UFH Technical

Boiler sizing – For UFH only – not including radiators and/or hot water demand, we recommend 0.070kW/m² for new build properties and any refurbishment with insulation levels equivalent or more than current building regulations. For properties where insulation levels do not meet current building regulations, we recommend at least 0.085kW/m²

For example, 100m² of UFH in a new build 100 x 0.070 = 7kW load.

Heat pump sizing – All heat pumps should be sized by the supplier and/or installer(s) from a SAP calculation.

Supply flow & return pipe work – Most UFH systems require 1.5-2.5 litres/min flow per circuit and therefore the supply pipework to the manifold (flow and return) should be sized by the heating system engineer/installer with lengths of pipe, bends and resistance calculated to cater for the total demand of the manifold. E.g. a 7 port manifold would require 10.5-17.5 l/min if all circuits are being used and a 12 port manifold would require 18-24 l/min. The table below is a **guide only for boiler based systems** and UFH1 will not accept any responsibility for calculations of flow and return pipe. We recommend that heat pump flow & return pipe work is 28mm minimum but the heat pump installer may be best to advise on this.

Number of UFH circuits	Flow and return distance	Minimum pipe diameter
2 to 7	<14m	22mm
2 to 7	>14m	28mm
8 to 10	<4m	22mm
8 to 10	>4m	28mm
11 to 12	<15m	28mm

Electrical – we can supply electrical diagrams for our wiring centres and thermostats, please request or download from our website.

Zones - The number of thermostats we've specified in the equipment list(s) usually refers to the amount of zones we've specified. The number of ports on the manifold refers to the amount of circuits required, not number of zones. If we've not been supplied with information regarding the zones required by a customer we make assumptions however, we always welcome customer preferences over our assumptions.

Thermostat cabling

230v Thermostats – 3 core & earth cable, minimum 1.5mm diameter
230v thermostats should be mounted outside of 'wet' areas and a probe used in a wall sensor box inside the room or as a floor sensor
12v Thermostats – Belden 9538 shielded, CAT 5FTP or similar.
Most thermostats use a 38mm backbox. Check by thermostat model before fitting them.

Floor coverings / max. floor temperatures – Some floor coverings require the floor temperature to me monitored and have a maximum temperature allowance. For example, wood / luxury vinyl etc often must not have more than 27°C floor temperature used. Most thermostats can accommodate a floor sensor lead and we can supply these – we do not include them unless requested by the customer.

Primary Pipe work (Flow & Return)
We recommend installing isolation valves near the manifold on the flow and return.
This will make it a lot easier if you ever need to replace the pump.

UFH / Floor Coverings

Various floor coverings can be used with underfloor heating. We've listed the most popular along with some recommendations. All flooring should be installed to the manufacturer/supplier guidelines. We advise customers inform their flooring supplier that UFH will be used. This guide is applicable to all UFH1 wet underfloor heating systems other than Variocomp – see Variocomp installation guide for details

Floor covering	Recommendations
Tiles	Ensure correct adhesive/grout/primers are used. Porcelain/ceramic/stone all suitable for UFH and give the best output
Vinyl	Click and glue type flooring ok for UFH use. Levelling compound usually required before fitting floor covering. Floor temp. sensors should be used. Underlay for UFH use recommended with click type
Engineered/Solid Wood	14mm-18mm thickness recommended. If using with a joisted floor, maximum thickness of deck and floor covering to be 23mm. Floor temp. sensors should be used
Laminate flooring	8mm-10mm thickness recommended. Floor temp. sensors should be used. Underlay for UFH use recommended
Carpet	Maximum 2.5 Tog (carpet/underlay combined). Underlay for UFH use recommended.

Manifold Dimensions

	Width exc. pump pack * **	Height (allow extra 250mm to floor)	Depth ***
2 Port Manifold	308mm	340mm	85mm
3 Port Manifold	358mm	340mm	85mm
4 Port Manifold	408mm	340mm	85mm
5 Port Manifold	458mm	340mm	85mm
6 Port Manifold	508mm	340mm	85mm
7 Port Manifold	558mm	340mm	85mm
8 Port Manifold	608mm	340mm	85mm
9 Port Manifold	658mm	340mm	85mm
10 Port Manifold	708mm	340mm	85mm
11 Port Manifold	758mm	340mm	85mm
12 Port Manifold	808mm	340mm	85mm
UFH1 Pump pack	add 170mm		minimum 135mm
RWC/Grundfos pump pack	add 150mm		minimum 155mm
Self build pump/mixing pack	add 285mm		minimum 155mm

* does not allow for pipe connections to pump pack

**we recommend space around the manifold for future access

***excluding pump pack

‘Zoning off’ UFH & radiator systems

UFH & Radiators – We recommend that UFH systems and radiator systems are ‘zoned’ off. This is due to the different warm up/cool down time differences. This is done by using separate controls for the UFH and radiators and 2 port zone valves on the flow pipe to the UFH manifold(s) and flow to the radiators. See diagram: