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مشخصات فنی خرید

شیرهای قفل شونده جهت انشعابات پلی اتیلنی گاز

Technical specification of Meter Stop Valves for service risers
of P.E. gas



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باسلام،

به استحضار می‌رساند در جلسه ۲۰۳۰ مورخ ۱۴۰۲/۰۷/۲۳ هیأت مدیره، نامه شماره گ.۹۶۵۰۰/۰۰۰/۰۴ مورخ ۱۴۰۲/۰۶/۰۴ مدیر پژوهش و فناوری در مورد تصویب نهایی مقررات فنی شرکت ملی گاز ایران به شرح زیر مطرح و مورد تصویب قرار گرفت.

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FOREWORD

This standard is intended to be mainly used by NIGC and contractors, and has been prepared based on interpretation of recognized standards, technical documents, knowledge, backgrounds and experiences in natural gas industry at national and international levels. Iranian Gas Standards (IGS) are prepared, reviewed and amended by technical standard committees within NIGC Standardization division and submitted to the NIGC's "STANDARDS COUNCIL" for approval. IGS Standards are subject to revision, amendment or withdrawal, if required. Thus, the latest edition of IGS shall be checked/inquired by NIGC employees and contractors. This standard must not be modified or altered by NIGC employees or its contractors. Any deviation from normative references or well-known manufacturer's specifications must be reported to Standardization division. The technical standard committee welcomes comments and feedbacks 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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1. SCOPE

This standard covers minimum NIGC's requirements for Material selection, Manufacturing, Inspection, Testing and Marking of an assembly including cast iron Meter Stop Valves (MSV), a one-piece forged carbon steel coupling and malleable nut which are suitable for installation on branches (service risers) of polyethylene natural gas distribution network in $\frac{3}{4}$ and 1-inch sizes and pressure rating of 125 psi.

2. REFERENCES

Throughout this standard specification, the following standards & codes are Referred to, the edition of these standards & codes those are in effect at the time of issuing of this standard specification. The applicability of changes in standards & codes that occur after the date of standards that referred shall be mutually agreed upon by the purchaser and supplier and / or manufacturer.

A105/A105M-23:2023, "Standard Specification for Carbon Steel Forgings for Piping Application".

ANSI/ASME B 1.20.1:2013, "Pipe Threads, General Purpose (inch)".

ANSI/ASME B 16.33:2002, "Manually Operated Metallic Gas Valves for Use in Piping Systems up to 125 psi (Sizes NPS 1/2 through NPS 2)".

ANSI/ASQ Z1.4:2018, "Sampling Procedures and Tables for Inspection by attributes".

ASTM A123/A123M-17:2017, "Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products".

ASTM A-126: 2019, "Standard Specification for Gray Iron Casting for Valves, Flanges and Pipe Fittings".

ASTM B.16: 2015, "Standard Specification for Free-Cutting Brass Rod, Bar and Shapes for Use in Screw Machines".

ASTM B.61: 2013, "Standard Specification for Steam or Valve Bronze Castings".

ASTM B.62: 2009, "Standard Specification for Composition Bronze or Ounce Metal Castings".

ASTM B117-19: 2019, "Standard practice for operating salt spray(fog) apparatus".

ASTM B283: 2016, "Standard Specification for Copper and Copper-Alloy Die Forgings (Hot-Pressed)".

ASTM B584: 2022, "Standard Specification for Copper Alloy Sand Casting for General Applications".

BS EN 13787:2001, "Elastomers for Gas Pressure Regulators and Associated Safety Devices for Inlet Pressure up to 100 bar".

BS EN 13858:2006, "Corrosion protection of metals –Non-electrically applied zinc flake coatings on iron or steel components".

BS EN 1562:2019, "Founding. Malleable cast irons".

BS EN 1563:2018, "Founding - Spheroidal graphite cast irons".

DIN 7168:1991, "General Tolerances for Linear and Angular Dimensions and Geometrical Tolerances".

IGS-M- CH-037(1):2022, "Sealant and Lubricant grease for Ball and Plug Valves".

IGS-M-PL-037:2021, "Malleable / Ductile Cast Iron Fittings".

ISO 4628-3:2016, "Paints and varnishes – evaluation of degradation of coatings- Designation of quantity and size of defects, and of intensity of uniform changes in appearance-Part3: Assessment of degree of rusting".

ISO 9227:2022, "Corrosion tests in artificial Atmospheres-Salt spray tests".

3. DEFINITIONS

IGS Iranian Gas Standard

NIGC National Iranian Gas Company

NPS Nominal Pipe Size (inch)

NPT National Pipe Taper thread

IRHD International Rubber Hardness Degree

IRM Industry Reference Materials

TPI Thread per inch

BRT (Batch release test)

Test Performed by the manufacturer on a batch of same fitting (size, thickness, heat No, heat treatment) which has to be satisfactorily completed before the batch can be released. The batch size is specified by manufacturer in accordance with ANSI/ASQ Z1.4 or mutually agreement between manufacturer/supplier and purchaser.

TT Or Type test:

Testing performed to prove that the material, component, assembly is capable of conforming to the requirements given in this specification.

In addition, relevant type tests shall be carried out and relevant certificate shall be submitted whenever there is a change in design or in the production method other than routine in-process adjustment and any change in raw material such as brand, production designation, production location, production line etc.

In case of no changes in above mentioned items, the certificate of type tests (TT) shall be renewed every five years by an approved independent certification body.

Batch Clearly identifiable collection of units, manufactured consecutively or continuously under the same conditions, using material or compound conforming to the same specification.

4. SPECIFICATION

All Meter Stop Valves (MSVs) manufactured based on this standard are suitable for installation on branches (risers) of polyethylene natural gas distribution networks shall have following general specifications:

4.1 Manually operated, taper lubricated plug valve according to standard ANSI/ASME B16.33:2002 containing additional specification detailed in this standard.

4.2 Cast iron body.

4.3 Straight way.

4.4 Tamper proof for above ground installation completed with a lock wing to lock the valve in the closed position.

5. MATERIALS

5.1- Body

The body of MSV shall be made of following material based on manufacturer design and purchaser agreement.

5.1.1-Gray cast iron according to ASTM A126 class B.

5.1.2- Ductile cast iron according to DIN EN 1563.

5.2-Plug and retaining nuts and washers

Shall be manufactured according to ASTM B61, ASTM B62, ASTM B283 or ASTM B584 (Retaining nuts and washers can be manufactured according to ASTM B 16 based on the agreement between purchaser and manufacturer).

5.3-The outlet of MSV body shall be male thread completed with a one-piece, forged carbon-steel coupling together by an associated malleable or ductile cast iron nut.

Note: The manufacturer shall declare the material grade of MSV components on the condition that it meets the mechanical specification expected by the purchaser. Chemical analysis shall be performed upon each heat for all elements specified in the respective standard.

5.4- Elastomeric materials

Elastomeric materials shall be made of durable grade of Nitrile Rubber, Buna-N (NBR) or Viton, to perform complete sealing in the working temperature range of -29 to +65 degrees Celsius without losing their quality. O-rings shall conform to the required values and tolerances given in Table 1, BS EN 13787.

5.5- One-piece coupling

The body of one-piece coupling shall be made of hot worked forging carbon steel material according to ASTM A105 and tensile requirements specified in Table1.

Table 1: TENSILE REQUIREMENTS

TENSILE REQUIREMENTS			
Standard	Yield point Min	Tensile strength Min	Elongation Min, %
	ksi	ksi	
ASTM A105	36	70	20

5.5.1- The carbon equivalent of forged parts which are calculated by the following formula shall not exceed 0.42.

$$CE = C + (Mn/6) + ((Cr + Mo + V)/5) + ((Ni + Cu)/15)$$