Unit 113: Plumbing, heating and ventilation

# Worksheet 16: Testing and inspecting pipework (tutor)

Complete the tasks in this worksheet as directed by your tutor:

1. In the space below, list checks that you should carry out before filling pipework with water:

Answers may include:

* Open ended or incomplete pipework
* Open valves without proper caps
* Open air vents
* Open drain cocks
* Obvious signs of damage to pipework
* Obvious joints that have not been properly made
* Crimped fittings that have not been crimped
* Corroded pipework

1. What are the two main methods of testing pipework systems?

* Hydraulic testing – uses a fluid (normally water)
* Pneumatic testing – uses a gas (normally air or nitrogen)

1. List any sources of information and guidance relevant to the testing and charging of pipework. Try to get at least two:

* BSEN 14336 – Heating systems in Buildings: It states for example – *‘The heating system shall be watertight and tested for leakage ... This test may be an independent test or a combined test for water tightness and pressure verification.’*
* BSEN 806 – Specifications for installations inside buildings conveying water for human consumption. This document also gives guidance for the testing of hot and cold water systems.
* The Water Supply (Water Fittings) Regulations 1999 – This legal document gives advice on testing as well as all legal aspects of the installation of potable water within a building.
* BESA TR6 – A guide to good practice – Site pressure testing of pipework.

1. According to BSEN 14336: 2004 Heating systems in buildings: Installation and commissioning of water-based heating systems, if the system you were about to test was expected to operate at 1.5 bar, what would the minimum test pressure and duration of the test be?

Try to show your workings out too:

1.5 bar + 30% minimum

1.5 x 1.3 = 1.95 bar test pressure

Minimum duration recommended at 2 hours

1. Explain the main difference between pneumatic and hydraulic testing:

Hydraulic testing uses a fluid such as water, whereas pneumatic testing uses a gas such as nitrogen or air. Pneumatic testing can be more hazardous due to the amounts of stored energy when the gas is compressed, but also creates less damage than water if a leak is found.

1. Identify the component in the image below:

A picture containing small, sitting, table, person

Description automatically generated

1. Pneumatic test pump
2. Pneumatic LCS bending machine
3. Hydraulic test pump
4. Hydraulic LCS bending machine