

**MATERIAL AND EQUIPMENT STANDARD**

**FOR**

**SPECIAL PURPOSE COUPLINGS**

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## **0. INTRODUCTION**

This specification gives amendment and supplement to API Standard 671, Second Edition February 1990: "Special Purpose Couplings for Refinery Services"

It shall be used in conjunction with data sheets for Special purpose Couplings.

For ease of reference, the clause or section numbering of API Standard 671 has been used throughout this Specification.

Clauses in API Std. 671 not mentioned remain unaltered.

For the purpose of this Specification, the following definitions shall hold:

- Sub. (Substitution) : The API Std. Clause is deleted and replaced by a new clause.
- Del. (Deletion) : The API Std. Clause is deleted without any replacement.
- Add. (Addition) : A new clause with a new number is added.
- Mod. (Modification) : Part of the API Std. Clause is modified, and/or a new description and/or statement is added to that clause.

**1. GENERAL**

**1.1 SCOPE**

**1.1.1** This Standard Specification contains the minimum general requirements for special purpose couplings for use in refinery services, chemical plants, gas plants, petrochemical plants and where applicable in exploration, production and new ventures. (Mod.)

**1.1.6** Compliance by the coupling manufacturer with the provisions of this standard specification does not relieve him of the responsibility of furnishing coupling of proper design, mechanically suited to meet guarantees at the specified service conditions. (Add.)

**1.1.7** Unless specific exception accompanied by a description of the proposed substitute is recorded under the heading "Exception" in manufacturer's proposal, it shall be mutually understood that the proposal is based on equipment which complies strictly with the requirements of this Standard. (Add.)

**1.2 Alternative Designs**

**1.2.1** Equivalent SI Unit System dimensions and ratings shall be substituted, unless otherwise specified. (Mod.)

**1.3 Conflicting Requirements**

In the case of conflict between documents relating to the inquiry or order, the following priority of documents (whichever more stringent realized by Company) shall apply:

- First priority : Purchase order and variations thereto.
- Second priority : Data sheets and drawings.
- Third priority : This Standard Specification.

All conflicting requirements shall be referred to the purchaser in writing. The purchaser will issue conforming documentation if needed for clarification. (Sub.)

**1.5 Referenced Publications**

The latest edition of the following standards, codes and specifications shall be applied, to the extent specified herein:

**ASME (AMERICAN SOCIETY OF MECHANICAL ENGINEERS)**

Boiler and Pressure Vessel Code, Section VIII  
 "Rules for Construction of Pressure Vessels"

**ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS)**

A 388 "Practice for Ultrasonic Examination of Heavy Steel Forgings"

**IPS (IRANIAN PETROLEUM STANDARDS)**

M-PM-320 "Lubrication, Shaft Sealing, and Control Oil Systems for Special Purpose Application"

## **2. BASIC DESIGN**

### **2.1 General**

#### **2.1.4 Hub type**

The hubs shall be removable unless specified otherwise.(Sub.)

### **2.2 Gear Coupling**

**2.2.7** Lubrication shall conform to IPS-M-PM-320. (Mod.)

**2.2.9** It should be recognized that the selection and design of the gear coupling must follow the rotor design work and should exclude the coupling from becoming an item to risk reliability for cost savings. (Add.)

### **2.3 Flexible Element Coupling**

**2.3.2** Rivets, brazed or sweated connections are not acceptable for transmission of load. (Mod.)

**2.3.7** Diaphragm coupling rating and design shall be based on the maximum axial and radial misalignment anticipated during transient and steady state conditions. The shaft end clearances for assembly shall be specified by the Vendor. The diaphragms shall be coated with manufacturer's standard coating. Suitable for the specified environment. (Add.)

**2.3.8** Diaphragm coupling spacer piece resonant frequencies shall be removed at least 10 percent from all specified operating speed and from two times all specified operating speed. (Add.)

### **2.5 Balance**

#### **2.5.1 General**

All coupling components shall be match marked. For coupling requiring assembly balance or assembly check balance, match marking shall be performed after the balance or balance check and prior to subsequent disassembly of the coupling. (Mod.)

### **2.6 Materials**

**2.6.1** The metallurgy, heat treatment, and testing of all components shall be stated clearly in the Vendor's Proposal. (Mod.)

**2.6.5** When the environmental or other contaminant contains hydrogen sulfide, materials with hardness in excess of rockwell C-22 shall not be used. (Mod.)

**2.6.7** For direct motor driven units, the coupling shall be all steel and have a high torsional stiffness factor. (Add.)

## **4. MANUFACTURING QUALITY, INSPECTION, TESTING AND PREPARATION FOR SHIPMENT**

### **4.3 Inspection**

#### **4.3.2 Welds**

Inspection procedure and acceptance shall be in accordance with the ASME boiler and pressure vessel code, Section VIII, as following:

radiography, paragraph UW-51; magnetic particle, Appendix VI; and dye penetrant, Appendix VIII. When ultrasonic inspection is used, the procedures and acceptance criteria shall be in accordance with section VIII, Appendix XII unless otherwise agreed upon. (Mod.)

#### **4.3.3 Wrought raw materials**

Wrought materials shall be free from cracks, seams, laps, shrinkage and other injurious defects.

The Vendor shall ultrasonically inspect according to ASTM A 388 and shall assure the integrity of wrought materials for all torque transmitting parts as early as is practical in the manufacturing cycle. (Add.)

### **4.5 Preparation for Shipment**

**4.5.2** The expected storage location shall be outdoors in specified environmental conditions. (Mod.)

**4.5.3** The packing shall be prepared for export shipping. (Mod.)

## **5. VENDOR'S DATA**

### **5.1 Proposals**

e) Vendor's proposal for spare parts shall include proposed method of protection from corrosion during shipment and subsequent long term storage. (Mod.)

### **5.2 Contract Data**

**5.2.1.2** The following information shall also be included:

g) Manufacturer's name.

h) Year of manufacturing.

#### **5.2.4 Curves**

**5.2.4.1** Delete when specified from this Clause. (Mod.)

**5.2.4.2** Delete when specified from this Clause. (Mod.)

**6. GUARANTEE AND WARRANTY (Add.)**

Unless exception is recorded by the Vendor in his proposal, it shall be understood that the Vendor agrees to the following guarantees and warranties:

During a period of 12 months after the date of commissioning, the Vendor shall, with all possible speed and without cost to the purchaser, replace or repair the goods or any part thereof found to be defective due to faulty material, workmanship or to any act or omission of the Vendor. In particular the Vendor shall reimburse any transportation and other charges incurred by the purchaser in effecting such replacement or repair at the point of use. (Add.)

**APPENDICES****APPENDIX A  
COUPLING DATA SHEETS**

**A.1** SI Units Data Sheets shall comply, unless otherwise specified.  
(Mod.)