



INSTITUTE OF MATERIAL, MALAYSIA

IMM Mechanical Joint Integrity Certification Scheme

Certified Technician in Mechanical Joint Integrity for Small-bore Piping, Tubing and Valves

Code: MJJ-SBV

HRDF claimable

This certification program 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 Loss of Primary Containment (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, Tubing and Valves.

Reference standards (reference used shall refer to the latest published document):

- TBA

Who should apply

This certification program is for those who are in the key roles of installation, assembly and dis-assembly, maintenance and repair, operations and inspection of valves, packing, tubing, compression fittings, small-bore piping and threaded connections, such as:

- 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

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, tubing 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.

Examination 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 work pack if there is no work pack 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
- Assembly of the valves, packing, tubing, fittings, small-bore piping and threaded connections
- Post-assembly inspection and testing, and periodic inspection of valves, packing, tubing, fittings, small-bore piping and threaded connections

Examination format

The examination/assessment consists of the following format:

- (a) Examination – to complete answering the 35 multiple choice questions within 40 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);
 - i. 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.
 - ii. Removing and re-installing a pressure gauge from/into a 1/2 NPT process connection

Examination duration

1 day

Examination fee

As specified on the IMM website.

Candidate's criteria

Candidate should have

- Minimum academic qualification - SPM or equivalent* OR
- Minimum 5 years working experience at site (offshore or onshore plant/construction site) in the instrument and process control discipline, hook-up and construction, and maintenance works using tube benders, cutters and gap inspection gauge AND
- Able to read and understand in English

*Candidate fulfills the minimum academic qualification without working experience at site (offshore or onshore plant/construction) is considered as a candidate without experience.

Pre-requisite training

A candidate without experience is required to attend IMM approved/recognized training course which prepares and provides comprehensive guidance and practice aligned to the topics covered in the examination.

A candidate with experience is encouraged to attend IMM approved/recognized training course.

Criteria for certification

The candidate must pass in all the following 3 parts:

- (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

Certificate awarded

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

Validity period of certificate

5 years

Re-sit of examination

A candidate who had failed in one or more of the examination parts can apply to re-sit for the failed component(s) of the examination within a year from the date of the first examination. The candidate shall have to pay the full examination fee for the re-sit and without the need to attend any pre-requisite training course.

Information on re-certification

6 months prior to the expiry of certification (at the end of the 5th year of certification), the candidate can apply for re-certification for another 5 years by

- providing proof to IMM that he/she has been employed in a related profession; and
- attending the relevant Refresher Course for certification (if any).

Prior to the expiry of the 5-year re-certification (at the end of the 10th year of certification), the candidate can continue to be certified for a further 5-year period by

- providing proof to IMM that he/she has been employed in a related profession; and
- attending the relevant Refresher Course for certification (if any).

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the 5-year certification or re-certification period.