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TECHNICAL SPECIFICATION

Doc No: DSF-SPC-PIP-003

Rev. 1

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HIGH PRESSURE (HP) TRANSMISSION SYSTEMS

STEEL CASING PIPE

JUNE 2021

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REVISION HISTORICAL SHEET

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1. SCOPE AND OBJECTIVES

This specification covers the use of Steel casing pipes for use in the NGT system. Additional information may be given in the DATA SHEET and the Material Requisition, and these documents should be read in conjunction with this job specification. Any conflict between requirements of this General Specification, drawings codes and Standards shall be referred to Owner for clarification before proceeding with fabrication of the affected part.

2. REFERENCES

2.1 REFERENCE DOCUMENTS

- Tech Spec. No. DSF-SPC-QAC-005 [Shop Inspection of equipment and materials for NGT project]
- Tech Spec. No. DSF-SPC-QAC-006 [Inspection and Test Instructions]

2.2 REFERENCE CODES AND STANDARDS

- EN ISO 3831 [Petroleum and natural gas industries — Steel pipe for pipeline transportation systems]
- EN 1594 [Gas supply systems - Pipelines for maximum operating pressure over 16 bar - Functional requirements]
- VdTUV - Code of Practice No. 1063 [Structural Design Calculations for Buried Steel Pipes]

3. GENERAL REQUIREMENTS

3.1 SPECIFICATIONS

Pipes according to EN ISO 3831, PSL1 or PSL2.

3.2 UNITS

Metric, except pipe sizes



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3.3 MATERIALS

Pipe to EN ISO 3831 PSL1 or PSL2 shall be L245S, HFW, SAWL, SAWH.

3.4 MANUFACTURE

3.4.1 Process

The pipes may be of either seamless, electric resistance welded, helical (spiral) or longitudinal welded types.

3.4.2 Pipe Ends

Shall be bevelled in accordance with EN ISO 3831

3.4.3 Dimensioning

3.4.3.1 OUTER DIAMETER

Usually, outer diameter of casing pipes is by 300 mm or 12" bigger than of carrier pipeline. In case of non-standard pipe diameter, outer diameter shall be rounded up to the nearest standard pipe diameter.

In any case, Contractor has to verify that free space between internal diameter of casing pipe and external diameter of selected insulators shall be not less than 150mm.

3.4.3.2 WALL THICKNESS


a) Design codes and standards:

- ELOT EN 1594

- VdTUV - Code of Practice No. 1063 "Structural Design Calculations for Buried Steel Pipes"

b) Design conditions:

- Wall thickness design shall be performed so that the casing pipe will be able to resist an internal design pressure of minimum 30% of the carrier pipeline. Thickness shall be determined as per **EN 1594**, using the appropriate design factor for class location of each crossing.
- Corrosion allowance (1.5 mm) shall be considered for the wall thickness selection, independently of the external or internal surface protection of the pipe.

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- Structural design calculations for the casing pipes installed under national roads shall be performed in accordance to VdTUV 1063 using safety factor minimum 1.1 and corrosion allowance 1.5mm independently of the external or internal surface protection of the pipe.
- Structural design calculations for the casing pipes installed under railways shall additionally comply to the OSE (Hellenic Railway Organization) requirements :
 - deformation: maximum 3%
 - safety factor: minimum 1.7
 - Corrosion allowance (3.0 mm) independently of the external or internal surface protection of the pipe.

3.4.3.3 LENGTH

Unless otherwise stated, the pipe shall be delivered in 8 m +0.5 m/-0 m lengths.

3.4.3.4 TEST PRESSURE

Pipes shall be hydrostatically tested as per EN ISO 3831, for the alternate test pressure.

3.5 EXTERNAL SURFACE TREATMENT

Refer to DATA SHEET for requirements. Uncoated pipes shall be free of dirt, grease, oil, mill scale and the like.

3.6 MARKING

3.6.1 Die Stamping

The following marking shall be stamped with a minimum of 4 mm high rounded dies on one end of the pipe within 150 mm from the pipe end but not on weld seams.

- Material grade
- Heat number

3.6.2 Reflective Paint

The above die stamped marking shall be framed with a white reflective paint.

Manufacturer's mark and Owner Contract number should be paint stencilled.

4. SUPPLEMENTARY REQUIREMENTS

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4.1 GENERAL

Further requirements if specifically mentioned in the Material Requisition shall be valid. In case of conflict between such requirements and the requirements herein, the former shall prevail.

5. TECHNICAL DOCUMENTATION

5.1 QUANTITY

Four copies of each inclusive of original for all documents and certificates. Also electronic files of all Documents and Certificates must be submitted by Contractor to the Owner.

5.2 DOCUMENT REQUIREMENTS

5.2.1 WITH TENDER

Statement of test pressure applied in the hydrostatic test (standard, alternate or special pressure).

5.2.2 ON DELIVERY

Pipe Certification package as listed above. Owner Inspection Release Note (IRN).

6. INSPECTION AND CERTIFICATION

Inspection will be performed by an Independent Accredited Inspection Body. Inspection requirements are defined in the following documents.

- Material requisition.
- Job Specification No. DSF-SPC-QAC-005
- Relevant project specifications.
- Inspection clauses of applicable codes.

Inspection procedures to be followed are detailed in Tech Spec. DSF-SPC-QAC-005.

7. SHIPMENT



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One piece casings shall be completely with all internal /external attachments before shipment, unless otherwise specified on the drawings.

Where necessary, casings and its components shall be supported by temporary stiffeners to avoid distortion and damage during transportation and erection.

All exposed machined surfaces shall be coated with rust preventive. All ends shall be protected with plastic cover.