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 한국가스공사 KOREA GAS CORPORATION						
SAMCHEOK LNG TERMINAL (삼척기지 LNG RELOADING 시스템 구축 기술검토 및 설계 용역)						
PIPE SPECIFICATION						
SCALE	JOB NO.	PHASE	DOCUMENT NO.		REV.	
NONE			P3-1-1-P-M12-53-515		0	
 한국가스기술공사 KOREA GAS TECHNOLOGY CORPORATION						

	삼척기지 LNG RELOADING 시스템구축 기술검토 및 설계 용역	2019. 06
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1. GENERAL

1.1 Scope

Pipe shall be purchased in accordance with this specification and SPECIFICATION REQUIREMENTS FOR BULK MATERIAL.

Related pipe classes : all except for 1R1J-9R1J, WOWA3, WOWA4
W1W1, W1H1

1.2 Applicable Codes and Standards

All following Codes and Standards of the latest edition shall be applied, unless otherwise specified.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME Section II Material Specifications, Part A – Ferrous
Materials

ASME B31.3 Process Piping

ASME B1.20.1 Pipe Threads, General Purpose (Inch)

ASME B16.25 Buttwelding Ends

ASME B36.10 Welded and Seamless Wrought Steel Pipe


ASME B36.19 Stainless Steel Pipe

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A53 Specification for Pipe, Steel, Black and Hot-Dipped,
Zinc-Coated Welded and Seamless

ASTM A285 Specification for Pressure Vessel Plates, Carbon Steel
Low-and Intermediate-Tensile Strength

ASTM A312 Specification for Seamless and Welded Austenitic

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Stainless Steel Pipe

ASTM A370	Specification for Mechanical Testing of Steel Product
ASTM A530	Specification for General Requirements for specialized Carbon and Alloy Steel
ASTM B6-77	Zinc (Slab Zinc)
ASTM D2200-67	Pictorial Surface Preparation Standards for Painting Steel Surfaces
<i>ASTM A999</i>	<i>Specification for General Requirements for Alloy and Stainless Steel Pipe</i>


AMERICAN PETROLEUM INSTITUTE (API)

API 5L	Specification for Line Pipe
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2. MATERIALS

2.1 General

- 1) Items shall be furnished in accordance with the material specification specified in the order, including the specific grade, type, or alloy designation.
- 2) Items specified to ASME material specifications are intended for application under the jurisdiction of ASME B31.3.
- 3) Components specified as galvanized shall be galvanized inside and outside by the hot dip process. The zinc used for coating shall be any grade of zinc conforming to ASTM B6.

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2.2 Heat Treatment

Longitudinally welded pipe specified to ASTM or API specifications shall be postweld heat treated in accordance with the order and ASME B31.3 Section 331.3.

2.3 Carbon Steel

For the same material specification and grade, seamless pipe is an acceptable substitute for welded.


2.4 Stainless Steel

No substitution is permitted without the written prior agreement of the Purchaser. Under no circumstance will 'L' grade pipe be accepted in place of straight grade unless the material is dual certified at source.

3. DESIGN

3.1 Items shall be furnished in accordance with the wall thickness or schedule, pressure rating and size specified in the order.

3.2 If the seller obtains the written approval of the Purchaser, items having schedules or wall thickness exceeding those specified in the order may be used. If substitutions are approved, taper boring requirements shall be as specified by the Purchaser.

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3.3 Outside diameter and thickness of pipe shall be conformed to ASME B36.19 and ASME B36.10.

3.4 The length of each pipe will be Twelve(12) or Six(6) meter without radial welding seam. (Dimension tolerance : +0.1%, -0%)

3.5 Solution heat treatment(for stainless steel pipe) shall be carried out according to ASTM A312.

3.6 Threaded ends shall have NPT threads conforming to ASME B1.20.1.


3.7 Buttweld end preparation shall be in accordance with ASME B16.25.

3.8 Unless specified otherwise, pipe in sizes NPS 1.1/2 and less shall be furnished with square cut ends and pipe greater than NPS 1.1/2 shall be furnished with both ends prepared for buttwelding in accordance with ASME B16.25.

3.9 Pipe shall be furnished to the specific or random lengths specified in the order. Couplings or jointers shall not be used for pipe sizes NPS 24 and less. Jointers for pipe NPS 26 and larger require the Purchasers approval. Girth welds shall be in accordance with the product standard and ASME B31.3, as applicable.

3.10 Dimensional tolerances for pipes

- 1) Pipe outside diameter - A53, A285 : According to ASTM A530
A312 : According to ASTM A999
API 5L : According to API 5L
- 2) Pipe wall thickness - A53, A285 : According to ASTM A530

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- A312 : According to ASTM A999*
- API 5L : According to API 5L*
- 3) Pipe straightness – A53, A285 : According to ASTM A530
- A312 : According to ASTM A999*
- API 5L : According to API 5L*
- 4) Rectangular of pipe end : within 1.6 mm
- 5) Ovality allowance – A53, A285 : According to ASTM A530
- A312 : According to ASTM A999*
- API 5L : According to API 5L*
- 6) Perpendicular offset from ends measured with a 1 m long square.
- For diameter $\leq 12"$: ± 1 mm
- $> 12"$: ± 2 mm

3.11 All pipe after fabrication, test and inspection shall be cleaned and stainless steel pipe shall be passivated.


3.12 All longitudinal seams shall be butt-welded for ASTM A134 pipe.

4. RECORD

4.1 If items are made and marked in accordance with an acceptable standard, such as ASTM or ASME, no records shall be required, except as amended by Paragraph 4.2.

4.2 Certificates of compliance are permitted in lieu of material test reports for the following cases :

For material acquired from stock for which material test reports are not obtainable, if accepted in writing by the Purchaser.

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5. MARKING AND IDENTIFICATION

5.1 All items shall be marked in accordance with the standards to which they are manufactured and any additional requirements of the order.

5.2 Stamping on all austenitic steel materials shall be with "low-stress" steel stamps having round or "U" shaped cross sections or with "Interrupted-dot" die stamps.

5.3 Marking with paint or ink on all austenitic steels shall be with a water insoluble material that contains no harmful substance; e.g., metallic pigments, sulfur, or chlorides, which would harmfully affect austenitic steels at ambient or documented history of use which demonstrate that the marking materials for use on austenitic steels meet the requirements specified herein.

6. CORROSION ACCEPTANCE CRITERIA

The amount of permitted surface rust shall be determined in accordance with the grades specified in ASTM D2200. The acceptance or rejection of pipe based on these grades, at the destination specified in the order, shall be as follows:

Grade A & B	– ACCEPTABLE
Grade C	– ACCEPTABLE (If not covering more than 25% of surface area)
Grade D	– NOT ACCEPTABLE