INSPECTION CERTIFICATE
ABNAHMEPRÜFZEUGNIS
(acc. to/nach EN 10204-3.1B)

Mokveld Valves bv

DETAILS OF ORDER / UMFANG DER LIEFERUNG **Doc nr.: 34987.423**

customer Besteller	customer order no. and additional marking Bestell Nr. und zusätzliche Kennzeichnung	works no. Werks Nr.
Lurgi GmbH	Tag no.: PV101331	14/34987

amount Stückzahl	serial no. Serien Nr.	object Gegenstand
1	34987-001	Shut-Off valve, type RZD-RQX 16" Class 300 with actuator M575-1VS-4

requirements Anforderungen	face to face dim. in mm Einbaulänge in mm
ASME B16.34 ASME/FCI 70.2 class VI	838

max. working pressure max. Betriebsdruck	max. working temperature max. Betriebstemperatur	body material Gehäuse Werkstoff
0/51 bar(at 100°C) 52 bar(at -29°/ 93°C)	-29° / 100°C	ASTM A 487 CA6NM class B

TEST/DRUCKPRÜFUNGEN

Type of test Art der Druckprüfung	medium Prüfmedium	test pressure Prüfdruck bar
body Gehäuse	water	78
seat Sitz	water	57
seat Sitz	air	6

TEST RESULTS

The results of the testing did not give rise to objections

ERGEBNIS DER PRÜFUNG

Die gestellten Anforderungen sind erfüllt

remarks
Bemerkungen

customers inspector Beauftragter des Bestellers		quality department Qualitätsstelle
SH. Khalil ITI 24.07.2003	24.07.03 Lurgi	Mokveld Valves Q.A. Department Petra Simons 24-07-03

date
Datum

Duderstädter Straße 17
D-37412 Herzberg am Harz
Telefon (05521)83-0
Telefax (05521)83-203

Pleissner Guss GmbH

Abnahmeprüfzeugnis
Inspection certificate
Certificat de réception

Nr: 13317
No.:

(gem. DIN – EN 10204 – Bescheinigung über Werkstoffprüfung 3.1 B)
(acc. to European Standard DIN – EN 10204 – 3.1 B, testing of material)
(selon Norme Européenne DIN – EN 10204 – 3.1 B, essai des matériaux)

Besteller Customer: Client:	Mokveld Valves B.V.			Projekt:	303614
Bestell-Nr.: Order No: No de la commande:	108270 vom 03.03.2003	Pleissner Auftrag:	109443	Prüfgegenstand: Test specimen: Pièce d´essail:	Elektrostahlguss electric steel casting
Qualität: Material: Matériau:	ASTM A 487 Gr.CA6NMCl.B	Werkstoff-Nr.: Material No: Matériau No:	CA6NMCl. B	entsprechend: acc. To selon:	ASTM-Standards Ausgabe: Edition Edition 1998
Anforderungen: Requirements: Exigences:	acc. to MS 00058 Rev. 00			Zeichen des Lieferwerks: Sign of the manufacturer: Marque du producteur:	P

Pos. Nr. Pos. No. Pos. No.	Stückzahl Number of pieces Nombre de pièces	Gegenstand Item Objet	Schmelze Heat No No Coulée	Probe-Nr. Sample No. No. D´essai
		RZD 16" Class 300 m.Fl. Modellnr./pattern no. 2-112729,1-104874B Stückgewicht piece weight: 810 kg		
1	1	14 / 1	63302	02LD

Ergebnis der Prüfung:
Results of inspection:
Résulat d´examination:

Die gestellten Anforderungen sind lt. Anlage erfüllt.
The requirements are accomplished as per enclosure.
Les résulats ont été trouvés satisfaisants suivant annexe.

Werkssachverständiger:
Surveyor to manufacturer:
Expert d´usine:

Lakemann

37412 Herzberg am Harz 14.05.2003/kä

Anlage – Enclosure – Annexe 2

Dudérstädter Straße 17
D-37412 Herzberg am Harz
Telefon (05521)83-0
Telefax (05521)83-203

Pleissner Guss GmbH

Abnahmeprüfzeugnis nach DIN – EN 10204 – 3.1 B
Inspection certificate acc. To DIN – EN 10204 – 3.1 B
Certificat de récepton selon DIN – EN 10204 – 3.1. B

Anlage / Enclosure / Annexe	1	Zum Zeugnis / To certificate / Au certificat
Vom: / Dated: / Date:	14.05.2003	13317

Projekt: 303614

Besteller – Customer – Client: Mokveld Valves B.V.	Pleissner Auftrag: 109443
Besichtigung und Abmessungen / Inspection and measuring: / Inspection et mesurage: keine Beanstandung / no objection	Kerbschlagbiegeversuch: / Impact test: / Essai de résilience: ASTM A 370 Charpy-V at +20°C
Zugversuch / Tensile test: / Essaide traction: ASTM A 370	Faltversuch: / Bend test: / Essai de pliage:

Mechanische Eigenschaften – Mechanical Properties – Propriétés mécaniques:

Probe-Nr. / Sample No. / No d'essal	Streckgrenze / Yield point / Limite d'elasticité MPa	Zugfestigkeit / Tensile strength / Résistance à la Traction MPa	Dehnung / Elongation / Allongement %	Einschnürung / Reduction of area / Striction %	Kerbschlagarbeit / Impact Value / Valeur de la Résilience J	Materialvorschrift / Specification of Material / Spécification des matériaux
Sollwerte: / Requirements: / Exigences:	520	690 880	18	35	60/45	CA6NMCl.B
02LD	652	803	23	70	129 / 102 / 125	

Chemische Analyse in % - Chemical analysis % - Analyse chimique %:

Charge / Heat No / No. Coulée	C	Si	Mn	P	S	Cr	Mo	Ni	V	Cu	W	
63302	0.02	0.48	0.64	0.018	0.002	12.67	0.53	4.48	0.050	0,09	0,018	

Wärmebehandlung – Heat treatment – Traitement Thermique:

Normalisiert: / Normalized: / Normalisé:	Temperatur: / Temperature: / Température:	
Vergütet: / Tempered: / Revenu:	Härtetemperatur: / Hardening temperature: / Température de trempe: 1050 °C	Medium: / Medium: / Milieu: Luft/air
	Anlasstemperatur: / Anealing temperature: / Température de recuit: 1.680°C 2. 620 °C	
Lösungsgeglüht: / Solution heat treatment: / Traitement thermique de mise en solution:	Lösungsglühtemperatur: / Solution treatment temperature: / Température de traitement de mise en solution:	Medium: / Medium: / Milieu:

37412 Herzberg am Harz 14.05.2003/kä

Werkssachverständiger:
Surveyor to manufacturer:
Expert d'usine:

Lakemann

Duderstädter Straße 17
D-37412 Herzberg am Harz
Telefon (05521)83-0
Telefax (05521)83-203

Pleissner Guss GmbH

Abnahmeprüfzeugnis nach DIN – EN 10204 – 3.1 B
Inspection certificate acc. To DIN – EN 10204 – 3.1 B
Certificat de récepton selon DIN – EN 10204 – 3.1. B

Anlage Enclosure Annexe	2	Zum Zeugnis To certificate Au certificat
Vom: Dated: Date:	14.05.2003	13317

(Ergebnis der Prüfung)
(Test results)
(Résultats des tests)

Projekt: 303614

Besteller – Customer – Client:	Pleissner Auftrag:
Mokveld Valves B.V.	109443

Wir bescheinigen, daß der/die vorgenannte(n) Abguß/Abgüsse einer Oberflächenrißprüfung mittels Farbeindringverfahren unterzogen wurde(n). Die Bewertung erfolgte nach MSS-SP 93/ ANSI B 16.34 Annex D. Unzulässige Anzeigen wurden nicht festgestellt.

Die Anschnitt- und Speisertechnik ist auf eine Qualität entsprechend A3,B3,C3 ausgelegt.

Der/die Abguß/Abgüsse wurden einer visuellen Kontrolle nach MSS-SP 55 unterzogen. Keine Beanstandungen.

We herewith testify that the casting(s) has/have been submitted to a liquid penetrant inspection The evaluation was made acc. to MSS-SP 93/ANSI B 16.34 Annex D. There have been detected no inadmissible defects.

The riser technique has a quality which conforms to A3,B3,C3.

The casting(s) has/have been submitted to a visual inspection acc. to MSS-SP 55. No objection.

HRC-Werte/hardness HRC: 14/1 21,8-21,4-20,8 HRC

37412 Herzberg am Harz 14.05.2003

Werkssachverständiger:
Surveyor to manufacturer:
Expert d´usine:

Lakemann

Zertifiziertes Qualitätsmanagement-System ISO 9001:2000
SQS Reg.Nr. 10537-05

SCHMIEDEWERK STOOSS

Herstellerzeichen
Manufacturer's stamp
Mokveld Valves
ST

P.O. number: 108366 - 320
Controlled:

Zulassungen/Approved by: TÜV nach AD 2000 W 0 / TRD 100 / PED 97/23/EC Annex I - Bureau Veritas / DET NORSKE VERITAS - Germanischer Lloyd - Lloyd's Register of Shipping
<<Zustimmungsschreiben des TÜV Südwest liegt vor.>>
<<Auf Gegenzeichnung wird verzichtet.>>

ORIGINAL

Abnahmeprüfzeugnis — EN 10 204 3.1.B — *Inspection certificate*

Kunde / *Customer*	SMEPRO BENELUX BV, NL-6662 NG ELST (MOKVELD VALVES BV)		
Kd.Bestell Nr. / *Cust.Order no.*	108366 / 10300293	Position / *Item* 32	unsere Ref. / *Job no./Certificate no.* 11053 H11
Bezeichnung / *Designation*	Ring		Anzahl / *Quantity* 1
Kd. Material / *Cust. Material*	1.4006		Charge Nr. / *Heat no.* 84 991
Lieferzustand / *condition of delivery*	unmachined		Probe Nr. / *Test no.* 12642
Kd. Zeichn. Nr. / *Cust. Drawing*	--		Dimension / *Dimension* FS d 426/358 x 113 mm
Artikel No. / *Part no*	0063129 SEAT RETAINING BUSH		Erschmelzungsart / *Steelmaking process* --
Liefergewicht / *Weight of delivery*	--		
Kd. Spezifikation / *Cust. Specification*	MS 03123 (V) Rev. 01		
Stempelung / *Marking*	11053H11 – 1.4006 – 84991 - 108366 / 10300293 – 0063129 – ST 12642 QI – item: 32		

34987 – 457

Wärmbehandlung / *Heat treatment:* 980°C/3h/air//710°C/6h/furnace//660°C/6h/air

Chemische Zusammensetzung gem. Hersteller / *Chemical composition acc. to manufacturer :*

Heat no.	C	Si	Mn	P	S	Cr	Mo
84991	0.115	0.31	0.49	0.019	0.001	12.25	0.03
BGH	Ni	V	Cu	N	Nb		
	0.21	0.028	0.08	0.0395	0.006		

Mech. Werkstoffprüfung / *Mechanical testing* — Zugversuch / *tensile test* EN 10002; Kerbschlagbiegeversuch / *Impact test* EN 10045

	Rp 0,2 % °C	Rp 0,2 % N/mm²	Rp 1 % N/mm²	Rm N/mm²	A 5 d %	Z %	A_v Joule ISO-V +20 °C	°C	Probenlage / *Orientation of specimen*
Sollwerte/ *Requirements*		450		600-800	18	35	single 23 average 28		
12642		503		658	20	70	140/111/87		tangential

Härteprüfung / *Hardness test:* 200, 204, 203 HB (HRc < 22)

Visuelle Prüfung / *Visual inspection* in Ordnung / *accepted*
Masskontrolle / *dimension* in Ordnung / *accepted*

Es wird bestätigt, dass die Lieferung den Vereinbarungen bei der Bestellannahme entspricht.
We confirm that the test results are in acc. to the order.

Beilagen / *Enclosure:* 3 heat treatment charts

Hedingen, 25. April 2003/sk

Werksachverständige / *Inspector :*

SCHMIEDEWERK STOOSS AG

FO 62-09

CH-8908 Hedingen Tel. 043 322 62 00 Fax 043 322 62 01 www.stooss.com e-mail: info@stooss.com

FUNCTIONAL INSPECTION CERTIFICATE
ABNAHMEPRÜFZEUGNIS FUNKTIONSPRÜFUNGEN
acc to/nach EN 10204 3.1B

Mokveld Valves bv

DETAILS OF ORDER / UMFANG DER LIEFERUNG

Doc nr.: 34987.421

customer Besteller	customer order no. and additional marking Bestell Nr. und zusätzliche Kennzeichnung	works no. Werks Nr.
Lurgi GmbH	Tag no.: PV101331	14/34987

amount Stückzahl	serial no. Serien Nr.	object Gegenstand
1	34987-001	Shut-Off valve, type RZD-RQX 16" Class 300 with actuator M575-1VS-4

TEST RESULTS / PRÜFERGEBNISSE:

1. Input signal open / close	acc./ ~~not acc./ not~~ appl
Eingangssignal öffnen und schliessen	ohne Beanstandungen/ ~~nicht~~ zutreffend
2. Output signal open / close	~~acc./ not~~ acc./ not appl
Ausgangssignal öffnen und schliessen	~~ohne Beanstandungen~~/ nicht zutreffend
3. Hand operation	~~acc./ not acc.~~/ not appl
Handbetätigung	~~ohne Beanstandungen~~/ nicht zutreffend
4. Measured opening time: 2,3*sec./closing time: 2,5 sec.	acc./ ~~not acc./ not~~ appl
Stellzeit öffnen: 2,3*sec. und schließen: 2,5 sec.	ohne Beanstandungen/ ~~nicht zutreffend~~
5. Setting of limit switch(es)	acc./ ~~not acc./ not~~ appl
Einstellung der Endtaster	ohne Beanstandungen/ ~~nicht zutreffend~~
6. Verification of actuator marking	acc./ ~~not acc./ not~~ appl
Prüfung der Kennzeichnung	ohne Beanstandungen/ ~~nicht zutreffend~~

We herewith certify that the above mentioned results of the functional test are in compliance with the requirements.
Wir bescheinigen hiermit daß obengenannte Ergebnisse der Funktionsprüfung übereinstimmen mit den Anforderungen aus die Prozedur.

* Remark: Stroking time open t0 Cv 1157 < 1 sec.
Stellzeit öffnen bis Cv 1157 < 1 sec.

customers inspector
Beauftragter des Bestellers

quality department
Qualitätsstelle

Mokveld Valves
Q.A. Department
M. Kuiters

date
Datum
31-07-03

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

PTB

(1) # EC-TYPE-EXAMINATION CERTIFICATE

(Translation)

(2) Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 94/9/EC**

(3) EC-type-examination Certificate Number:

PTB 01 ATEX 1016

(4) Equipment: Terminal box, type 8146/1...-.. and type 8146/2...-..

(5) Manufacturer: R. STAHL Schaltgeräte GmbH

(6) Address: Am Bahnhof 30, 74638 Waldenburg (Württ.), Germany

(7) This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential report PTB Ex 01-11019.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50014:1997 + A1 + A2 **EN 50018:1994** **EN 50019:1994**

EN 50020:1994 **EN 50028:1987**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-type-examination Certificate relates only to the design and construction of the specified equipment in accordance with Directive 94/9/EC. Further requirements of this Directive apply to the manufacture and supply of this equipment.

(12) The marking of the equipment shall include the following:

Ex II 2 G EEx edm ia/ib [ia] IIC/IIB/IIA T6, T5 or T4

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Klausmeyer
Regierungsdirektor

Braunschweig, June 13, 2001

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 24

(13) # SCHEDULE

(14) ## EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1016

(15) Description of equipment

The terminal box of types 8146/1...-.. and 8146/2...-.. is a polyester-resin housing designed to type of protection increased safety "e". It is used to house terminals for intrinsically safe and non-intrinsically safe circuits and may optionally be provided with disconnect terminals and fuses. The box area intended for intrinsically safe circuits will be marked by a special colour (e.g. light-blue). Connection will be made by means of explosion-proof cable entries.

The enclosure as well as any installed and attached components have been tested and certified under a separate test certificate.

Technical data

Rated voltage*	up to	1100	V
Rated current*	max.	500	A
Rated cross section*	max.	300	mm^2

*) depending on type of terminal and explosion-proof components used

Ambient temperature	depending on temperature class and sealing used -20°C to +40°C, T6 -40°C to +40°C, T6 -20°C to +55°C, T5 -40°C to +55°C, T5

The ratings specified are maximum values, actual values will be subject to the electrical equipment used from case to case. Depending on the system conditions, the mode of operation, the utilisation category, etc., the manufacturer will define the definitive ratings which will be within the range of these limiting values and will comply with the relevant standards.

The composition of the protection symbol will be based on the types of protection of the components actually used.

(16) Test report PTB Ex 01-11019

(17) Special conditions for safe use

None;

Notes for installation and use

For the maximum number of conductors, which for each size of enclosure is determined by the cross section and the admissible continuous current, reference is made to the specification sheets.

Equipment of the type of protection Intrinsic Safety "i" shall be installed in such a way that the clearances and creepage distances between intrinsically safe and non-intrinsically safe circuits as set forth in 60079-14 are duly accounted for.

If the clearance requirements for the connectors as specified in EN 50020 cannot be safe-guarded with the system installation and layout, wiring that meets the quality criteria Increased Safety "e" shall be used, or the wiring shall be of the fail-safe type.

When using more than one intrinsically safe circuit, the rules and regulations for interconnection shall duly be observed.

This EC type-examination certificate as well as any future supplements thereto shall at the same time be regarded as supplements to Certificate of Conformity PTB No. Ex-90.C.3145.

(18) Essential health and safety requirements

The tests and the favourable results these have produced reveal that the terminal box of types 8146/1...-.. and 8146/2...-.. meets the requirements of directive 94/9/EC as well as those of the standards quoted on the cover sheet.

Zertifizierungsstelle Explosionsschutz
By order:

Braunschweig, June 13, 2001

Dr.-Ing. U. Klausmeyer
Regierungsdirektor

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 24

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

1st SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1016

(Translation)

Equipment: Terminal box, type 8146/1...-.. and type 8146/2...-..

Marking: ⟨Ex⟩ **II 2 G EEx edm ia/ib [ia] IIC/IIB/IIA T6, T5 or T4**

Manufacturer: R. STAHL Schaltgeräte GmbH

Address: Am Bahnhof 30
D-74638 Waldenburg (Württ.), Germany

Description of supplements and modifications

The terminal box, type 8146/1...-.., may also be fitted with bolt-type screw terminals connected with busbars.

Technical data

Rated voltage	up to	750 V
Rated current.....	max.	315 A for T6 400 A for T5
Rated short-circuit current.....	max.	70 kA
Rated cross section	max.	185 mm², connection with cable lug

Notes for manufacture and operation

The line-side fuse or protective device shall be selected so as to provide for safe interruption of the max. rated current, the max. rated short-circuit current, and the max. rated short-time current (1 s).

The supplement for the EC type-examination certificate shall at the same time be regarded as a supplement for Certificate of Conformity PTB No. Ex-94.C.3147.

Test report: PTB Ex 01-11145

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Klausmeyer
Regierungsdirektor

Braunschweig, January 30, 2002

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT

Sheet 1/1

SUPPLEMENTARY SHEET 01

to EC TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1016

Fitting of terminal boxes Type 8146/1031

Max. number of conductors [1] depending on cross section and the permissible continuous current:

current / A	cross section / mm^2				
	1,5	2,5	4		
3					2)
6					
10	42				
16	14	28	108		4)
20	6	16	31		
25		7	17		
35			5		
50					3)
	14	14	14		
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals				

Notes

1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.

2) additional conductors optional

3) to be specified by the manufacturer (including temperature rise test)

4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm^2	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

SUPPLEMENTARY SHEET 02

to EC TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1016

Fitting of terminal boxes Type 8146/1041

Max. number of conductors [1] depending on cross section and the permissible continuous current:

current / A	cross section / mm^2							
	1,5	2,5	4	6	10	16		
3								2)
6								
10	44							
16	15	29	114					
20	6	17	33					
25		8	18	36				
35			5	14	35			
50				2	11	29		4)
63					3	13		
80						5		
100								3)
	28	28	28	10	10	8		
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals							

Notes

1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.

2) additional conductors optional

3) to be specified by the manufacturer (including temperature rise test)

4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm^2	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

SUPPLEMENTARY SHEET 03

to EC TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1016

Fitting of terminal boxes Type 8146/1241

Max. number of conductors [1] depending on cross section and the permissible continuous current:

current / A	cross section / mm^2								
	1,5	2,5	4	6	10	16	25	35	
3									
6									
10	45								
16	15	29	116						2)
20	6	17	33						
25		8	19	36					
35			5	14	35				
50				2	11	29			
63					3	13	48		
80						5	15	54	
100							6	14	4)
125								5	
150									3)
	56	56	33	20	10	8	6	5	
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals								

Notes

1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.

2) additional conductors optional

3) to be specified by the manufacturer (including temperature rise test)

4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm^2	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

SUPPLEMENTARY SHEET 04

to EC TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1016

Fitting of terminal boxes Type 8146/1242

Max. number of conductors [1] depending on cross section and the permissible continuous current:

current / A	cross section / mm^2								
	1,5	2,5	4	6	10	16	25	35	
3									2)
6									
10	55								
16	19	37	143						
20	8	21	41						
25		10	23	45					
35			7	17	44				
50				2	14	36			
63					4	17	60		
80						6	19	67	4)
100							8	17	
125								7	
160									3)
	56	56	33	20	10	8	6	5	
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals								

Notes

1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.

2) additional conductors optional

3) to be specified by the manufacturer (including temperature rise test)

4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm^2	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

SUPPLEMENTARY SHEET 05

to EC TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1016

Fitting of terminal boxes Type 8146/1051

Max. number of conductors [1] depending on cross section and the permissible continuous current:

current / A	cross section / mm^2							
	1,5	2,5	4	6	10	16		
3								
6								
10	50							
16	17	33	129					2)
20	7	19	37					
25		9	21	41				
35			6	16	39			
50				2	13	33		
63					4	15		4)
80						5		
100								3)
	46	46	46	17	17	13		
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals							

Notes

1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.

2) additional conductors optional

3) to be specified by the manufacturer (including temperature rise test)

4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm^2	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

SUPPLEMENTARY SHEET 06

to EC TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1016

Fitting of terminal boxes Type 8146/1052

Max. number of conductors [1] depending on cross section and the permissible continuous current:

current / A	cross section / mm^2							
	1,5	2,5	4	6	10	16		
3								2)
6								
10	61							
16	21	41	159					
20	8	24	46					
25		11	26	50				
35			7	19	49			
50				2	16	40		4)
63					5	18		
80						7		
100								3)
	46	46	46	17	17	13		
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals							

Notes

1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.

2) additional conductors optional

3) to be specified by the manufacturer (including temperature rise test)

4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm^2	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

SUPPLEMENTARY SHEET 07

to EC TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1016

Fitting of terminal boxes Type 8146/1061

Max. number of conductors [1] depending on cross section and the permissible continuous current:

current / A	cross section / mm^2								
	1,5	2,5	4	6	10	16	25	35	
3									
6									
10	53								
16	18	35	137						2)
20	7	20	39						
25		9	22	43					
35			6	17	42				
50				2	13	35			
63					4	16	57		
80						6	18	64	
100							7	17	4)
125								6	
160									3)
	92	92	66	34	24	19	11	9	
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals								

Notes

1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.

2) additional conductors optional

3) to be specified by the manufacturer (including temperature rise test)

4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm^2	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

SUPPLEMENTARY SHEET 08

to EC TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1016

Fitting of terminal boxes Type 8146/1062

Max. number of conductors [1] depending on cross section and the permissible continuous current:

current / A	cross section / mm^2								
	1,5	2,5	4	6	10	16	25	35	
3									2)
6									
10	64								
16	22	42	166						
20	9	25	48						
25		11	27	52					
35			8	20	51				
50				3	16	42			
63					5	19	69		
80						7	21	78	4)
100							9	20	
125								8	
160									3)
	92	92	66	34	24	19	11	9	
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals								

Notes

1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.

2) additional conductors optional

3) to be specified by the manufacturer (including temperature rise test)

4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm^2	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

SUPPLEMENTARY SHEET 09

to EC TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1016

Fitting of terminal boxes Type 8146/1071 and Type 8146/1S71

Max. number of conductors [1] depending on cross section and the permissible continuous current:

current / A	cross section / mm^2								
	1,5	2,5	4	6	10	16	25	35	
3									2)
6									
10	55								
16	19	36	142						
20	7	21	41						
25		10	23	45					
35			6	17	44				
50				2	14	36			
63					4	17	60		
80						6	18	67	4)
100							8	17	
125								7	
160									3)
	138	138	104	51	38	30	22	9	
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals								

Notes

1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.

2) additional conductors optional

3) to be specified by the manufacturer (including temperature rise test)

4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm^2	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

SUPPLEMENTARY SHEET 10

to EC TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1016

Fitting of terminal boxes Type 8146/1072 and Type 8146/1S72

Max. number of conductors [1] depending on cross section and the permissible continuous current:

current / A	cross section / mm^2										
	1,5	2,5	4	6	10	16	25	35	50	70	
3											
6											
10	66										
16	22	44	170								
20	9	25	49								
25		12	28	54							2)
35			8	21	52						
50				3	17	43					
63					5	20	71				
80						7	22	80			
100							9	21			
125								8	21		
160									7	19	
200										6	4)
225										2	
250											3)
	138	138	104	51	38	30	22	9	6	6	
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals										

Notes

1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.

2) additional conductors optional

3) to be specified by the manufacturer (including temperature rise test)

4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm^2	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

SUPPLEMENTARY SHEET 11

to EC TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1016

Fitting of terminal boxes Type 8146/1073 and Type 8146/1S73

Max. number of conductors [1] depending on cross section and the permissible continuous current:

current / A	cross section / mm^2										
	1,5	2,5	4	6	10	16	25	35	50	70	
3											
6											
10	71										
16	24	47	184								
20	10	27	53								
25		13	30	58							2)
35			8	22	56						
50				3	18	47					
63					6	21	77				
80						8	24	86			
100							10	22			
125								9	23		
160									8	20	
200										7	4)
225										2	
250											3)
	138	138	104	51	38	30	22	9	6	6	
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals										

Notes

1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.

2) additional conductors optional

3) to be specified by the manufacturer (including temperature rise test)

4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm^2	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

SUPPLEMENTARY SHEET 12

to EC TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1016

Fitting of terminal boxes Type 8146/1075 and Type 8146/1S75

Max. number of conductors [1] depending on cross section and the permissible continuous current:

current / A	cross section / mm^2										
	1,5	2,5	4	6	10	16	25	35	50	70	
3											
6											
10	82										
16	28	54	212								
20	11	32	61								
25		15	35	67							
35			10	26	65						2)
50				3	21	54					
63					7	25	89				
80						9	28	99			
100							12	26			
125								10	26		
160									9	23	
200										8	4)
225										3	
250											3)
	138	138	104	51	38	30	22	9	6	6	

max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals

Notes

1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.

2) additional conductors optional

3) to be specified by the manufacturer (including temperature rise test)

4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm^2	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

SUPPLEMENTARY SHEET 13

to EC TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1016

Fitting of terminal boxes Type 8146/1081

Max. number of conductors [1] depending on cross section and the permissible continuous current:

current / A	cross section / mm^2								
	1,5	2,5	4	6	10	16	25	35	
3									2)
6									
10	74								
16	25	49	192						
20	10	29	55						
25		13	31	61					
35			9	23	59				
50				3	19	49			
63					6	22	80		
80						8	25	90	4)
100							10	23	
125								9	
160									3)
	312	312	208	117	76	60	50	20	
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals								

Notes

1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.

2) additional conductors optional

3) to be specified by the manufacturer (including temperature rise test)

4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm^2	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

SUPPLEMENTARY SHEET 14

to EC TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1016

Fitting of terminal boxes Type 8146/1082

Max. number of conductors [1] depending on cross section and the permissible continuous current:

current / A	cross section / mm^2										
	1,5	2,5	4	6	10	16	25	35	50	70	
3											
6											
10	86										
16	29	57	221								
20	12	33	64								
25		15	36	70							
35			10	27	68						2)
50				4	22	56					
63					7	26	93				
80						10	29	104			
100							12	27			
125								11	28		
160									9	24	
200										8	4)
225										3	
250											3)
	312	312	208	117	76	60	50	20	14	14	
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals										

Notes

1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.

2) additional conductors optional

3) to be specified by the manufacturer (including temperature rise test)

4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm^2	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

SUPPLEMENTARY SHEET 15

to EC TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1016

Fitting of terminal boxes Type 8146/1083

Max. number of conductors [1] depending on cross section and the permissible continuous current:

current / A	cross section / mm²										
	1,5	2,5	4	6	10	16	25	35	50	70	
3											
6											
10	91										
16	31	60	235								
20	13	35	68								
25		16	38	74							
35			11	29	72						2)
50				4	23	60					
63					8	28	99				
80						10	31	111			
100							13	29			
125								11	29		
160									10	26	
200										9	4)
225										3	
250											3)
	312	312	208	117	76	60	50	20	14	14	
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals										

Notes

1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.

2) additional conductors optional

3) to be specified by the manufacturer (including temperature rise test)

4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm²	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

SUPPLEMENTARY SHEET 16

to EC TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1016

Fitting of terminal boxes Type 8146/1084

Max. number of conductors [1] depending on cross section and the permissible continuous current:

current / A	cross section / mm^2										
	1,5	2,5	4	6	10	16	25	35	50	70	
3											
6											
10	97										
16	33	64	251								
20	14	37	73								
25		18	41	79							
35			12	31	77						2)
50				4	25	64					
63					8	29	105				
80						11	33	118			
100							14	31			
125								12	31		
160									11	27	
200										10	4)
225										3	
250											3)
	312	312	208	117	76	60	50	20	14	14	
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals										

Notes

1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.

2) additional conductors optional

3) to be specified by the manufacturer (including temperature rise test)

4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm^2	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

SUPPLEMENTARY SHEET 17

to EC TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1016

Fitting of terminal boxes Type 8146/1085

Max. number of conductors [1] depending on cross section and the permissible continuous current:

current / A	cross section / mm^2										
	1,5	2,5	4	6	10	16	25	35	50	70	
3											
6											
10	102										
16	35	68	265								2)
20	14	40	77								
25		19	43	84							
35			12	33	81						
50				4	26	67					
63					9	31	111				
80						12	35	124			
100							15	33			4)
125								13	33		
160									11	29	
200										10	
225										4	
250											3)
	312	312	208	117	76	60	50	20	14	14	
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals										

Notes

1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.

2) additional conductors optional

3) to be specified by the manufacturer (including temperature rise test)

4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm^2	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

SUPPLEMENTARY SHEET 18

to EC TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1016

Fitting of terminal boxes Type 8146/1086

Max. number of conductors [1] depending on cross section and the permissible continuous current:

current / A	cross section / mm^2										
	1,5	2,5	4	6	10	16	25	35	50	70	
3											2)
6											
10	114										
16	39	76	294								
20	16	44	85								
25		21	48	93							
35			14	36	90						
50				5	29	75					
63					10	35	123				
80						13	38	138			
100							16	36			
125								14	37		
160									12	32	4)
200										11	
225										4	
250											3)
	312	312	208	117	76	60	50	20	14	14	
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals										

Notes

1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.

2) additional conductors optional

3) to be specified by the manufacturer (including temperature rise test)

4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm^2	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

SUPPLEMENTARY SHEET 19

to EC TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1016

Fitting of terminal boxes Type 8146/1091

Max. number of conductors [1] depending on cross section and the permissible continuous current:

current / A	cross section / mm²								
	1,5	2,5	4	6	10	16	25	35	
3									2)
6									
10	86								
16	29	57	222						
20	12	33	64						
25		16	36	70					
35			10	27	68				
50				4	22	56			
63					7	26	93		
80						10	29	104	4)
100							12	27	
125								11	
160									3)
	676	676	468	273	190	128	106	60	
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals								

Notes

1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.

2) additional conductors optional

3) to be specified by the manufacturer (including temperature rise test)

4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm²	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

SUPPLEMENTARY SHEET 20

to EC TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1016

Fitting of terminal boxes Type 8146/1092

Max. number of conductors [1] depending on cross section and the permissible continuous current:

current	cross section / mm²																
A	1,5	2,5	4	6	10	16	25	35	50	70	95	120	150	185	240	300	
3																	
6																	
10	97																
16	33	64	250														
20	13	37	72														
25		18	41	79													
35			12	31	77												
50				4	25	63											
63					8	29	105										2)
80						11	33	117									
100							14	31									
125								12	31								
160									10	27							
200										10	24	74					
225										3	13	29					
250											7	17	36				
315												3	10	22			
400														4	15	44	4)
500															2	8	
																	3)
	676	676	468	273	190	128	106	60	29	29	8	8	6	6	6	6	

max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals

Notes

1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.

2) additional conductors optional

3) to be specified by the manufacturer (including temperature rise test)

4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm²	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

SUPPLEMENTARY SHEET 21

to EC TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1016

Fitting of terminal boxes Type 8146/1093

Max. number of conductors [1] depending on cross section and the permissible continuous current:

current	cross section / mm²																
A	1,5	2,5	4	6	10	16	25	35	50	70	95	120	150	185	240	300	
3																	
6																	
10	102																
16	35	68	263														
20	14	39	76														
25		18	43	83													
35			12	32	81												
50				4	26	67											2)
63					9	31	110										
80						12	34	123									
100							15	32									
125								13	33								
160									11	29							
200										10	25	78					
225										4	14	30					
250											7	18	38				
315												4	11	23			
400														5	16	46	4)
500															2	9	
																	3)
	676	676	468	273	190	128	106	60	29	29	8	8	6	6	6	6	

max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals

Notes

1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.

2) additional conductors optional

3) to be specified by the manufacturer (including temperature rise test)

4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm²	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

SUPPLEMENTARY SHEET 22

to EC TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1016

Fitting of terminal boxes Type 8146/1095

Max. number of conductors [1] depending on cross section and the permissible continuous current:

current	cross section / mm²																
A	1,5	2,5	4	6	10	16	25	35	50	70	95	120	150	185	240	300	
3																	
6																	
10	113																
16	38	75	291														
20	16	44	84														
25		20	48	92													
35			14	36	89												
50				5	29	74											2)
63					10	34	122										
80						13	38	137									
100							16	36									
125								14	36								
160									12	32							
200										11	28	86					
225										4	16	33					
250											8	20	43				
315												4	12	25			
400														5	17	51	4)
500															2	10	
																	3)
	676	676	468	273	190	128	106	60	29	29	8	8	6	6	6	6	

max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals

Notes

1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.

2) additional conductors optional

3) to be specified by the manufacturer (including temperature rise test)

4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm²	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

EG-Konformitätserklärung
EC-Declaration Of Conformity
CE-Déclaration De Conformité

PTB 01 ATEX 1016

Wir (we; nous)

R. STAHL Schaltgeräte GmbH, Am Bahnhof 30, D-74638 Waldenburg

erklären in alleiniger Verantwortung, daß das Produkt	**Klemmenkasten Typ 8146/1 und 8146/2**
hereby declare in our sole responsibility, that the product	Terminal box Type 8146/1 and 8146/2
déclarons de notre seule responsabilité, que le produit	Boîtier de raccordement Type 8146/1 et 8146/2

auf das sich diese Erklärung bezieht, mit der/den folgenden Norm(en) oder normativen Dokumenten übereinstimmt
which is the subject of this declaration, is in conformity with the following standard(s) or normative documents
auquel cette déclaration se rapporte, est conforme aux norme (s) ou aux documents normatifs suivants

Bestimmungen der Richtlinie terms of the directive prescription de la directive	**Titel und/oder Nr. sowie Ausgabedatum der Norm** title and/or No. and date of issue of the standard titre et/ou No. ainsi que date d'émission des normes
94/9 EG: Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen 94/9 EC: Equipment and protective systems intended for use in potentially explosive atmospheres 94/9 CE: Appareils et systèmes de protection destinés á êtré utilisés en atmosphéres explosibles	EN 50014:1997 EN 50018:1994 EN 50019:1994 EN 50020:1994 EN 50028:1987
89/336 EWG: Elektromagnetische Verträglichkeit 89/336 EEC: Electromagnetic compatibility 89/336 CEE: Compatibilité électromagnétique	EN 60947-1:1999

Waldenburg, 03.09.2001

Ort und Datum Place and date lieu et date	**Leiter Marketing und Entwicklung** Head of Marketing and Development Directeur Marketing et Développment	**Leiter Qualitätsmanagement** Head of quality management dept. Chef du dept.assurance de qualité

TÜV 03/pm-Papier chlorfrei

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

PTB

(1) # EC-TYPE-EXAMINATION CERTIFICATE

(Translation)

(2) Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 94/9/EC**

(3) EC-type-examination Certificate Number:

PTB 00 ATEX 2049 X

(4) Equipment: SN-sensors, types NJ... and SJ...

(5) Manufacturer: Pepperl + Fuchs GmbH

(6) Address: D-68307 Mannheim

(7) This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential report PTB Ex 00-29268.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50014:1997 **EN 50020:1994**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-type-examination Certificate relates only to the design and construction of the specified equipment in accordance with Directive 94/9/EC. Further requirements of this Directive apply to the manufacture and supply of this equipment.

(12) The marking of the equipment shall include the following:

Ex II 2 G EEx ia IIC T6

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Johannsmeyer
Regierungsdirektor

Braunschweig, October 05, 2000

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 24

(13) # SCHEDULE

(14) ## EC-TYPE-EXAMINATION CERTIFICATE PTB 00 ATEX 2049 X

(15) Description of equipment

The SN-sensors, types NJ... and SJ... are used to convert displacements into electrical signals.

The SN-sensors, types NJ... and SJ... may be operated with intrinsically safe circuits certified for categories and explosion groups [EEx ia] IIC or IIB resp. [EEx ib] IIC or IIB. The category as well as the explosion group of the SN-sensors depends on the connected supplying intrinsically safe circuit.

Electrical data

Evaluation and
supply circuit..... type of protection Intrinsic Safety EEx ia IIC/IIB
resp. EEx ib IIC/IIB
only for connection to certified intrinsically safe circuits
maximum values:

type 1	type 2	type 3	type 4
U_i = 16 V	U_i = 16 V	U_i = 16 V	U_i = 16 V
I_i = 25 mA	I_i = 25 mA	I_i = 52 mA	I_i = 76 mA
P_i = 34 mW	P_i = 64 mW	P_i = 169 mW	P_i = 242 mW

The assignment of the type of the connected circuit to the maximum permissible ambient temperature and the temperature class as well as the effective internal reactances for the individual types of SN-sensors is shown in the following table:

types	C_i [nF]	L_i [µH]	type 1			type 2			type 3			type 4		
			maximum permissible ambient temperature in °C for application in temperature class											
			T6	T5	T4-T1	T6	T5	T4-T1	T6	T5	T4-T1	T6	T5	T4-T1
NJ 2-11-SN...	50	150	73	88	100	66	81	100	45	60	89	30	45	74
NJ 2-11-SN-G...	50	150	76	91	100	73	88	100	62	77	81	54	63	63
NJ 2-12GK-SN...	50	150	73	88	100	69	84	100	51	66	80	39	54	61
NJ 3-18GK-S1N...	70	200	73	88	100	69	84	100	51	66	80	39	54	61
NJ 4-12GK-SN...	70	150	73	88	100	69	84	100	51	66	80	39	54	61
NJ 5-18GK-SN...	120	200	73	88	100	69	84	100	51	66	80	39	54	61
NJ 5-30GK-S1N...	100	200	73	88	100	69	84	100	51	66	80	39	54	61
NJ 6-22-SN...	110	150	73	88	100	69	84	100	51	66	80	39	54	61
NJ 6-22-SN-G...	110	150	76	91	100	73	88	100	62	77	81	54	63	63
NJ 6S1+U.+N...	180	150	73	88	100	69	84	100	51	66	80	39	54	61
NJ 8-18GK-SN...	120	200	73	88	100	69	84	100	51	66	80	39	54	61
NJ 10-30GK-SN...	120	150	73	88	100	69	84	100	51	66	80	39	54	61
NJ 15-30GK-SN...	120	180	73	88	100	69	84	100	51	66	80	39	54	61
NJ 15S-U.-N...	180	150	73	88	100	66	81	100	45	60	89	30	45	74
NJ 20S-U.-N...	200	150	73	88	100	66	81	100	45	60	89	30	45	74
NJ 40-FP-SN...	370	300	73	88	100	66	81	100	45	60	89	30	45	74
SJ 2-SN...	30	100	73	88	100	66	81	100	45	60	78	30	45	57
SJ 2-S1N...	30	100	73	88	100	66	81	100	45	60	78	30	45	57
SJ 3,5-S1N...	30	100	73	88	100	66	81	100	45	60	89	30	45	74
SJ 3,5-SN...	30	100	73	88	100	66	81	100	45	60	89	30	45	74

(16) Test report PTB Ex 00-29268

(17) Special conditions for safe use

1. For the application within a temperature range of -60 °C to -20 °C the SN-sensors, types NJ... and SJ... must be protected against damage due to impact by mounting into an additional housing.
2. The connection facilities of the SN-sensors, types NJ... and SJ... shall be installed as such that at least a degree of protection of IP20 according to IEC-publication 60529:1989 is met.
3. The assignment of the type of the connected circuit to the maximum permissible ambient temperature and the temperature class as well as the effective internal reactances for the individual types of SN-sensors is shown in the table given under item (15) of this EC-type-examination certifcate.

4. With the application in group IIC inadmissible electrostatic charge of the plastic housing has to be avoided for following types of SN-sensors (warning label on the device).:

   NJ 40-FP-SN...

5. Inadmissible electrostatic charge of parts of the metal houising has to be avoided for the following types of SN-sensors. Dangerous electrostatic charges of parts of the metal housing can be avoided by grounding of these parts whereas very small parts of the metal housing (e.g. screws) don't need to be grounded:

   NJ 2-11-SN-G...
   NJ 6-22-SN-G...
   NJ 6S1+U3+N...
   NJ 6S1+U4+N...
   NJ 15S+U3+N...
   NJ 15S+U4+N...
   NJ 20S+U3+N...
   NJ 20S+U4+N...
   NJ 40-FP-SN-P3...
   NJ 40-FP-SN-P4...

(18) Essential health and safety requirements

Met by the standards mentioned above

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Johannsmeyer
Regierungsdirektor

Braunschweig, October 05, 2000

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

1. E R G Ä N Z U N G

gemäß Richtlinie 94/9/EG Anhang III Ziffer 6

zur EG-Baumusterprüfbescheinigung PTB 00 ATEX 2038

Gerät: Stellungsregler Typ 3780 – 1...

Kennzeichnung: Ⓔx **II 2 G EEx ia IIC T6**

Hersteller: Samson AG Mess- und Regeltechnik

Anschrift: Weismüllerstr. 3, D-60314 Frankfurt

Beschreibung der Ergänzungen und Änderungen

Der Stellungsregler Typ 3780 – 1... darf künftig entsprechend den im zugehörigen Prüfbericht aufgeführten Prüfungsunterlagen gefertigt werden.

Die Ankoppelschaltung, die Schaltung der Logikplatine und die Schaltung für den Wegaufnehmer wurden auf Grund geänderter EMV-Grenzwerte modifiziert.

Die Änderungen betreffen den inneren und äußeren Aufbau.

Die elektrischen Daten ändern sich wie folgt:

Elektrische Daten

Signalstromkreis ..... (Klemmen 11/12)	in Zündschutzart Eigensicherheit EEx ia IIC nur zum Anschluss an einen bescheinigten eigensicheren Stromkreis
	Höchstwerte:
	U_i = 28 V
	I_i = 115 mA
	P_i = 1 W
	C_i = 5,3 nF
	L_i = 45 µH

Alle übrigen Angaben gelten unverändert auch für diese 1. Ergänzung.

Prüfbericht: PTB Ex 00-20260

Zertifizierungsstelle Explosionsschutz
Im Auftrag

Dr.-Ing. U. Johannsmeyer
Regierungsdirektor

Braunschweig, 10. Oktober 2000

Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin

PTB

TRANSLATION

ADDENDUM No.: 1

**in compliance with Directive 94/9/EC Annex III Clause 6
to the EC Type Examination Certificate PTB 98 ATEX 2038**

Equipment:	Model 3780-1... Positioner
Marking:	**II 2 G EEx ia IIC T6**
Manufacturer:	SAMSON AG
Address:	Weismüllerstr. 3, D-60314 Frankfurt, Germany

Description of the additions and modifications

In future the Model 3780-1... Positioner may be manufactured in compliance with the certification documents identified in the associated test report.

The coupling circuit, the wiring of the logic board and the wiring of the displacement transducer were modified because of changed EMC limit values.

The modifications relate to the design and construction.

The electrical data are changed as follows:

Electrical data:

Signal circuit (terminals 11/12)	Type of protection. Intrinsic safety EEx ia IIC only for connection to a certified intrinsically safe circuit

Maximum values:

U_i = 28 V
I_i = 115 mA
P_i = 1 W

C_i = 5.3 nF, L_i = 45 µH

All the other data apply without change also to this Addendum No. 1

Test report: **PTB Ex 00-20260**

Zertifizierungsstelle Explosionsschutz
By order

Braunschweig, 10. October 2000

(Signature) (Seal)

Dr. Ing. U. Johannsmeyer
Regierungsdirektor