

INSPECTION OF AIR COMPRESSORS
WORK INSTRUCTION
UIS-I-38

Documents review

An inspection plan should be agreed upon prior to inspection, loading and shipping with the seller's representative.

Hereafter an outline of main inspection steps, which can be followed to conduct a normal inspection for inspection of air compressor such as, external surfaces, impeller, blades, welding joints, structure body, Fittings, connected instruments (pressure and temperature probes) flanges...etc

1. Meeting & Documents Review:

- 1.1 Review of inspector assignment and relevant documents (Contract, L/C, Proforma Invoice, PO, Technical Specification and any special instructions), also to acquire and review any additional relevant standards such as ASME, AISI standards and / or regulations.
- 1.2 A meeting is to be held with the supplier representative at the inspection site in order to meet the supplier's representative in charge of inspection, to review the documents and to discuss the implementation of the inspection test 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 of items subject to inspection.
- 1.4 Review of the records of functional running tests held on the compressors & records of material chemical composition, welding procedures specification (WPS), procedure qualification record (PQR), all the welders qualification record, hydrostatic test report, NDT reports, mechanical test reports such as tensile testing, yield strength, % of elongation, hardness and heat treatment chart record if applicable, etc.. Check test result records of routine and daily analysis and tests done by quality control personnel if applicable.
- 1.5 Review records and certificates for calibration of the instruments & devices used for testing, measuring or weighing to assure their accuracy as well as the NDT personal certificates level such as PCN, ASNT...Etc.

- 1.6 Inspector shall ask for and obtain technical specifications and certificates of components and materials and their sub suppliers to ensure they meet the requirements and that they are from the specified origins and according to the approved vendor list.

2. Visual and Dimensional Inspection

- 2.1 Inspector visually checks goods for appearance, newness, and physical defects; such as dents, cracks, undercuts, porosity, imperfections, rust or any mechanical damage on all external and internal parts if possible such as instrument devise, legs, inlet and outlet nozzles, flanges...Etc.
- 2.2 Inspector dimensionally check all the connected parts physically locations as per approved drawings, length, diameter, connected flanges, flange rating, instrument devises such as temperature and pressure gages, Air pipes, fans, nozzles ...etc.
- 2.2 Discrepancies to be recorded photographed and reported on the daily and final inspection reports indicating extent and number or percentage of detected discrepancies.
- 2.3 Check for proper packaging (wrap, insulation handling etc.) All markings are to be checked such as name plate which consist hydrostatic test pressure, air compressor type and model, design code, material specification, year of manufacture...etc.

3. Sampling & Testing

- 3.1 Review and check of the random sampling results of material used for air compressor manufacture should be conducted according the agreed contract standards (if mentioned) or to any applicable National and / or International Standards, inspection test plan ITP, manufacture procedure specifications MPS and /or quality control procedure QCP.
- 3.2 Check of earthing system, class of insulation, protection, name plate data, types of painting and its specification, applied painting procedure, air compressor preservation....etc.
- 3.3 According to applicable standards, a certain number of samples are subjected to relevant tests. Results should be clearly recorded on adequate form or sheet mentioning the method applied. (Safety procedures should be followed when in pressure testing and the air compressor vessel should be free from any water after leak test to avoid any signs corrosion). All test forms and sheets should be jointly signed by inspector and seller's representative.

- 3.4 The results of tests carried out or witnessed should be checked to determine conformity with contract requirements. If a certain degree of non-conformity is detected, the UIS technical department supplier and buyer should be immediately informed.

4. Packing and Loading:

- 4.1 The inspector shall follow UIS common practice to supervise loading, to verify proper loading and verification of quantities.
- 4.2 The inspector should make sure that packaging is suitable and give adequate protection during transporting and handling. Inspector must note that many goods need special protection from wet weather conditions by proper wrapping, silica gel bags...etc.
- 4.3 The inspector should check for O.M. manuals, spare part ref and any requirement mentioned in PO ...etc.

5. Reporting to Technical Department

- 5.1 Daily reporting directly to Technical Department shall be made on UIS-F-29 form and should cover clearly the progress of inspection, testing activities non-conformities and any other remarks, with photos. Photos and supporting documents shall be included with Daily Inspectors' Reports.
- 5.2 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.