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شرکت ملی گاز ایران

مدیریت پژوهش و فنآوری

امورتدوین استانداردها

IGS

مشخصات فنی خرید

واشر حلقوی (کلاس ۱۵۰- ۳۰۰ - ۶۰۰)

Spiral Wound Gasket (Class Rating 150,300,600)

شرکت ملی گازایران

دفترمدیرعامل

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ابلاغ مصوبه هیأت مدیره

مدیر محترم پژوهش و فناوری

باسلام،

به استحضار می‌رساند در جلسه ۱۸۲۱ مورخ ۱۳۹۸/۰۱/۱۸ هیات مدیره، نامه شماره گ۹/۰۰۰/۱۷۰۷۱۴ مورخ ۱۳۹۷/۱۲/۲۵ آن مدیریت درمورد تصویب نهایی استاندارد به شرح زیر:

۱-مشخصات فنی خرید شیرهای قفل شونده قبل از رگولاتور جهت انشعابات شبکه های گاز فولادی IGS-M-PL-019(3)

۲-مشخصات فنی خرید تجهیزات ارسال و دریافت پیگ IGS-M-PL-028(2)

۳- مشخصات فنی خرید واشر حلقوی (کلاس ۱۵۰-۳۰۰-۶۰۰) IGS-M-PL-035(1)

مطرح و مورد تصویب قرار گرفت.

این مصوبه در حکم مصوبه مجمع عمومی شرکت‌های تابعه محسوب و لازم الاجرا می‌باشد.

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Foreword

This standard specification is intended to be mainly used by N.I.G.C. and contractors, and has been prepared base on interpretation of recognized standards and technical documents, as well as knowledge, backgrounds and experiences in gas industries at national and international levels.

Iranian Gas Specification (IGS) are prepared, reviewed and amended by technical standard committees within NIGC standardization division of research and technology management and submitted to "the standards council of NIGC" for approval.

IGSs are subjected to revision, amendment or withdrawal, if required, and thus the latest edition of IGS shall be checked / inquired by NIGC'S users.

This standard must not be modified or altered by NIGC employees or its contractors. Any deviation or conflicts between this specification and other applicable standards, codes, procedure or well-known manufacturer's specifications must be resolved in writing by the user or its representative through Manager, Engineering Department or standardization division of NIGC.

The technical standard committee welcomes comments and feedbacks from concerned or interested corporate and individuals about this standard, and may revise this document accordingly based on the received feedbacks.

General Definitions

Throughout this standard the following definitions, where applicable, should be followed:

1- "STANDARDIZATION DIV." is organized to deal with all aspects of industry standards in NIGC. Therefore, all enquiries for clarification or amendments are requested to be directed to mentioned division.

2- "COMPANY": refers to National Iranian Gas Company (NIGC).

3- "SUPPLIER": refers to a firm who will supply the service, equipment or material to IGS specification whether as the prime producer or manufacturer or a trading firm.

4- "SHALL ": is used where a provision is mandatory.

5- "SHOULD": is used where a provision is advised only.

6- "MAY": is used where a provision is completely discretionary.

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Contents

1. Scope

This technical specification covers minimum requirements of N.I.G.C. for purchase of spiral-wound gaskets, class 150, 300 and 600, suitable for use with raised face serrated finish flange described in reference flange standards IGS-M-PL-040 or ASME B16.5 or ASME B16.47, in piping and pipeline systems. Manufacturing, materials, dimensions, tolerances, testing and marking according to ASME B16.20 except as supplemented or amended by this specification.

Note: *This standard specification cancels and replaces the IGS-M-PL-035(0), which has been technically revised, and up dated.*

2. References

Throughout this standard specification, the following standards are referred to. The edition of these standards those are in effect at the time of issuing of this standard specification are noted in the reference. Applicability of any changes in standards that may occur after issuing the current specification shall be mutually agreed upon by the purchaser and supplier and / or manufacturer:

2.1-ASME B16.5:2017, "Pipe Flanges and Flanged Fittings – NPS 1/2" through 24".

2.2-ASME B16.47:2017, "Large Diameter Steel Flanges".

2.3-ASME B16.20:2017, "Metallic Gasket for Pipe Flanges ".

2.4-ISO 10474:2013, "Steel and Steel Products –Inspection Documents".

3. Definitions

3.1- DFT (Dry Film Thickness)

The thickness of a coating remaining on the surface when the coating has hardened.

3.2- Type Test

Testing performed on typical samples to prove that material, design, manufacturing and etc is capable of conforming to the requirements given in the relevant standard. Type test certificate is valid until the material, designation or production methods remain unchanged.

4. Materials

4.1- General Requirements

The materials shall be specified in the purchase order. These materials shall be suitable for service conditions (media, design pressure & design temperature). If it does not specified, the manufacturer shall comply with 4.2 to 4.5.

4.2- Metallic Winding Materials

The material used for the metallic winding in the sealing element shall be in according to ASME B16.20, Table SW-3-1 with at least stainless steel grade 304, performed V-shaped.

4.3- Nonmetallic Filler Materials

The filler material shall be non-asbestos according to ASME B16.20, Table SW-3-1 with at least graphite or P.T.F.E.

4.4- Outer/ Centering Ring

The centering ring shall be at least made of carbon steel which is painted with epoxy,

minimum DFT of 50 micron or Ni/Cr plated to inhibit atmospheric corrosion. The degree of clearance between the sealing element and the centering ring shall be such that the sealing element will not fall out of the ring during normal handling.

4.5- Inner Ring

If inner ring required in purchase order, the inner- ring material should match the winding material.

4.6- For NPS ≤10, the inner and centering ring shall be furnished in one piece and without any weld seam. For 12≤ NPS ≤40, the inner and centering ring shall be one piece, with only one weld seam. For NPS ≥42, the inner and centering ring shall be furnished in two pieces with maximum two weld seam.

5 Rating

5.1- Gaskets shall be suitable for the media, maximum design pressure, operating pressure and operating temperature specified in purchase order.

5.2- Gaskets shall be capable of withstanding a field hydrostatic pressure test at least 1.5 times of the design pressure without any leakage and detrimental effect on sealing properties in service.

6. Type Testing

6.1- Performance Test

For all corresponding sizes and pressure classes, finished gaskets shall be capable of meeting leakage test as per ASME B16.20 Para SW-2.6.

6.2- Gasket Compression Test.

Spiral-wound gaskets NPS 1⁄2, NPS 3⁄4, and NPS 1 in Classes 150, 300, and 600 shall be designed so that a uniform bolt stress of 172 Mpa (25,000 psi), based on the nominal bolt root diameter, will compress the gasket to a thickness of 3.30 mm ±0.13 mm (0.130 in. ± 0.005 in.). All other gasket sizes and classes shall be designed so that a uniform bolt stress of 207 MPa (30,000 psi) will compress the gasket to a thickness of 3.30mm± 0.13mm(0.130 in. ± 0.005 in.).

7. Reports, Certificates and Documents

The manufacturer/suppler shall issue followings inspection certificate 3.1 as per ISO 10474:

- Technical catalog.
- ASME B16.20 certificate.
- Certified reports giving chemical analysis and mechanical properties of materials.
- Type testing certificates for Performance test and gasket compression test.
- Filled, signed and stamped data sheets (Annex A).

8. Packaging and Shipment

The gaskets shall be enclosed in moisture resistant wrappings and packed in such a way as to prevent damage in transit or during storage. Small diameter gaskets (NPS ≤8) shall be grouped in cardboard boxes and large-diameter gaskets (NPS≥10) shall be individually fixed between fiber boards. The shipping mark (in English) shall be stenciled with black color displayed on at least two sides of each package include of:

-Manufacturer name.
-Order number.
-Name of purchaser.
-Description of goods (size, class, Quantity, etc).
-Weight.
-Destination.

9. Marking

Marking and color coding of each gasket shall be as per ASME B16.20.

10. Purchase Order Information

For each item, the following information shall be specified in the purchase order:

- Order No.
- Manufacturing standard (ASME B16.20 or IGS-M-PL-035).
- Flange standard, class, size, type and series .
- Service condition (media, design pressure, operating pressure and temperature).
- Strip winding material.
- Filler material.
- Outer / Centering ring material and coating.
- Inner ring material (if required).
- Packaging.

Appendix A -Data Sheet

	Elements		N.I.G.C requirement	Manufacturers comments
General Information				
1	Manufacturers Name:			
2	Order No:			
3	Customer /Project No:			
4	Media:			
5	Maximum operating pressure:		---------- psi	
6	Maximum operating temperature:		-------- °C	
Specification				
7	Size :			
8	Rating		□ 150 □300 □ 600 □ other….	
9	Manufacturing standard		□ ASME B 16.20 □ IGS-M-PL-035	
10	Flange standard		□ ASME B 16.5	
			□ ASME B 16.47 □ Series A	
			□ Raised face □ Serrated finished	
Materials				
11	Centering ring		□ Carbon Steel □ Epoxy painted □ DFT=min 50µ □ Cr / Ni plated □ Other:…..	
12	Inner ring	Required	Material: □ one piece, seamless (NPS≤10) □ 1 piece, One seam (12≤ NPS≤40) □ 2 pieces, Two seam NPS≥ 42	
		□ Not Required		
13	Filler		□ P.T.F.E □ Graphite □ Other ……	
14	Metallic Winding		□ SS 304 □ Other…….	
Testing & Inspection				
15	Manufacturing		□ ASME B 16.20	
16	Test Certificate		□ Mechanical properties □ Chemical Analysis □ Dimension &Tolerances	
17	Type tests		□ Performance Test as per ASME B16.20, para SW-2.6	
packaging				
18	All sizes		□ Moisture resistant wrapped	
	NPS≤8”		□ Card board box	
	10 “≤NPS		□ Fixed between fiber boards	

Note:
- The above data sheet shall be filled for each item.
- Deviation from this specification shall be clearly specified by manufacturer/supplier.
- This data sheet shall be signed and sealed by manufacturer's authorized person.