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National Iranian Gas Co.

مدیریت پژوهش و فناوری

Research and Technology Management

امور تدوین استانداردها

Standardization Division

IGS

Iranian Gas Standards

Specification for :

مشخصات فنی :

Dry Gas Filter

دستگاه فیلتر گاز (خشک)

APPROVED

FOREWORD

This standard is intended to be mainly used by **NIGC** and contractors and has been prepared on interpretation of recognized standards , technical documents , knowledge ,backgrounds and experiences in gas industries at national and international levels.

Iranian Gas Standards (**IGS**) are prepared , reviewed and ammended by technical standard committees within NIGC Standardization Div. 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** users .

This standard must not be modified or altered by the end users within **NIGC** and her contractors. Any deviation from normative references and/or well known manufacturers specifications must be reported to Standardization div.

Any comments from concerned parties on **NIGC** distributed **IGS** are welcome to technical standards committees and will receive serious attention and consideration should a revision to standards is recommended .

GENERAL DEFINITIONS :

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

1- "**STANDARDIZATION DIV.**" has been organized to deal with all aspects of industrial standards in NIGC . Therefore , all queries for clarification or amendments are requested to be directed to the mentioned div.

2- "**COMPANY**" : refers to national iranian gas company .

3- "**SUPLIER**" : 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.

Website : <http://igs.nigc.ir>

E-mail : nigcigs@nigc.org

پیشگفتار

- ۱- این استاندارد/دستورالعمل بمنظور استفاده اختصاصی در شرکت ملی گاز ایران و شرکتهای فرعی وابسته تهیه شده است.
- ۲- شرکت ملی گاز ایران در مورد نیازهای عمومی از استانداردهای وزارت نفت (IPS) و در مورد نیازهای اختصاصی از استانداردهای اختصاصی خود (IGS) استفاده می نماید.
- ۳- استانداردهای شرکت ملی گاز ایران (IGS) توسط کمیته های تخصصی استاندارد متشکل از کارشناسان بخش های مختلف و یا مشاور تهیه می شود و توسط شورای استاندارد (منتخب هیئت مدیره شرکت ملی گاز ایران) به تصویب میرسند.
- ۴- در تنظیم متن استانداردهای (IGS) از کلیه منابع شناخته شده استاندارد، اطلاعات فنی - تخصصی مربوط به صنایع گاز دنیا، مشخصات فنی تولیدات سازندگان معتبر جهانی و نیز از نتیجه تحقیقات و تجربیات کارشناسان و متخصصان داخلی بر حسب مورد استفاده می شود. همچنین بمنظور استفاده هر چه بیشتر از تولیدات داخلی قابلیت های سازندگان داخلی نیز مورد توجه قرار میگیرد.
- ۵- استانداردها از طریق پایگاه اینترنتی شرکت * و یالوح فشرده (CD) در اختیار واحدها و کاربران قرار می گیرد .
- ۶- استانداردها بطور متوسط هر ۵ سال یکبار و یادر صورت ضرورت زودتر، مورد بازنگری و بروزرسانی قرار میگیرند. بنابراین کاربران باید همیشه آخرین نگارش را مورد استفاده قرار دهند.
- ۷- هرگونه نظر و یا پیشنهاد اصلاح در مورد استانداردها مورد استقبال و بررسی قرار خواهد گرفت و در صورت تأیید، استاندارد مربوطه نیز مورد تجدید نظر قرار خواهد گرفت .

تعاریف عمومی

در متن استانداردهای (IGS) از تعاریف و اصطلاحات زیر استفاده میشود.

- ۱- "شرکت" (COMPANY): منظور از شرکت "شرکت ملی گاز ایران" و یا شرکتهای فرعی وابسته میباشد.
- ۲- "فروشنده" (SUPPLIER/VENDOR): به فرد یا موسسه ای اطلاق میگردد که تعهدی رانسبت به شرکت تقبل نموده است.
- ۳- "خریدار" (PURCHASER): منظور از خریدار "شرکت ملی گاز ایران" و یا شرکتهای فرعی وابسته میباشد.
- ۴- "SHALL": در مواردی بکاربرده میشود که انجام خواسته مورد نظر اجباری است
- ۵- "SHOULD": در مواردی بکاربرده میشود که انجام خواسته مورد نظر ترجیحی و درعین حال اختیاری است
- ۶- "MAY": در مواردی بکاربرده میشود که انجام کار به شکل مورد بحث نیز قابل قبول میباشد

* آدرس پایگاه اینترنتی (<http://igs.nigc.ir>) ، آدرس الکترونیکی (nigcigs@nigc.ir)

1.0 SCOPE

- 1.1 THIS SPECIFICATION , TOGETHER WITH THE RELEVANT DATA SHEETS AND DRAWINGS , COVERS THE GENERAL REQUIREMENTS FOR THE DESIGN, MATERIALS , MANUFACTURE, TESTING , INSPECTION AND PACKING FOR SHIPMENT OF A DRY GAS FILTER AND THE REQUIRED INSTRUMENTATION. THE VENDOR SHALL FURNISH COMPLETE OPERATING UNITS INCLUDING ALL NECESSARY ITEMS SUCH AS VALVES, ETC TO ENSURE SATISFACTORY OPERATION.**
- 1.2 THIS SPECIFICATION IS PART OF THE ENQUIRY AND PURCHASE ORDER, IT SHALL BE THE SUPPLIER RESPONSIBILITY TO CLEARLY INDICATE AND DEVIATION FROM THE SPECIFICATIONS OTHERWISE IT IS UNDERSTOOD THAT THE EQUIPMENT CONFORMS TO THE REQUIREMENTS OF THIS SPECIFICATION.**
- 1.3 THE SPECIFICATION DOES NOT SUPERSEDE THE ACCEPTED PRESSURE VESSEL CODES BUT ONLY SUPPLEMENTS THEM WITH REGARD TO CERTAIN COMDITIONS NOT FULLY COVERED IN THE CODES.**
- 1.4 THE EQUIPMENT SHALL BE DESIGNED FOR FULL LOAD ,UNATTENDED CONTINUOUS OPERATION WITHOUT THE PROVISION OF SPECIAL HOUSING OR SHELTERS ETC.**
- 1.5 THE UNIT SHALL BE COMPLETELY ASSEMBLED , TESTED AND PAINTED ACCORDING TO THE STANDARDS , CODES AND SPECIFICATION QUOTED HERE IN AND SHALL REQUIRE ONLY PIPE CONNECTIONS BEFORE BEING PLACED INTO SERVICE.**

2.0 REFERENCE CODES AND STANDARDS

- 2.1 THE LATEST REVISIONS OF ALL CODES AND STANDARDS THEIR SUBSEQUENT ADDENDAS ARE INTENDED.**

- 2.2 ASME BOILER AND PRESSURE VESSEL CODE:
SECTION VIII DIVISIONS 1- “UNFIRED PRESSURE VESSELS:
SECTION IX “ WELDING AND BRAZING QUALIFICATIONS”
- 2.3 ANSI B.16.5 “ STEEL PIPE FLANGED FITTINGS:
- 2.4 ANSI B.16.11 “ FORGED STEEL FITTINGS SOCKETWELDING
AND THREADED”.
- 2.5 ANSI B.16.20 RING JOINT GASKET AND GROOVES FOR STEEL
FLANGES ANSI B.16.21 NON-METALIC FLAT GASKETS FOR PIPE
FLANGES.
- 2.6 ANSI B.18.2.1 AND B.18.2.2 “ BOLTING”.
- 2.7 ANSI B.31.8 “ GAS TRANSMISSION AND DISTRIBUTION PIPING
SYSTEM”.
- 2.8 ANSI B.31.3 “ PRESSURE PIPING” .

3.0 MATERIALS AND COMPONENTS-GENERAL REQUIREMENTS

- 3.1 THE DRY GAS FILTER SHALL BE VERTICAL TYPE OF CAST OR
FABRICATED CONSTRUCTION AND SELF SUPPORTING BY
MEANS OF FEET , SKIRT OR LEGS WHICHEVER, IS THE MOST
SUITABLE FOR THIS PURPOSE .
- 3.2 LIQUID DRAIN VALVE(S) AS PER CLAUSE 4.10 OF THIS
SPECIFICATION ARE REQUIRED.
- 3.3 DIAL TYPE DIFFERENTIAL PRESSURE GAUGE, AS PER CLAUSE
4.11 OF THIS SPECIFICATION ARE REQUIRED.
- 3.4 QUICK TYPE CLOSSURE ARE PREFERABLE BUT BOLTED TYPES
ARE ALSO ACCEPTABLE FOR FOLLOWING BODY SIZES AND
PRESSURE RATINGS.

PRESSURE RATING	BODY SIZE		
ASA 150	10 INCHES (UPTO NOT INCLUDING)		
ASA 300	6	“	“
ASA 600	4	“	“

THE CLOSURE SHALL HAVE APPROPRIATE HANDLES FOR LIFTING IT BY HAND.

3.5 QUICK OPENING END CLOSURE AS PER 4.7 OF THIS SPECIFICATION ARE REQUIRED FOR SIZES NOT MENTIONED IN 3.4

4.0 DESIGN

4.1 FILTER SHALL BE DESIGNED, MANUFACTURED, INSPECTED AND TESTED IN ACCORDANCE WITH THE LATEST DEITION OF THE ASME BOILER AND PRESSURE VESSEL CODE, SECTION VIII, DIVISION 1 AND ITS SUBSEQUENT ADD AND ASME 'U' STAMPED VESSELS ARE REQUIRED.

THE VESSELS WILL BE OPERATING IN OUTDOOR CONDITION , UNDER SUN AND RAIN.

4.2 FILTER SHALL BE DESIGNED TO WITHSTANDE THE LOADS EXERTED BY INTERNAL PRESSURE , WEIGHT OF THE VESSEL , WIND , EARTHQUAKE , IMPACT AND TEMPERARURE.

4.3 FILTER SHALL BE DESIGNED TO REMOVE ENTRAINED SOLID PARTICLES DOWN TO 5 MICRONS FROM THE DRY GAS TREAM USING A DISPOSABLE CLEANABLE CARTRIDGE ELEMENT SUPPORTED BOTH INTERNALLY AND EXTERNALLY BY A MILD STEEL CADMIUM PLATED DOUBLE WALLED BASKE .

4.4 CARTRIDGE ELEMENT SHALL PREFERABLY BE OF THE OPENENDED TYPE MANUFACTURED FROM EITHER A WOVEN POLYPROPELENE FIBER OR PHENO... RESIN BONDED GLASS FIBER OR SUITABLE EQUIVALENTS.

4.5 FILTER ELEMENT SHALL BE FIRMLY CLAMPED ONTO THE BASKET SEAT TO PREVENT ANY POSSIBLE BY PASS OF PARTICLES OVER 5 MICRONS IN SIZE.

4.6 THE FILTER SHALL BE DESIGNED TO GIVE A MINIMUM FLANGE TO FLANGE CLEAN PRESSURE DROP, (NORMALLY

LESS THAN 2 PSI) AND THE ELEMENTS SHALL BE CHANGED AT DIRTY PRESSURE DROP OF 10 PSI BUT BE CAPABLE OF WITHSTANDING UP TO 25 PSI DEFFERENTIAL PRESSURE WITHOUT ANY DAMAGE OCCURRING.

- 4.7 ALL FILTERS EXCEPT THOSE OF 3.4 SHALL BE FITTED WITH A QUICK AND EASY OPENING FULL BORE END CLOSURE TO ALLOW RAPID REPLACEMENT OF CARTRIDGE ELEMENTS WITH THE MINIMUM OF DOWN-TIME, CLOSURE TO BE FITTED WITH DAVIT.

TWO TYPES OF CLOSURE ARE ACCEPTABLE I.E . CLOSURES OF THE “YOKE” TYPE OR 360 LOCKING TYPE.

- 4.7.1 CLOSURES SHALL COMPLY WITH ASME VIII DIVISION 1 SUB SECTION A PART UG-35 IN SO FAR AS CLOSURES SHALL BE DESIGNED AND INSTALLED SO THAT IT MAY BE DETERMINED BY VISUAL EXTERNAL OBSERVATION THAT THE LOCKING ELEMENT IS IN GOOD CONDITION AND IN FULL ENGAGEMENT WHEN THE CLOSURE IS IN THE CLOSED POSITION.

- 4.7.2 TOKE TYPE CLOSURES SHALL BE DEFINED AS A DOUBLE ANCHORED RETAINING BRIDGE WITH A SINGLE SCREW LOCKING ELEMENT SUCH THAT THE COVER CAN BE SWUNG CLEAR OF THE FILTER IN MORE THAN ONE DIRECTION.

- 4.7.3 QUICK OPENING CLOSURE SHALL BE DESIGNED SO THAT NO TOOLS, LIFTING GEAR OR SPECIALLISED KNOWLEDGE ARE REQUIRED FOR OPERATION.

- 4.7.4 THE FILTER SHALL BE EQUIPPED WITH A VENT VALVE TO DEPRESSURIZE IT PRIOR TO OPENING THE CLOSURE.

NOTE: SAFETY INTERLOCK FUNCTION IS NOT NECESSARY.

- 4.7.5 YOKE TYPE CLOSURES MUST HOWEVER BE DESIGNED SO THAT ON OPERATION OF THE LOCKING ELEMENT THE COVER IS LIFTEN CLEAR OF THE FILTER BODY ,SO GIVING VISUAL INDICATION THAT ALL RESIDUAL PRESSURE HAS BEEN REMOVAL PRIOR TO RELEASING RETAINING BRIDGE.

- 4.7.6 360 LOCKING TYPE CLOSURES SHALL INCORPORATE A SAFETY BLEED INTERLOCK.