KNOWING THE FACTS

Technical Bulletin
Filling Loops

Filling Loops - Knowing the facts

What is a Filling Loop?

A filling loop is a piece of apparatus used in the filling and pressurising of domestic central heating systems. In apartment blocks with a centralised boiler plant, they are also used to fill and pressurise the secondary heating system of Heat Interface Units (HIUs).

What does the Filling Loop consist of?

To meet the Water Regulations requirements, the filling loop must consist of:

- WRAS approved backflow prevention device (a double check valve conforming to BS EN 13959 suitable for protection against a fluid category 3 risk)
- Temporary connecting pipe (a removable flexible hose)
- Service valve (2 isolating ball valves)
- 4 bar pressure gauge (optional)

If the water undertaker has concerns about the likelihood of contamination, or the suitability of a double check valve for example - due either to age, operating temperature or pressure fluctuations – under schedule 2 paragraph 15(4) of the Water Fittings Regulations, they can require the installation of additional backflow protection".

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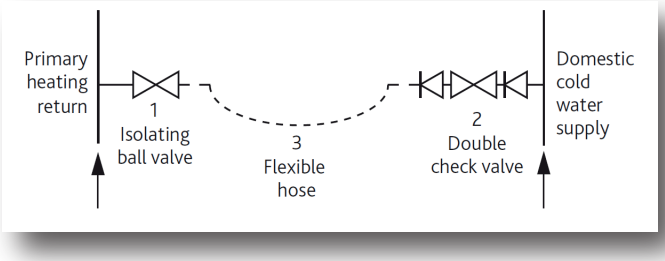
What are the Water Fittings Regulations?

'Water Fittings Regulations' refers to The Water Supply (Water Fittings) Regulations 1999, The Water Supply (Water Fittings) Regulations (Northern Ireland) 2009 and The Water Supply (Water Fittings) (Scotland) Byelaws 2014.

The Water Supply (Water Fittings) Regulations and Water Supply (Water Fittings) (Scotland) Byelaws, play an important role in protecting public health, safeguarding water supplies and promoting the efficient use of water within customers' premises across the UK. They set legal requirements for the design, installation, operation and maintenance of plumbing systems, water fittings and water-using appliances.

Where should the Filling Loop be installed?

The filling loop is installed between the mains cold water supply inlet and the central heating return pipe in the boiler and HIU. The filling loop must be installed in accordance with the requirements of the Water Regulations-1999, Schedule 2, Section 8 Paragraphs G24.1 and G24.2.



Should the Filling Loop be connected permanently to the Boiler?

No. After the system has been filled and pressurised, the service valves must be closed, the system isolated and the flexible hose removed and stored until it is used again.

Schedule 2, Paragraph 24 & G24.29a of the Water Regulations states the following in relation to temporary filling loops:

"Where a closed circuit (heating system etc) has been categorised by the water undertaker as a fluid category 3 risk, the installation of a compliant double check valve on the fill point connection to the supply/distribution pipe may be considered as acceptable backflow protection.

Where a fill point connection incorporates a "flexible connection", when not in use it is good practice for the hoses on these connections to be completely disconnected and removed, however a partial disconnection, that is to say only detaching one end of the hose, is equally acceptable providing that the disconnection is made between the hose and the backflow prevention device on the supply/distribution pipe.

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Do all Boilers have a Filling Loop?
A filling loop can be either part of the boiler itself, or it can be fitted close by.

Is a Pressure Gauge required?
The pressure gauge measures the pressure in the heating system and is especially useful when the filling loop is installed away from the boiler or when the boiler or HIU does not have an integral pressure gauge.

What is the maximum working pressure and temperature?
The maximum inlet pressure should be 10 bar and the maximum continuous temperature 85°C.

Why is the Filling Loop only temporary?
The requirement that the connection is temporary is because Water Regulations prohibit the backflow of water into the mains which risk contaminating it.
The risk of contamination from a central heating system is even greater because of the corrosion and sludge which can build up inside a central heating system, and potentially the presence of anti-corrosion and biocidal chemicals.
A permanent connection to a central heating system is therefore not permitted

Can the Filling Loop be installed any way round?
When installing an external filling loop, care must be taken to ensure that it is installed the right way around, otherwise the check valve will prevent the system from re-filling.

What Approvals are Required?
Filling loops must be WRAS approved.

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Got a Problem? - Common Trouble Shooting Issues

Ensure that the Filling Loop is installed and commissioned in accordance with the manufacturers Installation and Maintenance instructions.
Check that all connections are tight and that compression joints are sealed but not over tightened.

What Can Go Wrong With A Central Heating Filling Loop

Central heating filling loops rarely go wrong although the joints between the filling loop and the water pipes can sometimes leak if not made correctly.
The filling loop tap (or ball valve) can sometimes be tight to operate if it is not used on a regular basis.

What do I do if my boiler has low water pressure?

Switch off and allow your boiler to cool. Attach both ends of the filling loop securely. Open fully one of the valves and open slowly the second valve (to act as a regulating valve), to allow cold mains water into the system and refill the system whilst reading pressure gauge. Pressurise the system to the pressure recommended by the boiler manufacture or if unavailable to 1.5 bar.

What would cause a boiler to lose pressure?

Your boiler can be losing pressure for a number of reasons.
Pressure loss may be caused from a leak in the pressure relief valve, an issue in the expansion vessel, air in your system, or a leak in the heating pipework itself.

What pressure should my boiler be at when it is running?

To check the pressure in your boiler, locate the pressure gauge on the boiler or attach the filling loop complete with pressure gauge.
The pressure should be between 1 and 2 bar.

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