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**TECHNICAL JOB
SPECIFICATION**

699/1

REVISION 0

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HIGH PRESSURE (HP) TRANSMISSION SYSTEMS

ARRANGEMENTS FOR PRESSURE AND TEMPERATURE MEASURING

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QUALITY ASSURANCE PAGE

CHANGES LOG

REVISIONS LOG

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REFERENCE DOCUMENTS

Job Specification 180/1
[Welding Inspection]

Job Specification 181/2
[Pressure Testing]

Job Specification 199/4
[Welding]

Job Specification 830/1
[External Painting]

Std Drawing No. STD-1-43-03
[Concrete Pit Type I for Pipeline Instruments (PS)]

Std Drawing No. STD-1 -43-04
[Concrete Pit Type II for Instruments (PT)/(PI) and (TT)/(PI)]

Std Drawing No. STD-00-51-07
[Arrangement for PI or PI & PT/TT for Pipelines-Section]

Std Drawing No. STD-3-65-02
[Instrument Installation Detail-Process Typical]

ELOT EN ISO 1461
[Hot dip galvanized coatings on fabricated iron and steel articles - Specifications and test methods]

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1.0 **SCOPE**

This specification specifies requirements for fabrication and installation of pressure and temperature measuring arrangements on natural gas lines.

For the fabrication and installation works the following requirements, listed in order of precedence, shall be fulfilled:

- This specification including reference documents.
- **Std Drawings No. STD-3-65-02, STD-00-51-07, STD-1-43-04, STD-1-43-03** depicting relevant pressure or temperature measuring arrangement.

2.0 **FABRICATION OF ARRANGEMENTS**

2.1 **GENERAL**

Materials for instrument assembly as indicated in the **Std Drawing STD-3-65-02** shall be supplied by Contractor.

The field hydrostatic strength test, as specified in **Job Spec. No. 181/2**, shall include the pressure and the temperature measuring arrangements.

However, pressure gauges shall not be fitted until successful completion of the field hydrostatic strength test. For this purpose the pressure gauge end of the arrangement shall be plugged with a suitable fitting supplied by the Contractor.

All stud bolts and nuts shall be hot dip galvanized according to **ELOT EN ISO 1461**.

2.2 **ASSEMBLY**

Except for the welding nozzles, details type "A", "B" or "C" shown on the relevant **Std Drawing No. STD-3-65-02** shall be prefabricated by the Contractor.

Welding shall be carried out in accordance with **Job Spec. No. 199/4**. 100% radiographic inspection of all welds except nozzle-weld shall be carried out in accordance with **Job Spec. No. 180/1**.

Prior to the assembly of flanges, all flange surfaces, including the bolt holes, shall be cleaned, and all surfaces except those bearing against the gasket shall be primed, boltholes shall furthermore be coated with Tectyl. After completion of painting all nuts shall be capped with grease filled plastic caps.

Threaded joints shall be assembled in accordance with Supplier's instructions regarding maximum torque etc.

Flanged joints shall be lined up so that the gasket contact faces bear uniformly on the gasket and shall be tightened with uniform bolt stress. The gasket shall be compressed in accordance with Supplier's instructions.

All bolts shall extend completely through their nuts.

2.3 **SITE STRENGTH TEST**

The arrangement for pressure or temperature measuring shall be installed on the pipeline before the pipeline is pressure tested.

2.4 **SURFACE TREATMENT**

On completion of strength test the arrangement shall be surface treated as specified in

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Job Spec. No. 830/1.

3.0 CONCRETE PIT

The concrete pit, in which pressure or temperature measuring equipment will be placed, shall be constructed as shown on the relevant **Std Drawings No, STD-1-43-04 and STD-1-43-03.**

4.0 INSTALLATION OF ARRANGEMENTS

The installation shall be carried out as shown on the relevant standard drawings. The welding of the nozzle onto the pipeline shall be performed no closer than 100 mm to a longitudinal or spiral weld and no closer than one pipe diameter to a girth weld. The works shall be carried out in the sequence specified below.

All equipment and temporary installations necessary to complete works shall be supplied by Contractor:

Removal of coating and clearing of the joints area.

US-examination of pipe to ensure that no laminations exist in pipe wall.

Welding of nozzle onto pipeline in accordance with **Job Spec. No. 199/4.** Inspection of welds by NDE in accordance with **Job Spec. No. 180/1.** Two inspection methods will apply, US-inspection and Magnetic Particle Inspection.

Welding of shop-assembled arrangements onto nozzle in accordance with **Job Spec. No. 199/4.** This part of the installation may only be performed after the main pipe is installed in the trench.

Inspection of welds by NDE in accordance with **Job Spec. No. 180/1.** Two inspection methods will be applied, radiographic and US-inspection.

Cleaning the main pipe of any chips due to the boring operation.