



Exploration & Production

GENERAL SPECIFICATION

PIPING VALVES VESSELS

GS EP PVV 622

**Piping and Equipment subject
to intermediate sour service
Metallurgical**

05	10/2009	Update of reference documents
04	10/2006	NACE MR0175 replaced by NACE MR0175 / ISO 15156
03	10/2005	Addition of "EP" root to GS identification
02	10/2003	Change of Group name and logo
01	10/2002	New revision
00	03/2001	First issue
Rev.	Date	Notes

Contents

1. Scope	4
2. Reference documents.....	4
3. General.....	6
3.1 Use of Stainless steel	6
3.2 Metallic overlay	6
4. Pressure vessels and heat exchangers	6
4.1 Carbon steel plates (including plates for heads).....	6
4.2 Fittings and flanges.....	8
4.3 Other construction materials.....	8
5. Piping materials	8
5.1 Pipes.....	8
5.2 Forgings.....	9
5.3 Castings.....	10
5.4 Bolting.....	10
5.5 Bellows	11
5.6 Springs and spring lock washers	11
5.7 Metallic coating and surface treatment.....	11
5.8 Material certificates and material traceability	12
6. Qualification tests	12
6.1 Welding procedures qualification tests	12
6.2 Fabrication tests	13
7. Fabrication.....	13
7.1 General.....	13
7.2 Welding.....	13
7.3 Filler materials	14
7.4 Post Weld Heat Treatment (PWHT)	15
7.5 Sour service with alkalis/amines.....	15
8. Identification, stamping, marking	15
8.1 H ₂ S Marking.....	15



8.2	Hard stamps	16
9.	Inspection	16
9.1	General	16
9.2	Hardness checking	16
9.3	Hardness checking on welds	16
9.4	Corrosion resistant alloy	16

1. Scope

This specification covers the specific requirements applicable to equipment such as pressure vessels or heat exchangers, and to piping materials, which are intended to be used in Intermediate Sour Service Conditions as defined in General Specification [GS EP COR 170](#).

The present General Specification makes major reference to the [NACE MR0175 / ISO 15156](#). It states additional requirements with respect to Hydrogen Induced Cracking (HIC) and to Sulfide Stress Cracking (SSC) where the [NACE MR0175 / ISO 15156](#) is insufficient.

Transmission pipelines are outside the scope of this specification and are covered in other documents issued by the COMPANY GS EP PLR xxx.

Valve materials shall comply with both this specification (for cast or forged materials, including weldments if applicable), and the COMPANY General Specification [GS EP PVV 613](#).

2. Reference documents

The reference documents listed below form an integral part of this General Specification. Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published at the EFFECTIVE DATE of the CONTRACT.

Since this specification brings additional requirements dealing with a specific application (i.e., H₂S service), it is deemed to overrule any less stringent requirements appearing in any of the other contractual Reference Documents.

Any divergence between any of the contractual Reference Documents and this specification must be reported to the COMPANY for decision. In such a case, and unless otherwise agreed or decided by the COMPANY, it is understood that the more stringent requirement may apply at no additional cost.

Exceptions to, or deviations from this specification are not permitted unless previously accepted in writing by the COMPANY. For this purpose, Manufacturer's requests for substitution or change of any kind shall be complete with all pertinent information required for the COMPANY assessment. In case of approval, such approval shall be valid only for a specific case and shall not be construed as having general validity for other applications.

Standards

Reference	Title
ASTM A 106	Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service
ASTM A 193	Alloy-Steel and Stainless Steel Bolting Materials for High-temperature Service
ASTM A 194	Carbon and Alloy-Steel Nuts for Bolts for High-pressure and High-temperature Service
ASTM A 307	Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength
ASTM A 320	Alloy-Steel Bolting Materials for Low-temperature Service
ASTM A 333	Standard Specification for Seamless and Welded Steel Pipe for Low-Temperature Service

Reference	Title
ASTM A 578	Standard Specification for Straight-Beam Ultrasonic Examination of Plain and Clad Steel Plates for Special Applications
ASTM A 770	Standard Specification for Through-Thickness Tension Testing of Steel Plates for Special Applications
ASTM E 92	Standard Test Method for Vickers Hardness of Metallic Materials
EN 10160	Ultrasonic testing of steel flat products of thickness equal or greater than 6 mm
EN 10204	Steel and Steel Products - Inspection Documents
NACE MR0175 / ISO 15156	Materials for use in H ₂ S-containing environments in oil and gas production

Professional Documents

Reference	Title
API 5L	Specification for Line pipe
API RP 945	Avoiding Environmental Cracking in Amine Units

Regulations

Reference	Title
Not applicable	

Codes

Reference	Title
Not applicable	

Other documents

Reference	Title
Not applicable	