



Hydratight Academy Technical Training

ECITB Mechanical Joint Integrity Synopsis - 2022



ECITB Approved Training & Technical Testing

Hydratight has worked closely with the Engineering Construction Industry Training Board (ECITB) developing and delivering specialist bolting and on-site machining training programmes for more than 25 years and were finalists at the “ECITB Training and Development Awards 2022” in the “Approved Training Provider” and “Agility in Learning” award categories.

Our training programs follow a four-stage model for achieving and managing the competence of individuals involved in Joint Integrity Assurance activities and particularly those expected to undertake these duties in the workplace.

A blended learning approach is delivered, accommodating a full range of learning styles via a combination of instructor led technical theory, online eLearning options and hands-on practical exercises.

Hydratight is a leading and preferred training provider to major operators, contractors, and training management service companies due to our extensive field service experience, subject matter expertise and the occupational experience of our Training Instructors.

Key benefits to learners and employers include the achievement of industry recognised and transferrable certification via a highly commended ECITB training provider, reducing risk, increasing safety and preventing the loss of containment.

ECITB - Mechanical Joint Integrity

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ECITB Mechanical Joint Integrity - Instructor Led Training

Training Course	Max Class Size	Course Duration
MJI-01/10/11 Hand Torque Bolted Connection Techniques	6	1 Day
MJI-01/18 Hydraulically Tensioned Bolted Connection Techniques	6	1 Day
MJI-01/19/20 Hydraulically Torque Bolted Connection Techniques Module*	6	1 Day
MJI-01/10/11/19/20 Hydraulically Torque Bolted Connection Techniques	6	1.5 Days
MJI-01/10/11/18/19/20 Hydraulically Torque and Tension Bolted Connection Techniques	6	2.5 Days

ECITB Mechanical Joint Integrity - eLearning

Training Course	Course Duration
MJI-01/10/11E Hand Torque Bolted Connection Techniques (E-Learning)	2h 45m
MJI-01/18E Hydraulically Tensioned Bolted Connection Techniques (E-Learning)	2h 45m
MJI-01/19/20E Hydraulically Torque Bolted Connection Techniques Module (E-Learning)	2h 45m
MJI-01/10/11/19/20E Hydraulically Torque Bolted Connection Techniques (E-Learning)	3h
MJI-01/10/11/18/19/20E Hydraulically Torque and Tension Bolted Connection Techniques (E-Learning)	3h 30m

ECITB approved MJI eLearning courses can be completed by Experienced Workers who are looking to refresh or upskill their knowledge up to 4 weeks prior to attendance of technical testing or New Workers who will be attending MJI blended learning training within 4 weeks of MJI eLearning course completion.

A full course library with detailed descriptions can be found within the “Course Categories” section of the Hydratight LDMS [eLearning Portal](#).

ECITB Mechanical Joint Integrity - Blended Learning

Training Course	Max Class Size	Course Duration
MJI-10/11B Hand Torque Bolted Connection Techniques (Blended Learning)	6	0.5 Day
MJI-01/18B Hydraulically Tensioned Bolted Connection Techniques (Blended Learning)	6	0.5 Day
MJI-01/10/11/19/20B Hydraulically Torque Bolted Connection Techniques (Blended Learning)	6	1 Day
MJI-01/10/11/18/19/20B Hydraulically Torque and Tension Bolted Connection Techniques (Blended Learning)	6	1.5 Days

ECITB approved MJI blended learning courses provide a practical training option for New Workers or Experienced Workers who require a flexible option to achieve full ECITB MJI training certification and have completed the relevant MJI eLearning course within the previous 4 weeks.

ECITB Mechanical Joint Integrity - Technical Testing

Technical Test	Test Duration
TMJI-10 Dismantle, Assemble and Hand Torque Flanged Joints	2 hours
TMJI-11 Dismantle, Assemble and Hand Torque Clamp Connectors	2 hours
TMJI-18 Dismantle, Assemble and Tensioning Bolted Connections	2 hours
TMJI-19 Dismantle, Assemble and Hydraulically Torque Flanged Joints	2 hours
TMJI-20 Dismantle, Assemble and Hydraulically Torque Clamp Connector Joints	2 hours

Successful completion of a Stage 3 technical test is recognised by issue of an ECITB “**Certificate of Achievement**” which is valid for 3 years.

Experienced Workers who have attended MJI instructor led training, eLearning or blended learning as a refresher option must observe a 4-week period between training and technical testing.

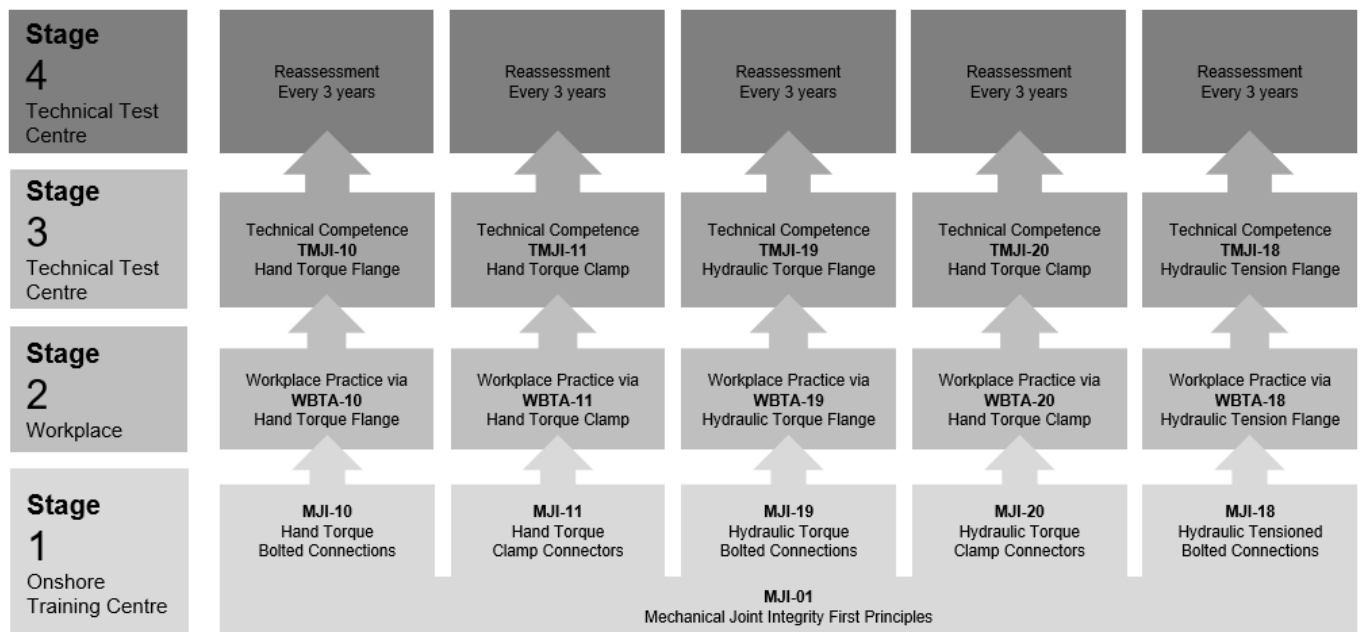


ECITB Mechanical Joint Integrity Overview

The ECITB in collaboration with Step Change in Safety provides a method of training and validating skills in the area of specialist critical bolting with approved training courses derived from ECITB Mechanical Joint Integrity technical training standards.

The training standards cover the isolation, dismantling, inspection, alignment, assembly, and tightening techniques relevant to flange assemblies and clamp connectors.

ECITB Mechanical Joint Integrity Route to Competency Model



ECITB MJI Training Standards

- MJI-01 Mechanical Joint Integrity First Principles
- MJI-10 Hand Torqued Bolted Connections
- MJI-11 Hand Torqued Clamp Connectors
- MJI-18 Hydraulically Tensioned Bolted Connections
- MJI-19 Hydraulically Torqued Bolted Connections
- MJI-20 Hydraulically Torqued Clamp Connectors

ECITB MJI Approved Courses (onshore training centre based)

There are five ECITB approved MJI course combinations which are derived from the training standards:

- MJI-01/10/11 Hand Torque Bolted Connection Techniques
- MJI-01/19/20 Hydraulically Torque Bolted Connection Techniques Module*
- MJI-01/18 Hydraulically Tension Bolted Connection Techniques
- MJI-01/10/11/19/20 Hydraulically Torque Bolted Connection Techniques
- MJI-01/10/11/18/19/20 Hydraulically Torque and Tension Bolted Connection Techniques

*Valid MJI-10/11 training certificate within 12 months or TMJI-10/11 technical test certificate required as a pre-requisite.



ECITB MJI Work Based Task Assignments

Workplace consolidation of knowledge requires completion of “Work Based Task Assignments”.

Each assignment lists the activities to be undertaken by the learner and validated by the supervisor.

There are five ECITB approved Work Based Task Assignments covering mechanical joint integrity:

- MJI-10 Dismantling, Assembling and Hand Torque Flange Connections
- MJI-11 Dismantling, Assembling and Hand Torque Clamped Connections
- MJI-18 Dismantle, Assemble and Hydraulically Tension Bolted Connections
- MJI-19 Dismantle, Assemble and Hydraulically Torque Flange Joints
- MJI-20 Dismantling, Assembling and Hydraulically Torque Clamped Joints

The task assignments are normally completed between three to twelve months after the initial training course and the learner can then undertake an ECITB approved Technical Test.

ECITB TMJI Technical Tests (onshore test centre based)

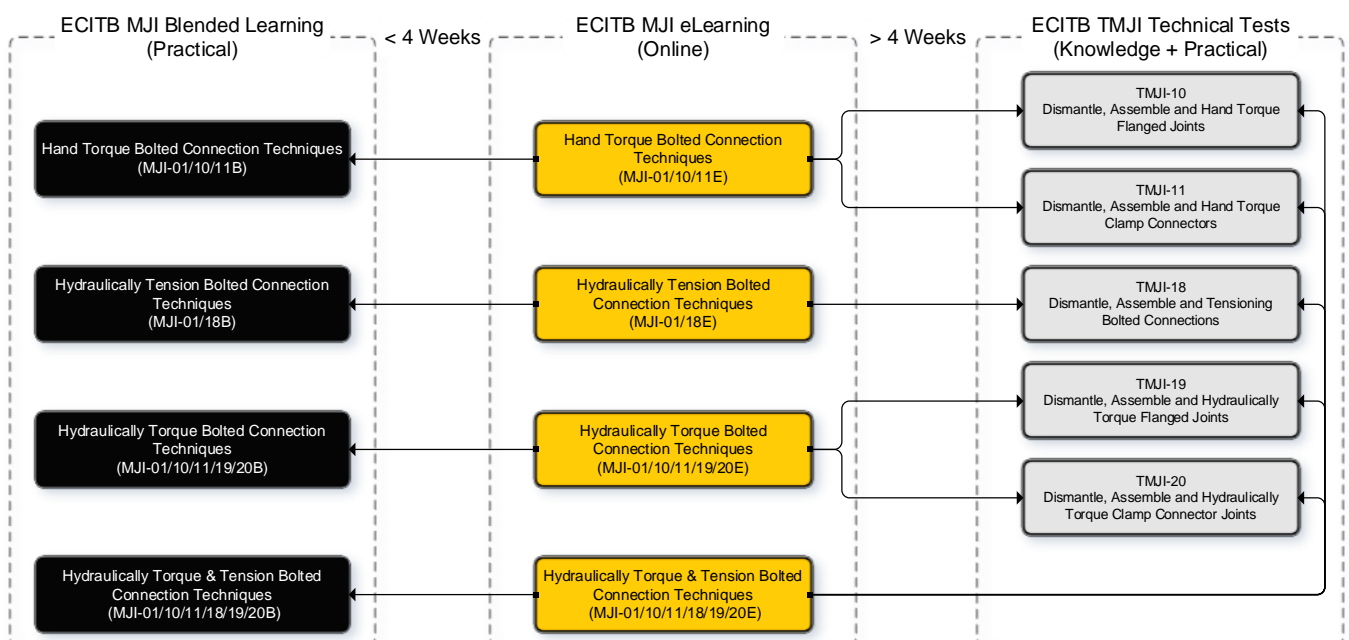
Technical Testing with an associated ECITB certificate of achievement plays a key role in validating an Individual’s skill, ability, and job knowledge in a specific task area.

Each test consists of a knowledge test and practical activity test against identified test criteria.

There are five ECITB approved Technical Tests covering mechanical joint integrity:

- TMJI-10 Dismantle, Assemble and Hand Torque Flanged Joints
- TMJI-11 Dismantle, Assemble and Hand Torque Clamp Connectors
- TMJI-18 Dismantle, Assemble and Tensioning Bolted Connections (Hydraulic Tensioning)
- TMJI-19 Dismantle, Assemble and Hydraulically Torque Flanged Joints
- TMJI-20 Dismantle, Assemble and Hydraulically Torque Clamp Connector Joints

Pre-requisites – MJI Blended Learning - MJI eLearning - TMJI Technical Testing





ECITB Mechanical Joint Integrity Technical Test Application Procedure

Stage 3 requires each individual to complete a formal assessment of their job knowledge, skills, and ability in each Mechanical Joint Integrity subject area. The ECITB technical competence validation tests are standards-based consisting of a bank of online knowledge questions and a practical task to validate the learner's skills, knowledge, and ability.

Successful candidates attain the ECITB certificate of achievement which is valid for a period of 3 years. Stage 3 must be completed **12 weeks** after and within **12 months** of Stage 1 and unsuccessful candidates must wait a minimum period of **4 weeks** between an unsuccessful test session and the next test session to allow for a period of training to address any skills or knowledge gaps.

Newly Trained Workers must have successfully completed Stages 1 and 2 and must submit their completed Work Based Task Assignments and MJJ Approved Course certificate to the Test Centre prior the test session. **Stage 3 Technical Testing must be completed within 12 months of Stage 1 training.**

Newly Trained Workers wishing to apply for TMJI11 and TMJI20 testing outside of the 12-month period since original training, require relevant TMJI10 or TMJI19 valid certification as detailed within the combination rules provided below:

- TMJI-10 test certificate means an individual can attend TMJI-11 technical test.
- TMJI-10 test certificate only does not allow access to a TMJI-20 technical test.
- TMJI-19 test certificate means an individual can attend both the TMJI-11 and TMJI-20 technical test.

The test centre will require a copy of the original MJJ training certificate if training/testing was not delivered by them to ensure that 12 months has expired since training as the TMJI certificate will not state this.

Experienced Workers are defined as an individuals with a mechanical background typically via an apprenticeship and experience in the engineering construction industry, with verifiable relevant and sustained recent experience in mechanical joint integrity activities. The individual would hold safety certificates such as the CCNSG Safety Passport or BOISET/MIST certificates.

Employed Experienced Workers will require:

1. A company letter of endorsement confirming attendance of hand/hydraulic torque and or tensioning training and that the individual has workplace experience relevant to the MJJ subject area to be tested in.
2. Copies of pertinent ECITB certificates (where applicable) and preferably any Non-ECITB bolting training certificates (where applicable) relevant to the MJJ subject area to be tested in.

Private Individual Experienced Workers will require:

1. A detailed CV with two referees verifying that MJJ activities are carried out regularly and workplace experience has been obtained relevant to the MJJ subject area to be tested in.
2. Copies of pertinent ECITB certificates (where applicable) or Non-ECITB bolting training certificates relevant to the MJJ subject area to be tested in.

Experienced Workers who attend an MJJ training course as "refresher training" will be required to wait a minimum period of 4 weeks before being granted access to the relevant technical test.

Stage 4 requires an individual to re-validate the ECITB technical competence validation test certification achieved at Stage 3 upon expiry after 3 years.

The Test Centre will confirm the following information with the employer/candidate before arranging the test session:

- **Previous TMJI certificate of achievement** must be submitted for review before arranging the test session.
- **Candidates with expired TMJI test certificates** must submit a Company letter of endorsement confirming MJJ activities are regularly carried out. Private individuals will be required to submit a detailed CV with two referees confirming MJJ activities are carried out regularly.



Program Title

- ECITB Mechanical Joint Integrity

Course Title

- **MJI-01 Mechanical Joint Integrity First Principles**

Course Summary

- The ECITB MJI-01 training standard covers knowledge-based learning only relevant to isolation, dismantling techniques, component inspection, alignment, assembly, and tightening of bolted connections and has been designed for use in collaboration with the activity based MJI training standards.

Certification

- ECITB Training and Technical Test Certification
- Training Certificates - 12 months validity for technical test application purposes
- Technical Test Certificates - 3 years validity

Course Combinations

- MJI-01/10/11 - Hand Torque Bolted Connection Techniques (1 day)
- MJI-01/19/20 - Hydraulically Torque Bolted Connection Techniques Module* (1 day)
- MJI-01/18 - Hydraulically Tension Bolted Connection Techniques (1 day)
- MJI-01/10/11/19/20 - Hydraulically Torque Bolted Connection Techniques (1.5 days)
- MJI-01/10/11/18/19/20 - Hydraulically Torque and Tension Bolted Connection Techniques - (2.5 days)

*Valid MJI-10/11 training certificate within 12 months or TMJI10/11 technical test certificate required.

Class Size

- Maximum 6 delegates

Course Content

- This training unit specifies the knowledge-based performance expected of persons trained to dismantle, inspect, prepare, assemble, and tighten mechanical joints.
- Understand health, safety, legislation, and quality control procedures related to mechanical joint connections.
- Understand how to perform mechanical joint connection tasks.
- Understand preparation of work areas, equipment, tools, components, and materials for mechanical joint connection tasks.
- Understand how to reinstate the work area, equipment, and materials after completing the mechanical joint connection task.



Program Title

- ECITB Mechanical Joint Integrity

Course Title

- **MJI-10 Hand Torqued Bolted Connections**

Course Summary

- The ECITB MJI-10 training standard covers activity-based training relevant to isolation, dismantling techniques, component inspection, alignment, assembly, and the hand torque tightening of flanged connections.

Certification

- ECITB Training and Technical Test Certification
- Training Certificates - 12 months validity for technical test application purposes
- Technical Test Certificates - 3 years validity

Course Combinations

- MJI-01/10/11 - Hand Torque Bolted Connection Techniques (1 day)
- MJI-01/19/20 - Hydraulically Torque Bolted Connection Techniques Module* (1 day)
- MJI-01/18 - Hydraulically Tension Bolted Connection Techniques (1 day)
- MJI-01/10/11/19/20 - Hydraulically Torque Bolted Connection Techniques (1.5 days)
- MJI-01/10/11/18/19/20 - Hydraulically Torque and Tension Bolted Connection Techniques - (2.5 days)

*Valid MJI-10/11 training certificate within 12 months or TMJI10/11 technical test certificate required.

Class Size

- Maximum 6 delegates

Course Content

- This training unit specifies the activity-based performance expected of persons trained to dismantle, inspect, prepare, assemble, and hand torque tighten flanged connections.
- Understand health, safety, legislation, and quality control procedures related to flanged connections.
- Understand tightening and torquing sequences for flanged connections.
- Prepare work areas, equipment, and materials for flanged connection tasks.
- Perform hand torqued flanged connection activities

Related Technical Test

- TMJI-10 Dismantle, Assemble and Hand Torque Flanged Joints



Program Title

- ECITB Mechanical Joint Integrity

Course Title

- **MJI-11 Hand Torqued Clamp Connectors**

Course Summary

- The ECITB MJI-11 training standard covers activity-based training relevant to isolation, dismantling techniques, component inspection, alignment, assembly, and hand torque tightening of clamp connectors.

Certification

- ECITB Training and Technical Test Certification
- Training Certificates - 12 months validity for technical test application purposes
- Technical Test Certificates - 3 years validity

Course Combinations

- MJI-01/10/11 - Hand Torque Bolted Connection Techniques (1 day)
- MJI-01/19/20 - Hydraulically Torque Bolted Connection Techniques Module* (1 day)
- MJI-01/18 - Hydraulically Tension Bolted Connection Techniques (1 day)
- MJI-01/10/11/19/20 - Hydraulically Torque Bolted Connection Techniques (1.5 days)
- MJI-01/10/11/18/19/20 - Hydraulically Torque and Tension Bolted Connection Techniques - (2.5 days)

*Valid MJI-10/11 training certificate within 12 months or TMJI10/11 technical test certificate required.

Class Size

- Maximum 6 delegates

Course Content

- This training unit specifies the activity-based performance expected of persons trained to dismantle, inspect, prepare, assemble, and hand torque tighten clamp connectors.
- Understand health, safety, legislation, and quality control procedures related to clamp connectors.
- Understand tightening and torquing sequences for clamp connectors.
- Prepare work areas, equipment, and materials for clamp connector tasks.
- Perform hand torqued clamp connector activities.

Related Technical Test

- TMJI-11 Dismantle, Assemble and Hand Torque Clamp Connectors



Program Title

- ECITB Mechanical Joint Integrity

Course Title

- **MJI-18 Hydraulically Tensioned Bolted Connections**

Course Summary

- The ECITB MJI-18 training standard covers activity-based training relevant to isolation, dismantling techniques, component inspection, alignment, assembly, and hydraulic bolt tensioning of flanged connections.

Certification

- ECITB Training and Technical Test Certification
- Training Certificates - 12 months validity for technical test application purposes
- Technical Test Certificates - 3 years validity

Course Combinations

- MJI-01/10/11 - Hand Torque Bolted Connection Techniques (1 day)
- MJI-01/19/20 - Hydraulically Torque Bolted Connection Techniques Module* (1 day)
- MJI-01/18 - Hydraulically Tension Bolted Connection Techniques (1 day)
- MJI-01/10/11/19/20 - Hydraulically Torque Bolted Connection Techniques (1.5 days)
- MJI-01/10/11/18/19/20 - Hydraulically Torque and Tension Bolted Connection Techniques - (2.5 days)

*Valid MJI-10/11 training certificate within 12 months or TMJI10/11 technical test certificate required.

Class Size

- Maximum 6 delegates

Course Content

- This training unit specifies the activity-based performance expected of persons trained to dismantle, inspect, prepare, assemble, and hydraulic bolt tension flanged connections.
- Understand health, safety, legislation, and quality control procedures related to flanged connections.
- Understand tensioning and tightening sequences for flanged connections
- Prepare work areas, equipment, and materials for flanged connection tasks.
- Perform hydraulic bolt tensioned flanged connection activities

Related Technical Test

- TMJI-18 Dismantle, Assemble and Tensioning Bolted Connections



Program Title

- ECITB Mechanical Joint Integrity

Course Title

- **MJI-19 Hydraulically Torqued Bolted Connections**

Course Summary

- The ECITB MJI-19 training standard covers activity-based training relevant to isolation, dismantling techniques, component inspection, alignment, assembly, and hydraulic torque tightening of flanged connections.

Certification

- ECITB Training and Technical Test Certification
- Training Certificates - 12 months validity for technical test application purposes
- Technical Test Certificates - 3 years validity

Course Combinations

- MJI-01/10/11 - Hand Torque Bolted Connection Techniques (1 day)
- MJI-01/19/20 - Hydraulically Torque Bolted Connection Techniques Module* (1 day)
- MJI-01/18 - Hydraulically Tension Bolted Connection Techniques (1 day)
- MJI-01/10/11/19/20 - Hydraulically Torque Bolted Connection Techniques (1.5 days)
- MJI-01/10/11/18/19/20 - Hydraulically Torque and Tension Bolted Connection Techniques - (2.5 days)

*Valid MJI-10/11 training certificate within 12 months or TMJI10/11 technical test certificate required.

Class Size

- Maximum 6 delegates

Course Content

- This training unit specifies the activity-based performance expected of persons trained to dismantle, inspect, prepare, assemble, and hydraulic torque tighten flanged connections.
- Understand health, safety, legislation, and quality control procedures related to flanged connections.
- Understand hydraulic tightening and torqueing sequences for flanged connections.
- Prepare work areas, equipment, and materials for flanged connection tasks.
- Perform hydraulic torqued flanged connection activities

Related Technical Test

- TMJI-19 Dismantle, Assemble and Hydraulically Torque Flanged Joints



Program Title

- ECITB Mechanical Joint Integrity

Course Title

- **MJI-20 Hydraulically Torqued Clamp Connectors**

Course Summary

- The ECITB MJI-20 training standard covers activity-based training relevant to isolation, dismantling techniques, component inspection, alignment, assembly, and hydraulic torque tightening of clamp connectors.

Certification

- ECITB Training and Technical Test Certification
- Training Certificates - 12 months validity for technical test application purposes
- Technical Test Certificates - 3 years validity

Course Combinations

- MJI-01/10/11 - Hand Torque Bolted Connection Techniques (1 day)
- MJI-01/19/20 - Hydraulically Torque Bolted Connection Techniques Module* (1 day)
- MJI-01/18 - Hydraulically Tension Bolted Connection Techniques (1 day)
- MJI-01/10/11/19/20 - Hydraulically Torque Bolted Connection Techniques (1.5 days)
- MJI-01/10/11/18/19/20 - Hydraulically Torque and Tension Bolted Connection Techniques - (2.5 days)

*Valid MJI-10/11 training certificate within 12 months or TMJI10/11 technical test certificate required.

Class Size

- Maximum 6 delegates

Course Content

- This training unit specifies the activity-based performance expected of persons trained to dismantle, inspect, prepare, assemble, and hydraulic torque tighten clamp connectors.
- Understand health, safety, legislation, and quality control procedures related to clamp connectors.
- Understand hydraulic tightening and torqueing sequences for clamp connectors.
- Prepare work areas, equipment, and materials for clamp connector tasks.
- Perform hydraulic torqued clamp connector activities.

Related Technical Test

- TMJI-20 Dismantle, Assemble and Hydraulically Torque Clamp Connector Joints



Hydratight Academy Technical Training

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ECITB Mechanical Joint Integrity - eLearning Courses

Online training courses, completed as a refresher training option prior to TMJI technical testing or as **Module 1** of an ECITB MJIE blended learning program.

To view a detailed description of our ECITB MJIE courses, please visit our [LDMS](#) course category page.

Contact eLearning@hydratight.com to enrol on Hydratight Academy ECITB MJIE eLearning courses.



Hand Torque Bolted Connection Techniques
(MJIE-01/10/11E)



Hydraulically Tension Bolted Connection Techniques
(MJIE-01/18E)



Hydraulically Torque Bolted Connection Techniques
(MJIE-01/10/11/19/20E)



Hydraulically Torque & Tension Bolted Connection
Techniques (MJIE-01/10/11/18/19/20E)

ECITB Mechanical Joint Integrity - Blended Learning Courses

Practical training courses, completed as **Module 2** of an ECITB MJIE blended learning program within 4 weeks of an associated MJIE eLearning course.

Contact training@hydratight.com to enquire about Hydratight Academy ECITB MJIE blended learning courses and local delivery options.