0 / 0 |

CARATTERISTICHE PRODOTTO

| TRATT. TERMICO / *Heat Treatement* / *Warmebehandlung* | NORMAL RINVENIM | DUREZZA RICHIESTA / *Requested hardness* / *Festigkeit* | N/mm² |
|---|---|---|---|

| DUREZZA RISCONTRATA N/mm² / *Checked hardness* / *Finden harte* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CONTROLLI / *Tests* / *Ausmabetest* | C.D.C. | SI | DIMENSIONALE | POSITIVO |
|---|---|---|---|---|
| | MAGNAFLUX 100% | NO | ALTRI | NO |
| | VISIVO 100% | SI | | |
| ALLEGATI / *Enclosed* / *Anlage* | ANALISI CHIMICA ACCIAIERIA | SI | PRODOTTO AUTOCERTIFICATO | ☐ |
| | CERTIFICATO TRATT. TERMICO | NO | | |

NOTE / *Remarks* / *Bemerkungen*:
TRATT: RISCALDO A 960C PER 1 ORA OGNI 25MM E RAFFREDDATI IN ARIA
RISCALDO A 735/750C PER 2 ORE OGNI 25MM E RAFREDDATI IN ARIA.
SIGLA DI COLATA "BA"

CONTROLLO QUALITÀ / *QUALITY CONTROL* / *QUALITATSSTELLE*: ISELFA S.p.A. SOLBIATE ARNO (VA)

COMPILATORE

ISELFA S.p.A.
UFFICIO CONTROLLO QUALITA'
STAMPAGGIO

* EMESSO ED ARCHIVIATO DAL RESPONSABILE DEL CONTROLLO FINALE (CFI)

UGITECH
Groupe Arcelor

FRANCE

5 Usine Productrice / Herstellar / Manufacturer: UGINE
F 73403 UGINE CEDEX
Tél : 04.79.89.30.30
Fax : 04.79.89.30.51

4 N. Nr No 80208

11 N. de commande usine - Werksbestellnummer - Works order number: FUGE TEJE 01/01 8Z101000 Q

3

# CERTIFICATO COLLAUDO DI ACCETTAZIONE B
# CERTIFICAT DE RECEPTION 3.1.B
# INSPECTION CERTIFICATE B

EN 10204 / 3.1.B

Produit / Erzeugnisform / Product: IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE 6

Client et/ou destinataire - Besteller und/oder Empfaenger - Purchaser and/or Consignee 9: TECNOMECCANICA SRL

N. de commande client - Kundenbestellnummer - Purchaser order number 10: 364

Nuance et spécifications techniques - Stahlsorte und Pruefbedingungen - Quality and Specifications 12:
IMA4006 410 AISI 410 UNS S41000
SPEC. SDA 09 DU 20/11/01 (SAUF MN)

Etat de livraison - Lieferzustand - As delivered (1) 13: TEMPRATO RINVENUTO

Traitement de Référence - Probestreifenbehandlung - Treatment of test samples (1) 14:

| Identification du produit / Erzeugnis Benennung-Product identification: N. de cde usine / Werksbestellnummer / Works order number 15 | N. de poste / Post Nr / Item No 17 | N. de Coulée / Schmelz Nr / Heat No 16 | Nombre / Stueckzahl / Pieces Nbr 18 | Profil / Profile / Shape 19 | Dimension / Ausmassung / Dimension 20 | Longueur / Laenge / Length 21 | Masse / Gewicht / Weight 22 |
|---|---|---|---|---|---|---|---|
| 8Z101 000 | | 350031 | 190 | TONDO | 20,000 | | 1974 KG |

| Prélèvement / Probenummer / Test N. | Demandé / Vorschrift / Required | Direction / Richtung | Température d'essai / Pruefemperatur / Test Temperature 25 | Traction - Zugversuch - Tensile test: Limite d'Elasticité / Streckgrenze / Yield Strength 0,2 % 26A | Limite d'Elasticité / Streckgrenze / Yield Strength 1 % 26B | Résistance à la traction / Zugfestigkeit / Tensile strength 27 | Allongement / Dehnung / Elongation (Lo=5do) 28 | Striction / Einschnuerung / Reduction of Area 29 | Dureté / Haerte / Hardness (4) 30 | Type / Form / Type 31 | Direction / Richtung 32 | Température d'essai / Pruefemperatur / Test Temperature 33 | Résilience - Kerbschlagzaehigkeit - Notch Toughness: Valeurs individuelles / Einzelwerte / Individual Values 35 | Moyenne / Mittelwerte / Average 36 | Dureté / Haerte / Hardness (5) 37 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 B | | | °C | MPA | MPA | MPA | % | % | | | | | | | HB |
| | Min | | 20 | 275 | | 585 | 20 | 45 | | | | | | | |
| | Max | | | | | | | | | | | | | | 237 |
| | (4) | | | | | | | | | | | | | | |
| | (5) | | | 607 | | 684 | 21 | 72 | | | | | | | 205 |

| N. de Prélèvement / Probenummer / Test N. 39 A | Demandé / Vorschrift / Required | 42 C | 43 SI | 44 MN | 45 NI | 46 CR | 47 S | 48 P | 49 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min | | | 0,30 | | 11,50 | | | | |
| | Max | 0,150 | 0,60 | 0,60 | | 13,50 | 0,030 | 0,040 | | |
| N. de Coulée / Schmelz Nr / Heat N. | Analyse/Produit-Stueck-analyse-Check Analysis | 0,107 | 0,42 | 0,38 | 0,35 | 12,18 | 0,022 | 0,019 | | |
| 350031 | | | | | | | | | | |

| Mode d'élaboration / Erschmelzungsart / Melting process 38 | Demandé / Vorschrift / Required 51 | 52 | 53 | 54 | 55 |
|---|---|---|---|---|---|
| Electrique / Elektrisch / Electric | Min | | | | |
| | Max | | | | |

IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE

06 MAG. 2004

DOUGLAS CHERO Spa

Quality Assurance .....

P.C. STEFANI VITTORIO

Sign .....

56

(3) L = Long / Laengs - Long / T = Travers / Quer-Transverse 58

(1) TE = Trempé à l'eau - Wasserhaerten - Waterquench; TH = Trempé à l'huile - Oilharden - Oil Quench; A = Hypertrempé - Losungsgeglueht - Solution annealed; R = Revenu - Anlassen - Tempered; RT = Recuit - Geglueht - Annealed; TRM = Recuit maxi - Weichgeglueht - Maxi annealed 7

Ugine, le 15-01-04
L'Agent Réceptionnaire de l'usine / Der Werksabnahmebeauftragte / The Work Inspector
H. Mayet 53

(4) A l'état de référence / Zum Bezug Zustand / As reference condition 60 A

(5) A l'état de livraison / In Lieferzustand / In state of delivery 60 B

Contrôles de marquage, d'aspect et de dimensions: satisfaisants / Bezeichnung, Beschigung und Ausmassung: ohne Beanstandung / Marking, inspection and measurement: without objection 62

Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande / Wir bestaetigen hiermit dass die obengenannten Erzeugnisse den Bestellungsvorschriften entsprechen / We certify hereby that the above mentioned products are consistant with the order prescriptions 66

DOUGLAS CHERO Spa
FORGED VALVES

STABILIMENTO/FACTORY
UFFICI AMMINISTRATIVI E COMMERCIALI
Località Pradaglie - 29013 Carpaneto P.no (PC) - ITALY
Phone: 0523/854011 - Fax: 0523/850389
E-MAIL: webmaster@douglas-chero.com

| | |
|---|---|
| Customer | KLAUS UNION ARMATUREN INTERNATIONAL for LURGI OEL GAS CHEMIE GMBH |
| LURGI P.O. NO. | 4567569-000 / 1.69690 / 136 |
| P.Order N. | HH-02535 |
| Ref.: | MEGA METHANOL PLANT, ZAGROS PETROCHEMICAL COMPANY, SITE BANDAR ASSALUYEH, IRAN |
| Contract No. | 1.69690-10 |
| O.Ref./JOB N. | 04.0572 |

Ref.: TABLE 64

HEAT TREATMENT FOR ASTM A182/F11-F22 WELDING:

MACHINE TYPE: AEC TECHNOLOGY - THERMOCONTROL R/6 BT65 THIN/C

A) Heating Temperature is 720 ÷ 730°C.

B) Heating rate over 400°C should be less than 200°C per hour.

C) Holding time at 720 ÷730°C is 1 hour per 25mm of thickness, with a minimum of 2 hours.

D) The Cooling will be performed not overcoming the 200°C for each hour up to 400°C. Then Cooling is in still air.

DESCRIPTION:

BODY MATERIAL: ASTM A182/F11 & NIPPLE MATERIAL: ASTM A335/P11
No. 38 BODY GATE VALVE c.1500 NPT Ø 1/2" + 2 WELDED NIPPLES Sch.80
No. 34 BODY GATE VALVE c.1500 NPT Ø 3/4" + 2 WELDED NIPPLES Sch.80

BODY MATERIAL: ASTM A182/F22 & NIPPLE MATERIAL: ASTM A335/P22
No. 17 BODY GATE VALVE c.1500 NPT Ø 1/2" + 2 WELDED NIPPLES Sch.160
No. 3 BODY GATE VALVE c.1500 NPT Ø 3/4" + 2 WELDED NIPPLES Sch.160
No. 13 BODY GATE VALVE c.1500 NPT Ø 3/4" + 2 WELDED NIPPLES Sch.80

CARPANETO P.NO: 28/02/05

DOUGLAS-CHERO S.p.A.
Quality Control
CREDALI STEFANO

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** ***Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt***
Customer:

**Bestell-Nr.:** ***Lurgi Job – No.:*** ***69690-10***
Order no.: ***Lurgi OGC PO.-No.:*** ***4567569-000 to -001/1.69690/136***

*Project Name :* ***2nd Zagros Methanol Plant - Iran***

**Auftrag-Nr.:** ***HH – 02535***
Job no.:

**Lieferumfang /** range:

| **Pos** | **Stck.** pcs. | **Gegenstand** object | **DN** | **PN** | **Werkstoff** material | **Bemerkung** comment |
|---|---|---|---|---|---|---|
| *00260* | *9* | *Gate valve long pattern FB BB BW Sch.80 BW 4,55 Seats + Wedge Stell.* | *1"* | *Cl.1500* | *A182/F22 C.3* | *Valve Ident – No.: "S491 "* |

**Auslegung + Prüfung nach** API 602 – BS EN ISO 15761, API 598 / BS EN 12266-1
Design and tests acc. To ASME B16.34 – B16.25 – B16.11 – B1.20.1

**Sicht- und Funktionsprüfung:** *o.k.*
visual and functional test:

**Festigkeits-/Dichtheitsprüfung:**
strength-/tightness-test:

| | | | |
|---|---|---|---|
| *Festigkeit / shell test* | = | *388 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *285 bar Wasser / water* | (60 sec) |
| *Rückdichtung / backseat* | = | *285 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *6 bar Luft / air* | (60 sec) |

**Prüfungsergebnis:** *ohne Beanstandung !*
result: *no complaint !*

i.A. Walter Glass

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** *Dokumentation gemäß Material-Dokumentationsdeckblatt*
enclosure *Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter / Person in charge W. Glass

**Kommissions-Nr. / Reference No.**

**HH-02535**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00260 | Gate Valve<br>1" Cl. 1500 lbs.<br>FB, BB, BW<br>Sch.80<br>seats+wedge stel.<br>long pattern | " S491 " | 9 | Body | R-G46 | A182/F22 C.3 | Risetti | 51207 | | 990485 |
| | | Drawing-No.: L652-7/150-L8 | | Wedge | | A182/F6a C.2 stel. | Valbruna | 414430 | | 122852/2004 |
| | | | | Seat | | A182/F6a C.2 stel. | Valbruna | 238300 | | 127568/2004 |
| | | | | Body Bolt | | ASTM A193/B16 | Molinari | AQ6810 | | 041653/2004 |
| | | | | Body Nut | | ASTM A194/GR.4 | Morandi | 014606 | | 5882 |
| | | | | Bonnet | Y-AA | A182/F22 C.3 | Iselfa | 51706/80 | | 6672 |
| | | | | Stem | | A182/F6a C.2 | Ugitech | 350031 | | 80208 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
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# FRATELLI RISETTI S.R.L.

21048 SOLBIATE ARNO (VA) - VIA TRIESTE, 4 - TELEFONO 0331/993.440-993.356 - STAB. VIA COLZANI, 41
TELEFONO 0331/994.088 - FAX 0331/992.247 - TELEGR. RISETTI - SOLBIATE ARNO
FF.SS. ALBIZZATE - SOLBIATE A. - CASELLA POSTALE N. 15 - C.C. POSTALE 19226216 - REG. FOR F.S. 09037
C.C.I.A.A. VARESE N. 206123 - ISCR. TRIB. BUSTO A. N. 21500 - C.F. P.IVA 01773060122


OMOLOGATI TÜV SÜDWEST

## CERTIFICATO PROVE MATERIALI

TEST CERTIFICATE
WERKSABNAHMEZEUGNIS
CERTIFICAT D'EMPREUVES

ACCORDO DIN 50049 3.1/B
EN 10204 /91-3.1/B

N. 990485 00162930

Data - Date - Datum - Date: 10.05.99

| Ordine del Cliente - Customer's - Bestellung - Commande du Client | Ns. Commessa - Mill order - Unsere Auftragsbestätigun Notre Configuration de Commande | Bolla di consegna - Delivery bill Lieferschein - Bulletin de livraison |
|---|---|---|
| 990242 DEL 4.3.99 DOUGLAS CHERO SPA | › | › |

| POS. ITEM POST | Quantità Quantity Stückzahl Quantité | DESCRIZIONE SPEDIZIONE - DESCRIPTION OF DELIVERY - UMFANG DER LIEFERUNG - DETAILS DU LOT<br>Descrizione - Description - Deschreibung - Description | Disegno - Drawing - Zeichnung - Dessin | Norma di collaudo - Test specification - Abnahmenorms - Specification | |
|---|---|---|---|---|---|
| 1 | 35 | CORPI 1"1500 STP.SBV.SARB. | 4/11-150 | A182 F22 | › |
| | › | › | › | › | › |
| | › | › | › | › | › |

ANALISI CHIMICA - CHEMICAL ANALYSIS - CHEMISCHE ZUSAMMENSETZUNG - COMPOSITION CHIMIQUE

| Codice di identificazione forgiato sui pezzi - Heat identification code stamped on forging pieces | Colata N. - Heat No. - Schmelze Nr. - No. de Coulée | C % | Si % | Mn % | Ni % | Cr % | S % | P % | Mo % | Cu % | Sn % | Al % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G46 | 51207 | 0,120 C.E. X | 0,168 F.B. X | 0,424 VX 0,009 | 0,108 | 2,164 | 0,011 | 0,008 | 0,911 | 0,111 | | 0,016 |
| › | › | | | | | | | | | | | |
| › | › | | | | | | | | | | | |

PROPRIETÀ MECCANICHE - MECHANICAL PROPERTIES - MECHANISCHE EIGENSCHAFTEN - ESSAIS MECANIQUES

| Colata N. - Heat No. - Schmelze Nr. - No. de Coulée | Lega - Alloy - Legierung - Alliage | Provetta - Test bar - Probestab - Echantillon | Rs (N/mm²) Snervamento - Yeld Point - Streckgrenze - Limit d'élasticité | R (N/mm²) Rottura - Tensile strenght - Zugfestigkeit - Rupture | A (%) Allungamento - Elongation - Dehnung - Allongement | Z (%) Contrazione - Red. of area - Einschnürung - Contraction | HB Hardness on forging pieces | Resilienza - Resilience - Kerbschlagzähigkeit - Resil. Charpy V - Notch at minus |
|---|---|---|---|---|---|---|---|---|
| 51207 | › | › | 469 | 581 | 27 | 64,2 | | KV(J) KCU(J) |
| | | › | | | | | | |
| | | › | | | | | | |
| | | › | | | | | | |
| | | › | | | | | | |

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DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.

| Trattamento Termico - Thermal Treatment - Thermische Behandlung - Traitment Thermique | NORMALIZZATI E RINVENUTI › |
|---|---|

| JOMINY Nora, Tempra | mm | 1,5 | 3 | 5 | 7 | 9 | 11 | 13 | 15 |
|---|---|---|---|---|---|---|---|---|---|
| | HRC | | | | | | | | |
| | mm | 20 | 25 | 30 | 35 | 40 | 45 | 50 | |
| | HRC | | | | | | | | |

GRANO AUSTENTICO - austenite grain size check — Metodo: ISO 643-UNI3245-ASTM E112

Final Control on forging pieces and found: _____
Sandblasting SA 2 1/2: _____
Marking on pieces: _____
Visual inspection: _____
Dimensional control: _____
Hardness test: _____

UFFICIO COLLAUDI - Inspection Department - Pruefungsabteil - Bureau d'inspection
F.lli RISETTI
Quality Assurance
VALERIO RISETTI
Sign.

**SORBIT** S.R.L.

SINCERT

# CERTIFICATO DI COLLAUDO DOPO T.T.

IN ACCORDO EN 10204-3.1.B

| DOCUMENTO / DOKUMENT | DATA / DATUM |
|---|---|
| L 3384/99 | 23/04/1999 |
| N. BOLLA / LIEFERSCHEIN NR. 147 | DATA BOLLA / LIEFERSCHEIN DATUM 22/04/1999 |

| COD. CLIENTE / AUFTRAGGEBER | COD. | MATERIALE / WERKSTOFF | SPESS. MAX / MAX DICKE |
|---|---|---|---|
| 892 OFF.MECC.F.LLI RISETTI SRL | F223 | F22 Cl.3 A182 | 60 |

| PEZZO / STÜCK | N. DISEGNO / ZEICHNUNGS-NR. | ORDINE / BESTELLUNG | COMMESSA / AUFTRAG | N. COLATA / SCHMELZE-NR. | RICHIESTE / ANFRAGEN | QUANTITA' / ANZAHL | PESO Kg. / GEWICHT/Kg. | CONTENITORI / BEHÄLTER |
|---|---|---|---|---|---|---|---|---|
| CORPI | 4/11-150 | | | G46 | HB 156-207 | 35 | 630,0 | CASSONE 1 |

## LAVORAZIONE E/O TRATTAMENTO TERMICO RICHIESTO / DIE VERLANGTE AUSFÜHRUNGV / O WÄRMEBEHANDLUNGS

| COD. | DESCRIZIONE / BESCHREIBUNG | T. PARTENZA °C / AUSGANGS-TEMP. | t. SALITA h. / AUFHEIZZEIT | T. PERM.°C / DURCHWÄRM | t. PERM. h / HALTEZEIT | RAFFREDD. / ABKÜHLEN | FORNO N. / OFEN | SPECIFICHE / SPEZIFIKATION |
|---|---|---|---|---|---|---|---|---|
| TDH | NORMALIZZAZIONE A.T. | | | 970 | 1,50 | ARIA | 10/2 | P-07/6 REV.0 |
| R | RINVENIMENTO | | | 680 | 3,00 | ARIA | 8 | |

ALTRE RICHIESTE / SONSTIGE ANFRAGEN

dlf X

TUV

ddc

rem

rcp

% PROVA / PROBEN

## COLLAUDO / ABNAHMEPRÜFUNG

DUREZZE RILEVATE

HBS 163

PEZZI PROVATI / PRÜFGGENSTAND

2

IL RESPONSABILE CONTROLLO QUALITA' / DER WERKSSACHVERSTÄNDIGE

SORBIT S.r.l.
RSQ Giulio Somaschini

NOTE / BEMERKUNGEN

DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.....

DATA / DATUM 27/ 4/1999

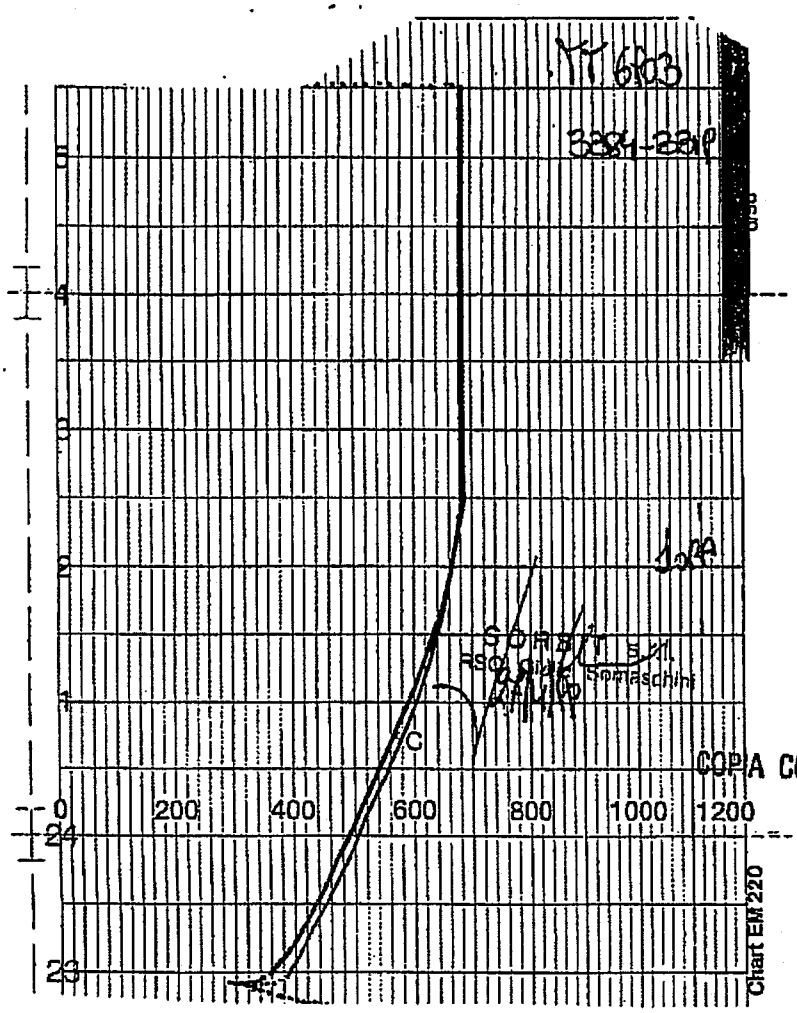
ALLEGATI / ANLAGEN

DIAGRAMMA N°6903

| Scheda n. | Data | Revisione | Chi archivia |
|---|---|---|---|
| S-10/1 | 04/95 | 0 | RSQ |

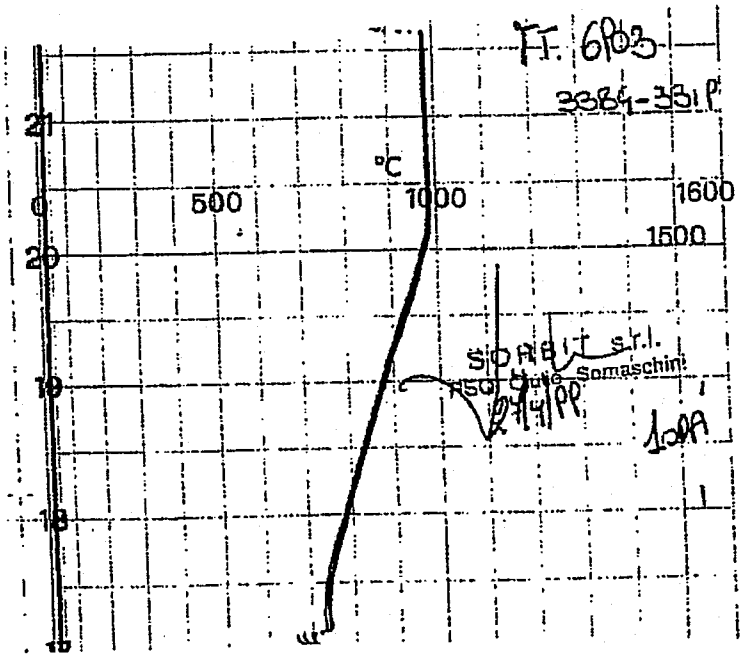
TÜV

AD-Merkblatt W0/HP 0 /7/1/TDR 100




COPIA CONFORME ALL'ORIGINALE
*SORBIT CQ*

**DOUGLAS CHERO Spa**
Quality Assurance
P.C. STEVANI VITTORIO
Sign. .....



# Acciaierie Valbruna S.p.A.

# CERTIFICATO DI COLLAUDO
ABNAHMEPRUEFZEUGNIS
INSPECTION CERTIFICATE
CERTIFICAT DE RECEPTION
EN 10204 , 3.1.B


36100-VICENZA (Italia) - Viale della scienza, 25 z.i.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4


Cliente / Kunde / Client
VERRI & PINA SRL
VIA TERRAROSSA, 10 - C.P. N.26
22036-CANZO (CO)-CO

Produttore: STABILIMENTO DI BOLZANO
Herstellerwerk/Usine productrice

Oggetto Prove: - Ricotto lavorabile Pelato
Prüfgegenstand/Objet de l'essai

Avviso di Spedizione: A-BZ04005068
Lieferanzeige/Packing list N.

Ordine nr: 94-95-97-103
Unser/Your order/Commande

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Elaboration process/Mode d'élaboration

Certificato nr: MEST122862/2004/
Prüfung/Test/Essai

Conferma ordine nr: MI04002683
Unser/Our Commande nr.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'essayeur

4422

Specifiche:
Anforderungen / Requirements / Exigences
ASTM A182 2000C S41000 CLASS2 (0)
(0) Chemical analysis only and mecc.properties(for ASTM A182[M])

Qualità: 410
Werkstoff/Grade/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Nuance

Punzonatura: 410
Kennzeichnung/Marking/Marquage

| Pos. nr. / Pos. nr. / Item no. / Nr. del pezzo | Oggetto / Gegenstand / Product description / Descrip. du produit | Dimensioni - mm / Abmessungen / Dimension / Dimension | Tolleranza / Toleranz / Allowance / Tolerance | Lunghezza - mm / Länge / Length / Longueur | Colata / Schmelze / Heat / Coulée | Pezzi / Stückzahl / Pieces / Pièces | Peso - Gewicht / Weight / Poids | Lotto nr. / Losnr. / Lot no. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0050 | Tondo | 25,000 | | 5000 / 5500 | 414430 | | 3707,0 | 409202580 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind in Anlage erfüllt
The material has been satisfied in accordance with the requirements
La matière a été trouvé conforme aux exigences

Controllo antimescolanza: OK
Vermischungsprüfung: spezifikationsgemäß durchgeführt
Anti-mixing testing performed: OK
Contrôle antimélange fait: o.k.

Controllo visivo e dimensionale: soddisfa le esigenze:
Sichtprüfung und Abmessung: ohne Beanstandung
Visual inspection and dimensional checking: satisfactory
Contrôle visuel et dimensionnel: satisfaisant

| TEST | Provetta / Probestück / Test piece / Eprouvette: Direzione / Richtung / Direction / Sens: mm | °C | Posiz. Doppio / Position / Position: % | Snervamento / Streckgrenze / Yield Stress / Limite élastique: Rp 0,2% N/mm2 | Snervamento / Streckgrenze / Yield Stress / Limite élastique | Resistenza / Zugfestigkeit / Tensile strength / Résistance à la traction: Rm N/mm2 | Allungamento / Dehnung / Elongation / Allongement: E 4d % | | Strizione / Einschnürung / Reduction of area / Striction: RA % | | Resilienza / Kerbschlagarbeit / Impact Value / Résilience | | | Durezza / Härte / Hardness / Dureté: HB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 / Anforderung erfüllt/soll betragen / Values demanded | | min max | | 380 | - | 585 | - | 18 | - | 35 | - | | | 167 229 | | |
| A | 10.00 | 20 | L | 534 | | 686 | | 31 | | 70 | | | | 216 | | |

1)L=Längsrichtung/Long., Q=Querrichtung/trans., T=Tangentialrichtung/tang.

## Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata / Heat / Schmelze/Coulée | min - max 0,15 | - 1,00 | - 1,00 | 11,50 13,50 | - 0,50 | - 0,040 | - 0,030 | - | - | - | - | - | - | - | - | - |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | | |
| 414430 | 0,13 | 0,44 | 0,72 | 12,36 | 0,24 | 0,024 | 0,030 | | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,s.,4.3 by TUEV and LLOYD'S

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

| | | |
|---|---|---|
| Bolzano, 15/07/04<br>Ort/Datum/Lieu | Il collaudatore di stabilimento / der Werkssachverständige / Works inspector / L'agent d'usine<br>R.Cristel | Pagina - 1 di 1 |

# Acciaierie Valbruna S.p.A.

CERTIFICATO DI COLLAUDO
ABNAHMEPRUEFZEUGNIS
INSPECTION CERTIFICATE
CERTIFICAT DE RECEPTION
EN 10204 , 3.1.B

Ø 26
F6 Ric

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Kunde/Purchaser/Client: NCOSS

Avviso di Spedizione: A-6Z04606581
Lieferanzeige/Packing list/B.L.: Julo4503

Certificato nr: MEST127568/2004/
Prüfung/Test/Essai

Conferma ordine nr: MI04001328
Werks/Our Order/Ref. nr.

Produttore: STABILIMENTO DI BOLZANO
Hersteller/Name/Usine productrice

Ordine nr: DD. 11.2.04
Kunde/Your order/Commande

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice

Oggetto Prove: - Ricotto lavorabile Pelato
Prüfgegenstand/Item inspected/Réalisage

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'élaboration

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'essayeur

Specifiche:
Anforderungen / Requirements / Exigences

BELLEBONO 2004 410 HRC<22 A - ASTM A182 2002 S41000 (0)
(0) Chemical analysis only.

Qualità: 410
Art/Grade/Nuance

Marca: VAL1
Herstellerbezeichnung/Brand/Marque

Punzonatura: T.410
Kennzeichnung/Marking/Marquage

| Pos. nr. / Pos. nr. / Item nr. / Nr. de poste | Oggetto / Gegenstand / Product description / Descrip. du produit | Dimensioni - mm / Abmessungen / Dimension / Dimension | Tolleranza / Toleranz. / Allowance / Tolerance | Lunghezza - mm / Länge / Length / Longueur | Colata / Schmelze / Heat / Coulée | Pezzi / Stückzahl / Pieces / Pièces | Peso - Gewicht / Weight / Poids | Lotto nr. / Lose / Lot nr. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0100 | Tondo | 26,000 | K12-MIN | 3900 / 4000 | 238300 | | 2462,0 2463 | 405400200 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind d. Anlage entnt
The material has been furnished in accordance with the requirements
Le matériel à été livré conforme aux exigences

Controllo antimescolanza: OK
Verwechslungsprüfung: spektralanalytisch durchgeführt
Anti-mixing testing performed: OK
Contrôle antimélange fait: r.a.s.

Controllo visivo e dimensionale: soddisfacente
Sichtprüfung und Ausmessung ohne Beanstandung
Visual inspection and dimensional check satisfactory
Contrôle visuel et dimensions: satisfaisant

| TEST | Provetta/Probe / Lunghezza Campione / Long. usua Spec. / Prova Diam. Barra / Wash Dim. Barrette / Long. dim. mm | °C | Pos. Saggio / Position / Position | Snervamento / Streckgrenze / Yield Stress / Limite elastique Rp 0,2% N/mm2 | Snervamento / Streckgrenze / Yield Stress / Limite elastique | Resistenza / Zugfestigkeit / Tensile strength / Résistance à traction Rm N/mm2 | Allungamento / Bruchdehnung / Elongation / Allongement E 4d % | | Strizione / Einschnürung / Reduction of area / Striction RA % | | Resilienza / Kerbschlagarbeit / Impact Value / Résilience | | | Durezza / Härte / Hardness / Dureté HRc | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 / Anforderungen / Required values / Valeurs demandées | | min / max | | - | - | - | - | - | - | - | - | | | - | - | 22,0 |
| A | 10.00 | 20 | L | 412 | | 684 | | 32 | | 68 | | | | 15,0 | | |

1) L=Longitudinale/Längs, Q=trasversale/quer, T=Tangenziale/tangential

## Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata / Hea / Schmelze/Coulée | min - max 0,15 | - 1,00 | - 1,00 | - 11,50 13,50 | - 0,50 | - 0,040 | - 0,030 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | | |
| 238300 | 0,14 | 0,49 | 0,78 | 12,25 | 0,29 | 0,023 | 0,028 | | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive (97/23/EC) Annex 1,s.4.3 by TUEV and LLOYD'S

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

COPIA CONFORME ALL'ORIGINALE
ACCIAIERIE VALBRUNA S.P.A.
FILIALE DI CORMANO

| | | |
|---|---|---|
| Bolzano,27/07/04 | Il collaudatore di stabilimento / der Werkssachverständige / Works inspector / L'agent d'usine<br>R.Cristel | Pagina - 1 di 1 |

241989 01

TORNERIA MECCANICA
**VINCENZO MOLINARI**
29100 Piacenza Italy - Via S. Bartolomeo, 136
Tel. 0523/59.32.81 - Fax 0523/59.27.47
R.E.A.PC N° 106098 - R.I. PC N° 28139/1996

SINCERT

# CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 3.1 B

N° 041653/2004

DATE 13/05/2004

CLIENTE / *PURCHASER*: DOUGLAS CHERO S.P.A.

COMMESSA N° / *JOB N°*: 040396

ORDINE N° / *ORDER*: 240623 15/03/2004

NOTE / *REMARKS*:

DESCRIPTION OF MATERIAL: STUD BOLTS B16.5 ASTM A 193 -01b B16 (QT) (MT)
01) N. 100 D.1/2"UNC x 90

## MECHANICAL REQUIREMENT

| | R N/mm2 | Rp N/mm2 | A % 50mm | Z % | KV/J | HB | HB 24h Proof 540C * LoadKN |
|---|---|---|---|---|---|---|---|
| REQUIRED MIN | 860 | 725 | 18 | 50 | | | |
| REQUIRED MAX | | | | | | 321 | |
| 01) | 938 | 794 | 20.6 | 62.0 | | 284 | |

## CHEMICAL ANALYSIS

| HEAT N° | C | Mn | Si | P | S | Ni | Cr | Mo | V | Al |
|---|---|---|---|---|---|---|---|---|---|---|
| REQUIRED MIN | 0.360 | 0.450 | 0.150 | | | | 0.800 | 0.500 | 0.250 | |
| REQUIRED MAX | 0.470 | 0.700 | 0.350 | 0.035 | 0.040 | | 1.150 | 0.650 | 0.350 | 0.015 |
| 01) AQ6810 | 0.390 | 0.600 | 0.240 | 0.013 | 0.012 | | 1.060 | 0.640 | 0.300 | 0.009 |

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*DOUGLAS CHERO Spa*

Quality Assurance .....
P.C. STEVANI VITTORIO
Sign .....

WE CERTIFY THAT OUR TEST RESULTS WITH REQUIREMENTS OF THE PRODUCT DESCRIPTION. CONF. TO DIN 50049 3.1 B.
(QT):HEAT TREATMENT: QUECHED TEMPERED (CST):CARBIDE SOLUTION TREATED
(MT):MINIMUM TEMPERING: 660 C
(H):HARDENED (N):NORMALIZED (SB):STABILIZED (SH):STRAIN HARDENED
(ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED ABOVE HAS BEEN TESTED AND COMPLIES WITH THE TERMS OF THE ORDER CONTRACT

Q. A. MANAGER
*Dott. Ing. V. MOLINARI*

Officina Meccanica
VINCENZO MOLINARI
Via S. Bartolomeo, 136
29100 PIACENZA

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948

E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129


CERTIFICATO DI COLLAUDO
Inspection certificate

2332600

N°5882/DCH DATE-09.02.04

CLIENTE- DOUGLAS CHERO Spa — Customer
ORDINE- 049 — Order
BOLLA CONSEGNA N-430. — Delivery note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| 1 | 428 | DADI-NUTS 1/2 UNC | Astm A194 GR.4 | 014606 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Mo | S | P |
|---|---|---|---|---|---|---|---|
| REQUIRED | min. | 0,40 | 0,70 | 0,15 | 0,20 | | |
| VALUE | max. | 0,50 | 0,90 | 0,35 | 0,30 | 0,040 | 0,035 |
| HEAT n. 014606 | | 0,416 | 0,789 | 0,175 | 0,275 | 0,028 | 0,012 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

Hardness test during production
Required value : 24-38 Hrc
Actual : 26-29 Hrc

Hardness test after 24 hrs. tempering at 590 °C
Required value : 201 HB min.
Actual : 240-260 HB

Impact test KV - 101 °C
Minimum impact for average test : 27 J min.
Minimum impact for one specimen : 20 J min.

Single values : 36-33-33 J
Average : 34 J

HEAT TREATMENT
Quenched at : 860 °C in oil
Tempering : 2 hours at 595 °C min.

Proof load test: POSITIVE
Visual and dimensional test = SATISFACTORY

13 FEB. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

This certificate has been tested in according with the specification included in your order.

QUALITY CONTROL

MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

# ISELFA

STEEL FORGINGS
ELECTRING FITTINGS

00170180C

S.r.l. - C.F./P.IVA VAT IT 00189520125
21048 SOLBIATE ARNO (Va) Italy - Corso Roma, 22
P.O. BOX 21 - TELELEFONO +39 (331) 99.30.08
FAX FORGINGS +39 (331) 99.15.35 - FAX FITTINGS +39 (331) 99.46.77

## CONTROLLO QUALITÀ

Certificato di conformità
Compliance certificate
Gemaess Zeugnis
UNI EN 10204/3.1.B

N° 6672 — Data / Date 22.11.99

CLIENTE / Customer / Kunde: DOUGLAS CHERO SPA

ORDINE N° / Order / Bestellung: 995073

DATA / Date / Datum: 15.09.99

RIMESSO N° / Delivery note / Lieferschein: 2343

DATA / Date / Datum: 22-11-99

N° PEZZI / Pieces / Stuckzahl: 127

DESCRIZIONE - Description - Dezeichnung: CAPPELLI 1"-1500 Dis.4/10 Rev.0

DISEGNO N° - Drawing - Zeichnung:

INDICE - Last revision - Verzeichnis:

TIPO ACCIAIO / Steel type / Stahl: F.22 BILL.80

COLATA / Heat / Schmelze: 51706/80

FORNITORE / Supplier / Lieferant: ACCIAIERIE BERTOLI SAFAU SPA

COMPOSIZIONE CHIMICA / Chemical composition / Chemische Zusammensetzung

CARATTERISTICHE ACCIAIO

| % | C | Mn | Si | Cr | Mo | P | S | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA min / Requested / Erforderikhe max | 0,050 / 0,150 | 0,300 / 0,600 | 0,500 | 2,000 / 2,500 | 0,870 / 1,130 | 0,040 | 0,040 | | | | |
| FORNITA / Supplied / Wirkilche | 0,1030 | 0,3400 | 0,1000 | 2,2700 | 0,9300 | 0,0140 | 0,0050 | | | | |

PROVA JOMINY / Jominy test / Stirnabschreckversuch

| HRC | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA min / Requested / Erforderikhe max | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | GRANO / Grain size / Korngrosse |
| FORNITA / Supplied / Wirkilche | | | | | | | | | | | | |

CARATTERISTICHE MECCANICHE / Mechanical properties / Mechanische Eigenschaften — Normalizzato ☐ Bonificato ☐

| Ø PROVETTA / Ø sample / Ø probest (mm) | RP 0,2% / Yield strenght 0,2% / 0,2% Grenze (N/mm²) | R / Tensile strenght / Zugfestigkeit (N/mm²) | Aç % / Elongation % / Dehnung % (Lo = √d) | Z % / Reduc. of area % / Einschnurung % | KCU / Impact value / Kerbschlang (J (joule)) |
|---|---|---|---|---|---|
| | 432 | 538 | 27 | 77 | 0 / 0 / 0 |

CARATTERISTICHE PRODOTTO

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| TRATT. TERMICO / Heat Treatement / Warmebehandlung: NORMALIZZ+RINV | DUREZZA RICHIESTA / Requested hardness / Festigkeit: N/mm² | | | | | | | | |
| DUREZZA RISCONTRATA N/mm² / Checked hardness / Finden harte | 0 / 0 | 0 / 0 | 0 / 0 | 0 / 0 | 0 / 0 | 0 / 0 | 0 / 0 | 0 / 0 | |

| | | | | | |
|---|---|---|---|---|---|
| CONTROLLI / Tests / Ausmabetest | C.D.C.<br>MAGNAFLUX 100%<br>VISIVO 100% | SI<br>NO<br>SI | DIMENSIONALE<br>ALTRI | POSITIVO | |
| ALLEGATI / Enclosed / Anlage | ANALISI CHIMICA ACCIAIERIA<br>CERTIFICATO TRATT. TERMICO | SI<br>NO | PRODOTTO AUTOCERTIFICATO | 25 NOV. 1999 | DOUGLAS CHERO Spa NO<br>Quality Assurance<br>P.C. STEVANI VITTORIO<br>Sign. ☐ |
| NOTE / Remarks / Bemerkungen | TRATT:RISCALDO A 960C PERI ORA OGNI 25 mm. DI SPESSORE E RAFFR. IN ARIA CALMA. SUCCESSIVO RISCALDO A 735-750C PER 2 ORE OGNI 25 mm. DI SPESSORE E RAFFREDDAMENTO IN ARIA CALMA. / SIGLA COLATA "AA" | | | | |

CONTROLLO QUALITÀ / QUALITY CONTROL / QUALITATSSTELLE: ISELFA UFFICIO CONTROLLO QUALITÀ

COMPILATORE: ISELFA SOLBIATE ARNO

EMESSO ED ARCHIVIATO DAL RESPONSABILE DEL CONTROLLO FINALE (CFI)

**UGITECH**
Groupe Arcelor

**FRANCE**

| | |
|---|---|
| 4 N. Nr No | 80208 |
| 11 N. de commande usine-Werksbestellnummer-Works order number | FUGE TEJE 01/01 8Z101000 Q |

3

# CERTIFICATO COLLAUDO DI ACCETTAZIONE B
# CERTIFICAT DE RECEPTION 3.1.B
# INSPECTION CERTIFICATE B

EN 10204 / 3.1.B

5 Usine Productrice / Hersteller / Manufacturer: **UGINE** F 73403 UGINE CEDEX Tél : 04.79.89.30.20 Fax : 04.79.89.30.51

Produit / Erzeugnisform / Product: IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE 6

Client et/ou destinataire - Besteller und/oder Empfaenger - Purchaser and/or Consignee 9: TECNOMECCANICA SRL

N. de commande client - Kundenbestellnummer - Purchaser order number 10: 364

Nuance et spécifications techniques - Stahlsorte und Pruefbedingungen - Quality and Specifications 12: IMA4006 410 AISI 410 UNS S41000
SPEC. SDA 09 DU 20/11/01 (SAUF MN)

Etat de livraison - Lieferzustand - As delivered (1) 13: TEMPRATO RINVENUTO

Traitement de Référence - Probestreifenbehandlung - Treatment of test samples (1) 14:

| Identification du produit Erzeugnis Benennung-Product identification N. de cde usine Werksbestellnummer Works order number 15 | N. de poste Post Nr Item No 17 | N. de Coulée Schmelz Nr Heat No 16 | Nombre Stueckzahl Pieces Nbr 18 | Profil Profile Shape 19 | Dimension Ausmassung Dimension 20 | Longueur Laenge Length 21 | Masse Gewicht Weight 22 |
|---|---|---|---|---|---|---|---|
| 8Z101 000 | | 350031 | 190 | TONDO | 20,000 | | 1974 KG |

| Prélèvement Probenummer Test N. 39 B | Demandé-Vorschrift-Required (3) | Sens Richtung Direction 24 | Température d'essai Prueftemperatur Test Temperature 25 °C | Traction - Zugversuch - Tensile test: Limite d'Elasticité Streckgrenze Yield Strength 0,2 % 26 A MPA | 1 % 26 B MPA | Résistance à la traction Zugfestigkeit Tensile strength 27 MPA | Allongement Dehnung Elongation (L0=5d0) 28 % | Striction Einschnürung Red of Area 29 % | Dureté Haerte Hardness (4) 30 | Type Form Type 31 | Sens Richtung Direction (3) 32 | Température d'essai Pruefungstemperatur Test Temperature 33 | Résilience - Kerbschlagzaehigkeit - Notch Toughness: Valeurs individuelles Einzelwerte Individual Values 35 | Moyenne Mittelwerte Average 36 | Dureté Haerte Hardness (5) 37 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Min | | 20 | 275 | | 585 | 20 | 45 | | | | | | | HB |
| | Max | | | | | | | | | | | | | | 237 |
| | (4) | | | | | | | | | | | | | | |
| | (5) | | | 607 | | 684 21 72 | | | | | | | | | 205 |

| N. de Prélèvement Probenummer Test N. 39 A | Demandé Vorschrift Required 40 | 42 C | 43 SI | 44 MN | 45 NI | 46 CR | 47 S | 48 P | 49 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min | | | 0,30 | | 11,50 | | | | |
| | Max | 0,150 | 0,60 | 0,60 | | 13,50 | 0,030 | 0,040 | | |
| N. de Coulée Schmelz Nr Heat N. | Analyse/Produit-Stück analyse-Check Analysis | 0,107 | 0,42 | 0,38 | 0,35 | 12,18 | 0,022 | 0,019 | | |
| 350031 | | | | | | | | | | |

| Mode d'élaboration Erschmelzungsart Melting process 38 | Demandé Vorschrift Required 51 | 52 | 53 | 54 | 55 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Electrique Elektrisch Electric | Min | | | | | | | | | |
| | Max | | | | | | | | | |

IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE

06 MAG. 2004

DOUGLAS CHERO Spa

Quality Assurance .....

P.C. STEFANI VITTORIO

Sign .....

56

(3) L = Long / Laengs - Long / T = Travers / Quer-Transverse 58

(1) TE = Trempé à l'eau - Wasserhaerten - Waterquench; TH = Trempé à l'huile - Oelhaerten - Oil Quench; A = Hypertrempé - Loesungsgegluecht - Solution annealed; R = Revenu - Anlassen - Tempered; RT = Recuit - Geglueht - Annealed; TRM = Recuit mixte - Weichgegluecht - Maxi annealed 7

Ugine, le 15-01-04
L'Agent Réceptionnaire de l'usine / Der Werksabnahmebeauftragte / The Work Inspector
H. Mayet 63

(4) A l'état de référence / Zum Bezug Zustand / At reference condition 60 A

(5) A l'état de livraison / In Lieferzustand / In state of delivery 60 B

Contrôles de marquage, d'aspect et de dimensions: satisfaisants / Bezeichnung, Beschaffung und Ausmessung: ohne Beanstandung / Marking, inspection and measurement: without objection 62

Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande / Wir bestaetigen hiermit dass die obengenannten Erzeugnisse den Bestellungsvorschriften entsprechen / We certify hereby that the above mentioned products are consistent with the order prescriptions 66

DOUGLAS CHERO Spa

# ULTRASONIC EXAMINATION REPORT

No.: 009A/05-UT

Sheet: 1/2

| Customer | Order | Our Ref. |
|---|---|---|
| KLAUS UNION ARMATUREN INTERNATIONAL for LURGI OEL GAS CHEMIE GMBH | HH-02535 Lurgi P.O: 4567569-000/1.69690/136 | 04.0572 |

| Object | Quantity |
|---|---|
| TESTS CARRIED OUT ON RAW BODIES AND BONNETS | 100% |

| Procedure No. | Customer Specifications | Items of Order | Material |
|---|---|---|---|
| D.C. 125 Rev. 2 | / | See sheet 2/2 | ASTM A182/F22 |

| Q.C.P. | Stage | Drawing | Items of Drawing | Component Temperature °C |
|---|---|---|---|---|
| PED-0003/05 Rev.2 | 9 | DOUGLAS CHERO | 10 - 11 | ROOM TEMP. |

| Specifications | Surface conditions | | |
|---|---|---|---|
| ASME V: ASME SA 388 | ☑ Forged | ☑ Sandblasted | ☐ As rolled |
| ASME B16.34 | ☐ Machined | ☐ Welded | ☐ |

| Instrument | | Control Technique | Material Conditions |
|---|---|---|---|
| Manufacturer | SIRIO | ☑ Impulse Echo | ☐ Before PWHT |
| Type | RP 3000 | ☑ Contact | ☐ After PWHT |
| Serial Nr. | 9293 | | |

| Reference Standard | Calibration Block Nr. | Coupler |
|---|---|---|
| ☑ V1 ☐ V2 | / | ☐ Water ☑ Oil ☐ Glycerin paste |

**Transducers**

| Probes position | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Type of probe | SN 10-4M | | | | | |
| Probe number | / | | | | | |
| Manufacturer | SIRIO | | | | | |
| Dimension (mm) | 10 | | | | | |
| Frequency (Mhz) | 4 | | | | | |
| Decibel used | 56÷68 | | | | | |
| Type of wave | ☑ Longitudinal ☐ Shear | ☑ Longitudinal ☐ Shear | ☑ Longitudinal ☐ Shear | ☑ Longitudinal ☐ Shear | ☑ Longitudinal ☐ Shear | ☑ Longitudinal ☐ Shear |

| Methods | Acceptance Criteria |
|---|---|
| ☑ Back reflection | According to D.C. Procedure 125 Rev.0 ( Longitudinal wave probe 10% ) |
| ☐ D.A.C. | According to D.C. Procedure 125 Rev.0 |
| ☐ A.V.G. | According to D.C. Procedure 125 Rev.0 |

| Primary Reference Reflector | |
|---|---|
| Flat bottom hole | ☐ |
| Bottom wall | ☑ |
| Notch type | ☐ |

(*) Reportable indications

/

**RESULTS**

| ☐ Reportable indications (*) | ☑ No reportable indications | ☑ Accepted | ☐ Non conforming | ☐ Rejected |
|---|---|---|---|---|

| EXAMINATION PERFORMED BY | APPROVED BY | CUSTOMER INSPECTOR | CUSTOMER INSPECTOR |
|---|---|---|---|
| DOUGLAS-CHERO S.p.A. Quality Control CREDALI STEFANO | | | |
| LEVEL: II° SNT-TC-1A | LEVEL: | DATE: 31/01/2005 | |

| DOUGLAS CHERO Spa | ULTRASONIC EXAMINATION REPORT | No.: 009A/05-UT<br>Sheet: 2/2 |
|---|---|---|

## LIST OF ITEMS

| ITEM | IDENT No. | DESCRIPTION | SIZE | Q.TY | Q.TY tested |
|---|---|---|---|---|---|
| 260 | S491-BW 4,55 | GATE VALVE LANTERN RING long pattern c.1500 FB BB BW Sch.80 -Seats+Wedge Stell. [ TRIM 5 ] | 1" | 9 | 9+9 |
| 270 | S490 | GATE VALVE LANTERN RING c.1500C FB BB NPT+2 Weld.Nipples Sch.80 -Seats+Wedge Stell. [ TRIM 5 ] | 3/4" | 13 | 13+13 |
| 310 | V481-BW 6,35 | GLOBE VALVE c.1500C RB BB BW Sch.160 - Seat+Disk Stell. [ TRIM 5 ] | 1" | 4 | 4+4 |
| | | | | | |

DOUGLAS-CHERO S.p.A.
Quality Control
*CREDALI STEFANO*

| DOUGLAS CHERO Spa | MAGNETOSCOPIC INSPECTION CERTIFICATE | No.: 019A/05-MT<br>Sheet: 1/2 |
|---|---|---|

| Customer: KLAUS UNION ARMATUREN INTERNATIONAL for LURGI OEL GAS CHEMIE GMBH | Order: HH-02535<br>Lurgi P.O.: 4567569-000 / 1.69690 / 136 | Job: 04.0572 |
|---|---|---|
| Object: TEST CARRIED OUT ON WORKED BODY / BONNET<br>SEE ATTACHED SHEET FOR VALVES DESCRIPTION | | Quantity: 100 % |

| Procedure No. | Customer Specification | Item of Order | Material | Q.C.P. | Stage |
|---|---|---|---|---|---|
| 212 Rev.2 | ASME B16.34 PAR.8 | SEE SHEET 2/2 ATTACHED | ASTM A182/F22 | PED-0003/05 Rev.2 | 9 |

| Drawing: | Item of Drawing: | Test Temperature: | Surface Condition: |
|---|---|---|---|
| DOUGLAS CHERO | 10 - 11 | ROOM TEMPERATURE | BLASTING - MACHINING |

| *YOKE* | | *ELECTRODS* | *COIL* | *SING.CONDUCTOR* |
|---|---|---|---|---|
| Tr. Mark | SILVER YOKE | Tr. Mark | Curr. Type | Tr. Mark |
| Curr.Type | AC - DC | Curr.Type | Ampers Turn | Curr.Type |
| | | Intensity | Diameter | Intensity |
| | | Magn.Flux | Magn. Flux | Magn.Flux |
| Distance | 100mm. | Distance | Distance | Distance |

| | *FLUORESCENT WET* | | | *DRY* | | |
|---|---|---|---|---|---|---|
| | TYPE | BATCH | CERTIFIC. | TYPE | COLOUR | CERTIFIC. |
| TRADE MARK | MET-L-CHEK | | | | | |
| CLEANER | REMOVER NPU | | | | | |
| MAGN. PARTICLES | FW1 - NDT | | | | | |
| MAGN. POWDER | // | | | | | |

| DEMAGNETIZATION: NO | ☑ ACCEPTED | ☐ NOT ACCEPTED |
|---|---|---|
| REMARKS: /// | | |

| EXAMINATION PERFORMED BY | APPROVED BY | CUSTOMER INSPECTOR | CUSTOMER INSPECTOR |
|---|---|---|---|
| DOUGLAS-CHERO S.p.A.<br>Quality Control<br>*CREDALI STEFANO* | | | |
| LEVEL:<br>II° SNT-TC-1A & EN 473 | LEVEL: | DATE:<br>2102/2005 | |

| DOUGLAS CHERO Spa | MAGNETOSCOPIC INSPECTION CERTIFICATE | No.: 019A/05-MT<br>Sheet: 2/2 |
|---|---|---|

## LIST OF ITEMS

| ITEM | IDENT NO. | DESCRIPTION | SIZE | Q.TY | Q.TY Tested |
|---|---|---|---|---|---|
| 260 | S491-BW 4,55 | GATE VALVE LANTERN RING long pattern c.1500 FB BB BW Sch.80 -Seats+Wedge Stell. [ TRIM 5 ] | 1" | 9 | 9+9 |
| 270 | S490 | GATE VALVE LANTERN RING c.1500C FB BB NPT+2 Weld.Nipples Sch.80 -Seats+Wedge Stell. [ TRIM 5 ] | 3/4" | 13 | 13+13 |
| 310 | V481-BW 6,35 | GLOBE VALVE c.1500C RB BB BW Sch.160 - Seat+Disk Stell. [ TRIM 5 ] | 1" | 4 | 4+4 |
| | | | | | |

DOUGLAS-CHERO S.p.A.
Quality Control
*CREDALI STEFANO*

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** *Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt*
Customer:

**Bestell-Nr.:** *Lurgi Job – No.: 69690-10*
Order no.: *Lurgi OGC PO.-No.: 4567569-000 to -001/1.69690/136*

*Project Name :* ***2nd Zagros Methanol Plant - Iran***

**Auftrag-Nr.:** ***HH – 02535***
Job no.:

**Lieferumfang** / range:

| **Pos** | **Stck.** pcs. | **Gegenstand** object | **DN** | **PN** | **Werkstoff** material | **Bemerkung** comment |
|---|---|---|---|---|---|---|
| *00270* | *13* | *Gate valve*<br>*FB BB NPT+2*<br>*Weld.Nipples Sch.80 3,91mm*<br>*Seats + Wedge Stell.* | *3/4"* | *Cl.1500* | *A182/F22 C.3* | *Valve Ident – No.: " S490 "* |

**Auslegung + Prüfung nach** API 602 – BS EN ISO 15761, API 598 / BS EN 12266-1
Design and tests acc. To ASME B16.34 – B16.25 – B16.11 – B1.20.1

**Sicht- und Funktionsprüfung:** *o.k.*
visual and functional test:

**Festigkeits-/Dichtheitsprüfung:**
strength-/tightness-test:

| | | | |
|---|---|---|---|
| *Festigkeit / shell test* | = | *388 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *285 bar Wasser / water* | (60 sec) |
| *Rückdichtung / backseat* | = | *285 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *6 bar Luft / air* | (60 sec) |

**Prüfungsergebnis:** *ohne Beanstandung !*
result: *no complaint !*

i.A. Walter Glass

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** *Dokumentation gemäß Material-Dokumentationsdeckblatt*
enclosure *Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter / Person in charge W. Glass

**Kommissions-Nr. / Reference No.**

**HH-02535**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00270 | Gate Valve 3/4" Cl. 1500 lbs. FB, BB, NPT+2 Weld.Nippl. Sch.80 seats+wedge stel. 3,91mm | " S490 " | 13 | Body | Y-BH | A182/F22 C.3 | Iselfa | 408714/80 | | 17934 |
| | | Drawing-No.: LBX652-7/TH-2N8 | | Nipple | 945252 | ASTM A335/F22 | Dalmine | 945252 | | 94/23723 |
| | | | | Wedge | | A182/F6a C.2 stel. | Valbruna | 238209 | | 128331/2004 |
| | | | | Seat | | A182/F6a C.2 stel. | Valbruna | 236784 | | 055587/2003 |
| | | | | Body Srew | | ASTM A193/B16 | Morandi | AW3610 | | 5114 |
| | | | | Sup. Bonnet | Y-AF | A182/F22 C.3 | Iselfa | 50409/50 | | 16420 |
| | | | | Stem | | A182/F6a C.2 | Ugitech | 350031 | | 80208 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
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| | | | | | | | | | | |
| | | | | | | | | | | |

ISELFA
S.p.A. - C.F./P. IVA IT 00189520125
21048 SOLBIATE ARNO (Va) Italy - Corso Roma, 22
Casella Postale n. 57 - TELEFONO +39 0331 99 30 08
FAX FORGINGS +39 0331 99 15 35 - FAX FITTINGS +39 0331 99 46 77

STEEL FORGINGS
ELECTRING FITTINGS

IGIM ISO 9001 - Cert. n° 0189/0

# CONTROLLO QUALITÀ

Certificato di conformità
Compliance certificate
Gemaess Zeugnis
UNI EN 10204/3.1.B

| N° | Data / Date |
|---|---|
| 17934 | 24.01.05 |

| | | |
|---|---|---|
| CLIENTE *Customer / Kunde*: DOUGLAS CHERO SPA | ORDINE N° *Order / Bestellung*: 241946 | DATA *Date / Datum*: 01.10.04 |
| RIMESSO N° *Delivery note / Lieferschein*: 500086 | DATA *Date / Datum*: 24-01-05 | N° PEZZI *Pieces / Stuckzahl.*: 103 |
| DESCRIZIONE - *Description - Dezeichnung*: CORPI | DISEGNO N° - *Drawing - Zeichnung*: Dis. N6/98 | INDICE - *Last revision - Verzeichnis*: Rev.1 |
| TIPO ACCIAIO *Steel type / Stahl*: ASTM-A.182 F.22 C/LAVORAZ. | COLATA *Heat / Schmelze*: 408714/80 | FORNITORE *Supplier / Lieferant*: ACCIAIERIE VALBRUNA SPA |

COMPOSIZIONE CHIMICA / *Chemical composition / Chemische Zusammensetzung*

CARATTERISTICHE ACCIAIO (FORNITE DALL'ACCIAIERIA)

| % | C | Mn | Si | Cr | Mo | P | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA min / *Requested* / *Erforderlikhe* max | | | | | | | | | | | |
| FORNITA / *Supplied* / *Wirkliche* | 0,09 | 0,46 | 0,39 | 2,34 | 0,94 | 0,016 | | | | | |

PROVA JOMINY / *Jominy test / Stimabschreckversuch*

| HRC | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA min / *Requested* / *Erforderlikhe* max | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | GRANO *Grain size / Korngrosse* |
| FORNITA / *Supplied* / *Wirkliche* | | | | | | | | | | | | |

CARATTERISTICHE MECCANICHE / *Mechanical properties / Mechanische Eigenscheften* — Normalizzato ☐ Bonificato ☐

| Ø PROVETTA *Ø sample / Ø probest* mm | RP 0,2% *Yield strenght 0,2% / 0,2% Grenze* N/mm² | R *Tensile strenght / Zugfestigkeit* N/mm² | A% *Elongation % / Dehnung %* Lo = 5d | Z % *Reduc. of area % / Einschnurung %* | KCU *Impact value / Kerbschlang* J (Joule) |
|---|---|---|---|---|---|
| 12,5 | 456 | 621 | 35 | 78 | 0 / 0 / 0 |

CARATTERISTICHE PRODOTTO

| | | | | | |
|---|---|---|---|---|---|
| TRATT. TERMICO *Heat Treatement / Warmebehandlung*: NORMALIZ RINVEN | | | DUREZZA RICHIESTA *Requested hardness / Fasligkeit*: | N/mm² | |
| DUREZZA RISCONTRATA N/mm² *Checked hardness / Finden harte* | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 |
| CONTROLLI *Tests / Ausmabetest* | C.D.C. | SI | DIMENSIONALE | POSITIVO | |
| | MAGNAFLUX 100% | NO | ALTRI | | NO |
| | VISIVO 100% | SI | | | |
| ALLEGATI *Enclosed / Anlage* | ANALISI CHIMICA ACCIAIERIA | SI | PRODOTTO AUTOCERTIFICATO | | ☐ |
| | CERTIFICATO TRATT. TERMICO | NO | | | |
| NOTE *Remarks / Bemerkungen* | TRATT: RISCALDO A 960C PER 1 ORA OGNI 25MM E RAFFREDDATI IN ARIA<br>RISCALDO A 735/750C PER 2H OGNI 25MM E RAFFREDDATI IN ARIA.<br>SIGLA DI COLATA "BH" | | | | |

CONTROLLO QUALITÀ *QUALITY CONTROL / QUALITATSSTELLE*

ISELFA S.p.A. SOLBIATE ARNO (VA)

COMPILATORE

ISELFA S.p.A.
UFFICIO CONTROLLO QUALITA'
STAMPAGGIO

* EMESSO ED ARCHIVIATO DAL RESPONSABILE DEL CONTROLLO FINALE (CFI)

Dalmine

PLANT:
DALMINE

# INSPECTION CERTIFICATE

(UNI EN 10204 3.1.B)

N. 94/23723

Page 1

CUSTOMER'S ORDER 941535

MILL ORDER / ITEM 1793851/001

T.A.D. TUBI ACCIAIO E DERIVATI COMMERCIALE SPA
VIA CANOVA 36
20020 LAINATE MI

PRODUCT SEAMLESS HOT ROLLED STEEL PIPES FO HIGH TEMPERATURE SERVICE ACC TO ASTM A 335/ASME SA 335 SECTION II AND SPEC. SSQ01 REV. 0, IN STEEL GRADE P 22 ASTM A 335, NORMALIZED AND TEMPERED, INSIDE AND OUTSIDE BLACK, PLAIN ENDS.

| DIMENSIONS: | Lg. From | Lg. To | O.D. mm | W.T. mm |
|---|---|---|---|---|
| | 6000 | 8000 | 26,700 | 3,910 |

QUANTITY : Nr 156 Mt 1110 Kg 2320 Ft 3641' 9" Lbs 5114,7

TEST N. 9041F HEAT N. 945252

TENSION TEST + 20,0°C REMARKS OR SPEC. : SEZIONE=3,1416xtx(D-t)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| TEST SPEC. : LONGITUDINAL | THICK. 3,90 | DIAM. 27,1 | SECTION 284,3 mm2 | | | | |
| YIELD POINT 0,2% (MPA ) | : requir min | 205 | | | result | 468,0 | |
| TENSILE STRENGTH (MPA ) | : requir min | 415 | max | 700 | result | 584,0 | |
| ELONGATION | : CALIBRATED ON 2" | 50,0 mm | | | | | |
| (%) | : requir.min | 21,0 | | | result | 36,0 | |
| YP / TS | : requir | | max 0,900 | | result | 0,801 | |
| RM (A - 2) (MPA ) | : requir min | 10500 | | | result | 19856 | |
| HARDNESS HB | requ. | | max 210,0 | result | 162,0 | | |

TECNOLOGICAL TESTS PERFORMED WITH SATISFACTORY RESULTS:
FLATTENING TEST : TEST PERFORMED AT ONE END OF 1 PIPE OF THE LOT

TEST N. 9042F HEAT N. 945252

TENSION TEST + 20,0°C REMARKS OR SPEC. : SEZIONE=3,1416xtx(D-t)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| TEST SPEC. : LONGITUDINAL | THICK. 4,00 | DIAM. 27,1 | SECTION 290,3 mm2 | | | | |
| YIELD POINT 0,2% (MPA ) | : requir min | 205 | | | result | 470,0 | |
| TENSILE STRENGTH (MPA ) | : requir min | 415 | max | 700 | result | 587,0 | |
| ELONGATION | : CALIBRATED ON 2" | 50,0 mm | | | | | |
| (%) | : requir.min | 21,0 | | | result | 36,0 | |
| YP / TS | : requir | | max 0,900 | | result | 0,801 | |
| RM (A - 2) (MPA ) | : requir min | 10500 | | | result | 19958 | |
| HARDNESS HB | requ. | | max 210,0 | result | 162,0 | | |

TECNOLOGICAL TESTS PERFORMED WITH SATISFACTORY RESULTS:
FLATTENING TEST : TEST PERFORMED AT ONE END OF 1 PIPE OF THE LOT

TEST N. 9043F HEAT N. 945252

TENSION TEST + 20,0°C REMARKS OR SPEC. : SEZIONE=3,1416xtx(D-t)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| TEST SPEC. : LONGITUDINAL | THICK. 3,80 | DIAM. 27,1 | SECTION 278,2 mm2 | | | | |
| YIELD POINT 0,2% (MPA ) | : requir min | 205 | | | result | 472,0 | |
| TENSILE STRENGTH (MPA ) | : requir min | 415 | max | 700 | result | 581,0 | |

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Toute altération ou falsification seront susceptibles d'entraîner des poursuites légales.

| DATE | DALMINE TUBI INDUSTRIALI S.R.L. | CHIEF OF INSPECTION DPT |
|---|---|---|
| 17/10/1994 | DOUGLAS CHERO G.Q. STEFANI V. | Antonio ANTONINI |

CED225P

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TAD COMMERCIALE

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Dalmine

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ELONGATION : CALIBRATED ON 2" 50,0 mm
(%): requir.min 21,0 result 36,0
YP / TS : requir max 0,900 result 0,812
RM (A - 2) (MPA ): requir min 10500 result 19754
HARDNESS HB requ. max 210,0 result 162,0
TECNOLOGICAL TESTS PERFORMED WITH SATISFACTORY RESULTS:
FLATTENING TEST : TEST PERFORMED AT ONE END OF 1 PIPE OF THE LOT

TEST N. 9044F HEAT N. 945252
==========
TENSION TEST + 20,0°C REMARKS OR SPEC. : SEZIONE=3,1416xtx(D-t)
TEST SPEC. : LONGITUDINAL THICK. 3,90 DIAM. 27,1 SECTION 284,3 mm2
YIELD POINT 0,2% (MPA ): requir min 205 result 465,0
TENSILE STRENGTH (MPA ): requir min 415 max 700 result 580,0
ELONGATION : CALIBRATED ON 2" 50,0 mm
(%): requir.min 21,0 result 36,0
YP / TS : requir max 0,900 result 0,802
RM (A - 2) (MPA ): requir min 10500 result 19720
HARDNESS HB requ. max 210,0 result 162,0
TECNOLOGICAL TESTS PERFORMED WITH SATISFACTORY RESULTS:
FLATTENING TEST : TEST PERFORMED AT ONE END OF 1 PIPE OF THE LOT

TEST N. 9045F HEAT N. 945252
==========
TENSION TEST + 20,0°C REMARKS OR SPEC. : SEZIONE=3,1416xtx(D-t)
TEST SPEC. : LONGITUDINAL THICK. 4,00 DIAM. 27,3 SECTION 292,8 mm2
YIELD POINT 0,2% (MPA ): requir min 205 result 469,0
TENSILE STRENGTH (MPA ): requir min 415 max 700 result 589,0
ELONGATION : CALIBRATED ON 2" 50,0 mm
(%): requir.min 21,0 result 36,0
YP / TS : requir max 0,900 result 0,796
RM (A - 2) (MPA ): requir min 10500 result 20026
HARDNESS HB requ. max 210,0 result 162,0
TECNOLOGICAL TESTS PERFORMED WITH SATISFACTORY RESULTS:
FLATTENING TEST : TEST PERFORMED AT ONE END OF 1 PIPE OF THE LOT

TEST N. 9046F HEAT N. 945252
==========
TENSION TEST + 20,0°C REMARKS OR SPEC. : SEZIONE=3,1416xtx(D-t)
TEST SPEC. : LONGITUDINAL THICK. 3,90 DIAM. 27,3 SECTION 286,7 mm2
YIELD POINT 0,2% (MPA ): requir min 205 result 470,0
TENSILE STRENGTH (MPA ): requir min 415 max 700 result 582,0
ELONGATION : CALIBRATED ON 2" 50,0 mm
(%): requir.min 21,0 result 36,0
YP / TS : requir max 0,900 result 0,808
RM (A - 2) (MPA ): requir min 10500 result 19788
HARDNESS HB requ. max 210,0 result 160,0
TECNOLOGICAL TESTS PERFORMED WITH SATISFACTORY RESULTS:
FLATTENING TEST : TEST PERFORMED AT ONE END OF 1 PIPE OF THE LOT

Questo certificato è emesso da un sistema computerizzato ed è valido senza firma. Il certificato originale riporta il marchio D in colore verde lungo una diagonale. Il possessore dell'originale, qualora rilasci copia, deve attestarne a sua norma la conformità, assumendosi ogni responsabilità per usi illeciti o semplicemente non consentiti dalla Dalmine.
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Toute altération ou contrefaçon seront susceptibles d'entraîner des poursuites légales.

DATE
17/10/1994

DALMINE TUBI
INDUSTRIALI S.R.L.

DOUGLAS CHERO
G.Q.
STEVANI V.

CHIEF OF
INSPECTION DPT
Antonio ANTONINI

Ced226

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TEST N. 9047F HEAT N. 945252

TENSION TEST + 20,0°C REMARKS OR SPEC. : SEZIONE=3,1416xtx(D-t)
TEST SPEC. : LONGITUDINAL THICK. 4,00 DIAM. 27,3 SECTION 292,8 mm2
YIELD POINT 0,2% (MPA ): requir min 205 result 475,0
TENSILE STRENGTH (MPA ): requir min 415 max 700 result 590,0
ELONGATION : CALIBRATED ON 2" 50,0 mm
(%): requir.min 21,0 result 36,0
YP / TS : requir max 0,900 result 0,805
RM (A - 2) (MPA ): requir min 10500 result 20060
HARDNESS HB requ. max 210,0 result 160,0
TECNOLOGICAL TESTS PERFORMED WITH SATISFACTORY RESULTS:
FLATTENING TEST : TEST PERFORMED AT ONE END OF 1 PIPE OF THE LOT

TEST N. 9048F HEAT N. 945252

TENSION TEST + 20,0°C REMARKS OR SPEC. : SEZIONE=3,1416xtx(D-t)
TEST SPEC. : LONGITUDINAL THICK. 3,90 DIAM. 27,3 SECTION 286,7 mm2
YIELD POINT 0,2% (MPA ): requir min 205 result 471,0
TENSILE STRENGTH (MPA ): requir min 415 max 700 result 585,0
ELONGATION : CALIBRATED ON 2" 50,0 mm
(%): requir.min 21,0 result 36,0
YP / TS : requir max 0,900 result 0,805
RM (A - 2) (MPA ): requir min 10500 result 19890
HARDNESS HB requ. max 210,0 result 160,0
TECNOLOGICAL TESTS PERFORMED WITH SATISFACTORY RESULTS:
FLATTENING TEST : TEST PERFORMED AT ONE END OF 1 PIPE OF THE LOT

TEST N. 9049F HEAT N. 945252

TENSION TEST + 20,0°C REMARKS OR SPEC. : SEZIONE=3,1416xtx(D-t)
TEST SPEC. : LONGITUDINAL THICK. 3,90 DIAM. 27,3 SECTION 286,7 mm2
YIELD POINT 0,2% (MPA ): requir min 205 result 470,0
TENSILE STRENGTH (MPA ): requir min 415 max 700 result 582,0
ELONGATION : CALIBRATED ON 2" 50,0 mm
(%): requir.min 21,0 result 36,0
YP / TS : requir max 0,900 result 0,808
RM (A - 2) (MPA ): requir min 10500 result 19788
HARDNESS HB requ. max 210,0 result 160,0
TECNOLOGICAL TESTS PERFORMED WITH SATISFACTORY RESULTS:
FLATTENING TEST : TEST PERFORMED AT ONE END OF 1 PIPE OF THE LOT

TEST N. 9050F HEAT N. 945252

TENSION TEST + 20,0°C REMARKS OR SPEC. : SEZIONE=3,1416xtx(D-t)
TEST SPEC. : LONGITUDINAL THICK. 4,00 DIAM. 27,3 SECTION 292,8 mm2
YIELD POINT 0,2% (MPA ): requir min 205 result 475,0
TENSILE STRENGTH (MPA ): requir min 415 max 700 result 588,0
ELONGATION : CALIBRATED ON 2" 50,0 mm
(%): requir.min 21,0 result 36,0

Questo certificato è emesso da un sistema compiuterizzato ed è valido senza firma. Il certificato originale riporta il marchio D in colore verde lungo una diagonale. Il possessore dell'originale, qualora rilasci copie, deve attestarne a tale scopo la conformità, assumendosi ogni responsabilità per usi illeciti o semplicemente non consentiti dalla Dalmine.

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D A T E
17/10/1994

DALMINE TUBI
INDUSTRIALI S.R.L.

DOUGLAS CHERO
G.Q.
STEVANI V.

CHIEF OF
INSPECTION DPT
Antonio ANTONINI

CED225SP

Ced225

Follows

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DALMINE

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```
   YP / TS                    : requir          max 0,900      result  0,808
   RM (A - 2)        (MPA   ): requir min 10500                 result  19992
 HARDNESS   HB      requ.              max 210,0     result   160,0
 TECNOLOGICAL TESTS PERFORMED WITH SATISFACTORY RESULTS:
  FLATTENING TEST      : TEST PERFORMED AT ONE END OF          1 PIPE OF THE LOT

TEST      N. 9051F          HEAT N. 945252
==================
 TENSION TEST + 20,0^C  REMARKS OR SPEC. : SEZIONE=3,1416xtx(D-t)
   TEST SPEC. : LONGITUDINAL   THICK.  3,90  DIAM.  27,3   SECTION  286,7 mm2
   YIELD POINT  0,2% (MPA   ): requir min   205                 result  471,0
   TENSILE STRENGTH  (MPA   ): requir min   415  max   700     result  580,0
   ELONGATION                : CALIBRATED ON 2"   50,0 mm
                            (%): requir.min  21,0               result   36,0
   YP / TS                    : requir          max 0,900      result  0,812
   RM (A - 2)        (MPA   ): requir min 10500                 result  19720
 HARDNESS   HB      requ.              max 210,0     result   160,0
 TECNOLOGICAL TESTS PERFORMED WITH SATISFACTORY RESULTS:
  FLATTENING TEST      : TEST PERFORMED AT ONE END OF          1 PIPE OF THE LOT

TEST      N. 9052F          HEAT N. 945252
==================
 TENSION TEST + 20,0^C  REMARKS OR SPEC. : SEZIONE=3,1416xtx(D-t)
   TEST SPEC. : LONGITUDINAL   THICK.  4,00  DIAM.  27,1   SECTION  290,3 mm2
   YIELD POINT  0,2% (MPA   ): requir min   205                 result  472,0
   TENSILE STRENGTH  (MPA   ): requir min   415  max   700     result  583,0
   ELONGATION                : CALIBRATED ON 2"   50,0 mm
                            (%): requir.min  21,0               result   36,0
   YP / TS                    : requir          max 0,900      result  0,810
   RM (A - 2)        (MPA   ): requir min 10500                 result  19822
 HARDNESS   HB      requ.              max 210,0     result   160,0
 TECNOLOGICAL TESTS PERFORMED WITH SATISFACTORY RESULTS:
  FLATTENING TEST      : TEST PERFORMED AT ONE END OF          1 PIPE OF THE LOT

TEST      N. 9053F          HEAT N. 945252
==================
 TENSION TEST + 20,0^C  REMARKS OR SPEC. : SEZIONE=3,1416xtx(D-t)
   TEST SPEC. : LONGITUDINAL   THICK.  4,00  DIAM.  27,1   SECTION  290,3 mm2
   YIELD POINT  0,2% (MPA   ): requir min   205                 result  470,0
   TENSILE STRENGTH  (MPA   ): requir min   415  max   700     result  580,0
   ELONGATION                : CALIBRATED ON 2"   50,0 mm
                            (%): requir.min  21,0               result   36,0
   YP / TS                    : requir          max 0,900      result  0,810
   RM (A - 2)        (MPA   ): requir min 10500                 result  19720
 HARDNESS   HB      requ.              max 210,0     result   160,0
 TECNOLOGICAL TESTS PERFORMED WITH SATISFACTORY RESULTS:
  FLATTENING TEST      : TEST PERFORMED AT ONE END OF          1 PIPE OF THE LOT
```

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| D A T E | DALMINE TUBI INDUSTRIALI S.R.L. | CHIEF OF INSPECTION DPT Antonio ANTONINI |
|---|---|---|
| 17/10/1994 | DOUGLAS CHERO G.Q. STEFANI V. | |

Cod225

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TEST N. 9054F HEAT N. 945252

TENSION TEST + 20,0°C REMARKS OR SPEC. : SEZIONE=3,1416xtx(D-t)
TEST SPEC. : LONGITUDINAL THICK. 4,00 DIAM. 27,0 SECTION 289,0 mm2
YIELD POINT 0,2% (MPA ): requir min 205 result 476,0
TENSILE STRENGTH (MPA ): requir min 415 max 700 result 586,0
ELONGATION : CALIBRATED ON 2" 50,0 mm
(%): requir.min 21,0 result 36,0
YP / TS : requir max 0,900 result 0,812
RM (A - 2) (MPA ): requir min 10500 result 19924
HARDNESS HB requ. max 210,0 result 160,0
TECNOLOGICAL TESTS PERFORMED WITH SATISFACTORY RESULTS:
FLATTENING TEST : TEST PERFORMED AT ONE END OF 1 PIPE OF THE LOT

TEST N. 9055F HEAT N. 945252

TENSION TEST + 20,0°C REMARKS OR SPEC. : SEZIONE=3,1416xtx(D-t)
TEST SPEC. : LONGITUDINAL THICK. 3,90 DIAM. 27,1 SECTION 284,3 mm2
YIELD POINT 0,2% (MPA ): requir min 205 result 471,0
TENSILE STRENGTH (MPA ): requir min 415 max 700 result 581,0
ELONGATION : CALIBRATED ON 2" 50,0 mm
(%): requir.min 21,0 result 36,0
YP / TS : requir max 0,900 result 0,811
RM (A - 2) (MPA ): requir min 10500 result 19754
HARDNESS HB requ. max 210,0 result 160,0
TECNOLOGICAL TESTS PERFORMED WITH SATISFACTORY RESULTS:
FLATTENING TEST : TEST PERFORMED AT ONE END OF 1 PIPE OF THE LOT

TEST N. 9056F HEAT N. 945252

TENSION TEST + 20,0°C REMARKS OR SPEC. : SEZIONE=3,1416xtx(D-t)
TEST SPEC. : LONGITUDINAL THICK. 3,90 DIAM. 27,0 SECTION 283,0 mm2
YIELD POINT 0,2% (MPA ): requir min 205 result 475,0
TENSILE STRENGTH (MPA ): requir min 415 max 700 result 582,0
ELONGATION : CALIBRATED ON 2" 50,0 mm
(%): requir.min 21,0 result 36,0
YP / TS : requir max 0,900 result 0,816
RM (A - 2) (MPA ): requir min 10500 result 19788
HARDNESS HB requ. max 210,0 result 160,0
TECNOLOGICAL TESTS PERFORMED WITH SATISFACTORY RESULTS:
FLATTENING TEST : TEST PERFORMED AT ONE END OF 1 PIPE OF THE LOT

TEST N. 9057F HEAT N. 945252

TENSION TEST + 20,0°C REMARKS OR SPEC. : SEZIONE=3,1416xtx(D-t)
TEST SPEC. : LONGITUDINAL THICK. 4,00 DIAM. 27,2 SECTION 291,5 mm2
YIELD POINT 0,2% (MPA ): requir min 205 result 471,0
TENSILE STRENGTH (MPA ): requir min 415 max 700 result 580,0
ELONGATION : CALIBRATED ON 2" 50,0 mm
(%): requir.min 21,0 result 36,0

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DATE
17/10/1994

DALMINE TUBI
INDUSTRIALI S.R.L.

CHIEF OF
INSPECTION DPT
Antonio ANTONINI

DOUGLAS CHERO
G.Q.
STEVANI V.

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| | | | | | |
|---|---|---|---|---|---|
| YP / TS | : requir | | max 0,900 | result | 0,812 |
| RM (A - 2) | (MPA ): requir min | 10500 | | result | 19720 |
| HARDNESS HB | requ. | max 210,0 | result | 160,0 | |

TECNOLOGICAL TESTS PERFORMED WITH SATISFACTORY RESULTS:
FLATTENING TEST : TEST PERFORMED AT ONE END OF 1 PIPE OF THE LOT

TEST N. 9058F HEAT N. 945252

TENSION TEST + 20,0^C REMARKS OR SPEC. : SEZIONE=3,1416xtx(D-t)
TEST SPEC. : LONGITUDINAL THICK. 3,90 DIAM. 27,2 SECTION 285,5 mm2

| | | | | | |
|---|---|---|---|---|---|
| YIELD POINT 0,2% (MPA | ): requir min | 205 | | result | 477,0 |
| TENSILE STRENGTH (MPA | ): requir min | 415 | max 700 | result | 594,0 |
| ELONGATION | : CALIBRATED ON 2" | 50,0 mm | | | |
| | (%): requir.min. | 21,0 | | result | 36,0 |
| YP / TS | : requir | | max 0,900 | result | 0,803 |
| RM (A - 2) | (MPA ): requir min | 10500 | | result | 20196 |
| HARDNESS HB | requ. | max 210,0 | result | 160,0 | |

TECNOLOGICAL TESTS PERFORMED WITH SATISFACTORY RESULTS:
FLATTENING TEST : TEST PERFORMED AT ONE END OF 1 PIPE OF THE LOT

HEAT N. 945252

HEAT ANALYSIS %

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| C | 0,120 | Mn | 0,43 | Si | 0,32 | P | 0,010 | S | 0,005 | Sn | 0,010 |
| Cr | 2,20 | Mo | 0,92 | | | | | | | | |

* La Societe' DALMINE garantit que tous les produits, objet du Certificat susdit, respectent en leur totalite' les Specifications de l' Article 15 de l' Arrete' Ministeriel du 24 Mars 1978 modifie':
* C max 0.25% P max 0.05% S max 0.05%
* Rm (N/mm2) max 700 A (Lo=5.65VSo) min 16% long Rm (A-2) min 10500
* E max 0.9 A (Lo=5.65VSo) min 14% trans RA min 10500

LEAK-TIGHTNESS TEST PERFORMED WITH SATISFACTORY RESULTS BY:
HYDRAULIC TEST PRESSURE 17,2 MPA FOR 5 Sec

VISUAL AND DIMENSIONAL CONTROL OF THE TUBES HAS BEEN CARRIED OUT WITH SATISFACTORY RESULT

STEEL IS FULLY KILLED AND PRODUCED BY ELECTRIC FURNACE

REMARKS:
ACCORDING TO SPEC. ASTM/ASME LAST EDITION.
TUBES HAVE BEEN NORMALIZED AT 920^C FOR 15' AND TEMPERED AT 750 ^C FOR 15'.

THIS CERTIFICATE CANCELS AND SUPERSEDES OUR PREVIOUS ONE SAME NUMBER AND DATE.

Questo certificato è emesso da un sistema computerizzato ed è valido senza firma. Il certificato originale riporta il marchio ☐ in colore verde lungo una diagonale. Il possessore dell'originale, qualora rilasci copie, deve attestarne la sua piena conformità, assumendosi ogni responsabilità per usi illeciti o semplicemente non consentiti dalla Dalmine.
Alterazioni e/o falsificazioni saranno perseguite a termini di legge.

This certificate is issued by a computerized system and it is valid without signature. On the original certificate the trade-mark ☐ green coloured along the diagonal is stamped. In case the owner of the original certificate would release a copy of it, he must attest its conformity to the original one taking upon himself the responsibility for any unlawful or not allowed use.
Any alteration and/or falsification will be subject to the law.

Le certificat est rédigé par un système d'ordinateur et il est valable sans signature. Le certificat original mentionne la marque ☐ de couleur verte en diagonal. Dans le cas où le possesseur de l'original délivrera une copie, il devra attester la conformité en son nom, en s'engageant toute la responsabilité pour des usages illicites ou, tout simplement, pas permis par Dalmine.
Toute altération ou contrefaçon seront susceptibles d'entraîner des poursuites légales.

DATE
17/10/1994

DALMINE TUBI
INDUSTRIALI S.R.L.

CHIEF OF
INSPECTION DPT
Antonio ANTONINI

DOUGLAS CHERO
G.Q.
STEVANI V.

Ced225

Follows

TAD COMMERCIALE
QUESTO DOCUMENTO È RIPRODOTTO MEDIANTE UN SISTEMA COMPIUTERIZZATO ED È CONFORME ALL'ORIGINALE
THIS DOCUMENT IS REPRODUCED BY A COMPUTERIZED SYSTEM AND IS CONFORM TO THE ORIGINAL
SINCERT

Dalmine

PLANT:
DALMINE

# INSPECTION CERTIFICATE

(UNI EN 10204 3.1.B)

N. 94/23723

Page 7

* CERTIFIED FACTORY UNI EN 29002 (ISO 9002): I.G.Q. Nr. 8603 *

18 MAR. 1998
DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.

Questo certificato è emesso da un sistema computerizzato ed è valido senza firma. Il certificato originale riporta il marchio Ⓓ in colore verde lungo una diagonale. Il possessore dell'originale, qualora rilasci copia, deve attestarne a suo nome la conformità, assumendosi ogni responsabilità per usi diversi o semplicemente non consentiti dalla Dalmine.

Alterazioni e/o falsificazioni saranno perseguite a termini di legge.

This certificate is issued by a computerized system and is valid without signature. On the original certificate the trade-mark Ⓓ green coloured along the diagonal is stamped. In case the owner of the original certificate would release a copy of it, he must attest its conformity to the original one taking upon himself the responsability for any unlawful or not allowed use.

Any alteration and/or falsification will be subject to the law

Le certificat est réalisé par un système d'ordinateur et il est valable sans signature. Le certificat original mentionne la marque Ⓓ de couleur verte en diagonal. Dans le cas où le possesseur de l'original délivrera une copie, il devra attester la conformité en son nom, en s'endossant toute la responsabilité pour des usages illicites ou tout simplement, pas permis par Dalmine.
Toute altération ou contrefaction seront susceptibles d'entraîner des poursuites légales

| DATE | DALMINE TUBI INDUSTRIALI S.R.L. | CHIEF OF INSPECTION DPT Antonio ANTONINI |
|---|---|---|
| 17/10/1994 | | |

End

Cert225

TAD COMMERCIALE
QUESTO DOCUMENTO È RIPRODOTTO MEDIANTE UN SISTEMA COMPIUTERIZZATO ED È CONFORME ALL'ORIGINALE
THIS DOCUMENT IS REPRODUCED BY A COMPUTERIZED SYSTEM AND IS CONFORM TO THE ORIGINAL
SINCERT

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

4550

**CERTIFICATO DI COLLAUDO**
**ABNAHMEPRUEFZEUGNIS**
**INSPECTION CERTIFICATE**
**CERTIFICAT DE RECEPTION**
**EN 10204 , 3.1.B**

Cliente / Kunde / Customer / Client:
VERRI & PINA SRL
VIA TERRAROSSA, 10 - C.P. N.26
22035-CANZO (CO)-CO

Avviso di Spedizione: A-BZ04008748

Certificato nr: MEST128331/2004/

Conferma ordine nr: MI04002683

Produttore: STABILIMENTO DI BOLZANO

Ordine nr: 94-85-97-103

Marchio di Fabbrica:

Oggetto Prove: Decapato Ricotto lavorabile Laminato

Tipo di Elaborazione: E+AOD

Funzione del Collaudatore:

Specifiche:
ASTM A182 2000C S41000 CLASS2 (#)
(0) Chemical analysis only and mech.properties(for ASTM A182(M))

Qualità: 410

Marca: VAL1

Puntonatura: S.410

| Pos. nr. | Oggetto | Dimensioni - mm | Tolleranza | | Colata | Pezzi | Peso - | Lotto nr. |
|---|---|---|---|---|---|---|---|---|
| 10 | Tondo | 20,000 | EN10 | | 238209 | | | 409202530 |

Sono state soddisfatte tutte le condizioni richieste

Controllo antimescolanza: OK

Controllo visivo e dimensionale: soddisfa le esigenze

## Analisi chimica

| Colata | | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | min - max | 0,15 | 1,00 | 1,00 | 11,50 - 13,50 | 0,50 | 0,040 | 0,030 | | | | | | | | |
| 238209 | | 0,14 | 0,33 | 0,76 | 12,64 | 0,47 | 0,024 | 0,029 | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pr  o Enviroment Directive [97/23/EC] Annex 1,s. 4.3 by TUEV and LLOYD

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

Bolzano, 27/08/04

Il collaudatore di stabilimento / der Werksachverständige / Works inspector / L'agent d'usine
R. Cristel

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.

Stab.: 36100 BOLZANO (Italia) - Via A. Volta, 4

# CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION
EN 10204, 3.1.B

Ø20 FORK

Cliente / Kunde / Purchaser / Client
ACC.VALBRUNA SPA-MAG.CORMANO
VIA BIZZOZZERO, 125
20032 - CORMANO (MI) - MI

Produttore: STABILIMENTO DI BOLZANO

Avviso di Spedizione: A-BZ03005486 FB03 F504

Certificato nr: MEST055587/2003/

Conferma ordine nr: MI03007175

Ordine nr: TRASFERIMENTO DA BOLZANO

Marchio di Fabbrica:

Punzone del Collaudatore: SC

Oggetto Prove: Secondo esecuzione Ricotto lavorabile Pelato

Tipo di Elaborazione: E+AOD

Specifiche:

VALBRUNA 2002 410 A ()
ASME (1) SA479 2001 S41000 A (1)
ASTM A479 2001 S41000 A ()
(1) ...II PT.A 2001 EDITION
(2) ...II PT.A 2001 EDITION
(2) ...nemical analysis only and mecc.properties(for ASTM A182(M))

AISI 410 ()
ASTM A182 2000C S41000 CLASS2 (2)
EN 10088-3 95 1.4006 A ()

ASME (1) SA182 2001 S41000 CLASS2 (2)
ASTM A276 2000A S41000 A ()
EN 10272 2000 1.4006 A ()

Qualità: 410

Marca: VAL1

Punzonatura: 410

| Pos. nr. | Oggetto | Dimensioni - mm | Tolleranza | Lunghezza -mm | Colata | Pezzi | Peso - KG | Lotto nr. |
|---|---|---|---|---|---|---|---|---|
| 0020 | Tondo | 20,000 | K12-MIN | 5000 / 5500 | 236784 | | ~~7521,0~~ 1007 | 310700680 |

Sono state soddisfatte tutte le condizioni richieste

Controllo antimescolanza: OK

Controllo visivo e dimensionale: soddisfa le esigenze:

| TEST | Provetta/ | °C | | Resil. Saggio | Snervamento | Snervamento | Resistenza | Allungamento | | Strizione | | Resilienza | Durezza |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mm | | | n | Rp 0,2% N/mm2 | | Rm N/mm2 | A5 % | A2" % | Z % | RA % | °C | HB |
| Valori richiesti 1 | | min | | | 380 | - | 585 | - | 20 | - | 45 | - | 167 |
| | | max | | | | | 730 | | | | | | 220 |
| | 10.00 | 20 | L | | 490 | | 670 | 29 | 33 | 69 | 69 | | 190 |

1)Längsrichtung/Long., Querrichtung/Transv., T=Tangential/Tangential

## Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata: | 0,080 min 0,150 max | - 1,00 | - 1,00 | 11,50 13,50 | - 0,50 | - 0,040 | - 0,030 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 236784 | 0,141 | 0,37 | 0,72 | 12,37 | 0,34 | 0,020 | 0,030 | | | | | | | | |

The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,s.,4.3 by TUEV and LLOYD'S

29 LUG. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

COPIA CONFORME ALL' ORIGINALE
ACCIAIERIE VALBRUNA S.P.A.
FILIALE DI CORMANO

Bolzano, 23/10/03

Il collaudatore di stabilimento

S.Pelin



232541/01

# MECCANICHE MORANDI s.r.l.

**VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM**

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948
E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129


CERTIFICATO DI COLLAUDO 001950200
Inspection certificate

N°5114/DCH DATE-04.02.02

CLIENTE- DOUGLAS CHERO Spa ORDINE-220155 BOLLA CONSEGNA N-341
Customer Order Delivery note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| 1 | 2000 | - VITI TE D. 12 X 35 | Astm A193 B16 | AW3610 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Cr | Mo | S | P | V | Al |
|---|---|---|---|---|---|---|---|---|---|---|
| REQUIRED VALUE | min. | 0,36 | 0,45 | 0,15 | 0,80 | 0,50 | | | 0,25 | |
| | max. | 0,47 | 0,70 | 0,35 | 1,15 | 0,65 | 0,04 | 0,035 | 0,35 | 0,015 |
| HEAT n. AW3610 | | 0,41 | 0,61 | 0,24 | 0,87 | 0,52 | 0,001 | 0,014 | 0,27 | 0,014 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

| | Rm. min. | Rp.(0,2) min. | A4 min. | Z. min. | Hardness max |
|---|---|---|---|---|---|
| REQUIRED | 860 MPa | 725 MPa | 18% | 50% | 35 HRC |
| ACTUAL VALUE | 951 | 866 | 20,5 | 56,5 | 30 |

HEAT TREATMENT
Quenched at : 925°C to 954°C oil
Tempering : 2 hours at 650°C min.

Visual and dimensional test = SATISFACTORY

0 8 FEB. 2002
DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.

This certificate has been tested in according with the specification included in your order.

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

QUALITY CONTROL

MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

02254280C

# ISELFA

STEEL FORGINGS
ELECTRING FITTINGS

S.p.A. - C.F./P.IVA VAT IT 00189520125
21048 SOLBIATE ARNO (Va) Italy - Corso Roma, 22
P.O. BOX 21 - TELELEFONO +39 (0331) 99.30.08
FAX FORGINGS +39 (0331) 99.15.35 - FAX FITTINGS +39 (0331) 99.46.77

## CONTROLLO QUALITÀ

Certificato di conformità
Compliance certificate
Gemaess Zeugnis
UNI EN 10204/3.1.B

| N° | Data / Date |
|---|---|
| 16420 | 22.04.04 |

| | | | | | |
|---|---|---|---|---|---|
| CLIENTE / Customer / Kunde | DOUGLAS CHERO SPA | ORDINE N° / Order / Bestellung | 240326 | DATA / Date / Datum | 12.02.04 |
| RIMESSO N° / Delivery note / Lieferschein | 400647 | DATA / Date / Datum | 22-04-04 | N° PEZZI / Pieces / Stuckzahl | 121 |

DESCRIZIONE - *Description - Dezeichnung*: CAPPELLI Dis. S6/8 Rev.0
DISEGNO N° - *Drawing - Zeichnung*:
INDICE - *Last revision - Verzeichnis*:

| TIPO ACCIAIO / Steel type / Stahl | COLATA / Heat / Schmelze | FORNITORE / Supplier / Lieferant |
|---|---|---|
| F.22 BILL.50 | 50409/50. | ACCIAIERIE BERTOLI SAFAU SPA |

CARATTERISTICHE ACCIAIO (FORNITE DALL'ACCIAIERIA)

COMPOSIZIONE CHIMICA / *Chemical composition / Chemische Zusammensetzung*

| % | | C | Mn | Si | Cr | Mo | P | S | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA / Requested / Erforderlkhe | min | 0,050 | 0,300 | | 2,000 | 0,870 | | | | | | |
| | max | 0,150 | 0,600 | 0,500 | 2,500 | 1,130 | 0,040 | 0,040 | | | | |
| FORNITA / Supplied / Wirkliche | | 0,0970 | 0,3600 | 0,2100 | 2,1600 | 0,9500 | 0,0110 | 0,0020 | | | | |

PROVA JOMINY / *Jominy test / Stimabschreckversuch*

| HRC | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA / Requested / Erforderlkhe | min | | | | | | | | | | | GRANO / Grain size / Korngrosse |
| | max | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 |
| FORNITA / Supplied / Wirkliche | | | | | | | | | | | | |

CARATTERISTICHE MECCANICHE / *Mechanical properties / Mechanische Eigenschaften* — Normalizzato ☐ Bonificato ☐

| Ø PROVETTA / Ø sample / Ø probest | RP 0,2% / Yield strenght 0,2% / 0,2% Grenze | R / Tensile stranght / Zugfestigkeit | A5 % / Elongation % / Dehnung % | Z % / Reduc. of area % / Einschnurung % | KCU / Impact value / Kerbschlang |
|---|---|---|---|---|---|
| mm | N/mm² | N/mm² | Lo = 5d | | J (joule) |
| | 413 | 531 | 29 | 78 | 0 / 0 / 0 |

CARATTERISTICHE PRODOTTO

| | | | | |
|---|---|---|---|---|
| TRATT. TERMICO / Heat Treatement / Warmebehandlung | NORM+RINVEN. | DUREZZA RICHIESTA / Requested hardness / Festigkeit | N/mm² | |
| DUREZZA RISCONTRATA N/mm² / Checked hardness / Finden harte | 0 0 | 0 0 | 0 0 | 0 0 |
| | 0 0 | 0 0 | 0 0 | 0 0 |

| | | | | | |
|---|---|---|---|---|---|
| CONTROLLI / Tests / Ausmabetest | C.D.C. | SI | DIMENSIONALE | POSITIVO | |
| | MAGNAFLUX 100% | NO | ALTRI | | NO |
| | VISIVO 100% | SI | | | |
| ALLEGATI / Enclosed / Anlage | ANALISI CHIMICA ACCIAIERIA | SI | PRODOTTO AUTOCERTIFICATO | | ☐ |
| | CERTIFICATO TRATT. TERMICO | NO | 29 APR. 2004 | | |

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sig. .....

NOTE / *Remarks / Bemerkungen*: TRATT: RISCALDO A 960C PER 1h OGNI 25mm DI SPESSORE E RAFFR. IN ARIA CALMA. SUCC. RISCALDO A 735/750C PER 2h OGNI 25mm DI SPESSORE E RAFFR. IN ARIA CALMA. SIGLA DI COLATA "AF"

CONTROLLO QUALITÀ / QUALITY CONTROL / QUALITATSSTELLE: ISELFA S.p.A. UFFICIO CONTROLLO QUALITA' STAMPIGLIO

COMPILATORE

ISELFA S.p.A. SOLBIATE ARNO (VA)

EMESSO ED ARCHIVIATO DAL RESPONSABILE DEL CONTROLLO FINALE (CFI)

**UGITECH**
Groupe Arcelor

**FRANCE**

5 Usine Productrice / Hersteller / Manufacturer: **UGINE**
F 73403 UGINE CEDEX
Tél : 04.79.89.30.20
Fax : 04.79.89.30.51

4 N. Nr No 80208

11 N. de commande usine-Werksbestellnummer-Works order number: FUGE TEJE 01/01 8Z101000 0

3

# CERTIFICATO COLLAUDO DI ACCETTAZIONE B
# CERTIFICAT DE RECEPTION 3.1.B
# INSPECTION CERTIFICATE B

EN 10204 / 3.1.B

Produit / Erzeugnisform / Product: IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE 6

Client et/ou destinataire - Besteller und/oder Empfaenger - Purchaser and/or Consignee 9: TECNOMECCANICA SRL

N. de commande client - Kundebestellnummer - Purchaser order number 10: 364

Nuance et spécifications techniques - Stahlsorte und Pruefbedingungen - Quality and Specifications 12: IMA4006 410 AISI 410 UNS S41000
SPEC. SDA 09 DU 20/11/01 (SAUF MN)

Etat de livraison - Lieferzustand - As delivered (1) 13: TEMPRATO RINVENUTO

Traitement de Référence - Probestrafenbehandlung - Treatment of test samples (1) 14:

| Identification du produit Erzeugnis Benennung-Product Identification N. de cde usine Werksbestellnummer Works order number 15 | N. de porte Post Nr Kam No 17 | N. de Coulée Schmelz Nr Heat No 16 | Nombre Stueckzahl Pieces Nbr 18 | Profil Profile Shape 19 | Dimension Ausmassung Dimension 20 | Longueur Laenge Length 21 | Masse Gewicht Weight 22 |
|---|---|---|---|---|---|---|---|
| 8Z101 000 | | 350031 | 190 | TONDO | 20,000 | | 1974 KG |

| Prélèvement Probenummer Test N. 39 B | Demande/Vorschrift Required (3) | Direction Richtung 24 | Température d'essai Pruefemperatur Test Temperature 25 | Traction - Zugversuch - Tensile test: Limite d'Elasticité Streckgrenze Yield Strength 0,2 % 26 A | Limite d'Elasticité Streckgrenze Yield Strength 1 % 26 B | Résistance à la traction Zugfestigkeit Tensile strength 27 | Allongement Dehnung Elongation 28 | Striction Einschnuerung Red of Area 29 | Dureté Haerte Hardness (4) 30 | Type Form Type 31 | Résilience Kerbschlagarbeit Direction Richtung (3) 32 | Température d'essai Pruefemperatur Test Temperature 33 | Résilience - Kerbschlagzaehigkeit - Notch Toughness: Valeurs individuelles Einzelwerte Individual Values 35 | Moyenne Mittelwerte Average 36 | Dureté Haerte Hardness (5) 37 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | L | °C | MPA | MPA | MPA | % | % | | | | | | | HB |
| | Min | | 20 | 275 | | 585 | 20 | 45 | | | | | | | |
| | Max | | | | | | | | | | | | | | 237 |
| | (4) | | | | | | | | | | | | | | |
| | (5) | | | 607 | | 684 | 21 | 72 | | | | | | | 205 |

| 39 A N. de Prélèvement Probenummer Test N. | Demande Vorschrift Required 40 | Analyse/Produit-Stück Analyse-Check Analysis | 42 C | 43 SI | 44 MN | 45 NI | 46 CR | 47 S | 48 P | 49 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Min | | | | 0,30 | | 11,50 | | | | |
| | Max | | 0,150 | 0,60 | 0,60 | | 13,50 | 0,030 | 0,040 | | |
| N. de Coulée Schmelz Nr Heat N. | | | 0,107 | 0,42 | 0,38 | 0,35 | 12,18 | 0,022 | 0,019 | | |
| 350031 | | | | | | | | | | | |

| 38 Mode d'élaboration Erschmelzungsart Melting process | 51 Demande Vorschrift Required | 52 | 53 | 54 | 55 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Electrique Elektrisch Electric | Min | | | | | | | | | |
| | Max | | | | | | | | | |

IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE

06 MAG. 2004

DOUGLAS CHERO Spa

Quality Assurance .....

P.C. STEFANI VITTORIO

Sign .....

56

(3) L = Long / Laengs - Long / T = Travers / Quer-Transverse 58

(1) TE = Trempé à l'eau - Wasserhaerten - Waterquench; TH = Trempé à l'huile - Oelhaerten - Oil Quench; A = Hypertrempé - Loesungsgegluecht - Solution annealed; R = Revenu - Anlassen - Tempered; RT = Recuit - Geglueht - Annealed; TRM = Recuit mixt - Weichgegluecht - Mixt annealed 7

Ugine, le 15-01-04
L'Agent Réceptionnaire de l'usine / Der Werksabnehmerbeauftragte / The Work Inspector
H. Mayet 83

(4) A l'état de référence / Zum Bezug Zustand / At reference condition 60 A

(5) A l'état de livraison / In Lieferzustand / In state of delivery 60 B

Contrôles de marquage, d'aspect et de dimensions: satisfaisants / Bezeichnung, Beschaffung und Ausmessung: ohne Beanstandung / Marking, Inspection and measurement: without objection 62

Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande / Wir bestaetigen hiermit dass die obengenannten Erzeugnisse den Bestellungsvorschriften entsprechen / We certify hereby that the above mentioned products are consistent with the order prescriptions 68

| DOUGLAS CHERO Spa | ULTRASONIC EXAMINATION REPORT | No.: 009A/05-UT<br>Sheet: 1/2 |
|---|---|---|

| Customer | Order | Our Ref. |
|---|---|---|
| KLAUS UNION ARMATUREN INTERNATIONAL<br>for LURGI OEL GAS CHEMIE GMBH | HH-02535<br>Lurgi P.O: 4567569-000/1.69690/136 | 04.0572 |

| Object | Quantity |
|---|---|
| TESTS CARRIED OUT ON RAW BODIES AND BONNETS | 100% |

| Procedure No. | Customer Specifications | Items of Order | Material |
|---|---|---|---|
| D.C. 125 Rev. 2 | / | See sheet 2/2 | ASTM A182/F22 |

| Q.C.P. | Stage | Drawing | Items of Drawing | Component Temperature °C |
|---|---|---|---|---|
| PED-0003/05 Rev.2 | 9 | DOUGLAS CHERO | 10 - 11 | ROOM TEMP. |

| Specifications | Surface conditions | | |
|---|---|---|---|
| ASME V: ASME SA 388<br>ASME B16.34 | ☑ Forged<br>☐ Machined | ☑ Sandblasted<br>☐ Welded | ☐ As rolled<br>☐ |

| Instrument | Control Technique | Material Conditions |
|---|---|---|
| Manufacturer SIRIO<br>Type RP 3000<br>Serial Nr. 9293 | ☑ Impulse Echo<br>☑ Contact | ☐ Before PWHT<br>☐ After PWHT |

| Reference Standard | Calibration Block Nr. | Coupler |
|---|---|---|
| ☑ V1 ☐ V2 | / | ☐ Water ☑ Oil ☐ Glycerin paste |

**Transducers**

| Probes position | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Type of probe | SN 10-4M | | | | | |
| Probe number | / | | | | | |
| Manufacturer | SIRIO | | | | | |
| Dimension (mm) | 10 | | | | | |
| Frequency (Mhz) | 4 | | | | | |
| Decibel used | 56÷68 | | | | | |
| Type of wave | ☑ Longitudinal ☐ Shear | ☑ Longitudinal ☐ Shear | ☑ Longitudinal ☐ Shear | ☑ Longitudinal ☐ Shear | ☑ Longitudinal ☐ Shear | ☑ Longitudinal ☐ Shear |

| Methods | Acceptance Criteria |
|---|---|
| ☑ Back reflection | According to D.C. Procedure 125 Rev.0 ( Longitudinal wave probe 10% ) |
| ☐ D.A.C. | According to D.C. Procedure 125 Rev.0 |
| ☐ A.V.G. | According to D.C. Procedure 125 Rev.0 |

| Primary Reference Reflector | (*) Reportable indications |
|---|---|
| Flat bottom hole ☐ | / |
| Bottom wall ☑ | |
| Notch type ☐ | |

**RESULTS**

| ☐ Reportable indications (*) | ☑ No reportable indications | ☑ Accepted | ☐ Non conforming | ☐ Rejected |
|---|---|---|---|---|

| EXAMINATION PERFORMED BY | APPROVED BY | CUSTOMER INSPECTOR | CUSTOMER INSPECTOR |
|---|---|---|---|
| DOUGLAS-CHERO S.p.A.<br>Quality Control<br>*CREDALI STEFANO* | | | |
| LEVEL:<br>II° SNT-TC-1A | LEVEL: | DATE:<br>31/01/2005 | |

| DOUGLAS CHERO S.p.a. | ULTRASONIC EXAMINATION REPORT | No.: 009A/05-UT<br>Sheet: 2/2 |
|---|---|---|

## LIST OF ITEMS

| ITEM | IDENT No. | DESCRIPTION | SIZE | Q.TY | Q.TY tested |
|---|---|---|---|---|---|
| 260 | S491-BW 4,55 | GATE VALVE LANTERN RING long pattern c.1500 FB BB BW Sch.80 -Seats+Wedge Stell. [ TRIM 5 ] | 1" | 9 | 9+9 |
| 270 | S490 | GATE VALVE LANTERN RING c.1500C FB BB NPT+2 Weld.Nipples Sch.80 -Seats+Wedge Stell. [ TRIM 5 ] | 3/4" | 13 | 13+13 |
| 310 | V481-BW 6,35 | GLOBE VALVE c.1500C RB BB BW Sch.160 - Seat+Disk Stell. [ TRIM 5 ] | 1" | 4 | 4+4 |
| | | | | | |

DOUGLAS-CHERO S.p.A.
Quality Control
*CREDALI STEFANO*

| DOUGLAS CHERO S.p.A. | MAGNETOSCOPIC INSPECTION CERTIFICATE | No.: 019A/05-MT<br>Sheet: 1/2 |
|---|---|---|

| Customer: KLAUS UNION ARMATUREN INTERNATIONAL for LURGI OEL GAS CHEMIE GMBH | Order: HH-02535<br>Lurgi P.O.: 4567569-000 / 1.69690 / 136 | Job: 04.0572 |
|---|---|---|
| Object: TEST CARRIED OUT ON WORKED BODY / BONNET<br>SEE ATTACHED SHEET FOR VALVES DESCRIPTION | | Quantity: 100 % |

| Procedure No. | Customer Specification | Item of Order | Material | Q.C.P. | Stage |
|---|---|---|---|---|---|
| 212 Rev.2 | ASME B16.34 PAR.8 | SEE SHEET 2/2 ATTACHED | ASTM A182/F22 | PED-0003/05 Rev.2 | 9 |

| Drawing: | Item of Drawing: | Test Temperature: | Surface Condition: |
|---|---|---|---|
| DOUGLAS CHERO | 10 - 11 | ROOM TEMPERATURE | BLASTING - MACHINING |

| *YOKE* | | *ELECTRODS* | *COIL* | *SING.CONDUCTOR* |
|---|---|---|---|---|
| Tr. Mark | SILVER YOKE | Tr. Mark | Curr. Type | Tr. Mark |
| Curr.Type | AC - DC | Curr.Type | Ampers Turn | Curr.Type |
| | | Intensity | Diameter | Intensity |
| | | Magn.Flux | Magn. Flux | Magn.Flux |
| Distance | 100mm. | Distance | Distance | Distance |

| | *FLUORESCENT WET* | | | *DRY* | | |
|---|---|---|---|---|---|---|
| | TYPE | BATCH | CERTIFIC. | TYPE | COLOUR | CERTIFIC. |
| TRADE MARK | MET-L-CHEK | | | | | |
| CLEANER | REMOVER NPU | | | | | |
| MAGN. PARTICLES | FW1 - NDT | | | | | |
| MAGN. POWDER | // | | | | | |

| DEMAGNETIZATION: NO | ☑ ACCEPTED | ☐ NOT ACCEPTED |
|---|---|---|
| REMARKS: /// | | |

| EXAMINATION PERFORMED BY | APPROVED BY | CUSTOMER INSPECTOR | CUSTOMER INSPECTOR |
|---|---|---|---|
| DOUGLAS-CHERO S.p.A.<br>Quality Control<br>*CREDALI STEFANO* | | | |
| LEVEL:<br>II° SNT-TC-1A & EN 473 | LEVEL: | DATE:<br>2102/2005 | |

| DOUGLAS CHERO S.p.a. | MAGNETOSCOPIC INSPECTION CERTIFICATE | No.: 019A/05-MT<br>Sheet: 2/2 |
|---|---|---|

## LIST OF ITEMS

| ITEM | IDENT NO. | DESCRIPTION | SIZE | Q.TY | Q.TY Tested |
|---|---|---|---|---|---|
| 260 | S491-BW 4,55 | GATE VALVE LANTERN RING long pattern c.1500 FB BB BW Sch.80 -Seats+Wedge Stell. [ TRIM 5 ] | 1" | 9 | 9+9 |
| 270 | S490 | GATE VALVE LANTERN RING c.1500C FB BB NPT+2 Weld.Nipples Sch.80 -Seats+Wedge Stell. [ TRIM 5 ] | 3/4" | 13 | 13+13 |
| 310 | V481-BW 6,35 | GLOBE VALVE c.1500C RB BB BW Sch.160 - Seat+Disk Stell. [ TRIM 5 ] | 1" | 4 | 4+4 |
| | | | | | |

DOUGLAS-CHERO S.p.A.
Quality Control
*CREDALI STEFANO*

DOUGLAS CHERO Spa
FORGED VALVES

STABILIMENTO/FACTORY
UFFICI AMMINISTRATIVI E COMMERCIALI
Località Pradaglie - 29013 Carpaneto P.no (PC) - ITALY
Phone: 0523/854011 - Fax: 0523/850389
E-MAIL: webmaster@douglas-chero.com

| | |
|---|---|
| Customer | KLAUS UNION ARMATUREN INTERNATIONAL for LURGI OEL GAS CHEMIE GMBH |
| LURGI P.O. NO. | 4567569-000 / 1.69690 / 136 |
| P.Order N. | HH-02535 |
| Ref.: | MEGA METHANOL PLANT, ZAGROS PETROCHEMICAL COMPANY, SITE BANDAR ASSALUYEH, IRAN |
| Contract No. | 1.69690-10 |
| O.Ref./JOB N. | 04.0572 |

Ref.: TABLE 64

HEAT TREATMENT FOR ASTM A182/F11-F22 WELDING:

MACHINE TYPE: AEC TECHNOLOGY - THERMOCONTROL R/6 BT65 THIN/C

A) Heating Temperature is 720 ÷ 730°C.

B) Heating rate over 400°C should be less than 200°C per hour.

C) Holding time at 720 ÷730°C is 1 hour per 25mm of thickness, with a minimum of 2 hours.

D) The Cooling will be performed not overcoming the 200°C for each hour up to 400°C. Then Cooling is in still air.

DESCRIPTION:

BODY MATERIAL: ASTM A182/F11 & NIPPLE MATERIAL: ASTM A335/P11
No. 38 BODY GATE VALVE c.1500 NPT Ø 1/2" + 2 WELDED NIPPLES Sch.80
No. 34 BODY GATE VALVE c.1500 NPT Ø 3/4" + 2 WELDED NIPPLES Sch.80

BODY MATERIAL: ASTM A182/F22 & NIPPLE MATERIAL: ASTM A335/P22
No. 17 BODY GATE VALVE c.1500 NPT Ø 1/2" + 2 WELDED NIPPLES Sch.160
No. 3 BODY GATE VALVE c.1500 NPT Ø 3/4" + 2 WELDED NIPPLES Sch.160
No. 13 BODY GATE VALVE c.1500 NPT Ø 3/4" + 2 WELDED NIPPLES Sch.80

CARPANETO P.NO: 28/02/05

DOUGLAS-CHERO S.p.A.
Quality Control
*CREDALI STEFANO*

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:**
Customer: ***Lurgi AG, D - 60295 Frankfurt***

**Bestell-Nr.:**
Order no.: ***Lurgi Job – No.: 69690-10***
***Lurgi OGC PO.-No.: 4567569-002 to -003/1.69690/145***

*Project Name :* ***2nd Zagros Methanol Plant - Iran***

**Auftrag-Nr.:**
Job no.: ***HH – 02535 - 02***

**Lieferumfang** / range:

| **Pos** | **Stck.** pcs. | **Gegenstand** object | **DN** | **PN** | **Werkstoff** material | **Bemerkung** comment |
|---|---|---|---|---|---|---|
| *00360* | *1* | *Gate valve*<br>*FB BB SW*<br>*Seats + Wedge Stell.* | *1/2"* | *Cl.1500* | *ASTM A 105N* | *Valve Ident – No.: " S330 "* |

**Auslegung + Prüfung nach**
Design and tests acc. To: API 602 – ASME B16.11, ASME 31.1, ASME B16.34
API 598 / BS EN 12266-1

**Sicht- und Funktionsprüfung:**
visual and functional test: *o.k.*

**Festigkeits-/Dichtheitsprüfung:**
strength-/tightness-test:

*Festigkeit / shell test = 388 bar Wasser / water* (60 sec)
*Dichtheit Sitz / seat = 285 bar Wasser / water* (60 sec)
*Rückdichtung / backseat = 285 bar Wasser / water* (60 sec)
*Dichtheit Sitz / seat = 6 bar Luft / air* (60 sec)

**Prüfungsergebnis:**
result: *ohne Beanstandung !*
*no complaint !*

K 007

*Bochum, den 21.11.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** *Dokumentation gemäß Material-Dokumentationsdeckblatt*
enclosure *Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 21.11.2005
Seite / Page 1
Sachbearbeiter / Person in charge W. Glass

**Kommissions-Nr. / Reference No.**

**HH-02535- 02 +03**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 002 to -003/ 1.69690 / 145**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00360 | Gate Valve 1/2" Cl. 1500 lbs. FB, BB, SW seats+wedge stell. | " S330 " | 1 | Body | E-SR | ASTM A105N | Evasi e Casteln. | 76028 | | 000061 |
| | | Drawing-No.: BX652-7/SW | | Wedge | | A182/F6a C.2 stel. | Valbruna | 239190 | | 196495/2005 |
| | | (main order Item 00160) | | Seat | | A182/F6a C.2 stel. | Ugitech | 519006 | | 104263000010 |
| | | | | Body Srew | | ASTM A193/B7 | Morandi | EO104136 | | 6326 |
| | | | | Bonnet | B-DHS | ASTM A105N | Bonomi | 1T8541 | | 040775 |
| | | | | Stem | | A182/F6a C.2 | Valbruna | 416334 | | 245066/2005 |
| | | | | | | | | | | |
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# Evasi e Castelnuovo s.r.l.

Via Carlo Porta, 1 - 23861 CESANA BRIANZA (LC)
Tel. 031/65.59.36 - Fax 031/65.66.27
Cod. Fisc. e Part. IVA 00209790138
Reg.Soc. Trib. Lecco n. 5932 - C.C.I.A. 121373


Spett.
DOUGLAS CHERO SPA

LOC. PRADAGLIE
29013 CARPANETO PIACENTINO PC

***CERTIFICATO DI COLLAUDO / INSPECTION CERTIFICATE***

| N. | DATA/DATE |
|---|---|
| **000061** | **27-02-2001** |

*D.D.T. / DELIVERY NOTE*

| N. | DATA/DATE |
|---|---|
| | |

00190980

| COLATA /HEAT N. | MATERIALE/MATERIAL | ACCIAIERIA/STEEL PLANT | N.QUANTITY | DESCRIZIONE/DESCRIPTION |
|---|---|---|---|---|
| **76028** | **A105** | RIVA | 1.070 | CORPI GR VS 1" 800 BB |

## ANALISI CHIMICA / CHEMICAL ANALYSIS

| C | Mn | Si | P | S | Cr | Ni | Mo | Ti | V | Cu | Al |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,200 | 0,930 | 0,170 | 0,015 | 0,010 | 0,150 | 0,060 | 0,020 | 0,017 | 0,017 | 0,180 | 0,020 |
| **Sn** | **Nb** | **N** | **Fe** | **W** | **Ta** | **Co** | **Ca** | **B** | **Sb** | | **CE** |
| 0,012 | | | | | | | | | | | |

## PROVE MECCANICHE/MECHANICAL TESTS

| RS-YELD | R-TENSILE | A%-ELONG | C%-REDUCT |
|---|---|---|---|
| 323,0 | 521,0 | 32,0 | 56,0 |

*TESTS*

| TEST 1 | TEST 2 | TEST 3 | TEMPERAT. |
|---|---|---|---|
| | | | |

| TRADE MARK | HEAT CODE | MATERIAL CODE | MATERIAL TYPE NR. | DWG |
|---|---|---|---|---|
| E SR | | | | |

02 MAR. 2001
DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.

*TRATTAMENTO TERMICO / HEAT TREATMENT*

| DESCRIPTION | HEATING C. | STAY TIME | COOLING | HARDNESS |
|---|---|---|---|---|
| NORMALIZZAZIONE | 900 | 2,3 | ARIA CALMA | |

1) The result of chemical analisys is a true and correct copy of the mill cerificate issued,by the manufacturer of the steel employed, or by the laboratory which has determined it.

Il risultato delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o del laboratorio che li ha rilevati

2) The material of components shipped under the above order number did not come in direct contact with mercury or any its components; or with any mercury containing devices employing a single boundary of containment, during the manufacturing process inspection of storage.

Il materiale o i particolari spediti per questi ordini non sono mai venuti a contatto diretto con mercurio o con alimenti contenenti mercurio durante la fase di lavorazione, controllo o immagazzinamento.

| According to UNI EN 10204 3.1B ☒<br>According to UNI EN 10204 2.2 ☐ | APPROVATO/APPROVED |
|---|---|
| EMESSO/ISSUED | COLLAUDATORE/INSPECTOR |

**EVASI E CASTELNUOVO s.r.l.**
*STAMPERIA IN FERRO E ACCIAIO*
Via Carlo Porta, 1 - 23861 CESANA B.ZA (LC)
Tel. 031/65.59.36 - Fax 031/65.66.27
Cod. Fisc. e Part. IVA 00209790138

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

4936

## CERTIFICATO DI COLLAUDO
## ABNAHMEPRUEFZEUGNIS
## INSPECTION CERTIFICATE
## CERTIFICAT DE RECEPTION
## EN 10204 , 3.1.B

Cliente / Besteller/Purchaser/Client
VERRI & PINA SRL
VIA TERRAROSSA, 10 - C.P. N.26
22035-CANZO (CO)-CO

Avviso di Spedizione: A-VI05005385
Lieferanzeige/Packing list/B.L.

Certificato nr: MEST196495/2005/
Prüfung/Test/Essai

Conferma ordine nr: MI04006967
Works/Our Order/Ref nr.

Produttore: ACCIAIERIE VALBRUNA S.P.A.
Hersteller/Item/Usine productrice

Ordine nr: ORD.N.282
Bestell/Your order/Commande

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice

Oggetto Prove: - Ricotto lavorabile Pelato
Prüfgegenstand/Item inspected/Finissage

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'elaboration

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

MR

Specifiche:
Anforderungen / Requirements / Exigences

VAL STOCK 2004 1.4006/410 A
ASME (1) SA479 2001 S41000 A (1)
ASTM A479 2004 S41000 A
QQ-S-763 F 410 A
(0) SEC.II PT.A 2001 EDITION ADD.2002
(2) Chemical analysis only and mecc.properties(for ASTM A182[M])

AISI 410
ASTM A182 2004A S41000 CLASS2 (2)
EN 10088-3 95 1.4006 A

ASME (1) SA182 2001 S41000 CLASS2 (0)
ASTM A276 2004 S41000 A
EN 10272 2000 1.4006 A

(1) SEC.II PT.A 2001 EDITION ADD.2002

Qualità: 1.4006/410
Werkstoff/Grade/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Nuance

Punzonatura: 1.4006/410
Kennzeichnung/Marking/Marquage

| Pos. nr. / Pos. nr. / Item nr. / Nr. de poste | Oggetto / Gegenstand / Product description / Descrip. du produit | Dimensioni - mm / Abmessungen / Dimension / Dimension | Tolleranza / Toleranz. / Allowance / Tolerance | Lunghezza - mm / Länge / Length / Longueur | Colata / Schmelze / Heat / Coulée | Pezzi / Stückzahl / Pieces / Pieces | Peso - KG / Gewicht / Weight / Poids | Lotto nr. / Losnr. / Lot nr. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0010 | Tondo | 28,000 | K12-MIN | 5480 / 5480 | 239190 | | 1047,0 | 428002610 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel a été trouvé conforme aux exigences

Controllo antimescolanza: OK
Verwechslungprüfung: spektralanalytisch durchgeführt
Antimixing testing performed: OK
Contrôle antimélange fait: r.s.e.

Controllo visivo e dimensionale: soddisfa le esigenze:
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checkacrtisactory
Contrôle visuel et dimensions: satisfaisant

| TEST | Provetta/Probestab / Specimen/Eprouvette Lung.class Spess. Diam. Diam. Larg. diam. Lato mm | °C | Posiz. Saggio / Probenlage / Location / Emplacement 1) | Snervamento / Streckgrenze / Yield Stress / Limite elastique Rp 0,2% N/mm2 | Snervamento / Streckgrenze / Yield Stress / Limite elastique | Resistenza / Zugfestigkeit / Tensile strength / Resistance à traction Rm N/mm2 | Allungamento / Bruchdehnung / Elongation / Allongement A5 % | Allungamento E 4d % | Strizione / Einschnürung / Reduction of area / Striction Z % | Strizione RA | Resilienza / Kerbschlagarbeit / Impact Value / Resilience | Durezza / Härte / Hardness / Dureté HB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 / Anforderungen/Required values / Valeurs demandées | | min max | | 380 | - | 585 730 | - | 20 | | 45 | | 167 220 |
| A | 10 | 20 | L | 457 | | 695 | 28 | 30 | 70 | 70 | | 202 |

1)Longitudinale/länge, C=trasversale/quer, T=Tangenziale/tangential

## Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata / Heat / Schmelze/Coulée | C % | Si % | Mn % | Cr % | Ni % | P % | S % |
|---|---|---|---|---|---|---|---|
| min 0,080 max 0,150 | | 1,00 | 1,00 | 11,50 13,50 | 0,50 | 0,040 | 0,030 |
| 239190 | 0,140 | 0,41 | 0,80 | 12,24 | 0,16 | 0,025 | 0,028 |

Macroetch test: ok.

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,s.4.3 by TUEV and LLOYD'S

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign: .....

Vicenza,09/03/05
Mod.VCQ012

Il collaudatore di stabilimento / der Werkssachverständige / Works inspector / L'agent d'usine
M.Rizzotto

UGITECH
Groupe Arcelor

Hersteller
Manufacturer
E-mail

Nr. N°
)1 63000010
4

N° de commande usine - Werksbestellnummer - Works order number
3SG91000 0523SG9100
11

# CERTIFICATO COLLAUDO DI ACCETTAZIONE 3.1
# CERTIFICAT DE RECEPTION 3.1
# INSPECTION CERTIFICATE 3.1

EN 10204 / 3.1



IGINE

Certification - Werkzeugnis - Certificate

AD 2000-MERKBLATT W0/TRD100
Pressure Equipment Directive 97/23/EC

EN ISO 9001 : 2000
ISO/TS 16949 : 2002
EN ISO TS 14001 : 1996

par von by

Marque d'usine - Herstellerzeichen - Supplier's Mark: UGINE

Poinçon de l'expert - Prüfstempel - Inspector's stamp: IQ

roduit - Erzugnisform - Product

UGIMA 4006 BARRA LAMINATO DECALAMINATO BONIFICATO CONDITION 2 K13 TONDA 20,000MM LONG. 5,300M +300,000MM -300,000MM (IT)

UGIMA 4006 BARRE LAMINÉ(E) DÉCALAMINÉ(E) TRAITÉ(E) CONDITION 2 K13 ROND(E) 20,000MM LONG. 5,300M +300,000MM -300,000MM (FR)
UGIMA 4006 BAR ROLLED DESCALED HEAT TREATED CONDITION 2 K13 ROUND 20,000MM LONG. 5,300M +300,000MM -300,000MM (EN)
UGIMA 4006 STAB GEWALZT ENTZUNDERT/ÜBERDREHT VERGÜTET CONDITION 2K13 RUND 20,000MM LONG. 5,300M +300,000MM -300,000MM (DE)

6

Client et/ou destinataire - Besteller und/oder Empfaenger - Purchaser and/or Consigner
19004 O.M.I.C S.N.C. 9

N° de commande client - Kundebestellnummer - Purchaser order number
000113/a5 10

Marque commerciale - Handelsmarke - Trade name
UGIMA 4006 12

Norme de référence - Bezugsnorm - Standard for reference
AISI 410 ; ASTM A182-05 F6A ; 12

Spécifications client - Kundenspezifikation - Customer's specification
12

de livraison - Lieferzustand - As delivered
TREMPE ET REVENU 13

(1) Traitement de référence - Probestreifenbehandlung - Treatment on test sample
14

DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO

| Identification du produit / Erzeugnis Benennung / Product Identification | N° de cde usine / Werksbestellnummer / Works order number 15 | N° poste / Post Nr / Item Nr 17 |
|---|---|---|
| | 3SG91 | 000 |

N° de coulée - Schmelzen Nr - Heat No
519006 16

| Nombre / Stueckzahl / Pieces Nbr 18 | Profil / Profile / Shape 19 | Dimension / Ausmessung / Dimension 21 | Longueur / Laenge / Length 21 | Poids / Gewicht / Weigh 22 |
|---|---|---|---|---|
| 81 | RO | 20,000 mm | 5,300 m | 1069 kg |

(3) L = Long
Laengs - Long
T= Travers
Quer - Transverse
58

(1) TE = Trempé à l'eau-Wasserhaerten-Waterquench
TH = Trempé à l'huile-Olharten-Oil Quench
A = Hypertrempé-Loesungsgegluecht-Solution annealed
RO = Rond-Rund-Round QR = Carré-Viereckig-Square
R = Revenu-Anlassen-Tempered
RT = Recuit-Gegluecht-Annealed
TRM = Recuit maxi-Weichgegluecht-Maxi annealed
HX = Héxagonal-Sechskant-Hexagonal
7

Ugine, le 31.08.2005

L'agent Réceptionnaire de l'usine
Der Werkssachverständige
The work inspector

C. BIOTEAU
63

(4) A l'état de référence
Zum Bezug Zustand
At reference conditior
59A

(5) A l'état de livraison
In Lieferzustand
In state of delivery
59B

Contrôles de marquage, d'aspect et de dimensions : satisfaisants
Bezeichnung, Besichtigung und Ausmessung : ohne Beanstandung
Marking, inspection and measurement : without objection
62

Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande
Wir bestätigen hiermit dass die obengenannten Erzeugnisse den Bestellungvorschriften entsprechen
We certify hereby that the above mentioned products are consistent with the order prescritions
66

AIS ROMA 11/12/05

**UGITECH**
**Groupe Arcelor**

Hersteller
Manufacturer
E-mail

| N° | N° de commande usine - Werksbestellnummer - Works order number | |
|---|---|---|
| 10 63000010 4 | 3SG91000 | 0523SG9100 11 |

# CERTIFICATO COLLAUDO DI ACCETTAZIONE 3.1
# CERTIFICAT DE RECEPTION 3.1
# INSPECTION CERTIFICATE 3.1

## EN 10204 / 3.1



| Numéro de prélèvement Probenummer Test Number | Demandé-Vorschrift-Required | Traction-Zugversuch-Tensile test: Sens Richtung Direction (3) | Température d'essai Prueftemperatur Test Temperature | Limite d'élasticité Streckgrenze Yield Strength 0,2% | Limite d'élasticité Streckgrenze Yield Strength 1% | Résistance à la traction Zugfestigkeit Tensile | Allongement Bruchdehnung Elongation | Striction Einschnürung Red of Area | Dureté Haerte Hardness | Dureté Haerte Hardness | Résilience-Kerbschlagzaehigkeit-Notch Toughness: Type Form Type | Sens Richtung Direction (3) | Température d'essai Prueftemperatur Test Temperature | Valeurs individuelles Einzelwerte Individual Values | Moyenne Mittelwerte Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39B | | 24 | 25 °C | 26A MPa | 26B MPa | 27 MPa | 28 % | 29 % | 30 HB | 37 HRC | 31 ISOV | 32 L | 33 °C 20 | 35 J | 36 J |
| | | L | 20 | | | | | | | | | | | | |
| | | Min | | 380 | | 585 | 18 | 35 | 167 | | | | | | |
| | | Max | | | | | | | 229 | | | | | | |
| | (5) | | | 646 | | 723 | 19 | 68 | 222 | | | | | | |
| | (4) | | | | | | | | | | | | | | |

| Numéro de prélèvement Probenummer Test Number | 40 Demandé Vorschrift Required | | 42 % C | 43 % Si | 44 % Mn | 45 % Ni | 46 % Cr | 47 % S | 48 % P | 49 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 39A | | Min | | | | | 11,5000 | | | | |
| | | Max | 0,1500 | 1,0000 | 1,0000 | 0,5000 | 13,5000 | 0,0300 | 0,0400 | | |
| Numéro de coulée Schmelz Nr Heat N. 519006 | | | 0,1030 | 0,4300 | 0,4200 | 0,3400 | 12,0800 | 0,0230 | 0,0190 | | |

| Mode d'élaboration Herstellungsart Melting process | Demandé Vorschrift Required | | 51 | 52 | 53 | 54 | 55 | 70 | 71 | 72 | 73 | 74 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 38 | | Min | | | | | | | | | | |
| | | Max | | | | | | | | | | |
| Electrique Elektrisch Electriq | | | | | | | | | | | | |

**DOUGLAS CHERO Spa**
**Quality Assurance**
**P.C. STEVANI VITTORIO**
**Sign.**

56

(3) L = Long
Laengs - Long
T = Travers
Quer - Transverse
58

(1) TE = Trempé à l'eau-Wasserhaerten-Waterquench
TH = Trempé à l'huile-Olharten-Oil Quench
A = Hypertrempé-Loesungsgegluecht-Solution annealed
RO = Rond-Rund-Round QR = Carré-Viereckig-Square
R = Revenu-Anlassen-Tempered
RT = Recuit-Gegluecht-Annealed
TRM = Recuit maxi-Weichgegluecht-Maxi annealed
HX = Héxagonal-Sechskant-Hexagonal
7

Ugine, le 31.08.2005

L'agent Réceptionnaire de l'usine
Der Werkssachverständige
The work inspector

C. BIOTEAU
63

(4) A l'état de référence
Zum Bezug Zustand
At reference condition
59A

(5) A l'état de livraison
In Lieferzustand
In state of delivery
59B

Contrôles de marquage, d'aspect et de dimensions : satisfaisants
Bezeichnung, Besichtigung und Ausmessung : ohne Beanstandung
Marking, inspection and measurement : without objection
62

Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande
Wir bestätigen hiermit dass die obengenannten Erzeugnisse den Bestellungvorschriften entsprechen
We certify hereby that the above mentioned products are consistent with the order prescritions
66

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948

E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129


28295

CERTIFICATO DI COLLAUDO
Inspection certificate

N°6326/DCH DATE-19.07.05

CLIENTE- DOUGLAS CHERO Spa ORDINE-195 BOLLA CONSEGNA N-2660
Customer Order Delivery note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| 1 | 20000 | VITI TE M 12 X 30,5 | B7 ASTM A 193/A 193M | E01041362 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Cr | Mo | S | P |
|---|---|---|---|---|---|---|---|---|
| REQUIRED VALUE | min. | 0.37 | 0.65 | 0.15 | 0.75 | 0.15 | | |
| | max. | 0.49 | 1.10 | 0.35 | 1.20 | 0.25 | 0.040 | 0.035 |
| HEAT n. E01041362 | | 0,44 | 0,81 | 0,15 | 1,10 | 0,22 | 0,025 | 0,005 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

| | Rm. | Rp.(0,2) | A4 | Z. | Hardness |
|---|---|---|---|---|---|
| REQUIRED | min. 860 MPa | min. 720 MPa | min. 16% | min. 50% | max 35 HRC |
| ACTUAL VALUE | 983 | 895 | 17,8 | 54,3 | 31 |

HEAT TREATMENT
Quenched at : 860 °C in oil
Tempering : 2 hours at 593 °C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

25 LUG. 2005

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign .....

QUALITY CONTROL
MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

**Bonomi srl**
*STAMPAGGIO A CALDO DELL'ACCIAIO*

SINCERT
SISTEMA QUALITA' CERTIFICATO ISO 9001:2000
CERTIFICATO N°143467

23861 CESANA BRIANZA (LC)
Via Carlo Porta, 8
☎ 031/656798 🖷 031/657597
Partita I.V.A. 02418370132
R.I. Lecco N. 15934 R.E.A. Lecco N. 288235

26860

TEST CERTIFICATE N° 040775
CERTIFICATO DI COLLAUDO
3.1B-AS-TO- SECONDO
**UNI EN 10204**
DATA : **15/11/2004**

*Spett.le Ditta*
*DOUGLAS CHERO Spa*
*Loc. Padaglie*
*29013 CARPANETO P.NO (Pc)*

Mod. 28/1

| CUSTOMER ORDER - ORDINE CLIENTE | P.O. | DOCUMENTO DI TRASPORTO | INVOICE-FATTURA |
|---|---|---|---|
| 240741 pos. 1 | | 288 del 04/11/2004 | |

| DESCRIPTION OF PARTICULAR - DESCRIZIONE DEL PARTICOLARE | TYPE AND MATERIAL SPECIFICATIONS-TIPO E SPECIFICA MATERIALE |
|---|---|
| **BODY** | **ASTM A105N** |

NUMERO COLATA / HEAT NUMBER: **1T8541**
STELL MILL. / ACCIAIERIA: **LEALI**
ST.M. CERT. N. / CERT. ACC. N.: **HX 1497**

CHEMICAL ANALYSIS - ANALISI CHIMICA

| C | Si | Mn | P | S | Cu | Cr | Ni | Mo | V |
|---|---|---|---|---|---|---|---|---|---|
| 0.190 | 0.270 | 0.830 | 0.009 | 0.010 | 0.170 | 0.070 | 0.120 | 0.010 | 0.001 |
| **Al** | **Sn** | **Ti** | **Nb** | **C.E.** | | | | | |
| 0.025 | 0.13 | 0.002 | 0.002 | 0.360 | | | | | |

| HEAT CODE ON FORGING / CODICE COLATA | DISEGNO DEL FORGIATO . | QUANTITY / QUANTITA' |
|---|---|---|
| BDHS | 4/8 | 9.500 |

MECHANICAL PROPERTIES - CARATTERISTICHE MECCANICHE

| YIELD STRENGTH P.S.I. SNERVAM. N./mm2 | TENS. STRENGTH P.S.I. ROTT. N/mm2 | ELONG 2" 50 ALLUNG % | RED OF AREA % CONTRAZ. | H.B. |
|---|---|---|---|---|
| 482 | 548 | 27,60 | 63,03 | 158 |
| | | | | 156 |
| | | | | 158 |

IMPACT VALUE -RESILIENZA

| TEMPERATURA DI PROVA ° C | RISULTATO DELLA PROVA JOULE | | | |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |

HEAT TREATMENT - TRATTAMENTO TERMICO
Normalizing

REMARKS

1) The result of chemical analisys is a true and correct copy of the mill certificate issued, by the manufacturer of the steel employed, or by the laboratory witch has determined it.
* I risultati delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati.
2) The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufactoring process inspection or storage.
** Il materiale o i particolari spediti per questi ordini non sono mai venuti a contatto diretto con mercurio o con elementi contenenti mercurio durante la fase di lavorazione, controllo o immagazzinamento.

I certify these tests to be correct as contained in the records of the company
certifico che tutti i dati sono corretti e uguali a quelli registrati presso Bonomi

19 NOV. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

Q.A. OFFICE
UFFICIO QUALITA'
Bucca Rosalba

Rapporto prova **2004/1898/PM**

Garbagnate M. , giovedì 11 novembre 2004

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Spett.le

**BONOMI S.r.l.**

Via Carlo Porta, 8

23861 CESANA BRIANZA LC

Bonomi S.r.l.
UFFICIO QUALITA'
Firma
Data 15/11/04

## Dati per RINTRACCIABILITA'

| | | |
|---|---|---|
| Numero ordine interno | **20041623** | |
| Data ricevimento materiale | 08/11/04 | |
| Data esecuzione prove | 11/11/04 | |
| Grafico prove meccaniche | 1780 | |
| Bolla Cliente numero | 266 | |
| Data bolla Cliente | 08/11/04 | |
| Ordine Cliente | | |
| Data ordine Cliente | | |
| Campioni archiviati | Sì | per 12 mesi c/o Lab. |
| Residui archiviati | Sì | per 2 mesi c/o Off. |

Descrizione campione: Forgiato 4/8 Cod. BDHS

Materiale: Acciaio ASTM A105N - Colata 1T8541

Trattamento:

Dimensioni:

Note:

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

NORMATIVE applicate per lavorazione provette ed esecuzione prove meccaniche

UNI 552
Prove meccaniche dei materiali metallici - Simboli, denominazioni e definizioni
UNI 556
Prove meccaniche dei materiali metallici - Prova di trazione
UNI 564
Prove meccaniche dei materiali metallici - Prova di piegamento
UNI 562
Prove meccaniche dei materiali ferrosi - Prova di durezza Brinell
UNI 562
Prove meccaniche dei materiali ferrosi - Prova di durezza Rockwell (scale B e C)
UNI 1955
Prove meccaniche dei materiali ferrosi - Prova di durezza Vickers
UNI 3918
Prove meccaniche dei materiali ferrosi - Determinazione e verifica del carico unitario di scostamento della proporzionalita' dell'acciaio, ad alta temperatura
UNI 4431
Prove meccaniche dei materiali metallici - Prova di resilienza secondo Charpy, per l'acciaio
UNI 4713
Prove meccaniche dei materiali ferrosi - Prova di resilienza su provetta a due appoggi con intaglio a V, per l'acciaio
UNI 4714
Prove meccaniche dei materiali ferrosi - Prova di resilienza per l'acciaio a temperature minori di quella ambiente
ASTM A370
Standard test methods and definitions for mechanical testing of steel products
ASTM E8 -8M
Test methods for tension testing of metallic materials (Metric)
ASTM E10
Test methods for Brinell hardness of metallic materials
ASTM E18
Test methods for Rockwell hardness and Rockwell superficial hardness of metallic materials
ASTM E23
Test methods for notched bar impact testing of metallic materials
ASTM E110
Test methods for indentation Hardness of metallic materials by portable hardness testers
ASTM E190
Method for guided Bend test for ducility of Welds

Identificazione del campione sottoposto alle prove
**20041623/5**

Descrizione prove
**Prove meccaniche di trazione e durezza**

### PROVA DI TRAZIONE - parametri di esecuzione prova

| Dimensioni provetta | | | | Lunghezza Utile | Temperat. prova | Valori richiesti | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Larghezza | Spessore | Diametro | Sezione | | | Acciaio ASTM A105N - Colata 1T8541 | | | | | |
| b | a | d | So | Lo | t | Rp 0,2% | Rp1 | Rm | | A | Z |
| mm | mm | mm | mm2 | mm | °C | Min | Min | Min | Max | Min | Min |
| 0,00 | 0,00 | 6,25 | 30,68 | 25 | 20 | **250** | **0** | **485** | | **22** | **30** |

### PROVA DI TRAZIONE - Risultati prova

| carico totale Snervamento | carico Unitario Rp 0,2% | carico totale Rp1 | Unitario Rp1 | carico totale Rottura Fm | carico Unitario Rm | Allungamento totale Lu | Allungamento A | Diametro finale | Strizione Z |
|---|---|---|---|---|---|---|---|---|---|
| kN | N / mm2 | kN | N / mm2 | kN | N / mm2 | mm | % | mm | % |
| 14,80 | **482** | 0,00 | **0** | 16,80 | **548** | 31,90 | **27,60** | 3,80 | **63,03** |

### PROVA DI RESILIENZA

| Parametri di esecuzione prova | | | Risultati prova | | |
|---|---|---|---|---|---|
| Dimensioni | Intaglio | Temperat. | | | |
| mm | tipo | °C | Rich. > 0 ( 0 ) | | |
| | | | **0** | **0** | **0** |

### PROVA DI PIEGA

| mandrino ed angolo piega |
|---|
| mm / ° |
| Risultati prova |
| |

### PROVA DI DUREZZA

| Tipo di durezza | HB 10/3000 | |
|---|---|---|
| min / max | 137 | 187 |
| Risultati prova | | |
| **158** | **156** | **158** |

Annotazioni :

Il Tecnico di Laboratorio
SIGMATRE s.r.l
Eugenio RIVA

Collaudo presenziato da :

Responsabile Laboratorio

Prova di trazione effettuata con macchina Galdabini 200 kN — Matricola n. 31550 e 31551 — Certificato 2004203/204 Centro SIT n. 30/M
Prova di trazione effettuata con macchina AMSLER 980 kN — Matricola n. 2033 — Certificato 253/6899-6/107-8 Centro SIT 02/M
Prova di resilienza effettuata con Pendolo Charpy 300 J GALDABINI Tipo CH30 — Matricola n. 31058-3 — Certificato 255/6901-5/110 Centro SIT n. 02/M
Prova di durezza effettuata con durometro WOLPERT 29.400 N Tipo DIA TESTOR 3B — Matricola n. 3561 — Certificato 258/6904-3/114 Centro SIT n. 02/M
Prova di durezza effettuata con durometro WOLPERT Tipo DIA TESTOR 2RC — Matricola n. 410025/10330 — Certificato 247/6893-4/99 Centro SIT n. 02/M

Il presente rapporto di prova riguarda solo i campioni sottoposti a prova e non puo' essere riprodotto parzialmente, salvo approvazione scritta del Laboratorio di prova

**SIGMATRE srl**
Via Fornace, 31 - 23846 Garbagnate Monastero (LC)
tel. 031-87.94.25 - Fax 031-87.94.22 e-mail: sigmatre@sigmatre.it
P. Iva 01516910138 - Cod. Fisc. 06544130153
Cap. Soc. € 99.500 i.v. -
C.C.I.A.A. Como n° 195838 - Iscr. Trib. Como n° 17954

- Prove meccaniche e tecnologiche
- Analisi chimiche e prove corrosione
- Esami metallografici
- Controlli non distruttivi
- Corsi di qualifica personale
- Manuali Sistema Qualità

- Mechanical and technological tests
- Chemical analysis and corrosion tests
- Metallographic examination
- Non destructive tests
- Training for personnel qualification
- Quality System Manuals

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Bestellar/Purchaser/Client
TECNOMECCANICA SRL
VIA CRETA 8
25033-COLOGNE (BS)-BS

Produttore: STABILIMENTO DI BOLZANO
Hersteller/Ilsm/Usine produtrice

Oggetto Prove: - Ricotto lavorabile Trafilato
Prüfgegenstand/Item Inspected/Finissage

Avviso di Spedizione: A-BZ05007053
Lieferanzeige/Packing list/B.L

Ordine nr: N. 63 DEL 08.04.05
Bestell/Your order/Commande

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'elaboration

## CERTIFICATO DI COLLAUDO
## ABNAHMEPRUEFZEUGNIS
## INSPECTION CERTIFICATE
## CERTIFICAT DE RECEPTION
## EN 10204 , 3.1

Certificato nr: MEST245066/2005/
Prüfung/Test/Essai

Conferma ordine nr: BS05000856
Werks/Our Order/Ref nr.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine produtrice

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

SC

Specifiche:
Anforderungen / Requirements / Exigencas

AISI 410

EN 10088-3 95 1.4006 A,CF

Qualità: 1.4006 / S41000
Werkstoff/Grade/Nuance

VAL1
Markenbezeichnung/Brand/Nuance

Punzonatura: 1.4006
Kennzeichnung/Marking/Marquage

| Pos. nr. Pos. nr. Item nr. Nr. de poste | Oggetto Gegenstand Product description Descrip. du produit | Dimensioni - mm Abmessungen Dimension Dimension | Tolleranza Toleranz. Allowance Tolerance | Lunghezza - mm Länge Length Longueur | Colata Schmelze Heat Coulée | Pezzi Stückzahl Pieces Piezas | Peso - KG Gewicht Weight Peso | Lotto nr. Losnr. Lot nr. Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0030 | Tondo | 16,000 | H9-MIN | 4190 / 4240 | 416334 | | 2020,0 | 509802030 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
La materiel á eté trouvé conforme aux exigencas

Controllo antimescolanza: OK
Verwechslungprüfung: spectralanalytisch durchgeführt
Antimixing tesling performed: OK
Contrôle antimelange fait: r.a.s.

Controllo visivo e dimensionale: soddisfa le esigenze:
Basichtigung und Ausmassung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

| TEST | Provetta/Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm | ° C | Posiz. Saggio Probenlage Location Emplacement 1) | Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2 | Snervamento Streckgrenze Yield Stress Limite elastique | Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2 | Allungamento Bruchdehnung Elongation Allongement A5 % | Allungamento E 4d % | Strizione Einschnürung Reduction of area Striction Z % | Strizione RA % | Resilienza Kerbschlagarbeit Impact Value Resilience | Durezza Hearte Hardness Durete HB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 Anforderungen/Required values Valeurs démandées | | min max | | - | - | - 880 | - | - | - | - | - | - 280 |
| A | 10.00 | 20 | L | 685 | | 735 | 18 | 20 | 66 | 66 | | 218 |

1)L=longitudinale/längs, Q=trasversale/quer, T=Tangenziale/tangential

## Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata /Heat Schmelze/Coulée | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | min 0,08 max 0,15 | - 1,00 | - 1,00 | 11,50 13,50 | - 0,75 | - 0,040 | - 0,030 | - - | - - | - - | - - | - - | - - | - - |
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | |
| 416334 | 0,15 | 0,33 | 0,74 | 12,32 | 0,23 | 0,022 | 0,028 | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,s.,4.3 by TUEV and LLOYD'S

DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.

Bolzano, 21/07/05
Mod./BBL006

Il collaudatore di stabilimento / der Werkssachverständige / Works Inspector / L'agent d'usine
R.Cristel

DOUGLAS CHERO Spa

# DIMENSIONAL / VISUAL INSPECTION CERTIFICATE

N.: 01/342/05-V

Sheet: 1/2

| CUSTOMER: | Order: | Our Job: |
|---|---|---|
| **KLAUS UNION ARMATUREN INTERNATIONAL for LURGI OEL GAS CHEMIE GMBH** | Lurgi P.O.: **HH-02535-02** **4567569-002 / 1.69690 / 145** | **05.0342** |

Client: 2nd MEGA METHANOL PLANT, ZAGROS PETROCHEMICAL COMPANY, SITE BANDAR ASSALUYEH, IRAN / Contract No.: 1.69690-10

## DIMENSIONAL INSPECTION CERTIFICATE

| *TESTS EXECUTED* | | *APPLICABLE STANDARD* |
|---|---|---|
| Parts Test | | DOUGLAS CHERO DRAWINGS |
| End-to-End Test | | DOUGLAS CHERO DRAWINGS |
| SW Ends Test | | ASME B16.11 |
| NPT Ends Test | **NOT APPLICABLE** | ASME B1.20.1 |
| BW Ends Test | **NOT APPLICABLE** | ASME B16.25 |

Remarks: **FOR VALVES DESCRIPTION SEE ATTACHED SHEET 2/2**

Test executed according to approved Drawings by: **GUIDO SCHIAVETTI**

RESULT: **POSITIVE**

ASME AUTHORIZED INSPECTOR
STATE COMM: GA 766
WITNESSED: 04 NOV 2005

MORASSI MASSIMILIANO

SIGNATURE: Guido Schiavetti

We declare that all components have made according to applicable standard, constructive specifications and DOUGLAS CHERO S.p.A. constructive drawings.

| Quantity Checked: **100%** | Q.A. - Q.C. | **CUSTOMER'S Inspector** |
|---|---|---|
| DATE: **28/10/05** | DOUGLAS-CHERO S.p.A. Quality Control *CREDALI STEFANO* | |

## VISUAL INSPECTION CERTIFICATE

VISUAL TEST EXECUTED ON ROUGH AND MACHINED SURFACE

RESULT: **POSITIVE**

SIGNATURE: DOUGLAS-CHERO S.p.A. Quality Control *CREDALI STEFANO*

| Quantity Checked: **100%** | Q.A. - Q.C. | **CUSTOMER'S Inspector** |
|---|---|---|
| DATE: **28/10/05** | DOUGLAS-CHERO S.p.A. Quality Control *CREDALI STEFANO* | |

| DOUGLAS CHERO Spa | DIMENSIONAL / VISUAL INSPECTION CERTIFICATE | No.: 01/342/05-V<br>Sheet: 2/2 |
|---|---|---|

## LIST OF ITEMS

| ITEM | IDENT NO | DESCRIPTION | SIZE | Q.TY |
|---|---|---|---|---|
| 360 | S330 | GATE VALVE c.1500C FB BB SW -Seats+Wedge Stel.<br>[ TRIM 5 ] | 1/2" | 1 |
| | | | | |

ASME AUTHORIZED INSPECTOR
STATE COMM. GA 766
WITNESSED 04 NOV 2005

MORASSI MASSIMILIANO

DOUGLAS-CHERO S.p.A.
Quality Control
CREDALI STEFANO

| DOUGLAS CHERO Spa | PRESSURE TEST CERTIFICATE | No.: 01/342/05-PR<br>Sheet: 1/1 |
|---|---|---|

Customer: KLAUS UNION ARMATUREN INTERNATIONAL for LURGI OEL GAS CHEMIE GMBH
P.Order: HH-02535-02
Lurgi P.Order: 4567569-002 / 1.69690 / 145
Client Ref.: 2nd MEGA METHANOL PLANT, ZAGROS PETROCHEMICAL COMPANY, SITE BANDAR ASSALUYEH, IRAN
Contract No.: 1.69690-10
Object: DOUGLAS CHERO CERTIFICATE No. 051033 Dtd.: 28/10/05
Remarks: TESTS CARRIED OUT ON 100%
TESTS CARRIED OUT ACCORDING TO D.C. PROCEDURE 140 R.5

| ITEM | IDENT No. | DESCRIPTION | SIZE | Q.TY |
|---|---|---|---|---|
| 360 | S330 | GATE VALVE c.1500C FB BB SW -Seats+Wedge Stel. [ TRIM 5 ] | 1/2" | 1 |
| | | | | |

| | RATING 1500 | ALL RATINGS |
|---|---|---|
| TYPE OF TEST | PRESSURE | TIME |
| - HYDRAULIC SHELL TEST<br>- BACK-SEAT TEST | 388 BAR | 60 Sec. min. |
| - HYDROSTATIC SEAT TEST | 285 BAR | 60 Sec. min. |
| - AIR SEAT TEST | 6 BAR | 30 Sec. min. |

GENERAL REMARKS: AS PER PROCEDURE DOUGLAS CHERO No. 140 Rev.5, THE BACK SEAT TEST FOR GLOBE VALVES IS CARRIED OUT TOGETHER WITH HYDRAULIC SHELL TEST.

**NOTE: NO LEAKAGE DETECTED DURING HYDRAULIC/PNEUMATIC TESTS.**

DOUGLAS-CHERO S.p.A.
Quality Control
CREDALI STEFANO

ASME AUTHORIZED INSPECTOR
STATE COMM. GA 746
WITNESSED. 04 NOV 2005
MORASSI MASSIMILIA

File PRESSURE TEST

BUREAU VERITAS

*Certificate of Inspection*
*N° Chrono P3893/05/MM/mm*
*BV ITA 40.05.1767 (PAD)*
*BV ITA 40.05.7281 (GEN)*
*Page 1 /2*
☐ *Interim*
■ *Final*

# CERTIFICATE OF INSPECTION

| | |
|---|---|
| **PROJECT : 2nd MEGA METHANOL PLANT, ZAGROS PETROCHEMICAL Co. SITE BANDAR ASSALUYEN, IRAN – LURGI CONTRACT No 1.69690-10** | **P.O. to BV : G0675/05/EP/an** |
| **Client : Douglas Chero<br>29013 - Carpaneto P,no (PC) - ITALY<br>Loc. Predaglie** | **P.O. to Supplier : HH-02535-02** |
| **Supplier : Douglas Chero<br>29013 - Carpaneto P,no (PC) - ITALY<br>Loc. Predaglie** | **P.O. Final Client to Supplier :**<br>(to Lurgi to Klaus)<br>**4567569-002/1.69690/145** |
| **Manufacturer : Douglas Chero<br>29013 - Carpaneto P,no (PC) - ITALY<br>Loc. Predaglie** | **Job reference : 05.0342** |
| **Supply intended for : Klaus Union Armaturen Int. Germany for Lurgi Oel Gas Chemie GmbH** | |
| **Inspection Required by : Klaus Union Armaturen Int. Germany for Lurgi Oel Gas Chemie GmbH** | |

| **DESCRIPTION:** | **Ident Number** | **QTY** |
|---|---|---|
| Item 360 Gate Valve C.1500 FB BB SW - Seats Wedge Stell. Size 1/2" | S 360 | 1 |

***The undersigned certifies that the here-above mentioned supply was inspected at Douglas Chero (PC) Loc. Predaglie - 29013 Carpaneto P.no (PC) - Italy on Nov. 04, 2005 to in conformity with the applicable requirements of Purchase Order ref.*** **HH-02535-02, QCP ref. PED-0017/05 Rev. 1** ***and contractual requirements governing the mission entrusted to BUREAU VERITAS.***

***Marking and stamping : Not Applicable***

***Enclosures :Douglas Chero certif. ref.: 051033 (total page 1)***

***Particular mentions: None***

***Diffusion :*** ■ Client ■ Supplier ○ Manufacturer

BUREAU VERITAS ... 1828 ... INTERNATIONAL REGISTER

Date of Issuance : NOVEMBER 04, 2005 Issued by : BVI

STAMP

This certificate is delivered within the Scope of the General Conditions of Services of Bureau Veritas
Ce Certificat est délivré dans le cadre des Conditions Générales de Service du Bureau Veritas

This certificate is issued further to an inspection whose duration and scope were limited by the terms and conditions of the contract with BV principal. This certificate is NOT an indication that the item(s) is (are) fit for any specific purpose and does not release the manufacturer, supplier and any party from their respective duty, guarantee, obligation and/or indemnity relating to, without limitation, patents, workmanship, materials, safety, performance in operation and/or reliability.

General Conditions of service overleaf.

BUREAU VERITAS

*Certificate of Inspection*
*N° Chrono P3893/05/MM/mm*
*BV ITA 40.05.1767 (PAD)*
*BV ITA 40.05.7281 (GEN)*

☐ *Interim*
■ *Final*

## INSPECTION CARRIED OUT:

In accordance with Quality Plan ref. PED - 0017/05 Rev.1, following inspections were performed at spot (10%) of the total quantity:

- Review of the applicable contractual documents, including construction dwgs and specs.
- Review of the material certificates:forgings type: EN 10204 3.1.B
- Witnessed on the hydraulic and pneumatic tests.
  (for details see Douglas Chero certificates ref.: 01/342/05-PR)
- Witnessed on the visual and dimensional test in compliance with applicable construction drawings.
  (for details see Douglas Chero certificates ref.: 01/342/05-V).
- Witness on visual examination of the tagging marking of the name plates.

RESULTS:

All the above mentioned test and inspections of the components above mentioned have been carried out according to the technical specifications, drawings and contractual requirements.

**Mr Massimiliano Morassi**
**ASME Authorized Inspector**
**Comm. GA 746**

BUREAU VERITAS — SURVEYORS AT BV — 1828 — ITALY — INTERNATIONAL REGISTER

******* **End of Certificate** ********

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** ***Lurgi AG, D - 60295 Frankfurt***
Customer:

**Bestell-Nr.:** ***Lurgi Job – No.:*** ***69690-10***
Order no.: ***Lurgi OGC PO.-No.:*** ***4567569-002 to -003/1.69690/145***

*Project Name :* ***2nd Zagros Methanol Plant - Iran***

**Auftrag-Nr.:** ***HH – 02535 - 02***
Job no.:

**Lieferumfang** / range:

| **Pos** | **Stck.** pcs. | **Gegenstand** object | **DN** | **PN** | **Werkstoff** material | **Bemerkung** comment |
|---|---|---|---|---|---|---|
| *00370* | *1* | *Gate valve long pattern FB BB BW SCH.80, BW 4,55 Seats + Wedge Stell.* | *1"* | *Cl.1500* | *A182/F11 C.2* | *Valve Ident – No.: " **S420** "* |

**Auslegung + Prüfung nach** API 602 – ASME B16.34 – B16.25
Design and tests acc. To API 598 / BS EN 12266-1

**Sicht- und Funktionsprüfung:** *o.k.*
visual and functional test:

**Festigkeits-/Dichtheitsprüfung:**
strength-/tightness-test:

| | | | |
|---|---|---|---|
| *Festigkeit / shell test* | = | *388 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *285 bar Wasser / water* | (60 sec) |
| *Rückdichtung / backseat* | = | *285 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *6 bar Luft / air* | (60 sec) |

**Prüfungsergebnis:** *ohne Beanstandung !*
result: *no complaint !*

*Bochum, den 21.11.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

007

**Anlage:** *Dokumentation gemäß Material-Dokumentationsdeckblatt*
enclosure *Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 21.11.2005
Seite / Page 1
Sachbearbeiter / Person in charge W. Glass

**Kommissions-Nr. / Reference No.**

**HH-02535- 02 +03**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4567569 - 002 to -003/ 1.69690 / 145**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00370 | Gate Valve<br>1" Cl. 1500 lbs.<br>FB, BB, BW Sch.80<br>seats+wedge stel.<br>BW 4,55 long pattern | " S420 " | 1 | Body | R-L70 | A182/F11 C.2 | Risetti | 64021 | | 240037 |
| | | Drawing-No.: 652-7/150-L8 | | Wedge | | A182/F6a C.2 stel. | Valbruna | 239409 | | 201240/2005 |
| | | (main order Item 00190) | | Seat | | A182/F6a C.2 stel. | Ugitech | 513087 | | 085736000030 |
| | | | | Body Bolt | | ASTM A193/B16 | Molinari | AQ6810 | | 050307/2005 |
| | | | | Body Nut | | ASTM A194/GR.4 | Molinari | 014606 | | 050304/2005 |
| | | | | Bonnet | Y-AC | A182/F11 C.2 | Iselfa | 52828/80 | | 9661 |
| | | | | Stem | | A182/F6a C.2 | Ugitech | 350031 | | 80208 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

# FRATELLI RISETTI S.R.L.

21048 SOLBIATE ARNO (VA) - VIA TRIESTE, 4 - TELEFONO 0331/993.440-993.356 - STAB. VIA COLZANI, 41
TELEFONO 0331/994.086 - FAX 0331/992.247 - TELEGR. RISETTI - SOLBIATE ARNO - CASELLA POSTALE N. 15
REG. FOR F. S. 09037 - REG. IMPR. VARESE VA 026.21500 - ISCRIZIONE TRIBUNALE BUSTO A. 21500
COD. MECC. VA 010325 - PARTITA IVA IT 01773060122 - CODICE FISCALE 01773060122


SINCERT — SISTEMA QUALITA' CERTIFICATO ISO 9001

OMOLOGATI TUV SUDWEST

3482100

## CERTIFICATO PROVE MATERIALI

TEST CERTIFICATE
WERKSABNAHMEZEUGNIS
CERTIFICAT D'EMPREUVES

ACCORDO DIN 50049 3.1/B
EN 10204 /91-3.1/B

N. 240037

Data - Date - Datum - Date: 30/01/04

| Ordine del Cliente - Costomer's - Bestellung - Commande du Client | Ns. Commessa - Mill order - Unsere Auftragsbestätigun Notre Configuration de Commande | Bolla di consegna - Delivery bill Lieferschein - Bulletin de livraison |
|---|---|---|
| N. O 232322-06/11/03 DOUGLAS C. | › | › |

| POS ITEM POST | Quantità Quantity Stückzahl Quantité | DESCRIZIONE SPEDIZIONE - DESCRIPTION OF DELIVERY - UMFANG DER LIEFERUNG - DETAILS DU LOT | | | |
|---|---|---|---|---|---|
| | | Descrizione - Description Deschreibung - Description | Disegno - Drawing Zeichnung - Dessin | Norma di collaudo - Test specification Abnahmenorme - Specification | |
| 1 | 50 | CORPO STP.SBV.SABB. | 4/11-150 | F11 | › |
| | › | › | › | › | › |
| | › | › | › | › | › |

ANALISI CHIMICA - CHEMICAL ANALYSIS - CHEMISCHE ZUSAMMENSETZUNG - COMPOSITION CHIMIQUE

| Codice di identificazione forgiato sui pezzi Heat identification code stamped on forging pieces | Colata N. Heat No. Schmelze Nr. No. de Coulée | C % | Si % | Mn % | Ni % | Cr % | S % | P % | Mo % | Cu % | Sn % | Al % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L70 | 64021 | 0,129 C.E. % | 0,581 F.B. % | 0,532 Ti % | 0,146 V % | 1,119 | 0,0070 | 0,007 | 0,471 | 0,166 | › | 0,021 |
| › | › | › | › | › | 0,005 | › | › | › | › | › | | |
| › | › | | | | | | | | | | | |

PROPRIETÀ MECCANICHE - MECHANICAL PROPERTIES - MECHANISCHE EIGENSCHAFTEN - ESSAIS MECANIQUES

| Colata N. Heat No. Schmelze Nr. No. de Coulée | Lega Alloy Legierung Alliage | Provetta Test bar Probestab Echantillon | Rs (N/mm²) Snervamento Yeld Point Streckgrenze Limit d'élasticité | R (N/mm²) Rottura Tensile strenght Zugfestighalt Rupture | A (%) Allungamento Elongation Dehnung Allongement | Z (%) Contrazione Red. of area Einschnurung Contration | HB Hardness on forging pieces | Resilienza - Resilience Kerbschlagzähigkeit - Resil. Charpy V - Notch at minus › |
|---|---|---|---|---|---|---|---|---|
| 64021 | › | › | 376 | 508 | 29 | 62,6 | | KV(J) › KCU(J)› |
| › | › | › | | | | | | |
| › | › | › | | | | | | |
| › | › | › | | | | | | |
| › | › | › | | | | | | |

04 FEB. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

Trattamento Termico
Thermal Treatment
Thermische Behandlung
Traitment Thermique

NORMALIZZATO-RINVENUTO
›

| JOMINY | | mm | 1,5 | 3 | 5 | 7 | 9 | 11 | 13 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|
| Norm. › | | HRC | › | › | › | › | › | › | › | › |
| Tempra › | | mm | 20 | 25 | 30 | 35 | 40 | 45 | 50 | |
| | | HRC | › | › | › | › | › | › | › | |

GRANO AUSTENTICO
austenite grain size check
› Metodo: ›
ISO 643-UNI3245-ASTM E112

Final Control on forging pieces and found: ›
Sandblasting SA 2 1/2: ›
Marking on pieces: ›
Visual inspection: ›
Dimensional control: ›
Hardness test: ›

UFFICIO COLLAUDI - inspection Department
Pruefungsabteil - Bureau d'inspection
F.lli RISETTI
Quality Assurance
Sign. .....

**L.P.M.** s.n.c.
LABORATORIO PROVE MATERIALI
di Torretta D. & Molinari V.
Via Portapuglia, 12/E - 29100 PIACENZA - Tel. (0523) 593018-592744 - Fax (0523) 592744 e-mail: l.p.m@libero.it
Partita I.V.A. 00875550337

Sistema Qualità Certificato

| | | |
|---|---|---|
| **Certificato di prove meccaniche**<br>Mechanical test certificate<br>Mechanisches pruefzeugnis<br>Certificate des essais mecaniques | **MTC 202 /05** | **Foglio** sheet Blatt Feuille 1 **di** of von de 2 |

**Cliente** Customer Besteller Client: DOUGLAS CHERO S.p.A. - Localita' Pradaglie - 29013 CARPANETO PIACENTINO (PC)
JOB No. 040495
Comm. LPM : E137

**Ordine cliente** Customer order Bestellung Commande de Client: KLAUS UNION ARMATUREN INTERNATIONAL P.O. HH-02504
(PCK REFINERY SCHWEDT P.O. 308/45287302)

**Norme di collaudo** Techinacal specifications Abnahme norme Specifications techinques: ASTM A 182-02

**Descrizione della fornitura** - Extent of material delivery - Umfang der Lieferung - Liste descriptive

| N. Pos. Item No. Pos. Nr. Pos: N. | Pos. Cliente Cust. Item Besteller pos. Pos. Client | Quantità Quantity Stuck Quantité | Tipo del prodotto - Type of the product Gegenstand - Designation du produit | Materiale Material Werkstoff Material | N. di prova Test No. Probe Nr. N. d'eprouvette | N. di colata Heat No. Schmelze Nr. N.coulée |
|---|---|---|---|---|---|---|
| | | | heat code | | | |
| 1 | | | Body N8/9-60 | FB-RI | F11 | 1 | 47564 |
| 2 | | | Bonnet N8/8 | Y-B | " | 2 | 52828 |
| 3 | | | Bonnet N8/8 | Y-F | " | 3 | 16380 |
| 4 | | | Body 4/9F-60 | R-L78 | " | 4 | 004421 |
| 5 | | | Cover 4/6 | M-B48 | " | 5 | 21843 |
| 6 | | | Bonnet 4/8 | FB-NV | " | 6 | 52828 |
| 7 | | | Body 4/11-150 | R-L70 | " | 7 | 64021 |
| 8 | | | Bonnet 4/10 | Y-AC | " | 8 | 52828 |
| 9 | | | Body 7/11-150 | IR-IOB | " | 9 | 58866 |
| 10 | | | Bonnet 6/10 | R-H78 | " | 10 | 55535 |
| 11 | | | Body 4/11-150 | R-F12 | F5 | 11 | 56822 |
| 12 | | | Bonnet 4/10 | Y-AG | " | 12 | 003943 |

| Data - Date - Datum - Date | Ispettori - Inspectors - Sachverstandige - Inspecteurs | Eseguito da - Performed by Sachbearbeiter - Execute par |
|---|---|---|
| FEBRUARY,03/05 | DOUGLAS CHERO Spa<br>Quality Assurance .....<br>P.C. STEVANI VITTORIO<br>Sign. ..... | Collegio dei Periti Industriali<br>L.P.M. s.n.c.<br>DOMENICO TORRETTA<br>Piacenza N. 253<br>dei Periti Industriali Laureati |

# L.P.M. s.n.c.

LABORATORIO PROVE MATERIALI
di Torretta D. & Molinari V.

**RISULTATI DELLE PROVE** - Test results
Ergebnis der prüfungen - Resultats des essais

**MTC 202 /05**

Foglio sheet Blatt Feuille 2 di of von de 2

**Prova di trazione** - Tensile test - Ergebnis der prüfungen - Resultats des essais

| N. di colata Heat No. Schmelze Nr. N. coulée / N. di prova Test No. Probe Nr. N. d'eprouvette | Dimensioni Dimensions Abmessungen Dimensions mm | Sezione Section Querscn. Section $mm^2$ | Lungh. Lenght Länge Long. mm | Direz. Direct. Richt. Direct. | Temp. Temp. Temp. Temp. °C | Lim. di snervamento Yield point-proofstress Streck/Dehngrenze Limite d'elasticité | | Carico di rottura Tensile strenght Zugfestigkeit Resist. a la traction | | Allungamento Elongation Bruchdehnung Allongement | | | Strizione Reduction of area Brucheinschnurung Striction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Richiesto Requirem. Erforder. Demande | | | |
| **Valori richiesti** - Requested values Anforderungen - Valeurs demandeès | | | | | | > 275 | | > 485 | | | | | |
| | | | | | | N | N/mm2 MPA | N | N/mm2 MPA | % | mm | % | % |
| | | | | | | | | | | | | | > 30 |
| 1 | d. 12.5 | 122.6 | 50 | L | R.T. | 38400 | 313 | 63000 | 514 | > 20 | 18.4 | 36.8 | 75 |
| 2 | d. 12.5 | 122.6 | " | " | " | 38400 | 313 | 60600 | 494 | " | 17.3 | 34.6 | 77 |
| 3 | d. 12.5 | 122.6 | " | " | " | 42120 | 343 | 60840 | 496 | " | 16.8 | 33.6 | 74 |
| 4 | d. 12.5 | 122.6 | " | " | " | 39600 | 323 | 60000 | 489 | " | 16.9 | 33.8 | 72 |
| 5 | d. 6.2 | 30.2 | 25 | " | " | 10440 | 346 | 15420 | 510 | " | 7.9 | 31.6 | 61 |
| 6 | d. 6.2 | 30.2 | " | " | " | 10200 | 338 | 14850 | 492 | " | 9.4 | 37.6 | 77 |
| 7 | d. 12.5 | 122.6 | 50 | " | " | 39000 | 318 | 60360 | 492 | " | 15.7 | 31.4 | 69 |
| 8 | d. 12.5 | 122.6 | " | " | " | 40800 | 333 | 60360 | 492 | " | 15.3 | 30.6 | 69 |
| 9 | d. 12.5 | 122.6 | " | " | " | 40200 | 328 | 63240 | 516 | " | 15.5 | 31.0 | 74 |
| 10 | d. 12.5 | 122.6 | " | " | " | 39000 | 318 | 62520 | 510 | " | 18.4 | 36.8 | 77 |
| | | | | | | | | | | | | | > 35 |
| 11 | d. 12.5 | 122.6 | " | " | " | 54600 | 445 | 73080 | 596 | " | 16.1 | 32.2 | 72 |
| 12 | d. 12.5 | 122.6 | " | " | " | 53400 | 435 | 70800 | 577 | " | 13.4 | 26.8 | 69 |

| Data - Date - Datum - Date | Ispettori - Inspectors - Sachverstandige - Inspecteurs | Eseguito da - Performed by Sachbearbeiter - Execute par |
|---|---|---|
| FEBRUARY,03/05 | DOUGLAS CHERO Spa<br>Quality Assurance .....<br>P.C. STEVANI VITTORIO<br>Sign. ..... | Collegio dei Periti Industriali e dei Periti Industriali Laureati<br>L.P.M. Ing. s.n.c.<br>DOMENICO TORRETTA<br>Piacenza N. 267 |

AZIENDA CON SISTEMA QUALITÀ CERTIFICATO DA DNV =UNI EN ISO 9001/2000= TÜV

SORBIT SRL

# CERTIFICATO DI COLLAUDO DOPO T.T. IN ACCORDO EN 10204-3.1.B

| DOCUMENTO DOCUMENT | DATA DATE |
|---|---|
| 139 | 13/01/04 |

| CLIENTE / Customer | N.DdT | DATA / Date | MATERIALE / Material | SPESS.MAX / thickness | RICHIESTE / Request |
|---|---|---|---|---|---|
| 0892 / OFF.MECC. F.LLI RISETTI SRL | 7 | 08/01/2004 | F11 Cl 2 | 100 | 143/207 HB |

| Pezzo/ Piece | N. disegno/ Drawing | Ordine/ Order | Commessa/ Commision | N. colata/ Heat | N. Pz. Trattati / N° Worked Piece | PESO KG / Weight | N°PZ prova / N°Test Piece | DUREZZE RILEVATE / Hardness | Car |
|---|---|---|---|---|---|---|---|---|---|
| CORPI | 4/11-150 | | | L70 | 50 | 900 | | HB 160 | 20106 |

LAVORAZIONE E/O TRATTAMENTO TERMICO RICHIESTO / HEAT TREATMENT REQUEST

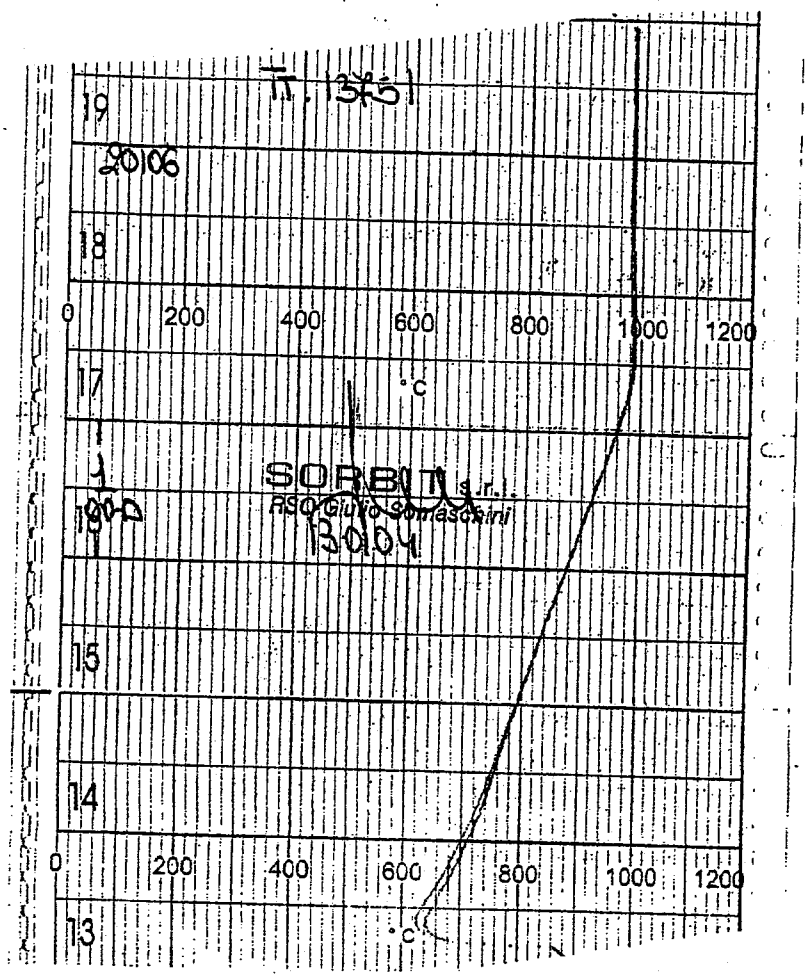
| Cod. T T | Descrizione/ Description | T.Part. °C | T Salita h | T. Perm. °C | T Perm h | Raffredd/ Cool | Impianto/ Ofen | Specifiche/ Detailed | Altre Richieste/ Other Requests: |
|---|---|---|---|---|---|---|---|---|---|
| TD | NORMALIZZAZIONE / Normalizing | | | 970 | 2,5 | ARIA | 10/1 | P-07/6 | DTT 13751 |
| R | RINVENIMENTO / Tempering | | | 680 | 4 | ARIA | 6/1 | | 2° T.T. 8643 |

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

Note / Notes:

SORBIT S.r.l. Giulio Tomaschini

| Scheda n° | Data | Revisione | Chi archivia |
|---|---|---|---|
| S-Pq07/1-1 | 01/02 | 0 | RSA |




**DOUGLAS CHERO Spa**

Quality Assurance .....

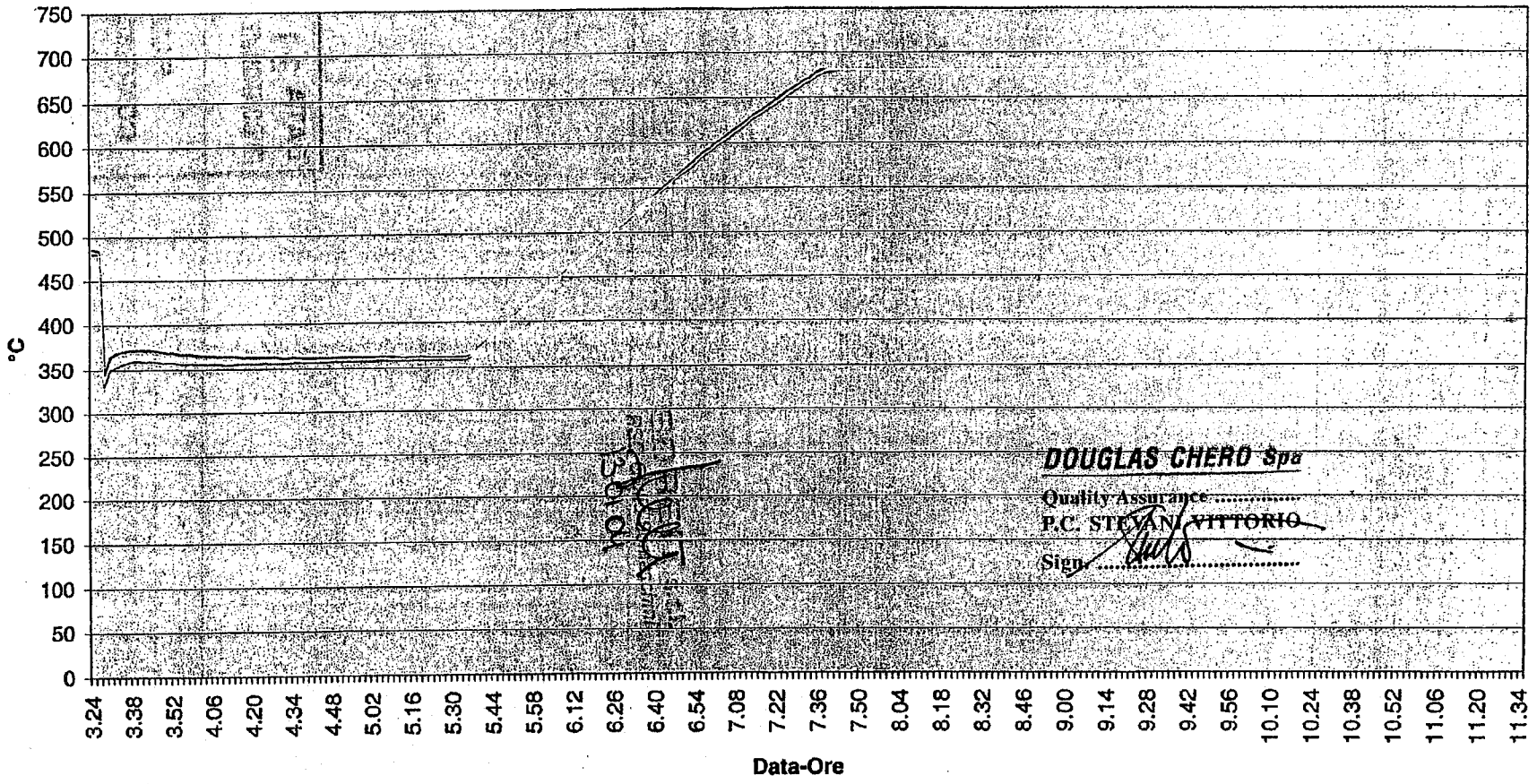
P.C. STEVANI VITTORIO

Sign .....

## Diagramma n° 13751

(fornata n° 8643)

## Cart. N° 20106




DOUGLAS CHERO Spa

Quality Assurance .....

P.C. STEVANI VITTORIO

Sign. .....

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Kunde/Purchaser/Client
VERRI & PINA SRL
VIA TERRAROSSA, 10 - C.P. N.26
22035-CANZO (CO)-CO

Produttore: ACCIAIERIE VALBRUNA S.P.A.
Hersteller/Item/Usine productrice

Oggetto Prove: - Ricotto lavorabile Pelato
Prüfgegenstand/Item Inspected/Finissage

## ABNAHMEPRUEFZEUGNIS
## INSPECTION CERTIFICATE
## CERTIFICAT DE RECEPTION
## EN 10204 , 3.1.B

4883

Avviso di Spedizione: A-VI05006480
Lieferanzeige/Packing list/B.L.

Ordine nr: 281 DEL 24.9.04
Bestell/Your order/Commande

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'elaboration

Certificato nr: MEST201240/2005/
Prüfung/Test/Essai

Conferma ordine nr: MI04006828

Marchio di Fabbrica:
Zeichen des Unternehmens
Trade mark
Sigle de l'usine productrice

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Specifiche:
Anforderungen / Requirements / Exigences
ASTM A182 2002 S41000 CLASS2 (0)
(0) Chemical analysis only and mecc.properties(for ASTM A182[M])

Ordine/Order 1.4006/410

Numero Colata/Heat Number VAL1

Partita/Lot 1.4006/410

| Pos. nr | Qualità / Grade | Dimensioni - mm | Finitura | Lunghezza - mm | Quantità | Peso | Peso netto | Numero |
|---|---|---|---|---|---|---|---|---|
| 0 | Tonde | 25,000 | K 2 MIN | 5000 / 6500 | 239409 | | 7811,0 | 428001730 |

Controllo antiintercristallino: OK

| TEST | Provetta/Probestab Direzione/Esz.asse Long./Lon. Spalla Brake Diam. Diam. Verif. Diam. Trasversale Lat./trans. spalla | °C | Prelev. Saggio Position Location Posizione 1) | Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2 | Snervamento Streckgrenze Yield Stress Limite elastique | Resistenza Zugfestigkeit Tensile strength Résistance à traction Rm N/mm2 | Allungamento Bruchdehnung Elongation Allongement E 4d % | Strizione Einschnürung Reduction of area Striction RA % | Resilienza Kerbschlagarbeit Impact Value Résilience | Durezza Härte Hardness Dureté HB |
|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti.1 | mm | min | | 380 | | 585 | 18 | 35 | | 187 |
| | | max | | | | | | | | 229 |
| A | 12,5 | 20 | L | 425 | | 685 | 32 | 69 | | 181 |

1)Longitudinale/Länge, Cross/Querrichtung, Tangentiale/Tangential

## Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata / Heat Schmelze/Coulée | C % | Si % | Mn % | Cr % | Ni % | P % | S % |
|---|---|---|---|---|---|---|---|
| | min - max 0,15 | 1,00 | 1,00 | 11,50 13,50 | 0,50 | 0,040 | 0,030 |
| 239409 | 0,14 | 0,36 | 0,75 | 12,38 | 0,34 | 0,023 | 0,023 |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,s.,4.3 by TUEV and LLOYD'S

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. SCIVANI VITTORIO
Sig. .....

| Vicenza,22/03/05 Mod.IVQ013 | Il collaudatore di stabilimento / der Werkssachverständige / Works inspector / L'agent d'usine M.Rizzotto | Pagina - 1 di 1 |
|---|---|---|

Groupe Arcelor

Manufacturer
E-mail

| r N° | N° de commande usine - Werksbestellnummer - Works order number |
|---|---|
| 0[illegible]736000030 4 | 3PZ21000 0513PZ2100 11 |

# CERTIFICATO COLLAUDO DI ACCETTAZIONE 3.1.B
# CERTIFICAT DE RECEPTION 3.1.B
# INSPECTION CERTIFICATE 3.1.B

## EN 10204 / 3.1.B



| | Certification - Werkzeugnis - Certificate | par von by | Marque d'usine - Herstellerzeichen - Supplier's Mark | UGINE |
|---|---|---|---|---|
| GINE | AD 2000-MERKBLATT W0/TRD100<br>Pressure Equipment Directive 97/23/EC<br>EN ISO 9001 : 2000<br>ISO/TS 16949 : 2002<br>EN ISO TS 14001 : 1996 | TÜV SÜDDEUTSCHLAND EVG | Poinçon de l'expert - Prüfstempel - Inspector's stamp | IQ |

xduit - Erzeugnisform - Product

UGIMA 4006 BARRA LAMINATO DECALAMINATO BONIFICATO CONDITION 2 K13 TONDA 26,000MM LONG. 5,300M +300,000MM -300,000MM (IT)

UGIMA 4006 BARRE LAMINÉ(E) DÉCALAMINÉ(E) TRAITÉ(E) CONDITION 2 K13 ROND(E) 26,000MM LONG. 5,300M +300,000MM -300,000MM (FR)
UGIMA 4006 BAR ROLLED DESCALED HEAT TREATED CONDITION 2 K13 ROUND 26,000MM LONG. 5,300M +300,000MM -300,000MM (EN)
UGIMA 4006 STAB GEWALZT ENTZUNDERT/ÜBERDREHT VERGÜTET CONDITION 2K13 RUND 26,000MM LONG. 5,300M +300,000MM -300,000MM (DE)

6

| lient et/ou destinataire - Besteller und/oder Empfaenger - Purchaser and/or Consignee | N° de commande client - Kundebestellnummer - Purchaser order number |
|---|---|
| .9004 O.M.I.C S.N.C. 9 | 000101/A5 10 |

larque commerciale - Handelsmarke - Trade name

IGIMA 4006 12

lorme de référence - Bezugsnorm - Standard for reference

AISI 410 ; ASTM A182-05 F6A ;

DOUGLAS CHERO Spa
Quality Assurance
P.C. STEFANI VITORIO
Sign. 12

ipécifications client - Kundenspezifikation - Customer's specification

| :t de livraison - Lieferzustand - As delivered | (1) Traitement de référence - Probestreifenbehandlung - Treatment on test sample |
|---|---|
| TREMPE ET REVENU 13 | 14 |

| Identification du produit<br>Erzeugnis Benennung<br>Product Identification | N° de cde usine<br>Werksbestellnummer<br>Works order number<br>15 | N° poste<br>Post Nr<br>Item Nr<br>17 | N° de coulée - Schmelzen Nr - Heat No |
|---|---|---|---|
| | 3PZ21 | 000 | 513087 16 |

| Nombre<br>Stueckzahl<br>Pieces Nbr<br>18 | Profil<br>Profile<br>Shape<br>19 | Dimension<br>Ausmessung<br>Dimension<br>21 | Longueur<br>Laenge<br>Length<br>21 | Poids<br>Gewicht<br>Weigh<br>22 |
|---|---|---|---|---|
| 43 | RO | 26,000 mm | 5,300 m | 992 kg |

(3) L = Long
Laengs - Long
T = Travers
Quer - Transverse
58

(1) TE = Trempé à l'eau-Wasserhaerten-Waterquench
TH = Trempé à l'huile-Oilhaerten-Oil Quench
A = Hypertrempé-Loesungsgegluecht-Solution annealed
RO = Rond-Rund-Round QR = Carré-Viereckig-Square
R = Revenu-Anlassen-Tempered
RT = Recuit-Gegluecht-Annealed
TRM = Recuit maxi-Weichgegluecht-Maxi annealed
HX = Héxagonal-Sechskant-Hexagonal
7

Ugine, le 15.06.2005
L'agent Réceptionnaire de l'usine
Der Werkssachverständige
The work inspector

(4) A l'état de référence
Zum Bezug Zustand
At reference condition
59A

(5) A l'état de livraison
In Lieferzustand
In state of delivery
59B

Contrôles de marquage, d'aspect et de dimensions : satisfaisants
Bezeichnung, Besichtigung und Ausmessung : ohne Beanstandung
Marking, inspection and measurement : without objection 62

Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande
Wir bestätigen hiermit dass die obengenannten Erzeugnisse den Bestellungvorschriften entsprechen
We certify hereby that the above mentioned products are consistent with the order prescriptions 66

C. BIOTEAU 63

Groupe Arcelor

Manufacturer
E-mail

| 4r N° | N° de commande usine - Werksbestellnummer - Works order number | |
|---|---|---|
| 085736000030 4 | 3PZ21000 | 0513PZ2100 11 |

# CERTIFICATO COLLAUDO DI ACCETTAZIONE 3.1.B
# CERTIFICAT DE RECEPTION 3.1.B
# INSPECTION CERTIFICATE 3.1.B

## EN 10204 / 3.1.B



| méro de lèvement nennummer t Number | Demandé-Vorschrift-Required | Traction-Zugversuch-Tensile test | | | | | | | | Résilience-Kerbschlagzähigkeit-Notch Toughness | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Sens Richtung Direction (3) | Température d'essai Prueftemperatur Test Temperature | Limite d'élasticité Streckgrenze Yield Strength 0,2% | 1% | Résistance à la traction Zugfestigkeit Tensile | Allongement Bruchdehnung Elongation | Striction Einschnürung Red of Area | Dureté Haerte Hardness | Dureté Haerte Hardness | Type Form Typa | Sens Richtung Direction (3) | Température d'essai Prueftemperatur Test Temperature | Valeurs Individuelles Einzelwerte Individual Values | Moyenne Mittelwerte Average |
| 398 | 24 | 25 °C 20 | 26A MPa | 26B MPa | 27 MPa | 28 % | 29 % | 30 HB | 37 HRC | 31 ISOV | 32 L | 33 °C 20 | 35 J | 36 J |
| | L Min | | 380 | | 585 | 18 | 35 | 167 | | | | | | |
| | Max | | | | | | | 229 | | | | | | |
| | (5) | | 545 | | 682 | 21 | 72 | 205 | | | | | | |
| | (4) | | | | | | | | | | | | | |

| 39A | 40 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|
| lumero de rélèvement obenummer est Number | Demandé Vorschrift Required | % C | % Si | % Mn | % Ni | % Cr | % S | % P | | |
| | Min | | | | | 11,5000 | | | | |
| | Max | 0,1500 | 1,0000 | 1,0000 | 0,5000 | 13,5000 | 0,0300 | 0,0400 | | |
| Numéro de coulée Schmelz Nr Heat N. 513087 | | 0,1090 | 0,4100 | 0,3800 | 0,3400 | 12,0600 | 0,0250 | 0,0160 | | |

| 38 | | 51 | 52 | 53 | 54 | 55 | 70 | 71 | 72 | 73 | 74 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| e d'élaboration hmel zungsart elting process | Demandé Vorschrift Required | | | | | | | | | | |
| | Min | | | | | | | | | | |
| | Max | | | | | | | | | | |
| Electrique Elektrisch Electriq | | 002 | | | | | | | | | |

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

56

(3) L = Long
Laengs - Long
T = Travers
Quer - Transverse
58

(1) TE = Trempé à l'eau-Wasserhaerten-Waterquench
TH = Trempé à l'huile-Olharten-Oil Quench
A = Hypertrempé-Loesungsgeglueht-Solution annealed
RO = Rond-Rund-Round QR = Carré-Viereckig-Square
R = Revenu-Anlassen-Tempered
RT = Recuit-Geglueht-Annealed
TRM = Recuit maxi-Weichgeglueht-Maxi annealed
HX = Hexagonal-Sechskant-Hexagonal
7

Ugine, le 15.06.2005

L'agent Réceptionnaire de l'usine
Der Werkssachverständige
The work inspector

C. BIOTEAU
63

(4) A l'état de référence
Zum Bezug Zustand
At reference condition
59A

(5) A l'état de livraison
In Lieferzustand
In state of delivery
59B

Contrôles de marquage, d'aspect et de dimensions : satisfaisants
Bezeichnung, Besichtigung und Ausmessung : ohne Beanstandung
Marking, inspection and measurement : without objection
62

Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande
Wir bestätigen hiermit dass die obengenannten Erzeugnisse den Bestellungvorschriften entsprechen
We certify hereby that the above mentioned products are consistent with the order prescritions
66

TORNERIA MECCANICA
**VINCENZO MOLINARI**
29100 Piacenza Italy - Via S.Bartolomeo,136
Tel. 0523 / 59.32.81 - Fax 0523 / 59.27.47
R.E.A. PC N° 106098 - R.I. PC N° 28139/1996

SINCERT

# CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 3 1 B
**N° 050307 / 2005**

DATE **10/02/2005**

CLIENTE / PURCHASER **DOUGLAS CHERO S.P.A.**

COMMESSA N° / JOB N° **050128**

ORDINE N°/ ORDER **250191 28/01/2005**

NOTE / REMARKS

DESCRIPTION OF MATERIAL

STUD BOLTS B16.5 ASTM A 193 -03 B16 (QT) (MT) (MI)
01) N. 200 D.1/2"UNC x 90
02) N. 100 D.5/8"UNC x 110

## MECHANICAL REQUIREMENT

| | R N/mm2 | Rp N/mm2 | A % 50mm | Z % | KV/J | HB | HB 24h Proof 540C * LoadKN |
|---|---|---|---|---|---|---|---|
| REQUIRED MIN | 860 | 725 | 18 | 50 | | | |
| REQUIRED MAX | | | | | | 321 | |
| 01) | 938 | 794 | 20.6 | 62.0 | | 284 | |
| 02) | 920 | 790 | 21.4 | 62.0 | | 284 | |

## CHEMICAL ANALYSIS

| HEAT N° | C | Mn | Si | P | S | Ni | Cr | Mo | V | Al |
|---|---|---|---|---|---|---|---|---|---|---|
| REQUIRED MIN | 0.360 | 0.450 | 0.150 | | | | 0.800 | 0.500 | 0.250 | |
| REQUIRED MAX | 0.470 | 0.700 | 0.350 | 0.035 | 0.040 | | 1.150 | 0.650 | 0.350 | 0.015 |
| 01) AQ6810 | 0.390 | 0.600 | 0.240 | 0.013 | 0.012 | | 1.060 | 0.640 | 0.300 | 0.009 |
| 02) AQ4746 | 0.410 | 0.580 | 0.260 | 0.007 | 0.003 | | 0.970 | 0.640 | 0.270 | 0.008 |

15 FEB. 2005

*DOUGLAS CHERO Spa*

Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

THE CHEMICAL ANALYSIS RESULTS ARE TRUE AND CORRECT COPY OF THE RAW MATERIAL SUPPLIER'S CERTIFICATE.
(QT):HEAT TREATMENT: QUENCHED TEMPERED (CST):CARBIDE SOLUTION TREATED
(MT):MINIMUM TEMPERING: 640 C
(H):HARDENED (N):NORMALIZED (SB):STABILIZED (SH):STRAIN HARDENED
(ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION ACCORDING TO ASTM E 381-01 FOR STEEL BARS
ASTM A 193 / A 194: SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE FASTENERS WERE MANUFACTURED,SAMPLED,TESTED, INSPECTED IN ACCORDANCE WITH THE SPECIFICATION AND TERMS OF THE ORDER.

Q. A. MANAGER
Dott. Ing. V. MOLINARI

Officina Meccanica
VINCENZO MOLINARI
Via S. Bartolomeo, 136
29100 PIACENZA

TORNERIA MECCANICA
**VINCENZO MOLINARI**
29100 Piacenza Italy - Via S.Bartolomeo,136
Tel. 0523 / 59.32.81 - Fax 0523 / 59.27.47
R.E.A. PC N° 106098 - R.I. PC N° 28139/1996

SINCERT

# CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 3 1 B
**N° 050304 / 2005**

**DATE 10/02/2005**

CLIENTE / PURCHASER **DOUGLAS CHERO S.P.A.**

COMMESSA N° / JOB N° **050128**

ORDINE N°/ ORDER **250191 28/01/2005**

NOTE / REMARKS

DESCRIPTION OF MATERIAL

HEXAGONAL NUTS B18.2.2 T.9H ASTM A 194 -03b G4 (QT) (MT) (MI)
01) N. 600 D.1/2"-13UNC-

## MECHANICAL REQUIREMENT

| | R N/mm2 | Rp N/mm2 | A % 50mm | Z % | KV/J | HB | HB 24h 590C * | Proof LoadKN |
|---|---|---|---|---|---|---|---|---|
| REQUIRED MIN | | | | | | 248 | 201 | |
| REQUIRED MAX | | | | | | 352 | | |
| 01) | | | | | | 290 | 240 | POSIT. |

## CHEMICAL ANALYSIS

| HEAT N° | C | Mn | Si | P | S | Ni | Cr | Mo | V | Ti |
|---|---|---|---|---|---|---|---|---|---|---|
| REQUIRED MIN | 0.400 | 0.700 | 0.150 | | | | | 0.200 | | |
| REQUIRED MAX | 0.500 | 0.900 | 0.350 | 0.035 | 0.040 | | | 0.300 | | |
| 01) 014606 | 0.416 | 0.789 | 0.175 | 0.012 | 0.028 | | | 0.275 | | |

15 FEB. 2005
*DOUGLAS CHERO Spa*
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

THE CHEMICAL ANALYSIS RESULTS ARE TRUE AND CORRECT COPY OF THE RAW MATERIAL SUPPLIER'S CERTIFICATE.
(QT):HEAT TREATMENT: QUENCHED TEMPERED (CST):CARBIDE SOLUTION TREATED
(MT):MINIMUM TEMPERING: 640 C
(H):HARDENED (N):NORMALIZED (SB):STABILIZED (SH):STRAIN HARDENED
(ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION ACCORDING TO ASTM E 381-01 FOR STEEL BARS
ASTM A 193 / A 194: SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE FASTENERS WERE MANUFACTURED,SAMPLED,TESTED, INSPECTED IN ACCORDANCE WITH THE SPECIFICATION AND TERMS OF THE ORDER.

Q. A. MANAGER
*Dott. Ing. P. MOLINARI*

Officina Meccanica
VINCENZO MOLINARI
Via S. Bartolomeo 136
29100 PIACENZA

# ISELFA

STEEL FORGINGS
ELECTRING FITTINGS

00192110C

S.r.l. - C.F./P.IVA VAT IT 00189520125 S.p.A.
21048 SOLBIATE ARNO (Va) Italy - Corso Roma, 22
P.O. BOX 21 - TELELEFONO +39 (331) 99.30.08
FAX FORGINGS +39 (331) 99.15.35 - FAX FITTINGS +39 (331) 99.46.77

ICIM

## CONTROLLO QUALITÀ

Certificato di conformità
Compliance certificate
Gemaess Zeugnis
**UNI EN 10204/3.1.B**

| N° | Data / Date |
|---|---|
| 9661 | 29.03.01 |

| | | | | | |
|---|---|---|---|---|---|
| CLIENTE *Customer / Kunde* | DOUGLAS CHERO SPA | ORDINE N° *Order / Bestellung* | 215053 | DATA *Date / Datum* | 23.03.01 |
| RIMESSO N° *Delivery note / Lieferschein* | 100492 | DATA *Date / Datum* | 29-03-01 | N° PEZZI *Pieces / Stuckzahl* | 367 |

DESCRIZIONE - *Description - Dezelchnung*: CAPPELLI 1"-1500

DISEGNO N° - *Drawing - Zelchnung*: Dis.4/10

INDICE - *Last revision -Verzelchnis*: Rev.0

| TIPO ACCIAIO *Steel type / Stahl* | COLATA *Heat / Schmelze* | FORNITORE *Supplier / Lieferant* |
|---|---|---|
| F 11 BILL.80 | 52626/80 | ACCIAIERIE BERTOLI SAFAU SPA |

COMPOSIZIONE CHIMICA / *Chemical composition / Chemische Zusammensetzung*

CARATTERISTICHE ACCIAIO

| % | | C | Mn | Si | Cr | Mo | P | S | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA *Requested / Erforderikhe* | min | 0,100 | 0,300 | 0,500 | 1,000 | 0,440 | | | | | | |
| | max | 0,200 | 0,800 | 1,000 | 1,500 | 0,650 | 0,040 | 0,040 | | | | |
| FORNITA *Supplied / Wirkilche* | | 0,1300 | 0,4500 | 0,5500 | 1,1200 | 0,4900 | 0,0080 | 0,0010 | | | | |

PROVA JOMINY / *Jominy test / Stimabschreckversuch*

| HRC | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA *Requested / Erforderikhe* | min | | | | | | | | | | | | GRANO *Grain size / Korngrosse* |
| | max | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | |
| FORNITA *Supplied / Wirkilche* | | | | | | | | | | | | | |

CARATTERISTICHE MECCANICHE / *Mechanical properties / Mechanische Eigenscheften* — Normalizzato ☐ Bonificato ☐

| Ø PROVETTA *Ø sample / Ø probest* | RP 0,2% *Yield strenght 0,2% / 0,2% Grenze* | R *Tensile strenght / Zugfestigkelt* | Aζ % *Elongation % / Dehnung %* | Z % *Reduc. of area % / Einschnurung %* | KCU *Impact value / Kerbschlang* |
|---|---|---|---|---|---|
| mm | N/mm² | N/mm² | Lo = ζd | | J (joule) |
| | 282 | 511 | 28 | 59 | 0 / 0 / 0 |

CARATTERISTICHE PRODOTTO

| | | | | | |
|---|---|---|---|---|---|
| TRATT. TERMICO *Heat Treatement / Warmebehandlung* | NORM.+RINV. | DUREZZA RICHIESTA *Requested hardness / Fesligkelt* | N/mm² | | |
| DUREZZA RISCONTRATA N/mm² *Checked hardness / Finden harte* | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 0 0 |

| | | | | | |
|---|---|---|---|---|---|
| CONTROLLI *Tests / Ausmabetest* | C.D.C.<br>MAGNAFLUX 100%<br>VISIVO 100% | SI<br>NO<br>SI | DIMENSIONALE<br>ALTRI | POSITIVO | NO |
| ALLEGATI *Enclosed / Anlage* | ANALISI CHIMICA ACCIAIERIA<br>CERTIFICATO TRATT. TERMICO | SI<br>NO | PRODOTTO AUTOCERTIFICATO | 02 APR. 2001 | |

**DOUGLAS CHERO Spa**
Quality Assurance
P.C. STEVANI VITTORIO
Sign. .....

NOTE *Remarks / Bemerkungen*: TRATT:RISCALDO A 960C PER 1 ORA OGNI 25mm DI SPESSORE E RAFFR. IN ARIA CALMA. RISCALDO A 735-750C PER 2 ORE OGNI 25mm DI SPESSORE E RAFFR. IN ARIA CALMA. SIGLA DI COLATA "AC"

CONTROLLO QUALITÀ
QUALITY CONTROL
QUALITATSSTELLE

**ISELFA S.p.A.**
UFFICIO CONTROLLO QUALITA'

COMPILATORE

ISELFA S.p.A.
SOLBIATE ARNO (VA)

EMESSO ED ARCHIVIATO DAL RESPONSABILE DEL CONTROLLO FINALE (CFI)

**L.P.M.** s.n.c.
LABORATORIO PROVE MATERIALI
di Torretta D. & Molinari V.
Via Portapuglia, 12/E - 29100 PIACENZA - Tel. (0523) 593018-592744 - Fax (0523) 592744 e-mail: l.p.m@libero.it
Partita I.V.A. 00875550337

Sistema Qualità Certificato

| | | |
|---|---|---|
| **Certificato di prove meccaniche**<br>Mechanical test certificate<br>Mechanisches pruefzeugnis<br>Certificate des essais mecaniques | **MTC 202 /05** | **Foglio** sheet Blatt Feuille 1 **di** of von de 2 |

**Cliente** Customer Besteller Client: DOUGLAS CHERO S.p.A. - Localita' Pradaglie - 29013 CARPANETO PIACENTINO (PC)
JOB No. 040495
Comm. LPM : E137

**Ordine cliente** Customer order Bestellung Commande de Client: KLAUS UNION ARMATUREN INTERNATIONAL P.O. HH-02504
(PCK REFINERY SCHWEDT P.O. 308/45287302)

**Norme di collaudo** Techinacal specifications Abnahme norme Specifications techinques: ASTM A 182-02

**Descrizione della fornitura** - Extent of material delivery - Umfang der Lieferung - Liste descriptive

| N. Pos. Item No. Pos. Nr. Pos: N. | Pos. Cliente Cust. Item Besteller pos. Pos. Client | Quantità Quantity Stuck Quantité | Tipo del prodotto - Type of the product Gegenstand - Designation du produit | Materiale Material Werkstoff Material | N. di prova Test No. Probe Nr. N. d'eprouvette | N. di colata Heat No. Schmelze Nr. N.coulée |
|---|---|---|---|---|---|---|
| | | | | heat code | | |
| 1 | | | Body N8/9-60 | FB-RI | F11 | 1 | 47564 |
| 2 | | | Bonnet N8/8 | Y-B | " | 2 | 52828 |
| 3 | | | Bonnet N8/8 | Y-F | " | 3 | 16380 |
| 4 | | | Body 4/9F-60 | R-L78 | " | 4 | 004421 |
| 5 | | | Cover 4/6 | M-B48 | " | 5 | 21843 |
| 6 | | | Bonnet 4/8 | FB-NV | " | 6 | 52828 |
| 7 | | | Body 4/11-150 | R-L70 | " | 7 | 64021 |
| 8 | | | Bonnet 4/10 | Y-AC | " | 8 | 52828 |
| 9 | | | Body 7/11-150 | IR-IOB | " | 9 | 58866 |
| 10 | | | Bonnet 6/10 | R-H78 | " | 10 | 55535 |
| 11 | | | Body 4/11-150 | R-F12 | F5 | 11 | 56822 |
| 12 | | | Bonnet 4/10 | Y-AG | " | 12 | 003943 |

| **Data** - Date - Datum - Date | **Ispettori** - Inspectors - Sachverstandige - Inspecteurs | **Eseguito da** - Performed by Sachbearbeiter - Execute par |
|---|---|---|
| FEBRUARY,03/05 | DOUGLAS CHERO Spa<br>Quality Assurance .....<br>P.C. STEVANI VITTORIO<br>Sign. ..... | Collegio dei Periti Industriali<br>L.P.M. Ind. s.n.c.<br>DOMENICO TORRETTA<br>Piacenza N. 252<br>dei Periti Industriali Laureati |

# L.P.M. s.n.c.

LABORATORIO PROVE MATERIALI
di Torretta D. & Molinari V.

**RISULTATI DELLE PROVE** - Test results
Ergebnis der prüfungen - Resultats des essais

**MTC** 202 /05

Foglio sheet Blatt Feuille 2 di of von de 2

**Prova di trazione** - Tensile test - Ergebnis der prüfungen - Resultats des essais

| N. di colata<br>Heat No.<br>Schmelze Nr.<br>N. couleé / N. di prova<br>Test No.<br>Probe Nr.<br>N. d'eprouvette | **Dimensioni**<br>Dimensions<br>Abmessungen<br>Dimensions<br>mm | **Sezione**<br>Section<br>Quersen.<br>Section<br>$mm^2$ | **Lungh.**<br>Lenght<br>Länge<br>Long.<br>mm | **Direz.**<br>Direct.<br>Richt.<br>Direct. | **Temp.**<br>Temp.<br>Temp.<br>Temp.<br>°C | **Lim. di snervamento**<br>Yield point-proofstress<br>Streck/Dehngrenze<br>Limite d'elasticité<br>> 275 | | **Carico di rottura**<br>Tensile strenght<br>Zugfestigkeit<br>Resist. a la traction<br>> 485 | | **Allungamento**<br>Elongation<br>Bruchdehnung<br>Allongement | | | **Strizione**<br>Reduction of area<br>Brucheinschnürung<br>Striction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Valori richiesti** - Requested values<br>Anforderungen - Valeurs demandeès | | | | | N | N/mm2<br>MPA | N | N/mm2<br>MPA | Richiesto<br>Requiren.<br>Erforder.<br>Demandés | mm | % | % |
| | | | | | | | | | | | | | > 30 |
| 1 | d. 12.5 | 122.6 | 50 | L | R.T. | 38400 | 313 | 63000 | 514 | > 20 | 18.4 | 36.8 | 75 |
| 2 | d. 12.5 | 122.6 | " | " | " | 38400 | 313 | 60600 | 494 | " | 17.3 | 34.6 | 77 |
| 3 | d. 12.5 | 122.6 | " | " | " | 42120 | 343 | 60840 | 496 | " | 16.8 | 33.6 | 74 |
| 4 | d. 12.5 | 122.6 | " | " | " | 39600 | 323 | 60000 | 489 | " | 16.9 | 33.8 | 72 |
| 5 | d. 6.2 | 30.2 | 25 | " | " | 10440 | 346 | 15420 | 510 | " | 7.9 | 31.6 | 61 |
| 6 | d. 6.2 | 30.2 | " | " | " | 10200 | 338 | 14850 | 492 | " | 9.4 | 37.6 | 77 |
| 7 | d. 12.5 | 122.6 | 50 | " | " | 39000 | 318 | 60360 | 492 | " | 15.7 | 31.4 | 69 |
| 8 | d. 12.5 | 122.6 | " | " | " | 40800 | 333 | 60360 | 492 | " | 15.3 | 30.6 | 69 |
| 9 | d. 12.5 | 122.6 | " | " | " | 40200 | 328 | 63240 | 516 | " | 15.5 | 31.0 | 74 |
| 10 | d. 12.5 | 122.6 | " | " | " | 39000 | 318 | 62520 | 510 | " | 18.4 | 36.8 | 77 |
| | | | | | | | | | | | | | > 35 |
| 11 | d. 12.5 | 122.6 | " | " | " | 54600 | 445 | 73080 | 596 | " | 16.1 | 32.2 | 72 |
| 12 | d. 12.5 | 122.6 | " | " | " | 53400 | 435 | 70800 | 577 | " | 13.4 | 26.8 | 69 |

| **Data** - Date - Datum - Date | **Ispettori** - Inspectors - Sachverstandige - Inspecteurs | | **Eseguito da** - Performed by<br>Sachbearbeiter - Execute par |
|---|---|---|---|
| FEBRUARY,03/05 | | DOUGLAS CHERO Spa<br>Quality Assurance .....<br>P.C. STEVANI VITTORIO<br>Sig. ..... | Collegio dei Periti Industriali<br>L.P.M. Ind. s.n.c.<br>DOMENICO TORRETTA<br>Piacenza N. 267<br>dei Periti Industriali Laureati |

**UGITECH**
Groupe Arcelor

**FRANCE**

5 Usine Productrice / Hersteller / Manufacturer
**UGINE**
F 73403 UGINE CEDEX
Tél : 04.79.89.30.30
Fax : 04.79.89.30.51

4 N. Nr No 80208

11 N. de commande usine-Werksbestellnummer-Works order number
FUGE TEJE 01/01 8Z101000 Q

3
# CERTIFICATO COLLAUDO DI ACCETTAZIONE B
# CERTIFICAT DE RECEPTION 3.1.B
# INSPECTION CERTIFICATE B

EN 10204 / 3.1.B

Produit / Erzeugnisform / Product: IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE — 6

Client et/ou destinataire - Besteller und/oder Empfaenger - Purchaser and/or Consignee: TECNOMECCANICA SRL — 9

N. de commande client - Kundebestellnummer - Purchaser order number: 364 — 10

Nuance et spécifications techniques - Stalsorte und Pruefbedingungen - Quality and Specifications: IMA4006 410 AISI 410 UNS S41000
SPEC. SDA 09 DU 20/11/01 (SAUF MN) — 12

Etat de livraison - Lieferzustand - As delivered (1): TEMPRATO RINVENUTO — 13

Traitement de Référence - Probestreifenbehandlung - Treatment of test samples (1) — 14

| Identification du produit / Erzeugnis Benennung-Product identification<br>N. de cde usine / Werksbestellnummer / Works order number item No 15 | N. de poste / Post Nr 17 | N. de Coulée / Schmelz Nr / Heat No 16 | Nombre / Stueckzahl / Pieces Nbr 18 | Profil / Profile / Shape 19 | Dimension / Ausmessung / Dimension 20 | Longueur / Laenge / Length 21 | Masse / Gewicht / Weight 22 |
|---|---|---|---|---|---|---|---|
| 8Z101 | 000 | 350031 | 190 | TONDO | 20,000 | | 1974 KG |

| Prélèvement / Probenummer / Test N. | Demandé-Vorschrift-Required | Sens / Richtung / Direction (3) | Température d'essai / Pruefttemperatur / Test Temperature | Traction - Zugversuch - Tensile test: Limite d'Elasticité / Streckgrenze / Yield Strength 0,2 % 26 A | Limite d'Elasticité / Streckgrenze / Yield Strength 1 % 26 B | Résistance à la traction / Zugfestigkeit / Tensile strength 27 | Allongement / Bruchdehnung / Elongation (L0=5d0) 28 | Striction / Einschnuerung / Red of Area 29 | Dureté / Haerte / Hardness (4) 30 | Type / Form / Type 31 | Résilience - Kerbschlagzaehigkeit - Notch Toughness: Sens / Richtung / Direction (3) 32 | Température d'essai / Pruefttemperatur / Test Temperature 33 | Valeurs individuelles / Einzelwerte / Individual Values 35 | Moyenne / Mittelwerte / Average 36 | Dureté / Haerte / Hardness (5) 37 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 B | | 24 | 25 | | | | | | | | | | | | |
| | | L | °C | MPA | MPA | MPA | % | % | | | | | | | |
| | Min | | 20 | 275 | | 585 | 20 | 45 | | | | | | | HB |
| | Max | | | | | | | | | | | | | | 237 |
| | (4) | | | | | | | | | | | | | | |
| | (5) | | | 607 | | 684 | 21 | 72 | | | | | | | 205 |

| N. de Prélèvement / Probenummer / Test N. 39 A | Demandé / Vorschrift / Required 40 | Analyse/Produit-Check Analysis | C 42 | SI 43 | MN 44 | NI 45 | CR 46 | S 47 | P 48 | 49 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Min | | | | 0,30 | | 11,50 | | | | |
| | Max | | 0,150 | 0,60 | 0,60 | | 13,50 | 0,030 | 0,040 | | |
| N. de Coulée / Schmelz Nr / Heat N. | | | | | | | | | | | |
| 350031 | | | 0,107 | 0,42 | 0,38 | 0,35 | 12,18 | 0,022 | 0,019 | | |

| 38 Mode d'élaboration / Erschmelzungsart / Melting process | Demandé / Vorschrift / Required 51 | 52 | 53 | 54 | 55 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Electrique / Elektrisch / Electric | Min | | | | | | | | | |
| | Max | | | | | | | | | |

IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE

06 MAG. 2004
*DOUGLAS CHERO Spa*
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign .....

56

(3) L = Long / Laengs - Long / T = Travers / Quer-Transverse — 58

(1) TE = Trempé à l'eau - Wasserhaerten - Waterquench; TH = Trempé à l'huile - Oilharten - Oil Quench; A = Hypertrempé - Loesungsgegluecht - Solution annealed; R = Revenu - Anlassen - Tempered; RT = Recuit - Gegluecht - Annealed; TRM = Recuit maxi - Weichgegluecht - Maxi annealed — 7

Ugine, le 15-01-04
L'Agent Réceptionnaire de l'usine / Der Werkssachverstaendige / The Work Inspector
H. Mayet — 63

(4) A l'état de référence / Zum Bezug Zustand / At reference condition — 60 A

(5) A l'état de livraison / In Lieferzustand / In state of delivery — 60 B

Controles de marquage, d'aspect et de dimensions: satisfaisants / Bezeichnung, Besichtigung und Ausmessung : ohne Beanstandung / Marking, inspection and measurement : without objection — 62

Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande / Wir bestatigen hiermit dass die obengenannten Erzeugnisse den Bestellungvorschriften entsprechen / We certify hereby that the above mentioned products are consistent with the order prescriptions — 66

DOUGLAS CHERO Spa

# DIMENSIONAL / VISUAL INSPECTION CERTIFICATE

N.: 02/342/05-V

Sheet: 1/2

| CUSTOMER: | Order: | Our Job: |
|---|---|---|
| **KLAUS UNION ARMATUREN INTERNATIONAL for LURGI OEL GAS CHEMIE GMBH** | Lurgi P.O.: **HH-02535-02** **4567569-002 / 1.69690 / 145** | **05.0342** |

Client: 2nd MEGA METHANOL PLANT, ZAGROS PETROCHEMICAL COMPANY, SITE BANDAR ASSALUYEH, IRAN / Contract No.: 1.69690-10

## DIMENSIONAL INSPECTION CERTIFICATE

| *TESTS EXECUTED* | | *APPLICABLE STANDARD* |
|---|---|---|
| Parts Test | | DOUGLAS CHERO DRAWINGS |
| End-to-End Test | | DOUGLAS CHERO DRAWINGS |
| SW Ends Test | | ASME B16.11 |
| NPT Ends Test | **NOT APPLICABLE** | ASME B1.20.1 |
| BW Ends Test | | ASME B16.25 |

Remarks: **FOR VALVES DESCRIPTION SEE ATTACHED SHEET 2/2**

Test executed according to approved Drawings by: **GUIDO SCHIAVETTI**

RESULT: **POSITIVE**

SIGNATURE: Guido Schiavetti

We declare that all components have made according to applicable standard, constructive specifications and DOUGLAS CHERO S.p.A. constructive drawings.

Quantity Checked: **100%**

DATE: **28/10/05**

| Q.A. - Q.C. | **CUSTOMER'S Inspector** |
|---|---|
| DOUGLAS-CHERO S.p.A. Quality Control CREDALI STEFANO | |

## VISUAL INSPECTION CERTIFICATE

VISUAL TEST EXECUTED ON ROUGH AND MACHINED SURFACE

RESULT: **POSITIVE**

SIGNATURE: DOUGLAS-CHERO S.p.A. Quality Control CREDALI STEFANO

Quantity Checked: **100%**

DATE: **28/10/05**

| Q.A. - Q.C. | **CUSTOMER'S Inspector** |
|---|---|
| DOUGLAS-CHERO S.p.A. Quality Control CREDALI STEFANO | |

| DOUGLAS CHERO Spa | DIMENSIONAL / VISUAL INSPECTION CERTIFICATE | No.: 02/342/05-V<br>Sheet: 2/2 |
|---|---|---|

## LIST OF ITEMS

| ITEM | IDENT NO | DESCRIPTION | SIZE | Q.TY |
|---|---|---|---|---|
| 370 | S420-BW 4,55 | GATE VALVE long pattern c.1500 FB BB BW Sch.80 - Seats+Wedge Stel. [ TRIM 5 ] | 1" | 1 |
| 380 | V305 | GLOBE VALVE c.800 RB BB SW -Seat+Disk Stell. [ TRIM 5 ] | 1" | 6 |
| | | | | |

DOUGLAS-CHERO S.p.A.
Quality Control
CREDALI STEFANO

| DOUGLAS CHERO Spa | PRESSURE TEST CERTIFICATE | No.: 02/342/05-PR<br>Sheet: 1/1 |
|---|---|---|

Customer: KLAUS UNION ARMATUREN INTERNATIONAL for LURGI OEL GAS CHEMIE GMBH
P.Order: HH-02535-02
Lurgi P.Order: 4567569-002 / 1.69690 / 145
Client Ref.: 2nd MEGA METHANOL PLANT, ZAGROS PETROCHEMICAL COMPANY, SITE BANDAR ASSALUYEH, IRAN
Contract No.: 1.69690-10
Object: DOUGLAS CHERO CERTIFICATE No. 051034 Dtd.: 28/10/05
Remarks: TESTS CARRIED OUT ON 100%
TESTS CARRIED OUT ACCORDING TO D.C. PROCEDURE 140 R.5

| ITEM | IDENT No. | DESCRIPTION | SIZE | Q.TY |
|---|---|---|---|---|
| 370 | S420-BW 4,55 | GATE VALVE long pattern c.1500 FB BB BW Sch.80 - Seats+Wedge Stel. [ TRIM 5 ] | 1" | 1 |
| 380 | V305 | GLOBE VALVE c.800 RB BB SW -Seat+Disk Stell. [ TRIM 5 ] | 1" | 6 |
| | | | | |

| | RATING 800 | RATING 1500 | ALL RATINGS |
|---|---|---|---|
| TYPE OF TEST | PRESSURE | PRESSURE | TIME |
| - HYDRAULIC SHELL TEST<br>- BACK-SEAT TEST | 211 BAR | 388 BAR | 60 Sec. min. |
| - HYDROSTATIC SEAT TEST | 156 BAR | 285 BAR | 60 Sec. min. |
| - AIR SEAT TEST | 6 BAR | 6 BAR | 30 Sec. min. |

GENERAL REMARKS: AS PER PROCEDURE DOUGLAS CHERO No. 140 Rev.5, THE BACK SEAT TEST FOR GLOBE VALVES IS CARRIED OUT TOGETHER WITH HYDRAULIC SHELL TEST.

**NOTE: NO LEAKAGE DETECTED DURING HYDRAULIC/PNEUMATIC TESTS.**

DOUGLAS-CHERO S.p.A.
Quality Control
CREDALI STEFANO

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** / Customer: *Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt*

**Bestell-Nr.:** / Order no.: *Lurgi Job – No.: 69690-10*
*Lurgi OGC PO.-No.: 4569247-000 to -001/1.69690/136*

*Project Name :* *2nd Zagros Methanol Plant - Iran*

**Auftrag-Nr.:** / Job no.: *HH – 02535- 01*

**Lieferumfang** / range:

| **Pos** | **Stck.** pcs. | **Gegenstand** object | **DN** | **PN** | **Werkstoff** material | **Bemerkung** comment |
|---|---|---|---|---|---|---|
| *00010* | *10* | *Gate valve*<br>*FB BB SW*<br>*Seats and Wegde Stell.* | *1/2"* | *Cl.800* | *ASTM A 105N* | *Valve Ident – No.: " S306 "* |

**Auslegung + Prüfung nach** / Design and tests acc. To: API 602 – BS EN ISO 15761, API 598 / BS EN 12266-1
ASME B16.34 – B16.25 – B16.11 – B1.20.1

**Sicht- und Funktionsprüfung:** / visual and functional test: *o.k.*

**Festigkeits-/Dichtheitsprüfung:** / strength-/tightness-test:

| | | |
|---|---|---|
| *Festigkeit / shell test* | = | *211 bar Wasser / water* (60 sec) |
| *Dichtheit Sitz / seat* | = | *156 bar Wasser / water* (60 sec) |
| *Rückdichtung / backseat* | = | *156 bar Wasser / water* (60 sec) |
| *Dichtheit Sitz / seat* | = | *6 bar Luft / air* (60 sec) |

**Prüfungsergebnis:** / result: *ohne Beanstandung !* / *no complaint !*

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** / enclosure *Dokumentation gemäß Material-Dokumentationsdeckblatt* / *Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter / Person in charge W. Glass

**Kommissions-Nr. / Reference No.**

**HH-02535-01**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4569247 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00010 | Gate Valve | " S306 " | 10 | Body | E-YL | ASTM A105N | Evasi e Casteln. | 1T10233 | | 000426 |
| | 1/2" Cl. 800 lbs. | Drawing No.: F210-7/SW | | Wedge | | A182/F6a C.2 Stel. | Valbruna | 238209 | | 128331/2004 |
| | FB, BB, SW | Rev. 4 | | Seat | | A182/F6a C.2 Stel. | Valbruna | 236784 | | 055587/2003 |
| | seats+wedge stell. | | | Body Srew | | ASTM A193/B7 | Morandi | AR4272 | | 6125 |
| | | | | Bonnet | SM-C | ASTM A105N | Menzagos | 75341 | | 127A/127 |
| | | | | Stem | | A182/F6a C.2 | Valbruna | 415174 | | 156778/2004 |
| | | | | | | | | | | |
| | | | | | | | | | | |
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| | | | | | | | | | | |

18.04.2005

26564

PAG. 1

# Evasi e Castelnuovo s.r.l.

Via Carlo Porta, 1 - 23861 CESANA BRIANZA (LC)
Tel. 031/65.59.36 - Fax 031/65.66.27
Cod. Fisc. e Part. IVA 00209790138
Reg.Soc. Trib. Lecco n. 5932 - C.C.I.A. 121373

Spett.
DOUGLAS CHERO SPA

LOC. PRADAGLIE
29013 CARPANETO PIACENTINO PC

***CERTIFICATO DI COLLAUDO/INSPECTION CERTIFICATE***
***UNI EN 10204 3.1 B***

***SISTEMA QUALITA' CERTIFICATO UNI EN ISO 9001/2000***
***QUALITY SYSTEM CERTIFIED UNI EN ISO 9001/2000***

| N. | DATA/DATE |
|---|---|
| 000426 | 19-11-2004 |

D.D.T. / DELIVERY NOTE
N. DATA/DATE

| COLATA /HEAT N. | MATERIALE/MATERIAL | ACCIAIERIA/STEEL PLANT | N.QUANTITY | DESCRIZIONE/DESCRIPTION |
|---|---|---|---|---|
| 4T 10233 | A105 | LEALI | 7.250 | CORPO 3/9 |

## ANALISI CHIMICA / CHEMICAL ANALYSIS

| C | Mn | Si | P | S | Cr | Ni | Mo | Ti | V | Cu | Al |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,190 | 0,890 | 0,230 | 0,009 | 0,016 | 0,140 | 0,130 | 0,020 | 0,001 | 0,001 | 0,210 | 0,027 |

| Sn | Nb | N | Fe | W | Ta | Co | Ca | B | Sb | | CE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,013 | 0,001 | | | | | | | | | | 0,380 |

## PROVE MECCANICHE/MECHANICAL TESTS

| RS-YELD N./mm² | R-TENSILE N./mm² | A%-ELONG | Z%-REDUCT |
|---|---|---|---|
| 331,0 | 536,0 | 29,0 | 58,0 |

IMPACT TEST - KV - J

| TEST 1 | TEST 2 | TEST 3 | TEMP.°C |
|---|---|---|---|
| 49,0 | 50,0 | 47,0 | -46,0 |

| TRADE MARK | HEAT CODE | MATERIAL CODE | MATERIAL TYPE NR. | DWG |
|---|---|---|---|---|
| E.YL | | | | |

23 NOV. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

TRATTAMENTO TERMICO / HEAT TREATMENT

| DESCRIPTION | HEATING °C | STAY TIME | COOLING | HARDNESS |
|---|---|---|---|---|
| NORMALIZZAZIONE | 900 | 2,3 | ARIA CALMA | |

1) The result of chemical analisys is a true and correct copy of the alli cerificate issued,by the manufacturer of the steel employed, or by the laboratory which has determined it.
*Il risultato delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati*

2) Visual and dimensional control satisfactory.
*Controlli visivi e dimensionali soddisfacenti.*

3) Results of test effected are in conformance with order's specifications.
*I risultati delle prove eseguito sono conformi alle specifiche richieste.*

4) We confirm that materials used for the manufacture of supplied products are in conformance with the Directive 97/23/CE (PED); in particular with annex 1 par. 4 "Materials".
*Confermiamo che i materiali usati per lo stampaggio dei prodotti forniti sono conformi alla Direttiva 97/93/CE (PED) e particolarmente all'allegato 1 paragrafo 4 "Materiali".*

| APPROVATO/APPROVED |
|---|
| COLLAUDATORE/INSPECTOR |
| EMESSO/ISSUED |

EVASI E CASTELNUOVO s.r.l.
STAMPERIA ACCIAIO

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Kunde / Client
VERRI & PINA SRL
VIA TERRAROSSA, 10 - C.P. N.26
22035-CANZO (CO)-CO

Produttore: STABILIMENTO DI BOLZANO

Oggetto Prova: Decapato Ricotto lavorabile Laminato

Avviso di Spedizione: A-BZ04006748

Ordine nr: 94-85-97-103

Tipo di Elaborazione: E+AOD

4550

## CERTIFICATO DI COLLAUDO
## ABNAHMEPRUEFZEUGNIS
## INSPECTION CERTIFICATE
## CERTIFICAT DE RECEPTION
## EN 10204 , 3.1.B

Certificato nr: MEST128331/2004/

Conferma ordine nr: MI04002683

Marchio di Fabbrica:

Funzione del Collaudatore:

Specifiche:
ASTM A182 2006C S41000 CLASS2 (0)
(0) Chemical analysis only and mecc.properties(for ASTM A182(M))

Qualità: 410

Marca: VAL1

Punzonatura: S.410

| Pos. nr. | Oggetto | Dimensioni - mm | Tolleranza | | Colata | Pezzi | Peso - | Lotto nr. |
|---|---|---|---|---|---|---|---|---|
| 0100 | Tondo | 20,000 | | | 238209 | | | 409202530 |

Sono state soddisfatte tutte le condizioni richieste

Controllo antimescolanza: OK

Controllo visivo e dimensionale: soddisfa le esigenze:

## Analisi chimica

| Colata | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | min<br>max | 0,15 | 1,00 | 1,00 | 11,50<br>13,50 | 0,50 | 0,040 | 0,030 | | | | | | | |
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 238209 | 0,14 | 0,33 | 0,76 | 12,64 | 0,47 | 0,024 | 0,029 | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pr  e Enviroment Directive [97/23/EC] Annex 1,3,4.3 by TUEV and LLOYD

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

Bolzano,27/08/04

Il collaudatore di stabilimento / der Werksachverständige / Works inspector / L'agent d'usine
R.Cristel

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.

Stab.: 38100 BOLZANO (Italia) - Via A. Volta, 4

**CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION**
**EN 10204 , 3.1.B**

Ø20 FORK

Cliente / Kunde/Purchaser/Client
ACC.VALBRUNA SPA-MAG.CORMANO
VIA BIZZOZZERO, 125
20032 - CORMANO (MI) - MI

Produttore: STABILIMENTO DI BOLZANO
Herstellerwerk/Usine produttrice

Avviso di Spedizione: A-BZ03005480
Lieferanzeige/Packing list/B.L.

Certificato nr: MEST055687/2003/
Prüfung/Test/Essai

Conferma ordine nr: MI03007175
Werks/Our Order/Bon nr.

Ordine nr: TRASFERIMENTO DA BOLZANO
Bestell/Your order/Commande

Marchio di Fabbrica:
Zeichen des Unternehmens
Trade mark
Sigle de l'usine productrice

Oggetto Prove: Secondo esecuzione Ricotto lavorabile Pelato
Prüfgegenstand/Item inspected/Passage

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'obtention

Punzone del Collaudatore:
Stempel des Werksabnahmebeauftragten
Inspector's stamp/Poinçon de l'inspecteur

Specifiche:
Anforderungen / Requirements / Exigences

VALBRUNA 2002 410 A ()
ASME (1) SA479 2001 S41000 A (1)
ASTM A479 2001 S41000 A ()
[illegible] PT.A 2001 EDITION
[illegible] PT.A 2001 EDITION
(2) chemical analysis only and mecc.properties(for ASTM A182(M))

AISI 410 ()
ASTM A182 2000C S41000 CLASS2 (2)
EN 10088-3 95 1.4006 A ()

ASME (1) SA182 2001 S41000 CLASS2 (2)
ASTM A276 2000A S41000 A ()
EN 10272 2000 1.4006 A ()

Qualità: 410
Güte/Quality/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Nuance

Punzonatura: 410
Kennzeichnung/Marking/Marquage

| Pos. nr. Pos. nr. Item nr. Nr. de poste | Oggetto Gegenstand Product description Descrip. du produit | Dimensioni - mm Abmessungen Dimension Dimension | Tolleranza Toleranz. Allowance Tolerance | Lunghezza -mm Länge Length Longueur | Colata Schmelze Heat Coulée | Pezzi Stückzahl Pieces Pièces | Peso - KG Gewicht Weight Poids | Lotto nr. Losnr. Lot nr. Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0020 | Tondo | 20,000 | K12-MIN | 5000 / 5500 | 236784 | | ~~7521,0~~ 1007 | 310700680 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind R. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le matériel à été trouvé conforme aux exigences

Controllo antimescolanza: OK
Verwechslungsprüfung: spektralanalytisch durchgeführt
Antimixing testing performed: OK
Contrôle antimélange fait: r.a.s.

Controllo visivo e dimensionale: soddisfa le esigenze:
Sichtprüfung und Ausmessung ohne Beanstandung
Visual inspection and dimensional check:satisfactory
Contrôle visuel et dimensionnel: satisfaisant

| TEST | Provetta/Probestab Test piece/Eprouvette Long.-/Trasv. Long./Trans. Diam./Diam. Width/Diam. Thickness/Epais. Long. diam./epais mm | °C | Posiz. Sezione Position Location Position | Snervamento Streck Yield Limite élastique Rp 0,2% N/mm2 | Snervamento Streck Yield Limite élastique | Resistenza Zugfestigkeit Tensile strength Résistance à traction Rm N/mm2 | Allungamento Bruchdehnung Elongation Allongement A5 % | Allungamento E2" % | Strizione Einschnürung Reduction of area Striction Z % | Strizione RA % | Resilienza Kerbschlagarbeit Impact Value Résilience °C | Durezza Härte Hardness Dureté HB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 Anforderungen/Required values Valeurs demandées | | min | | 380 | - | 585 | - | 20 | - | 45 | - | 167 |
| | | max | | | | 730 | | | | | | 220 |
| | 10.00 | 20 | L | 490 | | 670 | 29 | 33 | 69 | 69 | | 190 |

1)Lunga/Longitudinale/Längs, Q=trasversale/quer, T=Tangenziale/tangential

## Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata: Schmelze/Heat Coulée | 0,080 min 0,150 max | - 1,00 | - 1,00 | 11,50 13,50 | - 0,50 | - 0,040 | - 0,030 | - | - | - | - | - | - | - | - |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 236784 | 0,141 | 0,37 | 0,72 | 12,37 | 0,34 | 0,020 | 0,030 | | | | | | | | |

The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,s.,4.3 by TUEV and LLOYD'S

29 LUG. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

COPIA CONFORME ALL' ORIGINALE
ACCIAIERE VALBRUNA S.P.A.
FILIALE DI CORMANO

Bolzano, 23/10/03
Mod./SELD06

Il collaudatore di stabilimento
der Werksabnahmebeauftragte/Inspecteur de l'usine

Pagina - 1 di 1

2326/1/01

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948

E-mail: mecomorandi@libero.it Codice Fiscale e Partita IVA 01779110129


CERTIFICATO DI COLLAUDO 26729

Inspection certificate N°6125/DCH DATE-09.11.04

CLIENTE- Customer DOUGLAS CHERO Spa ORDINE-760 Order BOLLA CONSEGNA N-3659 Delivery note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| 1 | 44000+56038 | VITI TE. M 10 X 28 | B7 ASTM A 193/A 193M | AR4272 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Cr | Mo | S | P |
|---|---|---|---|---|---|---|---|---|
| REQUIRED VALUE | min. | 0.37 | 0.65 | 0.15 | 0.75 | 0.15 | | |
| | max. | 0.49 | 1.10 | 0.35 | 1.20 | 0.25 | 0.040 | 0.035 |
| HEAT n. AR4272 | | 0,44 | 0,79 | 0,27 | 1,09 | 0,22 | 0,002 | 0,007 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

| | Rm. | Rp.(0,2) | A4 | Z. | Hardness |
|---|---|---|---|---|---|
| REQUIRED | min. 860 MPa | min. 720 MPa | min. 16% | min. 50% | max 35 HRC |
| ACTUAL VALUE | 1018 | 922 | 17,5 | 54,5 | 31 |

HEAT TREATMENT

Quenched at : 860 °C in oil

Tempering : 2 hours at 593 °C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

QUALITY CONTROL

MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

15 NOV. 2004

DOUGLAS CHERO Spa

Quality Assurance .....

P.C. STEFANI VITTORIO

Sign. .....

2512306

STAMPERIA DI MENZAGO s.r.l.
STAMPAGGIO A CALDO DELL' ACCIAIO
via della concordia, 39
tel. 0331-909196/fax 908511
21040 MENZAGO DI SUMIRAGO/VA/ITALY

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV
ISO 9002

# CERTIFICATO DI ANALISI CHIMICA E CARATTERISTICHE MECCANICHE
*CERTIFICATE OF CHEMICAL COMPOSITION AND MECHANICAL PROPERTIES*



| | |
|---|---|
| N°/*NR.* 127A | ORDINE/*ORDER* 232643 DEL 17/12/2003 |
| DATA/*DATE* 27/02/04 | RIMESSO/*RIESSUSE* 243 DEL 27/02/04 |
| CLIENTE/*CUSTOMER* | DESCRIZIONE/*DESCRIPTION* COPERCHIO 2/8 |
| DOUGLAS CHERO S.p.A. | MATERIALE/*MATERIAL* ASTM A105 |
| | COLATA/*HEAT* 75341 |
| | MARCATURA/*MARKING* A105N S M C |

## ANALISI CHIMICA/*CHEMICAL COMPOSITION*

| | C% | Mn% | Si% | P% | S% | Cr% | Ni% | Mo% | Cu% | V% | Nb% | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MIN | 0,00 | 0,60 | 0,10 | 0,000 | 0,000 | 0,00 | 0,000 | 0,00 | 0,00 | 0,00 | 0,00 | | | | |
| MAX | 0,35 | 1,05 | 0,35 | 0,035 | 0,040 | 0,30 | 0,40 | 0,12 | 0,40 | 0,05 | 0,02 | | | | |
| ANALISI COLATA *HEAT COMPOSITION* | 0,20 | 0,92 | 0,23 | 0,011 | 0,004 | 0,08 | 0,05 | 0,01 | 0,18 | 0,025 | 0,001 | | | | |

## CARATTERISTICHE MECCANICHE/*MECHANICAL PROPERTIES*

| DESCRIZIONE/*DESCRIPTION* | U.M./*M.U.* | MIN. | MAX | VALORE/*VALUE* | |
|---|---|---|---|---|---|
| SNERVAMENTO/*YIELD STRENGHT* 0,2% | N/mm2 | 250 | | 322 | |
| ROTTURA/*TENSILE STRENGHT* | N/mm2 | 485 | | 519 | |
| ALLUNGAMENTO/*ELONGATION* | % | 22 | | 32,2 | |
| STRIZIONE/*REDUCT OF AREA* | % | 30 | | 56,4 | |
| DUREZZA/*HARDNESS* | HB | | 187 | 148 - 151 - 147 | |
| | | | | | |

TRATTAMENTO TERMICO/*HEAT TREATMENT*

NORMALIZZATO A 900°C

NOTE/*NOTES*
3.1.B Certificate according to EN 10204

02 MAR. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

STAMPERIA DI MENZAGO s.r.l.
CONTROLLO QUALITA'
*QUALITY CONTROL*
.....

STAMPERIA di MENZAGO S.r.L.
.....

STAMPERIA DI MENZAGO s.r.l.
STAMPAGGIO A CALDO DELL'ACCIAIO
via della cerquella 29 / tel. 0331.909.134 / fax 908.531
21040 MENZAGO DI SUMIRAGO / va / Italy

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV ISO 9002

# CERTIFICATO DI CONFORMITA'
## CONFORMITY CERTIFICATE

N° 127

pag. / page ... di / of ...

CLIENTE / CUSTOMER: DOUGLAS CHERO S.p.A.

RIFERIMENTO ALL'ORDINE / ORDER: N° 232643 Del/Dated 17/12/2003

ALLEGATO AL RIMESSO / ENCLOSED TO THE DOCUMENT OF THE TRANSPORT: N° 249 Del/Dated 27/02/04

NOME DEL PRODOTTO / NAME OF THE PRODUCT: CAPPELLO

DISEGNO / DRAWING: N° 2/8

Indice ultima modifica / Index of last modification: 5 Data / Date:

FABBRICATO CON ATTREZZATURA / MANUFACTURED WITH EQUIPMENT: PROVVISORIA / PROVISIONAL ☐ DEFINITIVA / DEFINITIVE ■

TIPO DI CONSEGNA / TYPE OF DELIVERY: CALCO IN PIOMBO / MODEL IN LEAD ☐ CAMPIONATURA / SAMPLES ☐ LOTTO / PARCEL ■

QUANTITA' / QUANTITY: 20.680

CAUSALE DEL CERTIFICATO / REASON OF THE CERTIFICATE: PRODOTTO NUOVO / NEW PRODUCT ☐ ATTREZZATURA NUOVA / NEW EQUIPMENT ☐ VERIFICA SISTEMATICA / SYSTEMATICAL VERIFICATION ■

## CERTIFICAZIONE DELLA QUALITA' DEL PRODOTTO / CERTIFICATION OF THE QUALITY OF THE PRODUCT

| N° Ref. | QUOTE CONTROLLATE / CHECKED QUOTES | VALORI PRESCRITTI / PRESCRIBED VALUES | Strumenti di Misura Utilizzati / Equipment use for measure | LIMITI MIN E MAX RILEVATI | | VALORI OTTENUTI SUI SINGOLI PEZZI CONTROLLATI / VALUES OBTAINED ON THE THE INDIVIDUAL CHECKED PIECES | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1 | 2 | 3 | 4 | 5 |
| | SPESSORE | 14 +0,8 -0,4 | 26 | 14 | 14,2 | 14 | 14,1 | 14,1 | 14,2 | 14,1 |
| | SPESSORE | 59 +0,8 | 26 | 60 | 60,3 | 60 | 60,1 | 60,3 | 60,3 | 60,2 |
| | DIAMETRO | 30 +0,8 | 26 | 30 | 30,3 | 30 | 30 | 30,3 | 30,2 | 30,1 |
| | DIAMETRO | 29 +0,5 | 26 | 29,1 | 29,3 | 29,1 | 29,2 | 29,3 | 29,2 | 29,1 |
| | LARGHEZZA | 62 + -0,5 | 26 | 62,5 | 62,6 | 62,5 | 62,5 | 62,6 | 62,6 | 62,6 |
| | LARGHEZZA | 8 +0,9 -0,5 | 26 | 8,5 | 8,6 | 8,5 | 8,6 | 8,6 | 8,6 | 8,5 |
| | LARGHEZZA | 50 +1,1 -0,5 | 26 | 50,6 | 50,9 | 50,7 | 50,9 | 50,6 | 50,8 | 50,8 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

| ACCIAIO UTILIZZATO / UTILIZED STEEL | COLATA / CASTING | MARCATURA / MARKING | TRATTAMENTO ESEGUITO / TREATMENT MADE | VALORI RILEVATI / FOUNDED VALUES |
|---|---|---|---|---|
| ASTM A105 | 75341 | A105N S M C | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

DUROMETRO UTILIZZATO / UTILIZED DUROMETER: A200 ☐ HPO3000 ☐

RELAZIONI DI PROVE ALLEGATE / RELATIONS OF ENCLOSED RESULTS

CERTIFICATO ACCIAIERIA / STEELWORKS CERTIFICATE ■
BOLLETTINO TRATTAMENTO TERMICO / HEAT TREATMENT CERTIFICATE ☐
CERTIFICATO 3.1.B / 3.1.B CERTIFICATE ☐
..... ☐

02 MAR. 2004
DOUGLAS CHERO Spa

NOTE / REMARKS:

Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

IL TRATTAMENTO TERMICO DI BONIFICA E' STATO ESEGUITO SECONDO SPECIFICHE DOUGLAS CHERO S.p.A.

DICHIARAZIONE DI CONFORMITA' DEL PRODOTTO / DECLARATION OF CONFORMITY OF THE PRODUCT

LA CONFORMITA' DELLA FORNITURA ALLE PRESCRIZIONI CONTENUTE NEI DISEGNI, CAPITOLATI, NORME, TABELLE, ED EVENTUALE CAMPIONE DEPOSITATO, E' ASSICURATA DA SISTEMATICI CONTROLLI A CUI IL PRODOTTO VIENE SOTTOPOSTO.
THE CONFORMITY OF THE SUPPLY TO THE PRESCRIPTIONS IN THE DRAWINGS, CONTRACTS, NORMS, TABLES AND POSSIBLE DEPOSITED SAMPLE IS ASSURED FROM SYSTEMATICAL INSPECTIONS WHICH THE PRODUCT IS SUBORDINATE.

| DATA/DATE | COMPILATO DA / FILLED IN FROM | C.Q./QUALITY CONTROL | STAMPERIA DI MENZAGO S.r.l. |
|---|---|---|---|
| 27/02/04 | ..... | ..... | ..... |

DR10 / PQ06 Rev. 00

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Kunde/Purchaser/Client
TECNOMECCANICA SRL
VIA CRETA 8
25033-COLOGNE (BS)-BS

Produttore: STABILIMENTO DI BOLZANO
Herkunft/Item/Usine productrice

Avviso di Spedizione: A-BS04002225
Lieferanzeige/Packing list/B.L.

Ordine nr. 468
Bestell/Your order/Commande

## ATTESTATO DI CONTROLLO
## WERKSZEUGNIS
## TEST REPORT
## RELEVE DE CONTROLE
## EN 10204 , 2.2

Certificato nr: MEST156778/2004/
Prüfung/Test/Essai

Conferma ordine nr: BS04002056
Works/Our Order/Ref nr.

Marchio di Fabbrica:
Zeichen des Unterwerkes
Trade mark
Sigle de l'usine productrice

Oggetto Prova: - Ricotto lavorabile Trafilato
Prüfgegenstand/Item inspected/Fabrique

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'elaboration

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Specifiche:
Anforderungen / Requirements / Exigences
ASTM A182 2002 S41000 CLASS2 (0)
(0) Chemical analysis only and mech.properties(for ASTM A182[M])

Qualità: S41000
Werkstoff/Grade/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Nuance

Punzonatura:
Kennzeichnung/Marking/Marquage

| Pos. nr. / Item nr. / Nr. de poste | Oggetto / Gegenstand / Product description / Descrip. du produit | Dimensioni - mm / Abmessungen / Dimension / Dimension | Tolleranza / Toleranz / Allowance / Tolerance | Lunghezza - mm / Länge / Length / Longueur | Colata / Schmelze / Heat / Coulée | Pezzi / Stückzahl / Pieces / Pieces | Peso - KG / Gewicht / Weight / Poids | Lotto nr. / Losnr. / Lot nr. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0010 | Tondo | 12,000 | H9-MIN | 4190 / 4240 | 415174 | | 985,0 | 423601360 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind lt. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le matériel a été trouvé conforme aux exigences

| TEST | Provetta/Prelevata / Specimen/Eprouvette / Larg.bare Sezza. / Bare Bars Diam. / Wide Bars, Thickness / Larg. diam. epais. mm | °C | Posiz. Saggio / Position / Emplacement / Y | Snervamento / Streckgrenze / Yield Stress / Limite élastique Rp 0,2% N/mm2 | Snervamento / Streckgrenze / Yield Stress / Limite élastique | Resistenza / Zugfestigkeit / Tensile strength / Resistance à traction Rm N/mm2 | Allungamento / Bruchdehnung / Elongation / Allongement E 4d % | | Strizione / Einschnürung / Reduction of area / Striction RA % | | Resilienza / Kerbschlagarbeit / Impact Value / Resilience | | | Durezza / Härte / Hardness / Dureté HB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 / Anforderungen/Required values / Valeurs demandées | | min / max | | 380 | - | 585 | - | 18 | - | 35 | - | | | 167 / 229 | | |
| A | 12.00 | 20 | L | 548 | | 656 | | 21 | | 51 | | | | 200 | | |

t)L=Longitudinale/Längs, Q=Trasversale/Quer, T=Tangenziale/Tangential

## Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata / Heat / Schmelze/Coulée | min - max 0,15 | - 1,00 | - 1,00 | 11,50 - 13,50 | - 0,50 | - 0,040 | - 0,030 | - | - | - | - | - | - | - | - |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 415174 | 0,15 | 0,41 | 0,77 | 12,52 | 0,24 | 0,020 | 0,026 | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,s.,4.3 by TUEV and LLOYD'S

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVAN VITTORIO
Sign .....

| Bolzano,10/11/04<br>Mod./BSL007 | Il collaudatore di stabilimento / der Werkssachverständige / Works Inspector / L'agent d'usine<br>R.Cristel | Pagina - 1 di 1 |
|---|---|---|

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** ***Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt***
Customer:

**Bestell-Nr.:** ***Lurgi Job – No.:*** ***69690-10***
Order no.: ***Lurgi OGC PO.-No.:*** ***4569247-000 to -001/1.69690/136***

*Project Name :* ***2nd Zagros Methanol Plant - Iran***

**Auftrag-Nr.:** ***HH – 02535- 01***
Job no.:

**Lieferumfang** / range:

| **Pos** | **Stck.** pcs. | **Gegenstand** object | **DN** | **PN** | **Werkstoff** material | **Bemerkung** comment |
|---|---|---|---|---|---|---|
| *00020* | *1* | *Gate valve*<br>*FB BB BW 6,35*<br>*Long pattern*<br>*Seats and Wegde Stell* | *1"* | *Cl.1500* | *A182/F22 C.3* | *Valve Ident – No.: " **S481** "* |

**Auslegung + Prüfung nach** API 602, API 598 / BS EN 12266-1
Design and tests acc. To ASME B16.34 – B16.25

**Sicht- und Funktionsprüfung:** *o.k.*
visual and functional test:

**Festigkeits-/Dichtheitsprüfung:**
strength-/tightness-test:

| | | | |
|---|---|---|---|
| *Festigkeit / shell test* | = | *388 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *285 bar Wasser / water* | (60 sec) |
| *Rückdichtung / backseat* | = | *285 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *6 bar Luft / air* | (60 sec) |

**Prüfungsergebnis:** *ohne Beanstandung !*
result: *no complaint !*

i. A. Walter Glass

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** *Dokumentation gemäß Material-Dokumentationsdeckblatt*
enclosure *Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter / Person in charge W. Glass

**Kommissions-Nr. / Reference No.**

**HH-02535-01**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4569247 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00020 | Gate Valve | " S481 " | 1 | Body | R-G46 | A182/F22 C.3 | Risetti | 51207 | | 001629300 |
| | 1" Cl. 1500 lbs. | Drawing No.: 652-7/150-L6 | | Wedge | | A182/F6a C.2 Stel. | Valbruna | 414430 | | 122852/2004 |
| | FB, BB, BW 6,35 LP, seats+wedge stel. | Rev. 3 | | Seat | | A182/F6a C.2 Stel. | Valbruna | 238300 | | 127568/2004 |
| | | | | Body Bolt | | ASTM A193/B16 | Molinari | AQ6810 | | 041653/2004 |
| | | | | Body Nut | | ASTM A194/Gr.4 | Morandi | 014606 | | 0233260 |
| | | | | Bonnet | Y-AA | A182/F22 C.3 | Iselfa | 51706/80 | | 6672 |
| | | | | Stem | | A182/F6a C.2 | Ugitech | 350031 | | 80208 |
| | | | | | | | | | | |
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**FRATELLI RISETTI S.R.L.**

21048 SOLBIATE ARNO (VA) - VIA TRIESTE, 4 - TELEFONO 0331/993.440-993.356 - STAB. VIA COLZANI, 41
TELEFONO 0331/994.088 - FAX 0331/992.247 - TELEGR. RISETTI - SOLBIATE ARNO
FF.SS. ALBIZZATE - SOLBIATE A. - CASELLA POSTALE N. 15 - C.C. POSTALE 19226218 - REG. FOR F.S. 09037
C.C.I.A.A. VARESE N. 206123 - ISCR. TRIB. BUSTO A. N. 21500 - C.F. P.IVA 01773060122

OMOLOGATI TUV SUDWEST

# CERTIFICATO PROVE MATERIALI

TEST CERTIFICATE
WERKSABNAHMEZEUGNIS
CERTIFICAT D'EMPREUVES

ACCORDO DIN 50049 3.1/B
EN 10204 /91-3.1/B

N. 990485 00162930

Data - Date - Datum - Date: 10.05.99

| Ordine del Cliente - Customer's - Bestellung - Commande du Client | Ns. Commessa - Mill order - Unsere Auftragsbestätigun Notre Configuration de Commande | Bolla di consegna - Delivery bill Lieferschein - Bulletin de livraison |
|---|---|---|
| 990242 DEL 4.3.99 DOUGLAS CHERO SPA | » | » |

| POS. ITEM POST | Quantità Quantity Stückzahl Quantité | DESCRIZIONE SPEDIZIONE - DESCRIPTION OF DELIVERY - UMFANG DER LIEFERUNG - DETAILS DU LOT<br>Descrizione - Description Beschreibung - Description | Disegno - Drawing Zeichnung - Dessin | Norma di collaudo - Test specification Abnahmenorm - Spécification | |
|---|---|---|---|---|---|
| 1 | 35 | CORPI 1"1500 STP.SRV.SABR. | 4/11-150 | A182 F22 | » |
| | » | » | » | » | » |
| | » | » | » | » | » |

ANALISI CHIMICA - CHEMICAL ANALYSIS - CHEMISCHE ZUSAMMENSETZUNG - COMPOSITION CHIMIQUE

| Codice di identificazione forgiato sui pezzi Heat identification code stamped on forging pieces | Colata N. Heat No. Schmelze Nr. No. de Coulée | C % | Si % | Mn % | Ni % | Cr % | S % | P % | Mo % | Cu % | Sn % | Al % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G46 | 51207 | 0,120 | 0,168 | 0,424 | 0,108 | 2,164 | 0,011 | 0,008 | 0,911 | 0,111 | | 0,016 |
| » | » | C.E. % | P.B. % | V% 0,009 | | | | | | | | |
| » | » | | | | | | | | | | | |

PROPRIETÀ MECCANICHE - MECHANICAL PROPERTIES - MECHANISCHE EIGENSCHAFTEN - ESSAIS MECANIQUES

| Colata N. Heat No. Schmelze Nr. No. de Coulée | Lega Alloy Legierung Alliage | Provetta Test bar Probestab Echantillon | Rs (N/mm²) Snervamento Yeld Point Streckgrenze Limit d'élasticité | R (N/mm²) Rottura Tensile strenght Zugfestigkeit Rupture | A (%) Allungamento Elongation Dehnung Allongement | Z (%) Contrazione Red. of area Einschnürung Contration | HB Hardness on forging pieces | Resilienza - Resilience Kerbschlagzähigkeit - Resil. Charpy V - Notch at minus |
|---|---|---|---|---|---|---|---|---|
| 51207 | » | » | 469 | 581 | 27 | 64,2 | | KV(J) KCU(J) |
| | | » | | | | | | |
| | | » | | | | | | |
| | | » | | | | | | |
| | | » | | | | | | |

14 MAG. 1999

DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.

Trattamento Termico
Thermal Treatment
Thermische Behandlung
Traitment Thermique

NORMALIZZATI E RINVENUTI
»

| JOMINY | mm | 1,5 | 3 | 5 | 7 | 9 | 11 | 13 | 15 |
|---|---|---|---|---|---|---|---|---|---|
| Nors. | HRC | | | | | | | | |
| Tespra | mm | 20 | 25 | 30 | 35 | 40 | 45 | 50 | |
| | HRC | | | | | | | | |

GRANO AUSTENTICO
austenite grain size check

Metodo: ISO 643-UNI3245-ASTM E112

Final Control on forging pieces and found: _____
Sandblasting SA 2 1/2: _____
Marking on pieces: _____
Visual Inspection: _____
Dimensional control: _____
Hardness test: _____

UFFICIO COLLAUDI - Inspection Department
Pruefungsabteil - Bureau d'inspection
F.lli RISETTI
Quality Assurance
VALERIO RISETTI
Sign.

**SORBIT** S.R.L.

SINCERT

# CERTIFICATO DI COLLAUDO DOPO T.T.

IN ACCORDO EN 10204-3.1.B

| DOCUMENTO / DOKUMENT | DATA / DATUM |
|---|---|
| L 3384/99 | 23/04/1999 |
| **N. BOLLA / LIEFERSCHEIN NR.** | **DATA BOLLA / LIEFERSCHEIN DATUM** |
| 147 | 22/04/1999 |

| COD. CLIENTE / AUFTRAGGEBER | | COD. | MATERIALE / WERKSTOFF | SPESS. MAX / MAX DICKE |
|---|---|---|---|---|
| 892 | OFF.MECC.F.LLI RISETTI SRL | F223 | F22 Cl.3 A182 | 60 |

| PEZZO / STÜCK | N. DISEGNO / ZEICHNUNGS-NR. | ORDINE / BESTELLUNG | COMMESSA / AUFTRAG | N. COLATA / SCHMELZE-NR. | RICHIESTE / ANFRAGEN | QUANTITA' / ANZAHL | PESO Kg. / GEWICHT/Kg. | CONTENITORI / BEHÄLTER |
|---|---|---|---|---|---|---|---|---|
| CORPI | 4/11-150 | | | G46 | HB 156-207 | 35 | 630,0 | CASSONE 1 |

## LAVORAZIONE E/O TRATTAMENTO TERMICO RICHIESTO / DIE VERLANGTE AUSFÜHRUNGV / O WÄRMEBEHANDLUNGS

| COD. | DESCRIZIONE / BESCHREIBUNG | T. PARTENZA °C / AUSGANGS-TEMP. | t. SALITA h. / AUFHEIZZEIT | T. PERM.°C / DURCHHALTETEMPERATUR | t. PERM. h / HALTEZEIT | RAFFREDD. / ABKÜHLEN | FORNO N. / OFEN | SPECIFICHE / SPEZIFIKATION |
|---|---|---|---|---|---|---|---|---|
| TDH | NORMALIZZAZIONE A.T. | | | 970 | 1,50 | ARIA | 10/2 | P-07/6 REV.0 |
| R | RINVENIMENTO | | | 680 | 3,00 | ARIA | 8 | |

**ALTRE RICHIESTE / SONSTIGE ANFRAGEN**

| | |
|---|---|
| dtf | X |
| TUV | |
| ddc | |
| rem | |
| rcp | |

% PROVA / PROBEN

## COLLAUDO / ABNAHMEPRÜFUNG

**DUREZZE RILEVATE**

HBS 163

**PEZZI PROVATI / PRÜFGGENSTAND**

2

**NOTE / BEMERKUNGEN**

DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.

**ALLEGATI / ANLAGEN**

DIAGRAMMA N26903

**IL RESPONSABILE CONTROLLO QUALITA' / DER WERKSSACHVERSTÄNDIGE**

SORBIT s.r.l.
RSQ Giulio Somaschini

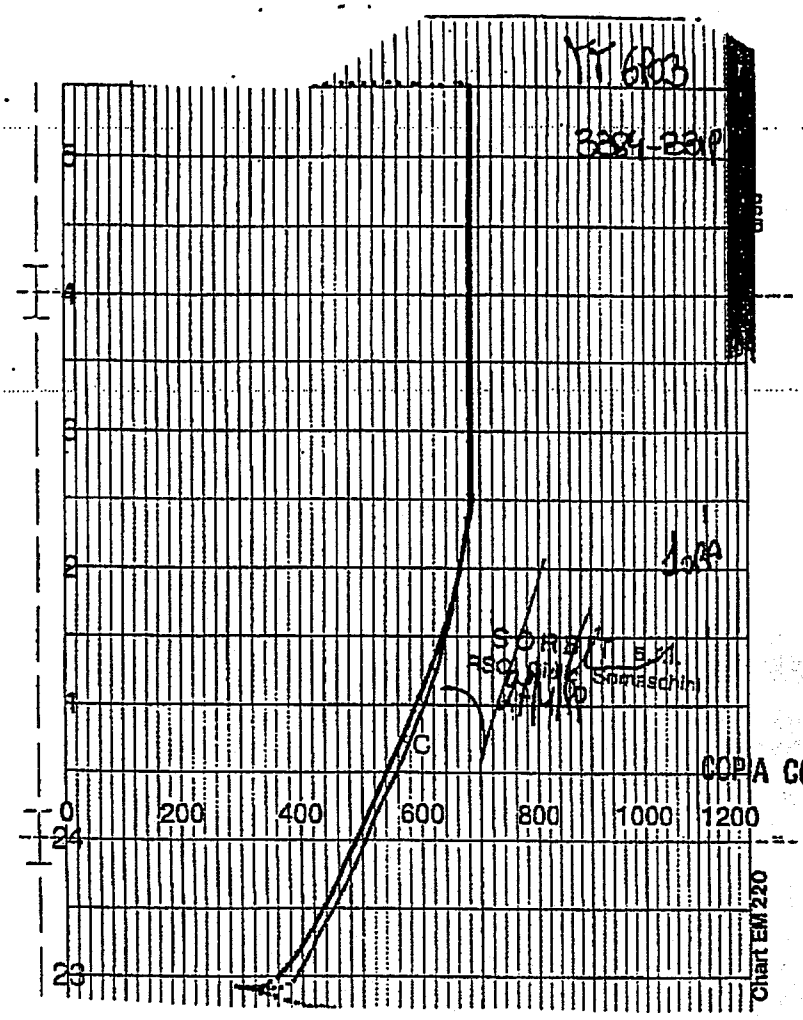
**DATA / DATUM**

27/ 4/1999

| Scheda n. | Data | Revisione | Chi archivia |
|---|---|---|---|
| S-10/1 | 04/95 | 0 | RSQ |

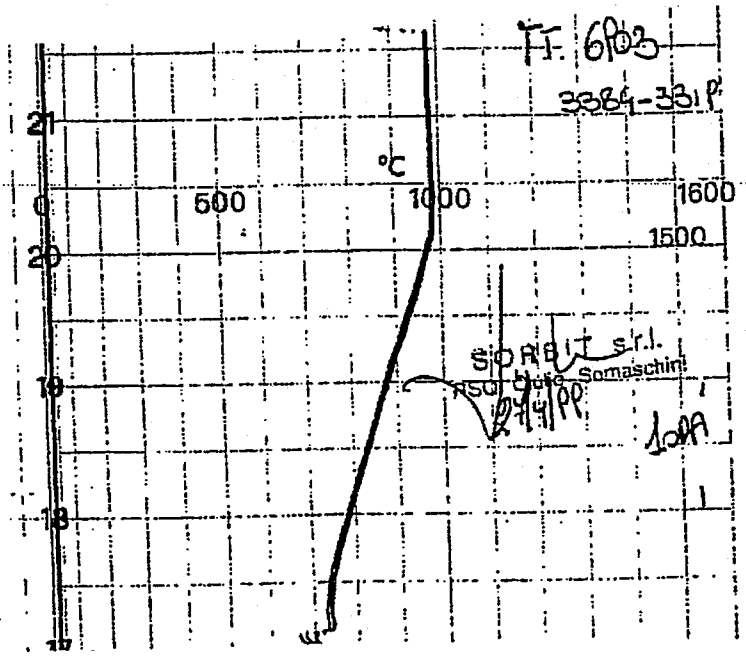
TÜV

AD-Merkblatt W0/HP 0 /1/TDR 100




COPIA CONFORME ALL'ORIGINALE
*SORBIT CQ*

**DOUGLAS CHERO Spa**
Quality Assurance
P.C. STEVANI VITTORIO
Sign. .....



# Acciaierie Valbruna S.p.A.

# CERTIFICATO DI COLLAUDO
# ABNAHMEPRUEFZEUGNIS
# INSPECTION CERTIFICATE
# CERTIFICAT DE RECEPTION
# EN 10204 , 3.1.B

36100-VICENZA (Italia) - Viale della scienza, 25 z.i.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Besteller/Purchaser/Client
VERRI & PINA SRL
VIA TERRAROSSA, 10 - C.P. N.28
22035-CANZO (CO)-CO

Produttore: STABILIMENTO DI BOLZANO
Herstellerwerk/Usine productrice

Avviso di Spedizione: A-BZ04005088
Lieferanzeige/Packing list P.L.

Ordine nr: 94-95-97-103
Dated/Your order/Commande

Certificato nr: MEST122852/2004/
Prüfung/Test/Essai

Conferma ordine nr: MI04002883
Werks/Our Order/Ref nr.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice

Oggetto Prova: - Ricotto lavorabile Pelato
Prüfgegenstand/Item inspected/Fabrique

Tipo di Elaborazione: E+AOD
Erschmelzungsverfahren/Melting process/Mode d'elaboration

Punzone del Collaudatore:
Stempel des Werksachverständigen
Inspector's stamp/Poinçon de l'essayeur

SC

4422

Specifiche:
Anforderungen / Requirements / Exigences
ASTM A182 2000C S41000 CLASS2 (0)
(0) Chemical analysis only and mecc.properties(for ASTM A182[M])

Qualità: 410
Werkstoff/Grade/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Nuance

Punzonatura: 410
Kennzeichnung/Marking/Marquage

| Pos. nr. / Pce. nr. / Item nr. / Nr. de poste | Oggetto / Description / Designation / Désignation du produit | Dimensioni - mm / Abmessungen / Dimension / Dimension | Tolleranza / Toleranz / Allowance / Tolérance | Lunghezza - mm / Länge / Length / Longueur | Colata / Schmelze / Heat / Coulée | Pezzi / Stückzahl / Pieces / Pièces | Peso - Gewicht / Weight / Poids | Lotto nr. / Losnr. / Lot nr. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0050 | Tondo | 25,000 | | 5000 / 5500 | 414430 | | 3707,0 | 409202560 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind il. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le produit a été livré conforme aux exigences

Controllo antimescolanza: OK
Verwechslungsprüfung/ spectrometrisch durchgeführt
Anti-mixing testing performed: OK
Contrôle anti-mélange fait / a.m.

Controllo visivo e dimensionale: soddisfa le esigenze:
Sichtprüfung und Abmessung: ohne Beanstandung
Visual inspection and dimensional checkup: finishing
Contrôle visuel et dimensionnel: satisfaisant

| TEST | Provetta / Probestab / Eprouvette: Lung. Base Sezza. / Lang. Basis Quer. / Gauge Length Diam. / Mesh Elem. Thickness / Long. Base Epais. mm | °C | Posiz. Saggio / Probenlage / Position de l'échantillon | Snervamento / Streckgrenze / Yield Strength / Limite d'allongement Rp 0,2% N/mm2 | Snervamento / Streckgrenze / Yield Strength / Limite d'allongement | Resistenza / Zugfestigkeit / Tensile Strength / Résistance à traction Rm N/mm2 | Allungamento / Dehnung / Elongation / Allongement E 4d % | | Strizione / Einschnürung / Reduction of area / Striction RA % | | Resilienza / Kerbschlagarbeit / Impact Value / Resilience | | | Durezza / Härte / Hardness / Dureté HB | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 / Anforderungswerte/Required values / Valeurs demandées | | min / max | | 380 | - | 585 | - | 18 | - | 35 | - | | | 167 / 229 | |
| A | 10,00 | 20 | L | 534 | | 688 | | 31 | | 70 | | | | 216 | |

1) A=Lng/Laterale/Long, D=trasversale/trans, T=Tangenziale/tangential

## Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata / Heat / Schmelze/Coulée | min - max 0,15 | - 1,00 | - 1,00 | 11,50 - 13,50 | - 0,50 | - 0,040 | - 0,030 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 414430 | 0,13 | 0,44 | 0,72 | 12,36 | 0,24 | 0,024 | 0,030 | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,s.4.3 by TUEV and LLOYD'S

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

| | | |
|---|---|---|
| Bolzano, 15/07/04 | Il collaudatore di stabilimento / der Werkssachverständige / Works Inspector / L'agent d'usine<br>R.Cristel | Pagina - 1 di 1 |

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

## CERTIFICATO DI COLLAUDO
## ABNAHMEPRUEFZEUGNIS
## INSPECTION CERTIFICATE
## CERTIFICAT DE RECEPTION
## EN 10204 , 3.1.B

Ø 26
F6 Ric

Cliente / Kunde/Purchaser/Client: ACCIAI SPECIALI TERNI S.p.A.

Avviso di Spedizione: A-BZ04606561
Lieferanzeige/Packing list/B.L.

Certificato nr: MEST127568/2004/
Prüfung/Test/Essai

Conferma ordine nr: MI04001328
Werks/Our Order/Ref nr.

Produttore: STABILIMENTO DI BOLZANO
Hersteller/Item/Usine produttrice

Ordine nr: DD. 11.2.04
Bestell/Your order/Commande

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice

Oggetto Prove: - Ricotto lavorabile Pelato
Prüfgegenstand/Item tested/Prélevage

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'élaboration

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'essayeur

Specifiche:
Anforderungen / Requirements / Exigences

BELLEBONO 2004 410 HRC<22 A - ASTM A182 2002 S41000 (0)
(0) Chemical analysis only.

Qualità: 410
Güte/Grade/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Marque

Punzonatura: T.410
Kennzeichnung/Marking/Marquage

| Pos. nr. / Pos. nr. / Item nr. / N. de poste | Oggetto / Bezeichnung / Product description / Descrip. du produit | Dimensioni - mm / Abmessungen / Dimension / Dimension | Tolleranza / Toleranz. / Allowance / Tolerance | Lunghezze - mm / Länge / Length / Longueur | Colata / Schmelze / Heat / Coulée | Pezzi / Stückzahl / Pieces / Pièces | Peso - Kg / Gewicht / Weight / Poids | Lotto nr. / Los nr. / Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0100 | Tondo | - 26,000 | K12-MIN | 3900 / 4000 | 238300 | | 2482,0 | 405400200 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind it. Anlage erfüllt
The material has been Annealed in accordance with the requirements
Le matériel à été livré conforme aux exigences

Controllo antimescolanza: OK
Verwechslungsprüfung: spektralanalytisch durchgeführt
Analysing testing performed: OK
Contrôle antimélange fait: p.a.s.

Controllo visivo e dimensionale: soddisfa le esigenze:
Sichtprüfung und Ausmessungs ohne Beanstandung
Visual inspection and dimensional checks satisfactory
Contrôle visuel et dimensionel: satisfaisant

| TEST | Provetta/Probestab/Test piece/Eprouvette Direzione/Richtung/Direction/Direction Lung./Long./Long./Long. Diam./Diam./Diam./Diam. Vinc./Bdg./Pli/Pli Lung. utile/Gauge length/Longueur utile mm | °C | Prova/Test/Essai Stato/Condition/Etat | Snervamento / Streckgrenze / Yield Stress / Limite d'écoulement Rp 0,2% N/mm2 | Snervamento / Streckgrenze / Yield Stress / Limite d'écoulement | Resistenza / Zugfestigkeit / Tensile strength / Résistance à traction Rm N/mm2 | Allungamento / Bruchdehnung / Elongation / Allongement E 4d % | | Strizione / Einschnürung / Reduction of area / Striction RA % | | ResBenza / Kerbschlagarbeit / Impact Value / Résilience | | | Durezza / Härte / Hardness / Dureté HRc | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 / Anforderungen/Required values/Valeurs demandées | | min / max | | - | - | - | - | - | - | - | - | | | - | - | 22,0 |
| A | 10.00 | 20 | L | 412 | | 684 | | 32 | | 68 | | | | 15,0 | | |

1)L=long.ludinale/Längs, Q=trasversale/quer, T=Tangenziale/Tangential

## Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata / Heat / Schmelze/Coulée | min - max 0,15 | - 1,00 | - 1,00 | 11,50 - 13,50 | - 0,50 | - 0,040 | - 0,030 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | |
| 238300 | 0,14 | 0,49 | 0,78 | 12,25 | 0,29 | 0,023 | 0,028 | | | | | | | | |

Made in Italy  No welding or weld repair  Material free from Mercury or radio-activity contamination
The Quality Management System is Certified acc. Pressure Equipment Directive (97/23/EC) Annex 1,s.4.2 by TUEV and LLOYD'S

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign .....

COPIA CONFORME ALL'ORIGINALE
ACCIAIERIE VALBRUNA S.P.A.
FILIALE DI CORMANO

| Bolzano,27/07/04 | Il collaudatore di stabilimento / der Werkssachverständige / Works inspector / L'agent d'usine | Pagina - 1 di 1 |
|---|---|---|
| Mod.MBL011 | R.Cristel | |

241989 01

TORNERIA MECCANICA
**VINCENZO MOLINARI**
29100 Piacenza Italy - Via S. Bartolomeo, 136
Tel. 0523/59.32.61 - Fax 0523/59.27.47
R.E.A.PC N° 106098 - R.I. PC N° 28139/1996

SINCERT

# CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 3.1 B

N° 041653/2004

DATE 13/05/2004

CLIENTE / *PURCHASER*: DOUGLAS CHERO S.P.A.

COMMESSA N° / *JOB N°*: 040396

ORDINE N° / *ORDER*: 240623 15/03/2004

NOTE / *REMARKS*:

DESCRIPTION OF MATERIAL: STUD BOLTS B16.5 ASTM A 193 -01b B16 (QT) (MT)
01) N. 100 D.1/2"UNC x 90

## MECHANICAL REQUIREMENT

| | R N/mm2 | Rp N/mm2 | A % 50mm | Z % | KV/J | HB | HB 24h Proof 540C * LoadKN |
|---|---|---|---|---|---|---|---|
| REQUIRED MIN | 860 | 725 | 18 | 50 | | | |
| REQUIRED MAX | | | | | | 321 | |
| 01) | 938 | 794 | 20.6 | 62.0 | | 284 | |

## CHEMICAL ANALYSIS

| HEAT N° | C | Mn | Si | P | S | Ni | Cr | Mo | V | Al |
|---|---|---|---|---|---|---|---|---|---|---|
| REQUIRED MIN | 0.360 | 0.450 | 0.150 | | | | 0.800 | 0.500 | 0.250 | |
| REQUIRED MAX | 0.470 | 0.700 | 0.350 | 0.035 | 0.040 | | 1.150 | 0.650 | 0.350 | 0.015 |
| 01) AQ6810 | 0.390 | 0.600 | 0.240 | 0.013 | 0.012 | | 1.060 | 0.640 | 0.300 | 0.009 |

18 MAG. 2004

*DOUGLAS CHERO Spa*
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign .....

WE CERTIFY THAT OUR TEST RESULTS WITH REQUIREMENTS OF THE PRODUCT DESCRIPTION. CONF. TO DIN 50049 3.1 B.
(QT):HEAT TREATMENT: QUECHED TEMPERED (CST):CARBIDE SOLUTION TREATED
(MT):MINIMUM TEMPERING: 660 C
(H):HARDENED (N):NORMALIZED (SB):STABILIZED (SH):STRAIN HARDENED
(ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED ABOVE HAS BEEN TESTED AND COMPLIES WITH THE TERMS OF THE ORDER CONTRACT

Q. A. MANAGER
*Dott. Ing. V. MOLINARI*

Officina Meccanica
VINCENZO MOLINARI
Via S. Bartolomeo, 136
29100 PIACENZA

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948

E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129


**CERTIFICATO DI COLLAUDO** 0332600
Inspection certificate

N°5882/DCH DATE-09.02.04

CLIENTE- DOUGLAS CHERO Spa ORDINE- 049 BOLLA CONSEGNA N-430.
Customer Order Delivery note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| 1 | 428 | DADI-NUTS 1/2 UNC | Astm A194 GR.4 | 014606 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Mo | S | P |
|---|---|---|---|---|---|---|---|
| REQUIRED | min. | 0,40 | 0,70 | 0,15 | 0,20 | | |
| VALUE | max. | 0,50 | 0,90 | 0,35 | 0,30 | 0,040 | 0,035 |
| HEAT n. 014606 | | 0,416 | 0,789 | 0,175 | 0,275 | 0,028 | 0,012 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

Hardness test during production
Required value : 24-38 Hrc
Actual : 26-29 Hrc

Hardness test after 24 hrs. tempering at 590 °C
Required value : 201 HB min.
Actual : 240-260 HB

Impact test KV - 101 °C
Minimum impact for average test : 27 J min.
Minimum impact for one specimen : 20 J min.
Single values : 36-33-33 J
Average : 34 J

HEAT TREATMENT
Quenched at : 860 °C in oil
Tempering : 2 hours at 595 °C min.

Proof load test: POSITIVE
Visual and dimensional test = SATISFACTORY

13 FEB. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign. .....

This certificate has been tested in according with the specification included in your order.

QUALITY CONTROL

MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

ISELFA
STEEL FORGINGS
ELECTRING FITTINGS
S.r.l. - C.F./P.IVA VAT IT 00189520125
21048 SOLBIATE ARNO (Va) Italy - Corso Roma, 22
P.O. BOX 21 - TELELEFONO +39 (331) 99.30.08
FAX FORGINGS +39 (331) 99.15.35 - FAX FITTINGS +39 (331) 99.46.77

00170180C

# CONTROLLO QUALITÀ

Certificato di conformità
Compliance certificate
Gemoess Zeugnis
UNI EN 10204/3.1.B

N° 6672 — Data / Date 22.11.99

CLIENTE / Customer / Kunde: DOUGLAS CHERO SPA
ORDINE N° / Order / Bestellung: 995073
DATA / Date / Datum: 15.09.99

RIMESSO N° / Delivery note / Lieferschein: 2343
DATA / Date / Datum: 22-11-99
N° PEZZI / Pieces / Stuckzahl: 127

DESCRIZIONE - Description - Dezeichnung: CAPPELLI 1"-1500
DISEGNO N° - Drawing - Zeichnung: Dis.4/10
INDICE - Last revision - Verzeichnis: Rev.0

TIPO ACCIAIO / Steel type / Stahl: F.22 BILL.80
COLATA / Heat / Schmelze: 51706/80
FORNITORE / Supplier / Lieferant: ACCIAIERIE BERTOLI SAFAU SPA

COMPOSIZIONE CHIMICA / Chemical composition / Chemische Zusammensetzung

CARATTERISTICHE ACCIAIO

| % | C | Mn | Si | Cr | Mo | P | S | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA min / Requested / Erforderikhe max | 0,050 / 0,150 | 0,300 / 0,600 | 0,500 | 2,000 / 2,500 | 0,870 / 1,130 | 0,040 | 0,040 | | | | |
| FORNITA / Supplied / Wirklche | 0,1030 | 0,3400 | 0,1000 | 2,2700 | 0,9300 | 0,0140 | 0,0050 | | | | |

PROVA JOMINY / Jominy test / Stimabschreckversuch

| HRC | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA min / Requested / Erforderikhe max | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | GRANO / Grain size / Korngrosse |
| FORNITA / Supplied / Wirklche | | | | | | | | | | | | |

CARATTERISTICHE MECCANICHE / Mechanical properties / Mechanische Eigenscheften — Normalizzato ☐ Bonificato ☐

| Ø PROVETTA / Ø sample / Ø probest | RP 0,2% / Yield strenght 0,2% / 0,2% Grenze | R / Tensile strenght / Zugfestigkeit | A% / Elongation % / Dehnung % | Z % / Reduc. of area % / Einschnurung % | KCU / Impact value / Kerbschlang |
|---|---|---|---|---|---|
| mm | N/mm² | N/mm² | Lo = 5d | | J (joule) |
| | 432 | 538 | 27 | 77 | 0 / 0 / 0 |

CARATTERISTICHE PRODOTTO

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| TRATT. TERMICO / Heat Treatement / Warmebehandlung: NORMALIZZ+RINV | DUREZZA RICHIESTA / Requested hardness / Festigkeit: N/mm² | | | | | | | | |
| DUREZZA RISCONTRATA N/mm² / Checked hardness / Finden harte | 0 / 0 | 0 / 0 | 0 / 0 | 0 / 0 | 0 / 0 | 0 / 0 | 0 / 0 | 0 / 0 | |

CONTROLLI / Tests / Ausmabetest: C.D.C. MAGNAFLUX 100% — SI; VISIVO 100% — NO
DIMENSIONALE: POSITIVO — SI
ALTRI: NO
ALLEGATI / Enclosed / Anlage: ANALISI CHIMICA ACCIAIERIA — SI; CERTIFICATO TRATT. TERMICO — NO
PRODOTTO AUTOCERTIFICATO: 25 NOV. 1999

DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.

NOTE / Remarks / Bemerkungen: TRATT:RISCALDO A 960C PER1 ORA OGNI 25 mm. DI SPESSORE E RAFFR. IN ARIA CALMA. SUCCESSIVO RISCALDO A 735-750C PER 2 ORE OGNI 25 mm. DI SPESSORE E RAFFREDDAMENTO IN ARIA CALMA. / SIGLA COLATA "AA"

CONTROLLO QUALITÀ / QUALITY CONTROL / QUALITATSSTELLE: ISELFA UFFICIO CONTROLLO QUALITÀ
COMPILATORE: ISELFA SOLBIATE ARNO

EMESSO ED ARCHIVIATO DAL RESPONSABILE DEL CONTROLLO FINALE (CFI)

MOD. CF. 17 Rev. 2 del 11/01/95 — I / IMPAGGIO

UGITECH
Groupe Arcelor

FRANCE

| | |
|---|---|
| 4 N. Nr No 80208 | 11 N. de commande usine-Werksbestellnummer-Works order number FUGE TEJE 01/01 8Z101000 Q |

3

# CERTIFICATO COLLAUDO DI ACCETTAZIONE B
# CERTIFICAT DE RECEPTION 3.1.B
# INSPECTION CERTIFICATE B

EN 10204 / 3.1.B

5 Usine Productrice Hersteller Manufacturer: **UGINE** F 73403 UGINE CEDEX Tél : 04.79.89.30.20 Fax : 04.79.89.30.51

Produit Erzeugnisform Product: IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE — 6

Client et/ou destinataire - Besteller und/oder Empfaenger - Purchaser and/or Consignee 9: TECNOMECCANICA SRL

N. de commande client - Kundebestellnummer - Purchaser order number 10: 364

Nuance et spécifications techniques - Stahlsorte und Pruefbedingungen - Quality and Specifications 12: IMA4006 410 AISI 410 UNS S41000
SPEC. SDA 09 DU 20/11/01 (SAUF MN)

Etat de livraison - Lieferzustand - As delivered (1) 13: TEMPRATO RINVENUTO

Traitement de Référence - Probestreifenbehandlung - Treatment of test samples (1) 14:

| Identification du produit Erzeugnis Benennung-Product identification N. de cde usine Werksbestellnummer Works order number 15 | N. de poste Post Nr Item No 17 | N. de Coulée Schmelz Nr Heat No 16 | Nombre Stueckzahl Pieces Nbr 18 | Profil Profile Shape 19 | Dimension Ausmessung Dimension 20 | Longueur Laenge Length 21 | Masse Gewicht Weight 22 |
|---|---|---|---|---|---|---|---|
| 8Z101 000 | | 350031 | 190 | TONDO | 20,000 | | 1974 KG |

Traction - Zugversuch - Tensile test

| Prélèvement Probenummer Test N. 39 B | Demandé Vorschrift Required (3) | Sens Richtung Direction | Température d'essai Pruefungstemperatur Test Temperature 24 25 | Limite d'Elasticité Streckgrenze Yield Strength 0,2 % 26 A | Limite d'Elasticité Streckgrenze Yield Strength 1 % 26 B | Résistance à la traction Zugfestigkeit Tensile strength 27 | Allongement Dehnung Elongation (L = 5d) 28 | Striction Einschnuerung Red of Area 29 | Dureté Haerte Hardness (4) 30 | Type Form Type 31 | Sens Richtung Direction (3) 32 | Température d'essai Pruefungstemperatur Test Temperature 33 | Valeurs individuelles Einzelwerte Individual Values 36 | Moyenne Mittelwerte Average 38 | Dureté Haerte Hardness (5) 37 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | L | °C | MPA | MPA | MPA | % | % | | | | | | | HB |
| | Min | | 20 | 275 | | 585 | 20 | 45 | | | | | | | |
| | Max | | | | | | | | | | | | | | 237 |
| | (4) | | | | | | | | | | | | | | |
| | (5) | | | 607 | | 684 | 21 | 72 | | | | | | | 205 |

| 39 A N. de Prélèvement Probenummer Test N. | Demandé Vorschrift Required | | 42 C | 43 SI | 44 MN | 45 NI | 46 CR | 47 S | 48 P | 49 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Min | | | 0,30 | | 11,50 | | | | |
| | | Max | 0,150 | 0,60 | 0,60 | | 13,50 | 0,030 | 0,040 | | |
| | N. de Coulée Schmelz Nr Heat N. | Analyse Produit-Stück analyse-Check Analysis | 0,107 | 0,42 | 0,38 | 0,35 | 12,18 | 0,022 | 0,019 | | |
| 350031 | | | | | | | | | | | |

| 38 Mode d'élaboration Erschmelzungsart Melting process | Demandé Vorschrift Required | 51 | 52 | 53 | 54 | 55 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Electrique Elektrisch Electric | Min | | | | | | | | | | |
| | Max | | | | | | | | | | |

IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE

06 MAG. 2004

DOUGLAS CHERO Spa

Quality Assurance .....

P.C. STEFANI VITTORIO

Sign .....

56

(3) L = Long Laengs - Long T = Travers Quer-Transverse 58

(1) TE = Trempé à l'eau - Wasserhaerten - Waterquench; TH = Trempé à l'huile - Oilharten - Oil Quench; A = Hypertrempé - Losungsgegluht - Solution annealed; R = Revenu - Anlassen - Tempered; RT = Recuit - Geglueht - Annealed; TRM = Recuit mixt - Weichgegluht - Mixt annealed 7

(4) A l'état de référence Zum Bezug Zustand At reference condition 60 A

(5) A l'état de livraison In Lieferzustand In state of delivery 60 B

Contrôles de marquage, d'aspect et de dimensions satisfaisants
Bezeichnung, Beschichtung und Ausmessung : ohne Beanstandung
Marking, inspection and measurement : without objection 62

Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande
Wir bestaetigen hiermit dass die obengenannten Erzeugnisse den Bestellungsvorschriften entsprechen
We certify hereby that the above mentioned products are consistent with the order prescriptions 66

Usine, le 15-01-04
L'Agent Réceptionnaire de l'usine
Der Werksachverstaendige
The Work Inspector
H. Mayet 63

KLAUS UNION

Postfach 10 13 49
D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

# Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate

**Besteller:** ***Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt***
Customer:

**Bestell-Nr.:** ***Lurgi Job – No.:*** ***69690-10***
Order no.: ***Lurgi OGC PO.-No.:*** ***4569247-000 to -001/1.69690/136***

*Project Name :* ***2nd Zagros Methanol Plant - Iran***

**Auftrag-Nr.:** ***HH – 02535- 01***
Job no.:

**Lieferumfang** / range:

| **Pos** | **Stck.** pcs. | **Gegenstand** object | **DN** | **PN** | **Werkstoff** material | **Bemerkung** comment |
|---|---|---|---|---|---|---|
| *00030* | *1* | *Gate valve*<br>*FB BB NPT+2*<br>*Weld nipples Sc.160*<br>*Seats and Wegde Stell* | *3/4"* | *Cl.1500* | *A182/F22 C.3* | *Valve Ident – No.: " **S480** "* |

**Auslegung + Prüfung nach** API 602 – BS EN ISO 15761, API 598 / BS EN 12266-1
Design and tests acc. To ASME B16.34 – B16.25 – B16.11 – B1.20.1

**Sicht- und Funktionsprüfung:** *o.k.*
visual and functional test:

**Festigkeits-/Dichtheitsprüfung:**
strength-/tightness-test:

| | | | |
|---|---|---|---|
| *Festigkeit / shell test* | = | *388 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *285 bar Wasser / water* | (60 sec) |
| *Rückdichtung / backseat* | = | *285 bar Wasser / water* | (60 sec) |
| *Dichtheit Sitz / seat* | = | *6 bar Luft / air* | (60 sec) |

**Prüfungsergebnis:** *ohne Beanstandung !*
result: *no complaint !*

*Bochum, den 28.02.2005 - WG* **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: Walter Glass

**Anlage:** *Dokumentation gemäß Material-Dokumentationsdeckblatt*
enclosure *Documentation acc. to material cover sheet*

KLAUS UNION

# Materialdokumentations - Deckblatt
# Material Cover Sheet

Datum / Date 25.02.2005
Seite / Page 1
Sachbearbeiter / Person in charge W. Glass

**Kommissions-Nr. / Reference No.**

**HH-02535-01**

Lurgi Job - No.: **69690-10**
Lurgi OGC PO,- No.: **4569247 - 000 to -001/ 1.69690 / 136**

**Project Name:** **2nd Zagros Methanol Plant - Iran**

| Pos. | Benennung | Spezifikation | Stück | Bauteil | Heat-Nr. | Werkstoff | Hersteller | Chargen-Nr. | Probe | Zeugnis-Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Designation | Valve Ident - No.: | Pc. | Piece parts | Heat-Code | Material | Manufacturer | Heat No. | Sample No. | Cert. No. |
| 00030 | Gate Valve 3/4" Cl. 1500 lbs. FB, BB, NPT+2 weld.nipples SC.160, seats+wedge stell. | " S480 " | 1 | Body | Y-BH | A182/F22 C.3 | Iselfa | 408714/80 | | 17934 |
| | | Draw. No.: BX652-7/TH-2N6 | | Nippl.Sch.160 | 580701 | ASTM A335/P22 | Benteler | 580701 | | 41-170009/001 |
| | | Rev. 1 | | Wedge | | A182/F6a C.2 Stel. | Valbruna | 238209 | | 128331/2004 |
| | | | | Seat | | A182/F6a C.2 Stel. | Valbruna | 236784 | | 055587/2003 |
| | | | | Body Srew | | ASTM A193/B16 | Morandi | AQ2869 | | 6126 |
| | | | | Bonnet | Y-BA | A182/F22 C.3 | Iselfa | 414853/60 | | 17900 |
| | | | | Stem | | A182/F6a C.2 | Ugitech | 350031 | | 80208 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
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| | | | | | | | | | | |
| | | | | | | | | | | |

18.04.2005

ISELFA
STEEL FORGINGS
ELECTRING FITTINGS
S.p.A. - C.F./P. IVA IT 00189520125
21048 SOLBIATE ARNO (Va) Italy - Corso Roma, 22
Casella Postale n. 57 - TELEFONO +39 0331 99 30 08
FAX FORGINGS +39 0331 99 15 35 - FAX FITTINGS +39 0331 99 46 77

ICIM ISO 9001 - Cert. n° 0163/2

# CONTROLLO QUALITÀ

Certificato di conformità
Compliance certificate
Gemaess Zeugnis
UNI EN 10204/3.1.B

| N° | Data / Date |
|---|---|
| 17934 | 24.01.05 |

CLIENTE / *Customer* / *Kunde*: DOUGLAS CHERO SPA

ORDINE N° / *Order* / *Bestellung*: 241946

DATA / *Date* / *Datum*: 01.10.04

RIMESSO N° / *Delivery note* / *Lieferschein*: 500086

DATA / *Date* / *Datum*: 24-01-05

N° PEZZI / *Pieces* / *Stuckzahl.*: 103

DESCRIZIONE - *Description* - *Dezeichnung*: CORPI

DISEGNO N° - *Drawing* - *Zeichnung*: Dis. N6/93

INDICE - *Last revision* - *Verzeichnis*: Rev.1

TIPO ACCIAIO / *Steel type* / *Stahl*: ASTM-A.182 F.22 C/LAVORAZIONE

COLATA / *Heat* / *Schmelze*: 408714/80

FORNITORE / *Supplier* / *Lieferant*: ACCIAIERIE VALBRUNA SPA

COMPOSIZIONE CHIMICA / *Chemical composition* / *Chemische Zusammensetzung*

CARATTERISTICHE ACCIAIO (FORNITE DALL'ACCIAIERIA)

| % | C | Mn | Si | Cr | Mo | P | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA min / *Requested* / *Erforderlkhe* max | | | | | | | | | | | |
| FORNITA / *Supplied* / *Wirklche* | 0,09 | 0,46 | 0,39 | 2,34 | 0,94 | 0,016 | | | | | |

PROVA JOMINY / *Jominy test* / *Stimabschreckversuch*

| HRC | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA min / *Requested* / *Erforderlkhe* max | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | GRANO / *Grain size* / *Korngrosse* |
| FORNITA / *Supplied* / *Wirklche* | | | | | | | | | | | | |

CARATTERISTICHE MECCANICHE / *Mechanical properties* / *Mechanische Eigenschaften*  Normalizzato ☐  Bonificato ☐

| Ø PROVETTA / *Ø sample* / *Ø probest* mm | RP 0,2% / *Yield strenght 0,2%* / *0,2% Grenze* N/mm² | R / *Tensile strenght* / *Zugfestigkeit* N/mm² | A% / *Elongation %* / *Dehnung %* Lo = ζd | Z % / *Reduc. of area %* / *Einschnurung %* | KCU / *Impact value* / *Kerbschlang* J (joule) |
|---|---|---|---|---|---|
| 12,5 | 456 | 621 | 35 | 78 | 0 / 0 / 0 |

CARATTERISTICHE PRODOTTO

| | | | | | |
|---|---|---|---|---|---|
| TRATT. TERMICO / *Heat Treatement* / *Warmebehandlung* | NORMALIZ RINVEN | DUREZZA RICHIESTA / *Requested hardness* / *Fasligkeit* | N/mm² | | |
| DUREZZA RISCONTRATA N/mm² / *Checked hardness* / *Finden harte* | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 |

| | | | | |
|---|---|---|---|---|
| CONTROLLI / *Tests* / *Ausmabetest* | C.D.C. | SI | DIMENSIONALE | POSITIVO |
| | MAGNAFLUX 100% | NO | ALTRI | NO |
| | VISIVO 100% | SI | | |
| ALLEGATI / *Enclosed* / *Anlage* | ANALISI CHIMICA ACCIAIERIA | SI | PRODOTTO AUTOCERTIFICATO | ☐ |
| | CERTIFICATO TRATT. TERMICO | NO | | |

NOTE / *Remarks* / *Bemerkungen*:
TRATT:RISCALDO A 960C PER 1 ORA OGNI 25MM E RAFFREDDATI IN ARIA
RISCALDO A 735/750C PER 2H OGNI 25MM E RAFFREDDATI IN ARIA.
SIGLA DI COLATA "BH"

CONTROLLO QUALITÀ / *QUALITY CONTROL* / *QUALITATSSTELLE*

ISELFA S.p.A. SOLBIATE ARNO (VA)

COMPILATORE

ISELFA S.p.A.
UFFICIO CONTROLLO QUALITA'
STAMPAGGIO

EMESSO ED ARCHIVIATO DAL RESPONSABILE DEL CONTROLLO FINALE (CFI)

TAD COMMERCIALE
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THIS DOCUMENT IS REPRODUCED BY A COMPUTERIZED SYSTEM AND IS CONFORM TO THE ORIGINAL

Benteler Aktiengesellschaft
Postfach 1340, D-33043 Paderborn
Tel.: (05254) 81-0 Telex: 936866
Telefax: (05254) 13666

BENTELER

# ABNAHMEPRÜFZEUGNIS EN 10204-3.1 B
INSPECTION CERTIFICATE EN 10204-3.1 B
CERTIFICAT DE RECEPTION EN 10204-3.1B



**Dokument-Nr.:** 41-170009/001/2612
Document No.:
No. de document:

**Kunden-Bestell-Nr.:** L 980139, 2512/BAG/98
Purchaser Order No.:
No. de commande client:

**Benteler-Auftrags-Nr.:** 4139-1409
Benteler Order No.:
No. de commande Benteler:

**Versandanzeige-Nr.:** 41-20085
Dispatch note No.:
No. d'avis d'expédition:

**Produkt:** NAHTLOSE STAHLROHRE
Product: SEAMLESS STEEL TUBES
Produit: TUBES D'ACIER SANS SOUDURE

**Stahlsorte:** P 22
Steel grade:
Nuance d'acier:

Benteler AG - Postfach - D-33043 Paderborn

TAD, VIA CANOVA N. 36
I-20020 LAINATE - MI
QUALITY ASSURANCE, MR. CAPRERA

**Hersteller:** Benteler AG
Manufacturer: WERK SCHLOSS NEUHAUS
Producteur:

**Herstellerzeichen:**
Manufacturer's brand:
Marque du producteur:

**Stahlerschmelzungsverfahren:** ELEKTROOFEN
Steelmaking process: ELECTRIC FURNACE
Procédé d'élaboration de l'acier: FOUR ELECTRIQUE

**Stempel des Sachverständigen:** WA
Inspector's stamp:
Poinçon de l'expert:

| | |
|---|---|
| **Lieferbedingungen:**<br>Terms of delivery:<br>Conditions de livraison: | ASTM-A 335-95A, ASME-SA 335-95, HFS, TAD DOCUMENT NO. SSQ 01 REV. 1, NACE MR 0175-97<br>ASTM-A 335-95A, ASME-SA 335-95, HFS, TAD DOCUMENT NO. SSQ 01 REV. 1, NACE MR 0175-97 |
| **Maße - Toleranzen:**<br>Dimensions - tolerances:<br>Dimensions - tolérances: | ANSI B 36.10 M-85, ASTM-A 530-96<br>ANSI B 36.10 M-85, ASTM-A 530-96 |
| **Lieferzustand:**<br>Delivery condition:<br>Etat de livraison: | NORMALISIERT UND ANGELASSEN / N 950 GRD C, HALTEZEIT 5 MINUTEN, / AT 750 GRD C, HALTEZEIT 45 MINUTEN, / LUFTABKUEHLUNG<br>NORMALIZED AND TEMPERED / N 950 DEG C, HOLDING TIME 5 MIN, / AT 750 DEG C, HOLDING TIME 45 MIN, / COOLING IN STILL AIR |
| **Produktkennzeichnung:**<br>Product marking:<br>Marquage du produit: | FS : ▽ A335-SA335 P22 SCHMELZEN-NR PRUEFDRUCK ABMESSUNG WA<br>FS : ▽ A335-SA335 P22 HEAT-NO. TEST PRESSURE DIMENSION WA |

FK = Farbanzeichnung, colour marking, marquage par couleur
FS = Farbschablonenstrg, stencilled paint, marquage par peinture
TS = Tintenstrahlkennzeichnung, ink jet spray marking, impression à jet d'encre
PS = Prägestempelung, die stamped, marquage par poinçonnage
PKE = Etikettenkennzeichnung, tag marking, marquage sur étiquette
LS = Längsschablonierung, longitudinal stencilled, marquage par longitudinal peinture

2 1 GEN. 1999
DOUGLAS CHERO Spa
Quality Assurance
P.C. SERVANI VITTORIO
Sign. .....

**Es wird bestätigt, daß die gelieferten Erzeugnisse den techn. Lieferbedingungen des Auftrages entsprechen.**
**We certify that the supplied products comply with the order specification.**
Nous certifions que les produits livrés sont conformes aux stipulations de la commande.

DOUGLAS CHERO SPA P.O. 981373
TAD JOB N. I 251430 99 POS. 005 NR 3 MT 21.30 KG 41.00 HEAT/COLATA N.580701
Pag. 1/4

TAD COMMERCIALE
QUESTO DOCUMENTO È RIPRODOTTO MEDIANTE UN SISTEMA COMPUTERIZZATO ED È CONFORME ALL'ORIGINALE
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Benteler Aktiengesellschaft
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Tel.: (05254) 81-0 Telex: 936866
Telefax: (05254) 13666

BENTELER

DOUGLAS CHERO SPA P.O. 981373
TAD JOB N. 1 251430 99 POS. 005 NR 3 MT 21,30 KG 41,00 HEAT/COLATA N.580701

## ABNAHMEPRÜFZEUGNIS EN 10204-3.1 B
INSPECTION CERTIFICATE EN 10204-3.1 B
CERTIFICAT DE RECEPTION EN 10204-3.1B

**Dokument-Nr.:** 41-170009/001/2612
Document No.:
No. de document:



| Pos. Item Poste | Stück Number Nombre | Maße Dimensions Dimensions | | Länge Length Longueur (m) | Gewicht Weight Poids (kg) | Schmelzen-Nr. Heat No. Coulée No. | Prüfdruck Test pressure Pression d'épreuve |
|---|---|---|---|---|---|---|---|
| 001 | 228 | 26,70 X 5,56 MM | 6,00 - 8,00 M | 1578,00 | 4658 | 580701 | 2500 PSI 5 s |

**Schmelzenanalyse / Heat analysis / Analyse sur coulée [ % ]**

| Pos. Item Poste | Schmelzen-Nr. Heat No. Coulée No. | C | SI | MN | P | S | CR | MO | NI | CU | SN |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 001 | 580701 | 0,120 | 0,220 | 0,41 | 0,008 | 0,004 | 2,20 | 0,98 | 0,06 | 0,07 | 0,008 |

**Produktanalyse / Product analysis / Analyse sur produit [ % ]**

| Pos. Item Poste | Schmelzen-Nr. Heat No. Coulée No. | C | SI | MN | P | S | CR | MO | NI | CU | SN |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 001 | 580701 | 0,110 | 0,220 | 0,41 | 0,008 | 0,002 | 2,24 | 0,95 | 0,06 | 0,05 | 0,005 |

1.FORMEL (SI + MN) * (P + SN) * 10.000 = MAX 200 >> J-FAKTOR <<

**Formelergebnisse / Formula results / Résultats des formules**

| Pos. Item Poste | Schmelzen-Nr. Heat No. Coulée No. | 1.Formel 1.Formula 1.Formule |
|---|---|---|
| | | |
| 001 | 580701 | 56,700 |

BENTELER
Qualitätsstelle
Der Werkssachverständige

21 GEN. 1999
DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.

La société Benteler AG garantit que les produits objet du présent certificat sont conforme á l'article 15 de l'arrêté ministeriel du 24 Mars 1978 modifié et respectent en leur totalité les exigences suivantes:
C = max. 0,25 %, P = max. 0,05 %, S = max. 0,05 %
Rm = max. 700 N/mm2, Re = max. 0,8 Rm
A = min. 16 %, Rm x (A-2) = min. 10500.

TAD COMMERCIALE
QUESTO DOCUMENTO È RIPRODOTTO MEDIANTE UN SISTEMA COMPUTERIZZATO ED È CONFORME ALL'ORIGINALE
THIS DOCUMENT IS REPRODUCED BY A COMPUTERIZED SYSTEM AND IS CONFORM TO THE ORIGINAL

Benteler Aktiengesellschaft
Postfach 1340, D-33043 Paderborn
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Telefax: (05254) 13666

BENTELER

**ABNAHMEPRÜFZEUGNIS EN 10204-3.1 B**
INSPECTION CERTIFICATE EN 10204-3.1 B
CERTIFICAT DE RECEPTION EN 10204-3.1B

**Dokument-Nr.:** 41-170009/001/2612
Document No.:
No. de document:



DOUGLAS CHERO SPA
TAD JOB N. I 251430 99 POS. 005 NR 3 MT 21,30 KG 41,00 HEAT/COLATA N.580701
P.O. 981373


**Prüfergebnisse / Test results / Résultats d'essais**

| | | | | | |
|---|---|---|---|---|---|
| **Die Rohre sind auf Dichtheit geprüft durch:**<br>The tubes are submitted to a leak tightness test by:<br>Les tubes ont passés un contrôle d'étanchéité par: | WASSERINNENDRUCKVERSUCH NACH ASTM-A 530, ASME-SA 530<br>HYDRAULIC TEST ACC. TO ASTM-A 530, ASME-SA 530 | | | | |
| **Die Rohre wurden zerstörungsfrei geprüft:**<br>The tubes are non destructive tested:<br>Les tubes ont contrôles non-destructif: | NICHT ZUTREFFEND<br>NOT APPLICABLE | | | | |
| **Augensichtkontrolle:**<br>Visual inspection:<br>Examen visuel: | BESTANDEN<br>PASSED | **Maßkontrolle:**<br>Dimension control:<br>Vérification des dimensions: | BESTANDEN<br>PASSED | **Materialverwechslungsprüfung:**<br>Material conformity test:<br>Vérification de la nuance: | NICHT ZUTREFFEND<br>NOT APPLICABLE |
| **Ringaufdornversuch:**<br>Ring expanding test:<br>Essai de dilatation d'anneaux: | NICHT ZUTREFFEND<br>NOT APPLICABLE | **Beizscheibenprüfung:**<br>Etching test:<br>L'essai de l'attaque: | NICHT ZUTREFFEND<br>NOT APPLICABLE | **Bördelversuch:**<br>Flanging test:<br>Essai de rabattement de collerette: | NICHT ZUTREFFEND<br>NOT APPLICABLE |
| **Ringfaltversuch:**<br>Flattening test:<br>Essai d'aplatissement: | BESTANDEN<br>PASSED | **Biegeversuch:**<br>Bending test:<br>Essai de pliage: | NICHT ZUTREFFEND<br>NOT APPLICABLE | **Aufweitversuch:**<br>Drift expanding/flaring test:<br>Essai d'évasement: | NICHT ZUTREFFEND<br>NOT APPLICABLE |
| **Drifttest:**<br>Drifttest:<br>Contrôle de Mandrin: | NICHT ZUTREFFEND<br>NOT APPLICABLE | | | | |

**Die Probenahme erfolgte an Vielfachlängen.**
**The sampling was carried out on multiple lengths.**
L'échantillonage était réalisé aux longueurs multiples.

**Zugversuch / Tensile test / Essais de traction**

| Pos.<br>Item<br>Poste | Proben- Nr.<br>Specimen No.<br>No. d'éprouvette | Schmelzen-Nr.<br>Heat No.<br>Coulée No. | Probenabmessung<br>Test bar dimension<br>Dimensions de l'éprouvette | Streckgrenze<br>Yield strength<br>Limite élastique | Zugfestigkeit<br>Tensile strength<br>Résistance à la traction | Dehnung<br>Elongation<br>Allongement |
|---|---|---|---|---|---|---|
| Anforderungen<br>Requirements<br>Exigence | | | mm | ReH<br>N/mm2<br>MIN 205 | Rm<br>N/mm2<br>415 - 700 | A 2"<br>MIN 30 % |
| 001 | 000001 | 580701 | 26,7 X 5,5 | 444 | 579 | 44,0 |
| 001 | 000002 | 580701 | 26,7 X 5,5 | 442 | 580 | 44,0 |

Härtewert nach NACE-STD. - MR 0175, max 22 HRC
Hardness according to NACE-STD. - MR 0175, max 22 HRC

21 GEN. 1999
DOUGLAS CHERO Spa
Quality Assurance
P.C. STEVANI VITTORIO
Sign.

TAD COMMERCIALE
QUESTO DOCUMENTO È RIPRODOTTO MEDIANTE UN SISTEMA COMPUTERIZZATO ED È CONFORME ALL'ORIGINALE
THIS DOCUMENT IS REPRODUCED BY A COMPUTERIZED SYSTEM AND IS CONFORM TO THE ORIGINAL

Benteler Aktiengesellschaft
Postfach 1340, D-33043 Paderborn
Tel.: (05254) 81-0 Telex: 936866
Telefax: (05254) 13666

BENTELER

**ABNAHMEPRÜFZEUGNIS EN 10204-3.1 B** - **Dokument-Nr.:** 41-170009/001/2612 -
INSPECTION CERTIFICATE EN 10204-3.1 B — Document No.:
CERTIFICAT DE RECEPTION EN 10204-3.1B — No. de document:



**Härteprüfung / Hardness test / Essai de dureté**

| Pos. Item Poste | Proben- Nr. Specimen No. No. d'éprouvette | Schmelzen-Nr. Heat No. Coulée No. | Härte Hardness dureté |
|---|---|---|---|
| Anforderungen Requirements Exigence | | | HB MAX 210 |
| 001 | 000001 | 580701 | 147 |

**Vermerk / Remark / Remarqué**

| | |
|---|---|
| AUS STRANGGEGOSSENEM VORMATERIAL<br>MADE FROM STRAND CAST PRE-MATERIAL | BERUHIGTER STAHL<br>KILLED STEEL |
| DURCHLAUFOFEN<br>CONTINUOUS FURNACE | |

2 1 GEN. 1999

DOUGLAS CHERO Spa
Quality Assurance
P.C. STEFANI VITTORIO
Sign.

PADERBORN - SCHLOSS NEUHAUS , den 05.06.1998. Tel.: (05254) 81- 1590 Fax: (05254) 81- 2774

Der Werkssachverständige
Work's Inspector
L'expert d'usine

CLAUDIA FANKHÄNEL/JÄ

**Dieses Dokument wurde mittels EDV erstellt und ist ohne Unterschrift rechtsgültig.**
This document was prepared by means of electronic data processing and is valid without signature.
Ce document a été établi par traitement électronique de l'information et est valide sans signature.

DOUGLAS CHERO SPA
TAD JOB N. I 251430 99 POS. 005 NR 3 MT 21.30 KG 41,00 HEAT/COLATA N.580701
Pag. 4/4

# Acciaierie Valbruna S.p.A.

4550

**CERTIFICATO DI COLLAUDO**
**ABNAHMEPRUEFZEUGNIS**
**INSPECTION CERTIFICATE**
**CERTIFICAT DE RECEPTION**
**EN 10204 , 3.1.B**

36100 VICENZA (Italia) - Viale della scienza, 25 z.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Kunde / Purchaser / Client:
VERRI & PINA SRL
VIA TERRAROSSA, 10 - C.P. N.28
22035-CANZO (CO)-CO

Produttore: STABILIMENTO DI BOLZANO

Oggetto Prove: Decapato Ricotto lavorabile Laminato

Avviso di Spedizione: A-BZ04006748

Ordine nr: 94-85-97-103

Tipo di Elaborazione: E+AOD

Certificato nr: MEST128331/2004/

Conferma ordine nr: MI04002683

Marchio di Fabbrica:

Funzione del Collaudatore:

Specifiche:
ASTM A182 2000C S41000 CLASS2 (0)
(0) Chemical analysis only and mecc.properties(for ASTM A182(M))

Qualità: 410

Marca: VAL1

Punzonatura: S.410

| Pos. nr. | Oggetto | Dimensioni - mm | Tolleranza | | Colata | Pezzi | Peso - | Lotto nr. |
|---|---|---|---|---|---|---|---|---|
| 0010 | Tondo | 20,000 | h9 | A4I | 238209 | 1 | 1080 | 409202530 |

Sono state soddisfatte tutte le condizioni richieste

Controllo antimacrosismi: OK

Controllo visivo e dimensionale: soddisfa le esigenze

| | | |

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.

Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

## CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION EN 10204 , 3.1.B

Ø20 FORK

Cliente / Besteller/Purchaser/Client
ACC.VALBRUNA SPA-MAG.CORMANO
VIA BIZZOZZERO, 125
20032 - CORMANO (MI) - MI

Produttore: STABILIMENTO DI BOLZANO
Herstellerwerk/Usine productrice

Avviso di Spedizione: A-BZ03005480
Lieferanzeige/Packing list/B.L.

Certificato nr: MEST055587/2003/
Prüfbescheinigung/Test Report

Conferma ordine nr: MI03007175
Werks/Our Order/Ref nr.

Ordine nr: TRASFERIMENTO DA BOLZANO
Bestell/Your order/Commande

Marchio di Fabbrica:
Zeichen des Unternehmens
Trade mark
Sigle de l'usine productrice

Oggetto Prove: Secondo esecuzione Ricotto lavorabile Palato
Prüfgegenstand/Item Inspected/Passage

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'elaboration

Punzone del Collaudatore:
Stempel des Werksabnahmebeauftragten
Inspector's stamp/Poinçon de l'Inspecteur

Specifiche:
Anforderungen / Requirements / Exigences

VALBRUNA 2002 410 A ()
ASME (1) SA479 2001 S41000 A (1)
ASTM A479 2001 S41000 A ()
[illegible] PT.A 2001 EDITION
[illegible] PT.A 2001 EDITION
(2) Chemical analysis only and mecc.properties(for ASTM A182[MI])

AISI 410 ()
ASTM A182 2000C S41000 CLASS2 (2)
EN 10088-3 95 1.4006 A ()

ASME (1) SA182 2001 S41000 CLASS2 (2)
ASTM A276 2000A S41000 A ()
EN 10272 2000 1.4006 A ()

Qualità: 410
Güte/Quality/Nuance

Marca: VAL1
Markenbezeichnung/Brand/Nuance

Punzonatura: 410
Kennzeichnung/Marking/Marquage

| Pos. nr. Pos. nr. Item nr. Nr. de poste | Oggetto Gegenstand Product description Descrip. du produit | Dimensioni - mm Abmessungen Dimension Dimension | Tolleranza Toleranz. Allowance Tolerance | Lunghezza -mm Länge Length Longueur | Colata Schmelze Heat Coulée | Pezzi Stückzahl Pieces Pieces | Peso - KG Gewicht Weight Poids | Lotto nr. Losnr. Lot nr. Lot nr. |
|---|---|---|---|---|---|---|---|---|
| 0020 | Tondo | 20,000 | K12-MIN | 5000 / 5500 | 236784 | | ~~7521,0~~ 1007 | 310700680 |

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind R. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à été trouvé conforme aux exigences

Controllo antimascolanza: OK
Verwechslungsprüfung spectralanalytisch durchgeführt
Antimixing testing performed: OK
Contrôle antimélange fait r.s.a.

Controllo visivo e dimensionale: soddisfa le esigenze:
Beschaffenheit und Ausmessung ohne Beanstandung
Visual inspection and dimensional check satisfactory
Contrôle visuel et dimensionnel satisfaisant

| TEST | Provetta/Probestab Specimen/Eprouvette Lung.asse Assiale Axial Chev. Chiave Width Chev. Tolleranza Long. chev. speci mm | °C | Posiz. Saggio Position Location Emplacement | Snervamento Streck Yield Limite elastique Rp 0,2% N/mm2 | Snervamento Streck Yield Limite elastique | Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2 | Allungamento Bruchdehnung Elongation Allongement A5 % | Allungamento Bruchdehnung Elongation Allongement E 2" % | Strizione Einschnürung Reduction of area Striction Z % | Strizione Einschnürung Reduction of area Striction RA % | Resilienza Kerbschlagarbeit Impact Value Resilience °C | Durezza Härte Hardness Dureté HB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valori richiesti 1 Anforderungen/Required values Valeurs demandées | | min | | 380 | - | 585 | - | 20 | - | 45 | - | 167 |
| | | max | | | | 730 | | | | | | 220 |
| | 10.00 | 20 | L | 490 | | 670 | 29 | 33 | 69 | 69 | | 190 |

1) L=Längs/Lateral/Longit., Q=Querprobe/Transv., T=Tangential/Tangential

## Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata: Schmelze/Heat/ Coulée | 0,080 min 0,150 max | - 1,00 | - 1,00 | 11,50 13,50 | - 0,50 | - 0,040 | - 0,030 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Ni % | P % | S % | | | | | | | | | |
| 236784 | 0,141 | 0,37 | 0,72 | 12,37 | 0,34 | 0,020 | 0,030 | | | | | | | | | |

The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1,3.,4.3 by TUEV and LLOYD'S

29 LUG. 2004
DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEVANI VITTORIO
Sign .....

COPIA CONFORME ALL' ORIGINALE
ACCIAIERIE VALBRUNA S.P.A.
FILIALE DI CORMANO

Bolzano,23/10/03
Mod./SSL006

Il collaudatore di stabilimento
der Werksabnahmebeauftragte/Works Inspector/L'agent d'usine
S.Polin



2326/1/01

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948

E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129


CERTIFICATO DI COLLAUDO
Inspection certificate

26375

N°6126/DCH DATE-09.11.04

CLIENTE- DOUGLAS CHERO Spa
Customer

ORDINE-242000
Order

BOLLA CONSEGNA N-3658
Delivery note

DESCRIZIONE DEL MATERIALE — MATERIAL DESCRIPTION

| Item | Quantity | Article | Material | Heat n. |
|---|---|---|---|---|
| 1 | 2000 | VITI TE. M 12 X 30,5 | B16 ASTM A 193/A 193M | AQ2869 |

ANALISI CHIMICA — CHEMICAL ANALYSIS

| % | | C | Mn | Si | Cr | Mo | S | P | V | Al |
|---|---|---|---|---|---|---|---|---|---|---|
| REQUIRED | min. | 0,36 | 0,45 | 0,15 | 0,80 | 0,50 | | | 0,25 | |
| VALUE | max. | 0,47 | 0,70 | 0,35 | 1,15 | 0,65 | 0,040 | 0,035 | 0,35 | 0,015 |
| HEAT n. AQ2869 | | 0,415 | 0,57 | 0,26 | 0,98 | 0,60 | 0,003 | 0,007 | 0,28 | 0,008 |

CARATTERISTICHE MECCANICHE — MECHANICAL REQUIREMENTS

| | Rm. | Rp.(0,2) | A4 | Z. | Hardness |
|---|---|---|---|---|---|
| REQUIRED | min. 860 MPa | min. 725 MPa | min. 18% | min. 50% | max 35 HRC |
| ACTUAL VALUE | 987 | 912 | 20,6 | 59,5 | 31 |

HEAT TREATMENT
Quenched at : 925°C to 954°C oil
Tempering : 2 hours at 650°C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

QUALITY CONTROL

MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

15 NOV. 2004

DOUGLAS CHERO Spa
Quality Assurance .....
P.C. STEFANI VITTORIO
Sign. .....

# ISELFA

STEEL FORGINGS
ELECTRING FITTINGS

S.p.A. - C.F./P. IVA IT 00189520125
21048 SOLBIATE ARNO (Va) Italy - Corso Roma, 22
Casella Postale n. 57 - TELEFONO +39 0331 99 30 08
FAX FORGINGS +39 0331 99 15 35 - FAX FITTINGS +39 0331 99 46 77

IQNet IGIM

## CONTROLLO QUALITÀ

Certificato di conformità
Compliance certificate
Gemaess Zeugnis
UNI EN 10204/3.1.B

N° 17900 — Data / Date 19.01.05

CLIENTE / Customer / Kunde: DOUGLAS CHERO SPA

ORDINE N° / Order / Bestellung: 241946

DATA / Date / Datum: 01.10.04

RIMESSO N° / Delivery note / Lieferschein: 500066

DATA / Date / Datum: 19-01-05

N° PEZZI / Pieces / Stuckzahl: 96

DESCRIZIONE - Description - Dezelchnung: CAPPELLI 1.1/2"-800BB

DISEGNO N° - Drawing - Zelchnung: Dis. N6/8

INDICE - Last revision - Verzelchnis:

TIPO ACCIAIO / Steel type / Stahl: ASTM-A.162 F.22 C/LAVORAZIONE

COLATA / Heat / Schmelze: 414853/60

FORNITORE / Supplier / Lieferant: ACCIAIERIE VALBRUNA SPA

### COMPOSIZIONE CHIMICA / Chemical composition / Chemische Zusammensetzung

CARATTERISTICHE ACCIAIO (FORNITE DALL'ACCIAIERIA)

| % | C | Mn | Si | Cr | Mo | P | S | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA min / Requested / Erforderikhe max | | | | | | | | | | | |
| FORNITA / Supplied / Wirkilche | 0,09 | 0,45 | 0,41 | 2.22 | 0,91 | 0,024 | 0,003 | | | | |

### PROVA JOMINY / Jominy test / Stirnabschreckversuch

| HRC | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RICHIESTA min / Requested / Erforderikhe max | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | GRANO / Grain size / Korngrosse |
| FORNITA / Supplied / Wirkilche | | | | | | | | | | | | |

### CARATTERISTICHE MECCANICHE / Mechanical properties / Mechanische Eigenschieften

Normalizzato ☐ Bonificato ☐

| Ø PROVETTA / Ø sample / Ø probest | RP 0,2% / Yield strenght 0,2% / 0,2% Grenze | R / Tensile strenght / Zugfestigkeit | A% / Elongation % / Dehnung % | Z% / Reduc. of area % / Einschnurung % | KCU / Impact value / Kerbschlang |
|---|---|---|---|---|---|
| mm | N/mm² | N/mm² | Lo = 5d | | J (Joule) |
| 12.5 | 462 | 621 | 30 | 74 | 0 / 0 / 0 |

### CARATTERISTICHE PRODOTTO

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| TRATT. TERMICO / Heat Treatement / Warmebehandlung: NORMAL RINVENIM | DUREZZA RICHIESTA / Requested hardness / Festigkeit: N/mm² | | | | | | | | |
| DUREZZA RISCONTRATA N/mm² / Checked hardness / Finden harte | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | |
|---|---|---|---|---|
| CONTROLLI / Tests / Ausmabetest | C.D.C. | SI | DIMENSIONALE | POSITIVO |
| | MAGNAFLUX 100% | NO | ALTRI | |
| | VISIVO 100% | SI | | NO |
| ALLEGATI / Enclosed / Anlage | ANALISI CHIMICA ACCIAIERIA | SI | PRODOTTO AUTOCERTIFICATO | ☐ |
| | CERTIFICATO TRATT. TERMICO | NO | | |

NOTE / Remarks / Bemerkungen:
TRATT: RISCALDO A 950C PER 1 ORA OGNI 25MM E RAFFREDDATI IN ARIA
RISCALDO A 735/750C PER 2 ORE OGNI 25MM E RAFREDDATI IN ARIA.
SIGLA DI COLATA "BA"

CONTROLLO QUALITÀ / QUALITY CONTROL / QUALITATSSTELLE

ISELFA S.p.A. SOLBIATE ARNO (VA)

COMPILATORE

ISELFA S.p.A.
UFFICIO CONTROLLO QUALITA'
STAMPAGGIO

EMESSO ED ARCHIVIATO DAL RESPONSABILE DEL CONTROLLO FINALE (CFI)

Mod. CF. 17 Rev. 4 del 11/04/2002

**UGITECH**
Groupe Arcelor

**FRANCE**

4 N. Nr No 80208

11 N. de commande usine-Werksbestellnummer-Works order number FUGE TEJE 01/01 8Z101000 0

3

# CERTIFICATO COLLAUDO DI ACCETTAZIONE B
# CERTIFICAT DE RECEPTION 3.1.B
# INSPECTION CERTIFICATE B

EN 10204 / 3.1.B

5 Usine Productrice Hersteller Manufacturer: **UGINE** F 73403 UGINE CEDEX Tél : 04.79.89.30.30 Fax : 04.79.89.30.51

Produit Erzeugnisform Product: IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE 6

Client et/ou destinataire - Besteller und/oder Empfaenger - Purchaser and/or Consignee 9: TECNOMECCANICA SRL

N. de commande client - Kundabestellnummer - Purchaser order number 10: 364

Nuance et spécifications techniques - Stalsorte und Pruefbedingungen - Quality and Specifications 12: IMA4006 410 AISI 410 UNS S41000
SPEC. SDA 09 DU 20/11/01 (SAUF MN)

Etat de livraison - Lieferzustand - As delivered (1) 13: TEMPRATO RINVENUTO

Traitement de Référence - Probestreifenbehandlung - Treatment of test samples (1) 14:

| Identification du produit Erzeugnis Benennung-Product Identification N. de cde usine Werksbestellnummer Works order number 15 | N. de poste Post Nr Item No 17 | N. de Coulée Schmelz Nr Heat No 16 | Nombre Stueckzahl Pieces Nbr 18 | Profil Profile Shape 19 | Dimension Ausmessung Dimension 20 | Longueur Laenge Length 21 | Masse Gewicht Weight 22 |
|---|---|---|---|---|---|---|---|
| 8Z101 000 | | 350031 | 190 | TONDO | 20,000 | | 1974 KG |

| Prélèvement Probenummer Test N. | Demandé Vorschrift Required | Direction Richtung | Température d'essai Pruefemperatur Test Temperature | Traction - Zugversuch - Tensile test: Limite d'Elasticité Streckgrenze Yield Strength 0,2 % 26 A | Limite d'Elasticité Streckgrenze Yield Strength 1 % 26 B | Résistance à la traction Zugfestigkeit Tensile strength | Allongement Dehnung (L0 = 5d0) | Striction Einschnuerung Red of Area | Dureté Haerte Hardness (4) | Type Form Type | Résilience - Kerbschlagzaehigkeit - Notch Toughness: Direction Richtung | Température d'essai Pruefemperatur Test Temperature | Valeurs individuelles Einzelwerte Individual Values | Moyenne Mittelwerte Average | Dureté Haerte Hardness (5) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 B | | (3) 24 | 25 | | | 27 | 28 | 29 | 30 | 31 | (3) 32 | 33 | 35 | 36 | 37 |
| | | L | °C | MPA | MPA | MPA | % | % | | | | | | | HB |
| | Min | | 20 | 275 | | 585 | 20 | 45 | | | | | | | |
| | Max | | | | | | | | | | | | | | 237 |
| | (4) | | | | | | | | | | | | | | |
| | (5) | | | 607 | | 684 21 72 | | | | | | | | | 205 |

| 39 A N. de Prélèvement Probenummer Test N. | Demandé Vorschrift Required | 42 C | 43 SI | 44 MN | 45 NI | 46 CR | 47 S | 48 P | 49 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min | | | 0,30 | | 11,50 | | | | |
| | Max | 0,150 | 0,60 | 0,60 | | 13,50 | 0,030 | 0,040 | | |
| N. de Coulée Schmelz Nr Heat N. | Analyse Produit-Stückanalyse Check Analysis | 0,107 | 0,42 | 0,38 | 0,35 | 12,18 | 0,022 | 0,019 | | |
| 350031 | | | | | | | | | | |

| 38 Mode d'élaboration Erschmelzungsart Melting process | Demandé Vorschrift Required | 51 | 52 | 53 | 54 | 55 |
|---|---|---|---|---|---|---|
| Electrique Elektrisch Electric | Min | | | | | |
| | Max | | | | | |

IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE

06 MAG. 2004

DOUGLAS CHERO Spa

Quality Assurance .....

P.C. STEFANI VITTORIO

Sign .....

56

(3) L = Long Laengs - Long T = Travers Quer-Transverse 58

(1) TE = Trempé à l'eau - Wasserhaerten - Waterquench; TH = Trempé à l'huile - Oelharten - Oil Quench; A = Hypertrempé - Loesungsgegluht - Solution annealed; R = Revenu - Anlassen - Tempered; RT = Recuit - Geglueht - Annealed; TRM = Recuit maxi - Weichgegluht - Maxi annealed 7

(4) A l'état de référence Zum Bezug Zustand As reference condition 60 A

(5) A l'état de livraison In Lieferzustand In state of delivery 60 B

Contrôles de marquage, d'aspect et de dimensions satisfaisants
Bezeichnung, Besichtigung und Ausmessung : ohne Beanstandung
Marking, inspection and measurement : without objection 62

Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande
Wir bestaetigen hiermit dass die obengenannten Erzeugnisse den Bestellungsvorschriften entsprechen
We certify hereby that the above mentioned products are consistent with the order prescriptions 68

Usine, le 15-01-04
L'Agent Réceptionnaire de l'usine
Der Werksabnahmebeauftragte
The Work Inspector

H. Mayet 63