

INSPECTION OF STEEL & DUCTILE PIPES
WORK INSTRUCTION
UIS-I-37

Documents review

- 1.1 Review of inspector assignment and relevant documents (Contract, L/C, Proforma Invoice, and Technical Specification and any special instructions).
- 1.2 A meeting is to be held with the supplier representative at the inspection site in order to review together the documents needed and to discuss the inspection plan and to request any assistance, if necessary.
- 1.3 Inspector is to be informed by the supplier on main quality system & standards applied for production and testing.
- 1.4 Check the daily test result records of the routine and daily chemical analysis done by quality control personnel at production facilities on each batch or lot of the product.
- 1.5 Review records and certificates for calibration of the instruments & devices to be used for testing to ensure their accuracy.
- 1.6 Check technical specifications and certificates of raw materials imported from sub suppliers to producer.

The execution of the work is based on the following applicable documents:

- The technical specifications of the Purchase Order
- The design requirements in accordance to relevant API standards.
- Pre Rolling and approved Test Plan.
- Purchase Order and relevant applicable standards.
- Process Control, Quality Control Plan / Quality Control Documents
- Any applicable standards and procedures.

SCOPE & INSPECTION BASIS:

The proposed scope detailed hereafter will be based on inspection Level 4. This level of inspection implies Full Scope Inspection at a more intensive/frequent level and Review of vendor drawings in relation to fabrication, close monitoring of quality at various stages of production at the mill (or mills) and respective testing. In addition, visual & dimensional inspection, control of handling & loading into containers, maintaining traceability & marking will be covered.

The scope also includes submitting of inspection report / original certificates as per Purchase Order. The details of our scope as follows:

The offered inspection service shall start by review of relevant Purchase Order, specific documents and applicable standards, QA/QC documents and procedures to cover:

- Manufacturing Process Control and Inspection Test Plan describing all the process activity specifying the equipment and operation, location, material identification, quality assurance/control, acceptance criteria, document verification.
- Chemical analysis, heat treatment, straightening, mechanical test, NDE tests with relevant repairing and re-inspection, hydrostatic test, handling, storage and loading, visual and dimensional,...etc.

2. Manufacturing Procedure & Qualifications Review:

Review relevant documents, charts and records for compliance with Purchase Order as well as Manufacturer's QA/QC requirements & API standards.

3. Attendance at Mill during Production, Inspection & Testing

Starting with rolling UIS inspector will also witness testing activities, and maintain traceability up to coating and marking of casing. The inspector will review relevant results, charts and records at the mill (or mills) then report on compliance and any non-conformities or remarks.

4. Materials & Property

A. Chemical composition

Check results and review documents / records of the following:

- Heat Number
- Number of ladle and/or product analysis against relevant specification.
- Content of elements in ladle and/or product analysis against specific values to ensure compliance with API Standards.

B. Physical properties

Identify samples, witness tests, check results, and review documents of the following:

- Number, type, size, orientation and test temperature of specimens against relevant specification
- Actual values against specified values

5. Manufacturing Process, Heat Treatment, Special Processes

Verify proper execution and review relevant documents, charts & records.

6. Pressure, Function, Performance and Acceptance Testing

Witness mechanical tests including hydrostatic, drift tests and subsequently check results and review relevant documents, records of these tests as well as other tests conducted.

7. Non-Destructive Examination

Witness & check examination and review relevant documents and records of the following (where applicable to include Radiograph ...etc.):

- NDE procedure
- NDE personnel certificates
- NDE result review

8. Dimensional Inspection

Perform / witness inspection and review records of the following (as applicable):

- Outer Diameter
- Bore diameter
- Connection dimensions
- Wall thickness
- Coupling Thread

Included in the scope of points from 3 to 9 the following:

Inspector will witness / check calibration and calibration status of measuring & testing instruments and review of relevant certificates, and records of laboratory test equipment, NDE equipment, calipers, gauges, mandrels, meters, reference and setting standards, ...etc.

9. Visual inspection

Perform visual inspection, review and keep records of the following (where applicable):

- Outside surface of pipes (check of coating).
- Protective end caps.
- Inside of tubing/casing.
- In case of any detected deviations or discrepancies, inspector is to inform immediately the Technical Department.

10. Traceability, identification and Marking

Witness & check the following:

- Marking
- Production dates, patches....
- Heat number
- Container & seal No.

11. Preservation, Packing, Handling, Storage

Attend handling, loading activities and keep/review records of the following (where applicable):

- Outside coating including.
- Preservation of pipe end cap for handling, transport& storage
- Supervision of Container stuffing supervision and seal. (Quantity Check) if the goods to be loaded into containers.
- Supervision of loading into the vessel, checking the quantity packing and any damaged pipes to be rejected & reported to be substituted or to be deducted from the packing list & the invoice.

12. Reporting

Upon completion of any given inspection, final inspection reports should be forwarded to the Technical Department by fax or email, as soon as possible but not later than (24) hours of inspection completion, together with the packing list, calibration certificates and any other document, signed, stamped and dated by the inspector.