GUJARAT GAS

MATERIAL SPECIFICATIONS FOR SEAMLESS PIPE

1. GENERAL

All material shall confirm to latest revision of ASTM, API, MSS, BS standards and/or GGL technical specifications. Design and fabrication shall confirm to ASME for pressure piping, ASME B 31.8 and ASME B 31.3

Piping Material Specification sheets for different classes, which are part of this specifications, shows materials to be used. Each specification sheet shall be used within its Pressure/Temperature range.

2. DEFINITIONS

Shall	:	This verbal form indicates requirements strictly to be followed in order to confirm to the standards and from which no deviation is permitted
Should	:	This verbal form indicates that among several possibilities one is particularly suitable without mentioning or excluding others or that a certain course of action is preferred but not necessarily required
May	:	This verbal form indicates a course of action permissible within the limits of this standard.
Can	:	This verbal form is used for statements of possibility & capability, whether material, physical or casual

3. PIPE

a. Pipe dimensions shall be in accordance with API 5L and/or ASME B 36.10 for Carbon Steel pipes.
b. Nominal pipe sizes 1¼”, 2½”, 3½” and 5” shall not be used except where they are required for specific intended application. When these sizes are used on equipments, the connecting piping shall be increased or decreased to standard sizes as close to equipment as practical.
c. All pipes above 2” shall have bevel ends. 1½” and below piping shall have plain/threaded ends as per relevant standard.
d. Screwed full couplings shall be restricted for instrument connections only (up to 1½”).
e. Chemical composition shall be as per respective material standard
f. Carbon Equivalent based on heat analysis shall not exceed 0.43 % and shall be determine using following formula
   $CE = C + Mn/6 + (Cr + Mo + V)/5 + (Ni + Cu)/15$
g. Mechanical Testing and Charpy Impact Testing shall be as per respective material standard.
h. Vendor shall prepare QAP/ITP in line with relevant standard/code/GGL specification and submit to GGL post receipt of PO prior to manufacturing of the pipe.
i. Materials shall be inspected and tested as per approved Quality Assurance Plan in accordance with relevant standard/code/GGL specifications with 3.1 certification.

4. ABBREVATIONS

BE	-	Beveled End
CS	-	Carbon Steel
ERW	-	Electric Resistance Welded
EFW	-	Electric Fusion Welded
FS	-	Forged Steel
HFI	-	High Frequency Induction
SAW	-	Submerged Arc Welded
SMLS	-	Seamless
NIPL	-	Pipe Nipple
SCH	-	Schedule in accordance with ASME B 36.10 or B 36.19
STD	-	Standard Weight Wall Thickness
XS	-	Extra Strong Wall Thickness
XXS	-	Double Extra Strong Wall Thickness

5. DISPATCH

5.1. Each end of the material shall be protected, against ingress of foreign material & damages, with the following materials:

Flange face	:	Wood or plastic cover
Plain / Beveled end	:	Wood or plastic cover
SW or Screwed End	:	Plastic cap

5.2. End protector of wood/plastic to be used on the flange faces shall be attached by at least three bolts and shall not be smaller than the outside diameter of the flange. However the plastic cap for SW & Screwed. End valves shall be press fit type.

PIPING MATERIAL SPECIFICATION	GUJARAT GAS LIMITED	PRESSURE RATING : 150# DESIGN PRESSURE : 19 BARG TEMPERATURE RANGE : 0°C - 65°C LOCATION CLASS : CLASS IV
CODE : ASME B 31.8	SERVICE : NATURAL GAS	CORROSION ALL. : 1.5 MM inclusive

ITEM	SHORT CODE	SIZE (INCH)	DESCRIPTION	WT / SCH	DIMENSION STANDARD	MATERIAL STANDARD	REMARKS
PIPE	P	½" TO 1 ½"	PE, SEAMLESS	SCH 80	ASME B 36.10	ASTM A 106 Gr. B Charpy at 0°C OR ASTM A 333 Gr. 6	PRIMARILY SEAMLESS CHARPY TEST AS PER MOC BEVEL END AS PER ASME B 16.25
		2"	BE, SEAMLESS	SCH 80	ASME B 36.10	ASTM A 106 Gr. B Charpy at 0°C OR ASTM A 333 Gr. 6	
		3"	BE, SEAMLESS	SCH 40	ASME B 36.10	ASTM A 106 Gr. B Charpy at 0°C OR ASTM A 333 Gr. 6	
		4"	BE, SEAMLESS	SCH 80	ASME B 36.10	ASTM A 106 Gr. B Charpy at 0°C OR ASTM A 333 Gr. 6	
		6" TO 12"	BE, SEAMLESS	SCH 40	ASME B 36.10	ASTM A 106 Gr. B Charpy at 0°C OR ASTM A 333 Gr. 6	

NOTE:

1. THIS SPECIFICATIONS SHALL BE READ IN CONJUCTION WITH GENERAL NOTES AND DATA SHEETS & TECHNICAL SPECIFICATIONS OF AN INDIVIDUAL ITEM

PIPING MATERIAL SPECIFICATION	GUJARAT GAS LIMITED	PRESSURE RATING : 300#
		DESIGN PRESSURE : 49 BARG
		TEMPERATURE RANGE : -10°C - 65°C
		LOCATION CLASS : CLASS IV
CODE : ASME B 31.8	SERVICE : NATURAL GAS	CORROSION ALL. : 1.5 MM inclusive

ITEM	SHORT CODE	SIZE (INCH)	DESCRIPTION	WT / SCH	DIMENSION STANDARD	MATERIAL STANDARD	REMARKS
PIPE	P	½" TO 1 ½"	PE, SEAMLESS	SCH 80	ASME B 36.10	ASTM A 333 Gr. 6	PRIMARILY SEAMLESS CHARPY TEST AS PER MOC BEVEL END AS PER ASME B 16.25 Note: For 12" MAOP is 42 barg for operating the pipeline at Hoop stress below 30%.
		2"	BE, SEAMLESS	SCH 80	ASME B 36.10	ASTM A 333 Gr. 6	
		3"	BE, SEAMLESS	SCH 40	ASME B 36.10	ASTM A 333 Gr. 6	
		4"	BE, SEAMLESS	SCH 80	ASME B 36.10	ASTM A 333 Gr. 6	
		6" TO 12"	BE, SEAMLESS	SCH 40	ASME B 36.10	ASTM A 333 Gr. 6	

NOTE:

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PIPING MATERIAL SPECIFICATION	GUJARAT GAS LIMITED	PRESSURE RATING : 600#
		DESIGN PRESSURE : 99 BARG
		TEMPERATURE RANGE : -10°C - 65°C
		LOCATION CLASS : CLASS III & IV
CODE : ASME B 31.8	SERVICE : NATURAL GAS	CORROSION ALL. : 1.5 MM inclusive

ITEM	SHORT CODE	SIZE (INCH)	DESCRIPTION	WT / SCH	DIMENSION STANDARD	MATERIAL STANDARD	REMARKS
PIPE	P	½" TO 1 ½"	PE, SEAMLESS	SCH 160	ASME B 36.10	ASTM A 333 Gr. 6	PRIMARILY SEAMLESS CHARPY TEST AS PER MOC BEVEL END AS PER ASME B 16.25 Note: Hoop stress below 30%.
		2"	BE, SEAMLESS	SCH 80	ASME B 36.10	ASTM A 333 Gr. 6	
		3"	BE, SEAMLESS	SCH 40	ASME B 36.10	ASTM A 333 Gr. 6	
		4"	BE, SEAMLESS	SCH 80	ASME B 36.10	ASTM A 333 Gr. 6	
		6" TO 12"	BE, SEAMLESS	SCH 80	ASME B 36.10	ASTM A 333 Gr. 6	

NOTE:

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