



IMM Mechanical Joint Integrity Certification Scheme

Mechanical Joint Integrity (MJI) for Small-bore Piping, Tubing and Valves

Code: MJI-SBV

This certification scheme is designed to provide learners with knowledge encompassing safety hazards at valve sites, grounding knowledge of leak repairs pertaining to valves / small bore piping (SBP) and tubing, causes of LOPC in valves, small bore piping and tubing, identification of leaks, planning of repair works, hands-on skills in executing the repairs, post-repair activities, and periodic inspection required. It teaches both theoretical knowledge and hands-on skills relevant to LOPC repairs and prevention. It provides the theoretical basis and practical competencies required by a practical worker to sit for assessment so as to be certified competent in Mechanical Joint Integrity for Small-bore Piping, Tubings and Valves.

Who should apply

This certification scheme is for those who are in the key roles of installation, assembly and dis-assembly, maintenance and repair, operations and inspection of valve packing and small-bore piping / tubings, such as: -

- Instrument technicians/fitters
- Instrument supervisors/team leads
- Valve technicians
- Mechanical technicians
- Maintenance technicians (mechanical/instrument discipline)
- Instrument specialists/engineers
- Operations (multi-skilled) technicians
- Well services personnel dealing with wellhead control panels

Objectives

The objective of this certification program is to assess and certify workers on their knowledge and hands-on skills/competency concerning small-bore piping, tubings and valves, which covers supplementary health, safety and environment, fundamental theoretical knowledge, dis-assembly, inspection, assembly and reinstatement, post assembly checking/testing, and periodic inspection.

Exam topics

Supplementary health, safety and environmental knowledge when carrying out the works

Grounding knowledge required to carry out the works, covering;

- Valve types and components, valve packing body-bonnet flange, packing replacement, inspection and testing
- Small-bore piping, threaded connection, vibration impact, spool replacement, inspection and testing
- Tubing types, compression fittings, measure and bending, tube cutting, assembly and dis-assembly, tubing supports, re-make a tube fitting, inspection and repair.

Hands-on skills in using a manual torque wrench and hydraulic torque wrench:

- Preparation and set-up of the works
- Reading and interpreting P&ID and isometric/hook-up drawings
- Preparing a simple workpack if there is no workpack provided for the works
- Planning the works, collecting and storage of materials, correct tools
- Disassembly of valve and packing replacement, small-bore piping, tubing and fittings
- Inspection of the valves, packing, tubings, fittings, small-bore piping and threaded connections
- Assembly of the valves, packing, tubings, fittings, small-bore piping and threaded connections
- Post-assembly inspection and testing, and periodic inspection of valves, packing, tubings, fittings, small-bore piping and threaded connections

Exam format

The exam/assessment consist of the following format:

- (a) Examination paper – to complete answering the 25 to 35 multi-choice questions within 45 minutes
- (b) Practical (hands-on) assessment 1 – Valve packing replacement; consisting of dis-assembly of a valve bonnet, replace the valve packing, re-assembly of the valve bonnet onto valve body, including valve and pipework inspection, set-up, post-assembly inspection and testing using compressed air to check for packing leaks, and



re-tightening of packing (if required to stop the packing leak).

- (c) Practical (hands-on) assessment 2 – Tube measurement, cutting and bending (3/8” or 10mm OD);
- 1) Using a tube bender, cutter, gap inspection gauge and fitting wrenches, the activity consists of correctly bending and cutting a tube as per given tube drawing, installing a 3/8” or 10mm tube union or 3/8” or 10mm NPT connector.
 - 2) Removing and re-installing a pressure gauge from/into a ½ NPT process connection

Exam duration

1 day

Candidate's criteria

This certification is for those who have to execute installation, assembly and dis-assembly, maintenance and repair, operations and inspection of valves, packing, tubings, compression fittings, small-bore piping and threaded connections, such as:

- Instrument technicians/fitters
- Instrument supervisors/team leads
- Valve technicians
- Mechanical technicians
- Maintenance technicians (mechanical/instrument discipline)
- Instrument specialists/engineers
- Operations (multi-skilled) technicians
- Well services personnel dealing with wellhead control panels, chokes and valves

Minimum candidate criteria:

- Minimum 5 years working experience at site (offshore or for onshore plant/construction site) in the instrument and process control discipline, hook-up and construction, and maintenance works
- Have used tube benders, cutters and gap inspection gauge
- Fit-for work for offshore or for onshore plant/construction site
- Able to read and understand in English

Pre-requisite training

There is no mandatory pre-requisite training for this certification program.

However, the candidate is strongly encouraged to also attend the 3-day MJI-SBV training as the training prepares and provide comprehensive guidance and practice to the candidate in depth for the examination and hands-on practical assessments on valves, packing, tubings, compression fittings, small-bore piping and threaded connections.

Criteria for competency

Successful in all of the following 4 parts:

- (a) Examination paper – achieve minimum 60% mark, paper to be marked by the assessor
- (b) Practical (hands-on) assessment 1 – Passed as competent by the assessor
- (c) Practical (hands-on) assessment 2 – Passed as competent by the assessor

Certificate awarded

IMM Certified Technician in Mechanical Joint Integrity (MJI) for Small-bore Piping, Tubing and Valves

Validity period of certificate

5 years

Information on re-certification

Upon expiry of the 5-year certification, candidate can renew his/her certification for another 3 years by sitting for an examination paper and not required to undergo a practical hands-on examination provided he/she can prove to IMM that he/she has been handling or using tube benders, cutters and gap inspection gauge, as well as hooking up



tubing/impulse lines and installing field instruments (testify by project manager or human resource/training/ learning manager of the candidate) for at least 1,000 workhours in the last 5 years.

At the end of the 3 years additional certification, the candidate is required to go through the full exam/assessment, as follows;

- (a) Examination paper – achieve minimum 60% mark
- (b) Practical (hands-on) assessment 1 – Passed as competent
- (c) Practical (hands-on) assessment 2 – Passed as competent