

## Overview

This standard identifies the competences you need to assemble screwed pipework, in accordance with approved procedures. In producing assemblies, you will be expected to select and use a range of equipment, hand tools and techniques appropriate to the operations being performed.

The assembly activities will include producing threads on the external ends of the pipe, using stocks and dies or threading machines, and joining the pipes using a range of fittings, which will include flanges and gaskets, straight couplings, elbows, tee pieces, reduction pieces and other fittings as appropriate to the application.

Your responsibilities will require you to comply with organisational policy and procedures for the assembly activities undertaken, and to report any problems with the equipment, materials or assembly activities that you cannot personally resolve, or are outside your permitted authority, to the relevant people. You will be expected to work with a minimum of supervision, taking personal responsibility for your own actions and for the quality and accuracy of the work that you produce.

Your underpinning knowledge will provide a good understanding of your work, and will provide an informed approach to applying screwed pipework assembly procedures. You will understand the pipework assembly, and its application, and will know about the screwed pipework assembly process, components and materials used, in adequate depth to provide a sound basis for carrying out the activities, correcting faults and ensuring that the work output is produced to the required specification.

You will understand the safety precautions required when working on pipework assembly activities and with the associated tools and equipment. You will be required to demonstrate safe working practices throughout, and will understand the responsibility you owe to yourself and others in the workplace.

## Performance criteria

*You must be able to:*

1. work safely at all times, complying with health and safety and other relevant regulations, directives and guidelines
2. follow the relevant instructions, assembly drawings and any other specifications
3. ensure that the specified fittings are available and that they are in a usable condition
4. use the appropriate methods and techniques to assemble the fittings in their correct positions
5. secure the fittings using the specified connectors and securing devices
6. check the completed assembly to ensure that all operations have been completed and the finished assembly meets the required specification
7. deal promptly and effectively with problems within your control and report those that cannot be solved

## Knowledge and understanding

### *You need to know and understand:*

1. how to work safely at all times, complying with health and safety and other relevant regulations, directives and guidelines
2. the personal protective equipment (PPE) to be used when assembling screwed pipework
3. the hazards associated with the carrying out pipework assembly activities and how to minimise them and reduce any risks
4. how to extract and use information from engineering drawings and related specifications (to include symbols and conventions to appropriate standards) in relation to work undertaken
5. how to interpret first and third angle drawings, imperial and metric systems of measurement, work reference points and system of tolerancing
6. the preparation of pipework and fittings for the assembly operation
7. the range of pipe fittings that can be used, and how to identify them
8. how to determine the overall length of the pipework required, taking into account allowances for pipe fittings and screwed connections
9. how to produce screw threads on the pipe ends, and the tools and equipment that can be used
10. methods used to seal screwed joints
11. the use of flanges to connect pipes; use of gaskets; and torque loading of flange bolts
12. how to identify the correct orientation of fittings with regard to flow
13. the methods used to handle pipework assemblies
14. the supporting methods that are used when assembling pipework, and the types of fitting that are used
15. the tools and equipment used when assembling pipework
16. the quality standards to be attained, and the company quality procedures
17. the extent of your own responsibility and to whom you should report if you have problems that you cannot resolve

## Scope/range related to performance criteria

1. Carry out all of the following during the pipe assembly activities:
  - 1.1 obtain and use the appropriate documentation
  - 1.2 adhere to procedures or systems in place for risk assessment, , personal protective equipment and other relevant safety regulations and procedures to realise a safe system of work
  - 1.3 check all tools and equipment are in a safe and usable condition
  - 1.4 follow safe practice/approved pipe fitting and assembly techniques at all times
  - 1.5 ensure that the fittings and pipes used are free from foreign objects, dirt or other contamination before assembling them
  - 1.6 return all tools and equipment to the correct location on completion of the pipe fitting activities
  - 1.7 leave the work area and assembly in a safe and appropriate condition on completion of the activities
2. Cut pipes and produce screw threads on pipe ends, to include all of the following:
  - 2.1 cutting pipes to length with appropriate allowance for threading
  - 2.2 selecting and setting up dies in stocks or threading machines
  - 2.3 cutting threads on pipe ends to the appropriate length
  - 2.4 checking the completed threads have the required fit
3. Assemble screwed pipework using six the following screwed fittings:
  - 3.1 straight couplings
  - 3.2 reduction pieces
  - 3.3 elbows
  - 3.4 valves
  - 3.5 tee pieces
  - 3.6 drain/bleeding devices
  - 3.7 flanges
  - 3.8 blanking caps
4. Produce assembled pipework which contains three of the following features:
  - 4.1 angular bends
  - 4.2 bridge sets
  - 4.3 offsets
  - 4.4 expansion loops
5. Assemble pipework using all of the following methods and techniques:
  - 5.1 securing pipework supports to structures
  - 5.2 connecting pipe-to-equipment
  - 5.3 fitting pipework supports
  - 5.4 using gaskets, seals or jointing compounds
  - 5.5 connecting pipe-to-pipe
  - 5.6 alignment/levelling equipment

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5.7 hand tools

5.8 torque loading of fasteners

6. Produce pipework assemblies which comply with one of the following quality and accuracy standards:

6.1 BS, ISO or BSEN standards

6.2 customer standards and requirements

6.3 company standards and procedures

6.4 specific system requirements

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