



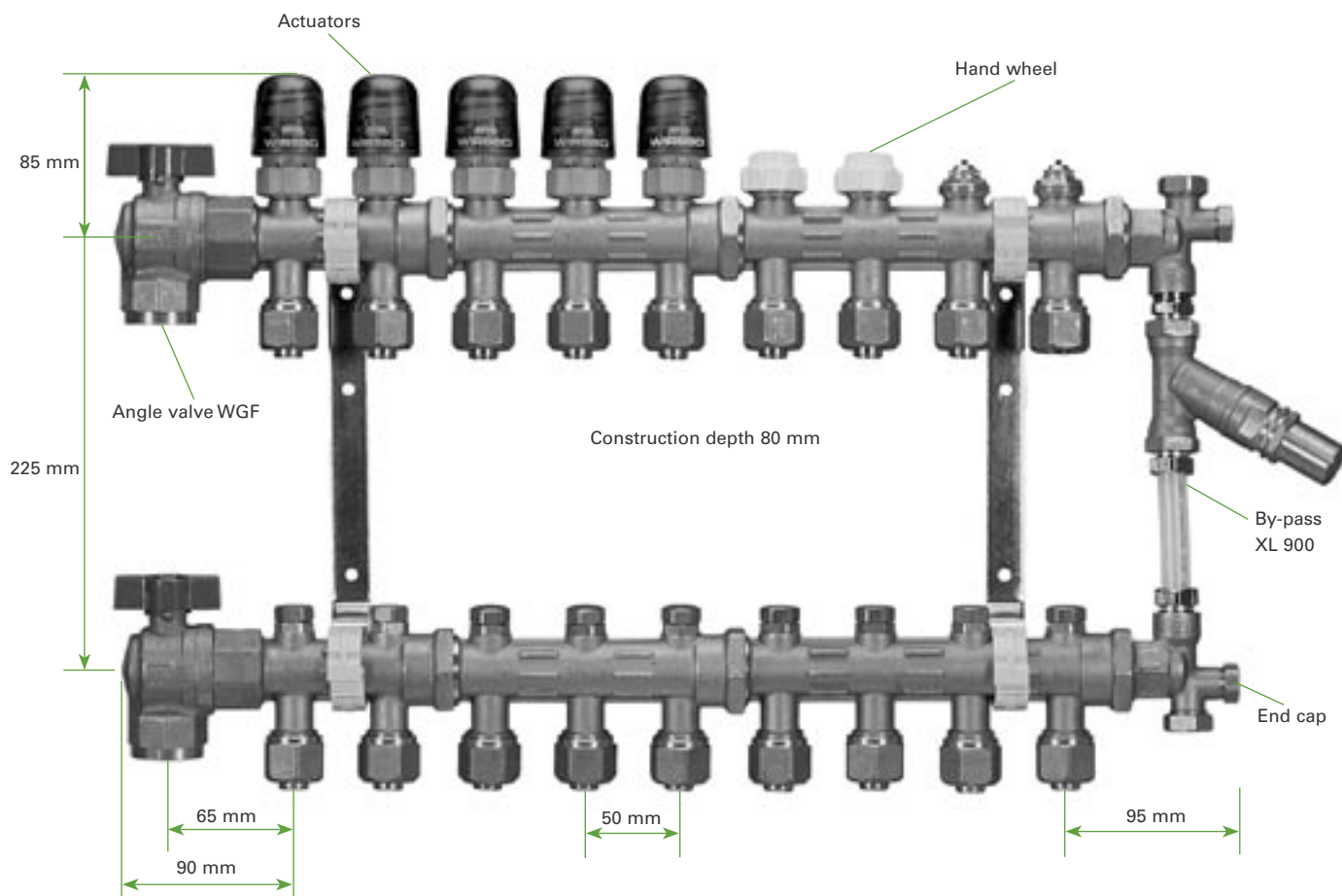
Pipe Systems

Wirsbo UFH Manifold



uponor

Wirso Underfloor Heating Manifold and accessories



Manifold

The Wirso Underfloor Heating Manifold WGF is a very important component of an underfloor heating system. From the manifold, the underfloor heating loops stretch out to form the underfloor heating system. In the return manifold, there are built-in balancing valves, which con-

trol flows and pressure drops in the underfloor heating loops. The valves are adjusted using a 4 mm Allen key.

The actuator is fitted to the flow manifold. It opens and closes the flow valve to allow warm water to flow through the relevant loop.

The actuator is controlled by the room thermostat, which determines if warm water is required.

The Wirsbo Underfloor Heating Manifold WGF is supplied as a complete set consisting of pipe couplings, flow and return manifold as well as control wheels and couplings. The manifolds come in three different types with coupling sets for pipe diameters of 20, 17 or 12 mm.

Manifolds with 2, 3 or 4 outlets can be combined to give the correct number of loops. The overall number of combined loops on one manifold should not exceed 12.

The distance from the wall to the centre line of the supply manifold is 35 mm and the equivalent distance from the return manifold is 55 mm. The manifolds are supplied with 1" female shut-off valves to connect to the primary flow and return. The shut-off valves are available in angled and straight designs.

The end caps (which are mounted on the opposite side in relation to the shut-off valves) are fitted with valves for draining and refilling, plus a connection for a by-pass pipe, for example.

Thermo-electric actuators replace the control wheels when electronic room temperature control is selected. These actuators have to be ordered separately.



Wirsbo Acuator can be installed in all directions.

Wirsbo Pipe Coupling Set



The Wirsbo coupling set is available in three sizes for pipes 20x2.0, 17x2.0 and 12x2.0 mm. The manifolds are supplied with fittings to connect the Wirsbo-pePEX pipe. Extra fittings are supplied individually.

NB: Remember that all compression fittings for cross-linked polyethylene (PEX) pipes require retightening to achieve a secure, tight joint.

Manifold cabinet

Manifold cabinet

Two designs of the manifold cabinet are available - one made for a maximum of 6 loops and one for 6 to 12 loops. The cabinets have two mounting rails onto which clamps for the manifold is fitted. The cabinets are lockable and can be surface-mounted or recessed into the wall, as required.

By-pass

The primary circuit from the boiler can be fitted with a by-pass. In addition, it is recommended that the by-pass is fitted to at least one manifold in the underfloor heating system. The by-pass pipework has the task of providing the system with constantly circulating water. In particular, this applies where electrical heating boilers are installed with a small volume of water or for heating pumps that require circulating water.

The by-pass may also be relevant in large systems to ensure warm water at the manifolds furthest away. The by-pass is available in two designs, with or without a differential pressure stabiliser.



Manifold mounted on brackets, with by-pass connected. Construction depth 80 mm.

Installation

Install the underfloor heating manifold in a cabinet or in a bracket. The construction depth is 100 mm for a manifold cabinet or 80 mm when using a bracket.

Installation can also be carried out using a stand where there are no walls available, such as when the underfloor heating system is being installed in a concrete base. The stand is fastened against the reinforcement or similar.

NB: The manifold should always be installed before the loops are laid. The manifold or manifold cabinet should always be covered for protection against dirt during screeding, for example.

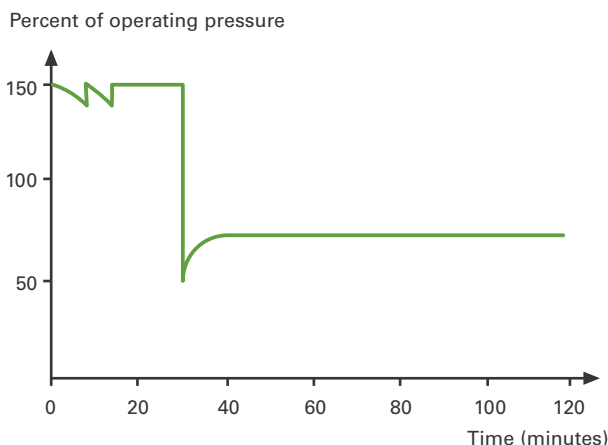
Read the operating and care instructions in Wirsbo Underfloor Heating System Basic Manual, Chapter 6 when filling and commissioning.

The underfloor heating loops must be pressurised and tested for leaks before the loops are covered.

Pressure test

Pressure testing should be carried out in accordance with relevant local regulations. We recommend that the system is tested in accordance with the following procedure:

Vent all air from the system and apply 150 percent of the normal operating pressure. Maintain this pressure for 30 minutes and visually inspect the joints. Rapidly drain off water to reduce the pressure 50 percent of the normal operating pressure and close the drain. Leave the system pressurised for 90 minutes and visually inspect the joints. A drop in pressure during this period indicates a leak in the system.



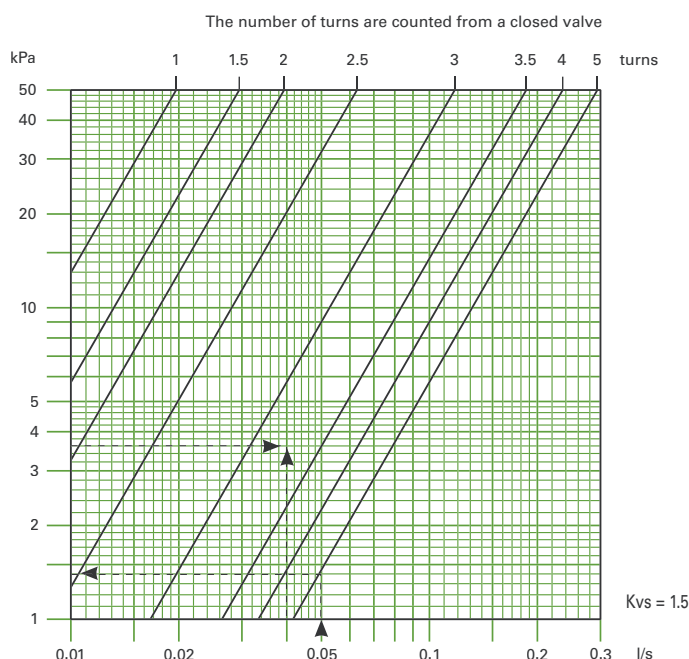
NB: When temperatures fall below zero, there is a risk of frost damage while casting concrete. This also applies when filling loops when the temperature of the concrete slab/sub-floor stays below zero. Mix ethylene or propylene glycol in the water to avoid frosts damage to the pipes. The loops should be emptied of water if, after pressure testing, they are going to be left lying without any connection to a circulation pump for any length of time. Always pressurise the system whilst pouring the concrete. The water/glycol mixture should be recovered and disposed of in accordance with local regulations.

Supply temperature

Always ensure that the temperature of the underfloor heating water is controlled. Supply temperatures, pressure drops and flows are different than for radiator system and should be carefully considered if the two types of heating are to be joined together.

Valve diagram

The valve diagram for a Wirsbo underfloor heating manifold adds up the pressure drop in each valve of the return manifold. This diagram shows the pressure drop with the flow valve completely open and the return valve with different settings.



The loop length and the required heat output produces a flow in litres/second (l/s) and a pressure drop (ΔP) in kPa. Use the pressure drop nomogram to calculate the pressure drop in the pipe. To obtain this distribution of flow from the manifold, each loop must be adjusted using the return valve. Adjustments are made using a 4 mm Allen key and are calculated from a closed valve.

Example: The longest loop has a flow of $q_v = 0.05$ l/s and the pipe pressure drop $\Delta P_p = 4.5$ kPa.

For a flow of 0.05 l/s, the diagram gives a pressure drop reading of 1.4 kPa with all valves opened. The pressure drop over the longest loop and both valves will then be $\Delta P = 4.5 + 1.4 = 5.9$ kPa.

The next loop connected to the manifold has a flow of $q_v = 0.04$ l/s and the pipe pressure drop $\Delta P_p = 2.3$ kPa.

For the same total pressure drop, the valves must have a pressure drop of $\Delta P = 5.9 - 2.3 = 3.6$ kPa.

The diagram shows that the balancing valve for this loop has to be adjusted to 3.25 turns (calculated from a closed valve).

If there are several underfloor heating manifolds in the same underfloor heating system, the pressure drop in the supply pipes and valves should also be included in the total pressure drop. In this way, the adjustment can also be made between the different manifolds.

WIRSBO®

Systems

Wirsbo-pePEX® is the registered Trade Mark of Uponor Wirsbo AB of Sweden. The products described in this manual are generally protected by Letters Patent throughout the world. In keeping with our policy of continuous improvement and development, Uponor Wirsbo AB reserves the right to change specifications without prior notice.

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Technical data

Wirsbo Manifold 2 WGF

Dimension length 100 mm
C/c-distance 50 mm
For connection to 20 x 2 mm pipe
For connection to 17 x 2 mm pipe
For connection to 12 x 2 mm pipe

Wirsbo Manifold 3 WGF

Dimension length 150 mm
C/c-distance 50 mm
For connection to 20 x 2 mm pipe
For connection to 17 x 2 mm pipe
For connection to 12 x 2 mm pipe

Wirsbo Manifold 4 WGF

Dimension length 200 mm
C/c-distance 50 mm
For connection to 20 x 2 mm pipe
For connection to 17 x 2 mm pipe
For connection to 12 x 2 mm pipe

Wirsbo Coupling kit

Connection 20 – 20 x 2 mm
Connection 20 – 17 x 2 mm
Connection 20 – 12 x 2 mm

Wirsbo Shut-off valves for pipe manifold WGF

Connection 1" female thread
Straight design
Angled design

Wirsbo End Cap for manifold WGF

Connection 1" male thread

Wirsbo By-pass S for WGF

Construction dimension 185 mm
Connection 1/2"

Wirsbo By-pass XL 900 for WGF

Construction dimension 185 mm
Connection 1/2"

Wirsbo Flow Meter

Dimension 55 mm
Connection 3/4" x 3/4"
Flow 2–8 l/min

Wirsbo Manifold Cabinet for 2 - 6 loops

Dimension	Height	850 mm (adjustable height + 180 mm)
	Width	550 mm
	Depth	100 mm

Wirsbo Manifold Cabinet for 6 - 12 loops

Dimension	Height	850 mm (adjustable height + 180 mm)
	Width	850 mm
	Depth	100 mm

Wirsbo Actuator

Dimensions	60 x 40 mm
Power	24 V
Power consumption max	3 W
Ambient temperature	max. 50°C