



### Hydratight – Integrity Assurance Series

Joint Integrity Level 1 – Hand Torque Techniques	2
Joint Integrity Level 2 – Hydraulic Torque Techniques	3
Joint Integrity Level 3 – Bolt Tensioning Techniques	4
Integrity Assurance Series eLearning & Blended Learning Courses	5

### Hydratight – On-Site Machining

Basic Pipe-cutting and End Prepping	6
Advanced Pipe Cutting, End Prepping and Weld Excavation	7
Basic Flange Facing	8
Advanced Joint Facing	9

### ECITB - Mechanical Joint Integrity

MJI-01 Mechanical Joint Integrity First Principles	10
MJI-10 Hand Torqued Bolted Connections	11
MJI-11 Hand Torqued Clamp Connectors	12
MJI-18 Hydraulically Tensioned Bolted Connections	13
MJI-19 Hydraulically Torqued Bolted Connections	14
MJI-20 Hydraulically Torqued Clamp Connectors	15
MJI-E eLearning Courses & MJI-B Blended Learning Courses	16

### ECITB – On-Site Machining

OSM-01 - On-Site Cutting and Weld Preparation	17
OSM-02 - On-Site Joint Face Machining – Full & Raised Face Flanges	18
OSM-04 - On-Site Milling	19
OSM-05 - On-Site Joint Face Machining – RTJ Flanges & Clamp Connector Hubs	20

### ASME PCC-1 Appendix A

Bolting Assembler Training	21
Powered Equipment Endorsement Training	22
Heat Exchanger Endorsement Training	23
Special Joint Endorsement Training	24
ASME PCC-1-2022 eLearning Courses & Blended Learning Courses	25



### **Program Title**

- Hydratight Integrity Assurance

### **Course Title**

- **JI-01 - Joint Integrity Level 1 – Hand Torque Techniques**

### **Course Summary**

- Health, safety, quality, technical and practical learning objectives relevant to the disassembly, inspection, assembly and tightening of flange and clamp connections using hand torque equipment.

### **Certification**

- Hydratight Certification
- 3 years validity

### **Course Duration**

- 1 Day

### **Course Combinations**

- JI-01/02 – Joint Integrity Level 1-2 - Hand & Hydraulic Torque Techniques (1.5 Days)
- JI-01/02/03 – Joint Integrity Level 1-3 - Torque & Bolt Tensioning Techniques (2.5 Days)

### **Class Size**

- Maximum 6 delegates

### **Course Content**

- Instruction and practice in observing health and safety requirements when working with bolted joint assemblies.
- Instruction and compliance with approved working practices and the ASME PCC-1 guidelines for pressure boundary bolted flange joint assembly.
- Common joint types.
- Gaskets and seal ring types.
- Behaviour of studbolts when tightened.
- The importance of correct residual bolt load.
- Disassembly procedures.
- Inspection and surface finish requirements.
- Assembly and alignment procedures.
- The correct assembly and disassembly of bolted flange assemblies and clamp connectors using hand torque equipment.
- Joint integrity assurance quality control procedures.



### **Program Title**

- Hydratight Integrity Assurance

### **Course Title**

- **JI-02 - Joint Integrity Level 2 – Hydraulic Torque Techniques**

### **Course Summary**

- Health, safety, quality, technical and practical learning objectives relevant to the disassembly, inspection, assembly and tightening of flange and clamp connections using hydraulic torque equipment.

### **Certification**

- Hydratight Certification
- 3 years validity

### **Course Duration**

- 1 Day

### **Course Combinations**

- JI-01/02 – Joint Integrity Level 1-2 - Hand & Hydraulic Torque Techniques (1.5 Days)
- JI-01/02/03 – Joint Integrity Level 1-3 - Torque & Bolt Tensioning Techniques (2.5 Days)

### **Class Size**

- Maximum 6 delegates

### **Course Content**

- Instruction and practice in observing health and safety requirements when working with bolted joint assemblies.
- Instruction and compliance with approved working practices and the ASME PCC-1 guidelines for pressure boundary bolted flange joint assembly.
- Common joint types.
- Gaskets and seal ring types.
- Behaviour of studbolts when tightened.
- The importance of correct residual bolt load.
- Disassembly procedures.
- Inspection and surface finish requirements.
- Assembly and alignment procedures.
- The correct assembly and disassembly of bolted flange assemblies and clamp connectors using hydraulic torque equipment.
- Joint integrity assurance quality control procedures.



### **Program Title**

- Hydratight Integrity Assurance

### **Course Title**

- **JI-03 - Joint Integrity Level 3 – Bolt Tensioning Techniques**

### **Course Summary**

- Health, safety, quality, technical and practical learning objectives relevant to the disassembly, inspection, assembly and tightening of flange assemblies using bolt tensioning equipment.

### **Certification**

- Hydratight Certification
- 3 years validity

### **Course Duration**

- 1 Day

### **Course Combinations**

- JI-01/02 – Joint Integrity Level 1-2 - Hand & Hydraulic Torque Techniques (1.5 Days)
- JI-01/02/03 – Joint Integrity Level 1-3 - Torque & Bolt Tensioning Techniques (2.5 Days)

### **Class Size**

- Maximum 6 delegates

### **Course Content**

- Instruction and practice in observing health and safety requirements when working with bolted joint assemblies.
- Instruction and compliance with approved working practices and the ASME PCC-1 guidelines for pressure boundary bolted flange joint assembly.
- Common joint types.
- Gaskets and seal ring types.
- Behaviour of studbolts when tightened.
- The importance of correct residual bolt load.
- Disassembly procedures.
- Inspection and surface finish requirements.
- Assembly and alignment procedures.
- The correct assembly and disassembly of bolted flange assemblies using hydraulic bolt tensioning equipment.
- Joint integrity assurance quality control procedures.



### Hydratight Integrity Assurance Series - eLearning Courses

Online training courses, covering technical theory in the subject area are available as a refresher training option or **Module 1** of a Hydratight Academy blended learning program

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

Contact [eLearning@hydratight.com](mailto:eLearning@hydratight.com) to enrol on Hydratight Academy eLearning courses.



Joint Integrity Level 1  
Hand Torque Techniques



Joint Integrity Level 2  
Hydraulic Torque Techniques



Joint Integrity Level 3  
Bolt Tensioning Techniques



Joint Integrity Level 1 to 3  
Torque & Bolt Tensioning Techniques

### Hydratight Integrity Assurance Series - Blended Learning Courses

Practical training courses, completed as **Module 2** of a Hydratight Academy blended learning program after completion of an associated **Module 1** eLearning course.

Contact [training@hydratight.com](mailto:training@hydratight.com) to enquire about Hydratight Academy blended learning courses and local delivery options.



### **Program Title**

- Hydratight On-Site Machining

### **Course Title**

- **HT25 Basic Pipe-Cutting and End Prepping**

### **Course Summary**

- Health, safety, quality, technical and practical learning objectives relevant to basic pipe cutting and end weld preparation of pipework using portable machine tools.

### **Certification**

- Hydratight Certification
- Training Certificates – 3 years validity

### **Course Duration**

- 2 Days

### **Class Size**

- Maximum 4 delegates

### **Course Content**

- Instruction and practice in observing health and safety requirements and approved working practices
- Equipment safety and safety valve operation
- Types of tools and methods
- Inspection, measurement and drawing interpretation
- Equipment component identification
- Equipment and cutting tool selection
- Basic tool maintenance
- Practical use of clamshell tools
- Practical use of various tool slides, boring attachments and tooling to carry out additional prep/bore profiles
- Instruction and practice in the selection and grinding of cutting tools
- Reporting and Quality Assurance

### **Pre-requisites**

- Preferred relevant previous machining as a toolmaker, turner, fitter/turner



### **Program Title**

- Hydratight On-Site Machining

### **Course Title**

- **HT26 Advanced Pipe-Cutting, End Prepping and Weld Excavation**

### **Course Summary**

- Health, safety, quality, technical and practical learning objectives relevant to advanced pipe cutting, end weld preparation and weld excavation of pipework using portable machine tools.

### **Certification**

- Hydratight Certification
- Training Certificates – 3 years validity

### **Course Duration**

- 4 Days

### **Class Size**

- Maximum 4 delegates

### **Course Content**

- Instruction and practice in observing health and safety requirements and approved working practices
- Equipment safety and safety valve operation
- Types of tools and methods
- Inspection, measurement and drawing interpretation
- Equipment component identification
- Equipment and cutting tool selection
- Basic tool maintenance
- Practical use of clamshell tools
- Practical use of various tool slides, boring attachments and tooling to carry out additional prep/counter bore/excavation profiles
- Instruction and practice in the selection and grinding of cutting tools
- Overview of weld identification methods
- Reporting and Quality Assurance

### **Pre- requisites**

- Preferred relevant previous machining as a toolmaker, turner, fitter/turner
- HT25 – Basic Pipe Cutting and End Prepping



### **Program Title**

- Hydratight On-Site Machining

### **Course Title**

- **HT27 Basic Flange Facing**

### **Course Summary**

- Health, safety, quality, technical and practical learning objectives relevant to basic flange facing of full and raised face flanges using portable machine tools.

### **Certification**

- Hydratight Certification
- Training Certificates – 3 years validity

### **Course Duration**

- 2 Days

### **Class Size**

- Maximum 4 delegates

### **Course Content**

- Instruction and practice in observing health and safety requirements and approved working practices
- Equipment safety and safety valve operation
- Types of tools and methods
- Inspection, measurement and drawing interpretation
- Equipment component identification
- Equipment and cutting tool selection
- Basic tool maintenance
- Practical use of equipment to machine flat and raised face applications
- Overview of various tool slides, boring attachments and tooling to carry out additional profiles
- Instruction and practice in the selection and grinding of cutting tools
- Reporting and Quality Assurance

### **Pre- requisites**

- Preferred relevant previous machining as a toolmaker, turner, fitter/turner





### **Program Title**

- Hydratight On-Site Machining

### **Course Title**

- **HT28 Advanced Joint Facing**

### **Course Summary**

- Health, safety, quality, technical and practical learning objectives relevant to advanced joint facing of RTJ flanges and clamp connector hubs using portable machine tools.

### **Certification**

- Hydratight Certification
- Training Certificates – 3 years validity

### **Course Duration**

- 3 Days

### **Class Size**

- Maximum 4 delegates

### **Course Content**

- Instruction and practice in observing health and safety requirements and approved working practices
- Equipment safety and safety valve operation
- Types of tools and methods
- Inspection, measurement and drawing interpretation
- Equipment component identification
- Equipment and cutting tool selection
- Basic tool maintenance
- Practical use of equipment to machine RTJ flanges and clamp connector hubs
- Instruction and practice in the selection and grinding of cutting tools
- Reporting and Quality Assurance

### **Pre-requisites**

- Preferred relevant previous machining as a toolmaker, turner, fitter/turner
- HT27 - Basic Flange Facing



### 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 torquing 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 torquing 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



### 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](mailto: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 - Bended 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](mailto:training@hydratight.com) to enquire about Hydratight Academy ECITB MJIE blended learning courses and local delivery options.





### Program Title

- ECITB On-Site Machining

### Course Title

- **OSM-01 – On-Site Cutting and Weld Preparation**

### Course Summary

- ECITB technical training standard covering the in-situ machining, health, safety, quality, technical and practical learning objectives relevant to pipe cutting and end weld preparation of pipework using portable machine tools.

### Certification

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

### Course Duration

- 2 Days

### Class Size

- Maximum 4 delegates

### Course Content

- Instruction and practice in observing health and safety requirements and approved working practices
- Equipment safety and safety valve operation
- Types of tools and methods
- Inspection, measurement and drawing interpretation
- Equipment component identification
- Equipment and cutting tool selection
- Basic tool maintenance
- Practical use of use of clamshell tools
- Practical use of various tool slides, boring attachments and tooling to carry out additional prep/counter bore/excavation profiles
- Instruction and practice in the selection and grinding of cutting tools
- Reporting and Quality Assurance

### Pre- requisites

- Preferred relevant previous machining as a toolmaker, turner, fitter/turner

### Related Technical Test

- TOSM-01 - On-Site Cutting and Weld Preparation



### Program Title

- ECITB On-Site Machining

### Course Title

- **OSM-02 – On-Site Joint Face Machining – Full & Raised Face Flanges**

### Course Summary

- ECITB technical training standard covering the in-situ machining, health, safety, quality, technical and practical learning objectives relevant to basic flange facing of full and raised face flanges using portable machine tools.

### Certification

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

### Course Duration

- 2 Days

### Class Size

- Maximum 4 delegates

### Course Content

- Instruction and practice in observing health and safety requirements and approved working practices
- Equipment safety and safety valve operation
- Types of tools and methods
- Inspection, measurement and drawing interpretation
- Interpretation of manufacturer technical data sheets
- Equipment component identification
- Equipment and cutting tool selection
- Basic tool maintenance
- Practical use of equipment to machine flat and raised face applications
- Overview of various tool slides, boring attachments and tooling to carry out additional profiles
- Instruction and practice in the selection and grinding of cutting tools
- Reporting and Quality Assurance

### Pre-requisites

- Preferred relevant previous machining as a toolmaker, turner, fitter/turner

### Related Technical Test

- TOSM-02 - On-Site Joint Face Machining – Full & Raised Face Flanges



### Program Title

- ECITB On-Site Machining

### Course Title

- **OSM-04 - On-Site Milling**

### Course Summary

- ECITB technical training standard covering the in-situ machining, health, safety, quality, technical and practical learning objectives relevant to milling of pump beds and shaft keyways using portable machine tools.

### Certification

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

### Course Duration

- 2 Days

### Class Size

- Maximum 4 delegates

### Course Content

- Instruction and practice in observing health and safety requirements and approved working practices
- Equipment safety and safety valve operation
- Types of tools and methods
- Inspection, measurement and drawing interpretation
- Interpretation of manufacturer technical data sheets
- Equipment component identification
- Equipment and cutting tool selection
- Basic tool maintenance
- Practical use of portable milling equipment
- Instruction and practice in the selection and grinding of cutting tools
- Reporting and Quality Assurance

### Pre- requisites

- Preferred relevant previous machining as a toolmaker, turner, fitter/turner

### Related Technical Test

- TOSM-04 - On-Site Milling



### Program Title

- ECITB On-Site Machining

### Course Title

- **OSM-05 - On-Site Joint Face Machining – RTJ Flanges & Clamp Connector Hubs**

### Course Summary

- ECITB technical training standard covering the in-situ machining, health, safety, quality, technical and practical learning objectives relevant to advanced joint facing of RTJ flanges and clamp hubs using portable machine tools.

### Certification

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

### Course Duration

- 3 Days

### Class Size

- Maximum 4 delegates

### Course Content

- Instruction and practice in observing health and safety requirements and approved working practices
- Equipment safety and safety valve operation
- Types of tools and methods
- Inspection, measurement and drawing interpretation
- Interpretation of manufacturer technical data sheets
- Equipment component identification
- Equipment and cutting tool selection
- Basic tool maintenance
- Practical use of equipment to machine RTJ flanges and clamp connector hubs
- Overview of various tool slides, boring attachments, back facing heads, extensions and tooling to carry out additional joint profiles
- Instruction and practice in the selection and grinding of cutting tools
- Reporting and Quality Assurance

### Pre-requisites

- Preferred relevant previous machining as a toolmaker, turner, fitter/turner
- OSM-02 - On-Site Joint Face Machining – Full & Raised Face Flanges

### Related Technical Test

- TOSM-05 - On-Site Joint Face Machining – RTJ Flanges & Clamp Connector Hubs

**Program Title:**

- ASME PCC-1 Appendix A

**Course Title:**

- **Bolting Assembler Training**

**Course Summary**

- Derived from ASME PCC-1-2022, Appendix A relevant to the training and qualification of bolted joint assembly personnel.
- The course will deliver a thorough understanding of the Training of Fundamentals curriculum within A-2.1-1 and the Piping Endorsement curriculum within A-2.2-1 of Appendix A and is suited to individuals who are required to disassemble and assemble bolted flange joints.

**Skill Level**

- Level 2

**Certification**

- Hydratight Certification
- Training Certificates – Open validity
- Qualification Certificates – 3 years validity

**Course Options**

- Bolting Assembler Training (1.5 days)
- Powered Equipment Endorsement Training (1 day)
- Heat Exchanger Endorsement Training (1 day)
- Special Joint Endorsement Training (1 day)

**Class Size**

- Maximum 6 delegates

**Course Content**

- Bolted flange joint disassembly, alignment, assembly, selection of target bolt loads, appropriate tooling, and tightening techniques relevant to the tightening of piping joints using hand torque tightening equipment.

**Delivery Options**

- Instructor Led - Traditional instructor led classroom and practical training.
- Online – eLearning knowledge only option or pre-requisite for blended learning.
- Blended – Combination of online and instructor led practical training.

**Program Title:**

- ASME PCC-1 Appendix A

**Course Title:**

- **Powered Equipment Endorsement Training**

**Course Summary**

- Derived from ASME PCC-1-2022, Appendix A relevant to the training and qualification of bolted joint assembly personnel.
- The course will deliver a thorough understanding of the Powered Equipment Endorsement curriculum within A-2.3-1 of Appendix A.

**Skill Level**

- Level 2

**Certification**

- Hydratight Certification
- Training Certificates – Open validity
- Qualification Certificates – 3 years validity

**Course Options**

- Bolting Assembler Training (1.5 days)
- Powered Equipment Endorsement Training (1 day)
- Heat Exchanger Endorsement Training (1 day)
- Special Joint Endorsement Training (1 day)

**Class Size**

- Maximum 6 delegates

**Course Content**

- The course will deliver a thorough technical and practical understanding of bolted flange joint disassembly, assembly and tightening techniques using hydraulic torque and bolt tensioning equipment.

**Pre-requisites**

- Bolting Assembler Training (1.5 days)

**Delivery Options**

- Instructor Led - Traditional instructor led classroom and practical training.
- Online – eLearning knowledge only option or pre-requisite for blended learning.
- Blended – Combination of online and instructor led practical training.

**Program Title:**

- ASME PCC-1 Appendix A

**Course Title:**

- **Heat Exchanger Endorsement Training**

**Course Summary**

- Derived from ASME PCC-1-2022, Appendix A relevant to the training and qualification of bolted joint assembly personnel.
- The course will deliver a thorough understanding of the Heat Exchanger Endorsement curriculum within A-2.4-1 of Appendix A.

**Skill Level**

- Level 2

**Certification**

- Hydratight Certification
- Training Certificates – Open validity
- Qualification Certificates – 3 years validity

**Course Options**

- Bolting Assembler Training (1.5 days)
- Powered Equipment Endorsement Training (1 day)
- Heat Exchanger Endorsement Training (1 day)
- Special Joint Endorsement Training (1 day)

**Class Size**

- Maximum 6 delegates

**Course Content**

- The course will deliver a thorough technical and practical understanding of heat exchanger joint disassembly, assembly and tightening techniques using hydraulic torque and bolt tensioning equipment.

**Pre-requisites**

- Bolting Assembler Training (1.5 days)
- Powered Equipment Endorsement Training (1 day)

**Delivery Options**

- Instructor Led - Traditional instructor led classroom and practical training.
- Online – eLearning knowledge only option or pre-requisite for blended learning.
- Blended – Combination of online and instructor led practical training.

**Program Title:**

- ASME PCC-1 Appendix A

**Course Title:**

- **Special Joint Endorsement Training**

**Course Summary**

- Derived from ASME PCC-1-2022, Appendix A relevant to the training and qualification of bolted joint assembly personnel.
- The course will deliver a thorough understanding of the Special Joint Endorsement curriculum within A-2.5 of Appendix A.

**Skill Level**

- Level 2

**Certification**

- Hydratight Certification
- Training Certificates – Open validity
- Qualification Certificates – 3 years validity

**Course Options**

- Bolting Assembler Training (1.5 days)
- Powered Equipment Endorsement Training (1 day)
- Heat Exchanger Endorsement Training (1 day)
- Special Joint Endorsement Training (1 day)

**Class Size**

- Maximum 6 delegates

**Course Content**

- The course will deliver a thorough technical and practical understanding of clamp connector and compact flange disassembly, assembly and tightening techniques using hand and hydraulic torque equipment.

**Pre-requisites**

- Bolting Assembler Training (1.5 days)
- Powered Equipment Endorsement Training (1 day)

**Delivery Options**

- Instructor Led - Traditional instructor led classroom and practical training.
- Online – eLearning knowledge only option or pre-requisite for blended learning.
- Blended – Combination of online and instructor led practical training.





### ASME PCC-1 Appendix A – eLearning Courses

Hydratight certified online training courses, completed as refresher training prior to attendance of examination or as **Module 1** of an ASME PCC-1 Appendix A blended learning program.

To view a detailed description of our ASME PCC-1 Appendix A eLearning courses, please visit our [LDMS](#) course category page.

Contact [eLearning@hydratight.com](mailto:eLearning@hydratight.com) to enrol on Hydratight Academy eLearning courses.



Bolting Assembler Training



Powered Equipment Endorsement Training



Heat Exchanger Endorsement Training



Special Joint Endorsement Training

### ASME PCC-1 Appendix A – Blended Learning Courses

Hydratight certified practical training courses, completed as **Module 2** of an ASME PCC-1 Appendix A blended learning program, after completion of an associated **Module 1** ASME PCC-1 Appendix A eLearning course.

Contact [training@hydratight.com](mailto:training@hydratight.com) to enquire about Hydratight Academy ASME PCC-1 Appendix A blended learning courses and local delivery options.