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شرکت ملی گاز ایران

مدیریت پژوهش و فناوری

امور تدوین استانداردها

# IGS

مشخصات فنی خرید

شیرهای قفل شونده قبل از رگولاتور جهت انشعابات شبکه های گاز فولادی

Meter Stop Valves for Steel Gas Service Lines



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شرکت ملی گاز ایران

دفتر مدیر عامل

## ابلاغ مصوبه هیأت مدیره

مدیر محترم پژوهش و فناوری

باسلام،

به استحضار می‌رساند در جلسه ۱۷۵۵ مورخ ۱۳۹۶/۸/۲۱ هیأت مدیره، نامه شماره گ. ۱۰۳۹۶۲/۰۰۰/۹ مورخ ۹۶/۸/۸ مدیر پژوهش و فناوری در مورد تصویب نهایی استانداردها به شرح زیر مطرح و مورد تصویب قرار گرفت:

۱. مشخصات فنی شیرهای قفل شونده قبل از رگولاتور جهت انشعابات شبکه‌های گاز فولادی

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۲. مشخصات فنی شیرهای سماوری جوشی / فلنجی، اندازه‌های ۲ تا ۲۴ اینچ کلاس‌های

IGS-M-PL-002-1(4)

۱۵۰، ۳۰۰ و ۶۰۰

IGS-C-SF-011(1)

۳. دستورالعمل کدگذاری رنگ سیلندرهای گاز

۴. مشخصات فنی لوله‌های فولادی بدون درز / درزجوش گرید B، اندازه‌های ۱/۲ تا ۴ اینچ

IGS-M-PL-001-1(1)

۵. دستورالعمل بازرسی دوره‌ای بالابر زنجیری دستی و اهرمی

IGS-I-GN-006(0)

۶. دستورالعمل بازرسی دوره‌ای جرثقیل‌های متحرک

IGS-I-GN-005(0)

این مصوبه به منزله مصوبه مجمع عمومی شرکت‌های تابعه محسوب و برای کلیه شرکت‌های تابعه لازم الاجرا می‌باشد.

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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 and / 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 DEFINITION:**

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 NIGC 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 specification cover minimum NIGC'S requirements for Material, Manufacturing, Inspection, Testing and Marking of Meter Stop Valves for steel pipe gas riser, 3/4 and 1 inch sizes, pressure rating 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.

### 2.1. Normative references

ANSI 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 B 1.20.1:2001 Pipe Threads, General Purpose (inch).

ASTM A-126:2001 Standard Specification for Gray Iron Casting for Valves ,Flanges and Pipe Fittings.

ASTM B.16:2002 Specification for Free-Cutting Brass Rod, Bar and Shapes for Use in Screw Machines.

ASTM B.61:2002 Standard Specification for Steam or Valve Bronze Castings.

ASTM B.62:2002 Standard Specification for Composition Bronze or Ounce Metal Castings.

ASTM B584:2006 Standard Specification for Copper Alloy Sand Casting for General Applications.

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

## 3. Symbols and abbreviated terms

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

#### **4. specification**

Meter stop valve , manually operated , lubricated taper plug valve , cast iron body , straight way , tamper proof for above ground installation complete with lock wing for locking the valve in closed position , suitable for steel pipeline gas distribution system.

#### **5. Materials**

**5.1-**The material of body shall be made of gray cast iron at least according to ASTM A-126 class B. Plug, Retaining nuts and washers shall be according to ASTM B 61 or ASTM B 62 or ASTM 584 (Retaining nuts and washers can be according to ASTM B-16).

**5.2-** Elastomeric materials such as NBR used for O-rings, shall be according to EN 13787 with requirements as per table1

**5.3-**The outlet of body shall be male thread which completed with insulating carbon steel half union together with associated malleable/ductile cast iron nut. The insulating material used for electrical insulation shall be of good long term stability and excellent dielectric strength.The half union shall be suitably protected from atmospheric corrosion for long time .

#### **6. Inspection and Tests**

**6.1-** The valve shall be tested in accordance with ANSI B 16.33 .

**6.2 -** The outlet of half union shall be female thread in accordance with ANSI B 1.20.1.

**6.3-**The body inlet shall be female NPT thread in accordance with ANSI B 1.20.1.

**6.4-**The lubrication screw hexagonal socket shall be 1/8" NPT-27tpi as per FIG 1.

**6.5-** The assembled valve (body with insulating half union and nut) prior to the hydrostatic test shall be:

a) Megger tested with 1000 volts D.C.Minimum resistance shall be 4 M-OHMS. b) Dielectric tested at 3000 volts A.C. 50 HZ for one minute. There shall be no breakdown.

**6.6-** All valves shall be leak tested in closed position pneumatically at 1.5 times of pressure rating. Works inspection certificate shall be submitted by Manufacturer/supplier

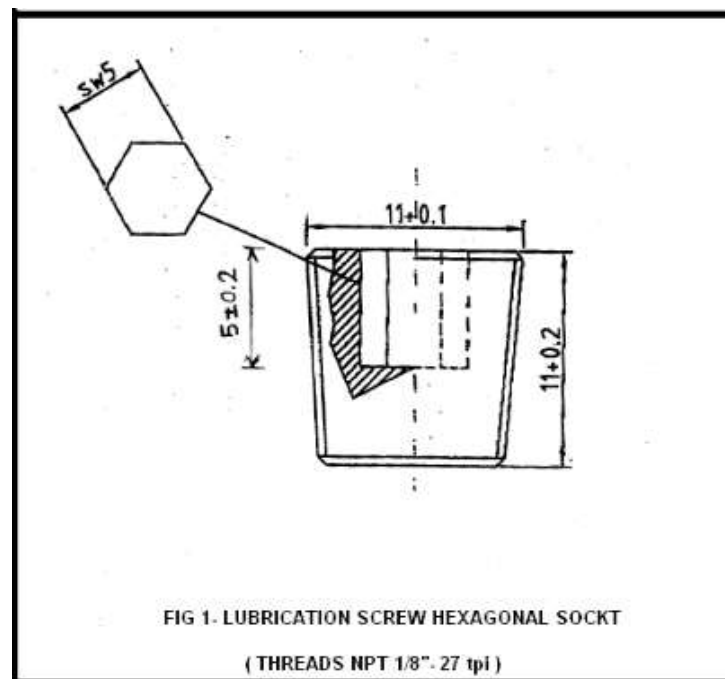
**6.7-** Factory material certificates are required.

**6.8-** Drawings shall be approved by NIGC.

**6.9-** Sizes NPS  $\frac{3}{4}$  or NPS 1, as per purchase order

## 7. Marking

Marking shall be in accordance with ANSI B 16.33.



**Table 1- Requirements of elastomers for seals**

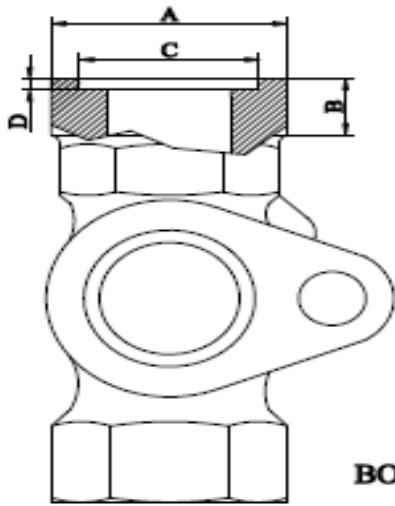
characteristics	requirements	Test parameters	Test method
Visual(general)	Homogeneous, free from porosity, inclusions, grit, blisters and surface imperfections.	-----	Visible with the naked eye
Hardness	change in hardness shall be $\pm 5$ IRHD of the nominal hardness declared by the manufacturer.	Preferably according to the micro-test method	ISO 48 (1994)
compression set	- high temperature : Max 25 %  - low temperature : Max 40 % Max 50 %	- At high temperature: After 24 hours at 70 ° C  - At low temperature after 24 hours at -10 ° C or 24 hours at -20 ° C	ISO 815 (1991) Type B
Resistance to lubricants	change in mass shall be between -10% and +15 % & change in hardness shall be $\pm 10$ IRHD. -No sign of delamination , blistering or deterioration .	Immersion 168 $\pm$ 2 hour in oil No.2( IRM 902) at 70 $\pm$ 2 ° C	ISO 1817 (1999)
Resistance to gas	change in mass: - after immersion shall be between -5% and +10% - after drying shall be between -8 % and +5% and no sign of delamination , blistering or deterioration.	- Immersion 72 $\pm$ 2 hour at 23 $\pm$ 2 ° C in n-pentane (min 98%)  - Drying 168 $\pm$ 2 hour at 40 $\pm$ 2 ° C in an oven	ISO 1817 (1999)
Resistance to ageing	No sign of delamination, blistering or deterioration.	Duration : 168 $\pm$ 2 hour Temp : 70 $\pm$ 2 ° C	Visible with the naked eye
	change in hardness shall not be more than $\pm 10$ IRHD		ISO 48(1994)
Low temperature flexibility test	Sufficient flexibility and no sign of delamination, blistering or deterioration.	Duration : 1 hour Temp : -29 $\pm$ 1 ° C	Visible with the naked eye.



**ANNEX1**

**INFORMATIVE**

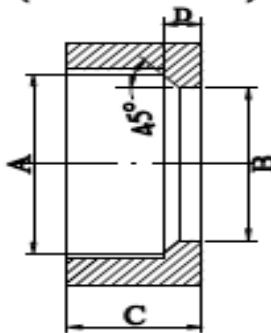
**Dimensions (mm) for meter stop valve**



**BODY 3/4-1 "**

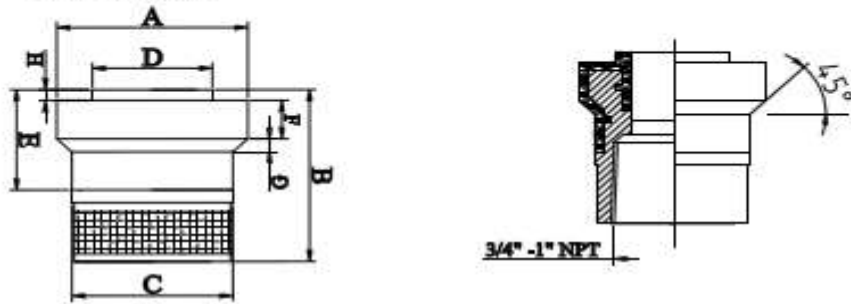
BODY		A	B	C	D	UNIT
SIZE VALVE	3/4"	M 42*2	12 +2	32±0.1	2.3±0.3	MM
	1"	M50* 2	15 +2	38.5±0.2	3+0.2	MM

**CAST IRON NUT  
(VALVE 3/4"-1")**



CAST IRON NUT		A	B	C	D	UNIT
SIZE VALVE	3/4"	M 42*2	35 ±0.5	24±1	7 +0.5	MM
	1"	M50*2	41.5±0.2	28+1	7 +0.5	MM

**INSULATING CARBON STEEL  
HALF UNION 3/4-1"**



INSULATED		A	B	C	D	E	F	G	H	UNIT
SIZE	3/4"	39.5-1	40+1	33.3+0.1	24.8+0.1	23.5	9+0.2	3	2.5±0.3	MM
	1"	47+0.1	43.8+1	41+0.1	31.5+0.1	28+0.1	9.5	3	3	MM

**O RING 3/4" -1"**



O RING		A	B	UNIT
SIZE	3/4"	31.5	3.7	MM
	1"	38	4	MM