

Data Sheet

UnoFloor

Basic / Comfort / Control

Description**Product**

Danfoss prefabricated stainless steel distribution units for floor heating in cabinets.

The Danfoss UnoFloor series are preassembled stainless steel distribution units installed in a cabinet for in-wall or on-wall installation.

These solutions make it easier for the installer to order a ready-made plug & play construction for mounting of distribution pipes for the building section.

The units are available as standard solutions with 4 to 12 connections and include manual air vent and drain valve. In addition the solutions include a flow meter to maintain the designated flow rate.

The Comfort and Control version is equipped with the AB-PM set which ensures optimal hydronic balance. Flow limitation independent of differential pressure is granted.

Features & benefits

- Plug & Play construction
- Durable stainless steel distribution unit
- Minimum space required for installation
- In-wall cabinet ensures minimum time required for installation
- Pre-mounted ensures minimal risk of installation faults
- Correct heat distribution, even under partial load
- Reliable hydronic balancing for lower heating costs (Comfort/Control)
- App solutions for installer and end-user (Control)

Applications

- UnoFloor Basic
- UnoFloor Comfort
- UnoFloor Control

Ordering

Product code numbers UnoFloor

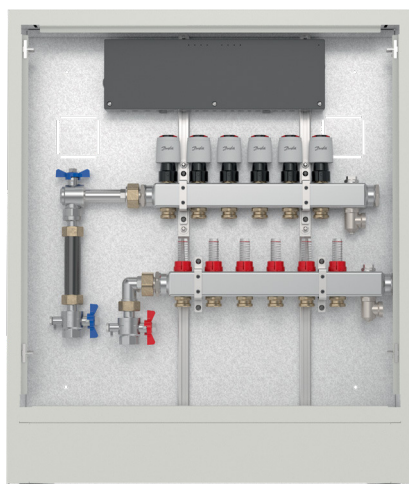
Distribution unit	Basic	Comfort	Control
2 circuits left version	-	088X3202	-
3 circuits left version	.	088X3203	-
4 circuits left version	088X3104	088X3204	088X3644
5 circuits left version	088X3105	088X3205	088X3645
6 circuits left version	088X3106	088X3206	088X3646
7 circuits left version	088X3107	088X3207	088X3647
8 circuits left version	088X3108	088X3208	088X3648
10 circuits left version	088X3110	088X3210	088X3650
12 circuits left version	088X3112	088X3212	088X3652
2 circuits right version	-	088X3222	-
3 circuits right version	-	088X3223	-
4 circuits right version	088X3124	088X3224	088X3664
5 circuits right version	088X3125	088X3225	088X3665
6 circuits right version	088X3126	088X3226	088X3666
7 circuits right version	088X3127	088X3227	088X3667
8 circuits right version	088X3128	088X3228	088X3668
10 circuits right version	088X3130	088X3230	088X3670
12 circuits right version	088X3132	088X3232	088X3672

On-wall panels

Code number	Description
088X3014	On-wall panels UnoFloor 610 wide (2 - 6 circuits)
088X3016	On-wall panels UnoFloor 760 wide (7 - 8 circuits)
088X3018	On-wall panels UnoFloor 960 wide (10 - 12 circuits)

Spare parts code numbers

Code number	
013G7376	Service built-in valve for manifold
088U0819	Replacement flowmeter for FHF & SSM manifold
088H3112	TWA-A, RA , NC, 230V
088U1040	ICON Wiring Center
088U2110	ICON2 Advanced Master Controller
088X3008	Frame and door for UniFloor cabinet 610
088X3010	Frame and door for UnoFloor cabinet 760
088X3012	Frame and door for UnoFloor cabinet 960

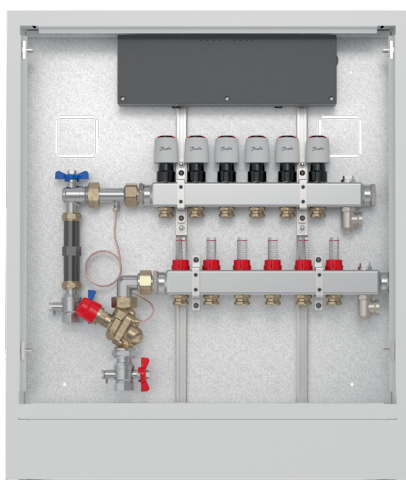


Basic

Is delivered with flow meter and fitted with an Icon™ Wiring Center 230V and thermoactuators TWA NC for control of the floor heating system. Wired room thermostats.

Wired solution – UnoFloor Basic with ICON™ Wiring Center Installed

Code number		
088U1000	Danfoss ICON™ Dial, In-wall	
088U1010	Danfoss ICON™ Display, In-wall	
088U1020	Danfoss ICON™ Programable, In-wall	
088U1005	Danfoss ICON™ Dial, On-wall	
088U1015	Danfoss ICON™ Display, On-wall	
088U1025	Danfoss ICON™ Programable, On-wall	
088U1110	Floor sensor	










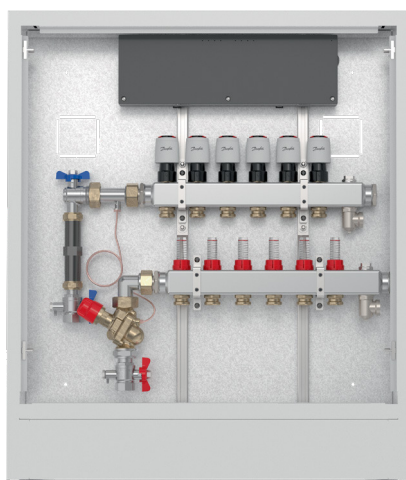
Comfort

Is delivered with flow meter and fitted with an Icon™ Wiring Center 230V and thermoactuators TWA NC for control of the floor heating system. Wired room thermostats.

AB-PM set which ensures optimal hydronic balance.

Wired solution – UnoFloor Comfort with ICON™ Wiring Center Installed

Code number		
088U1000	Danfoss ICON™ Dial, In-wall	
088U1010	Danfoss ICON™ Display, In-wall	
088U1020	Danfoss ICON™ Programable, In-wall	
088U1005	Danfoss ICON™ Dial, On-wall	
088U1015	Danfoss ICON™ Display, On-wall	
088U1025	Danfoss ICON™ Programable, On-wall	
088U1110	Floor sensor	



Control

Is delivered with flow meter and fitted with an Icon2™ Advanced Master Controller 230V and thermo-actuators TWA NC for control of the floor heating system. Wireless or wired room thermostats.

AB-PM set which ensures optimal hydronic balance.

App based installation guide for the installer with the option of an installation report as documentation.

By purchasing an Ally gateway, the end-user can control the room heating in his home via the Danfoss Ally app.

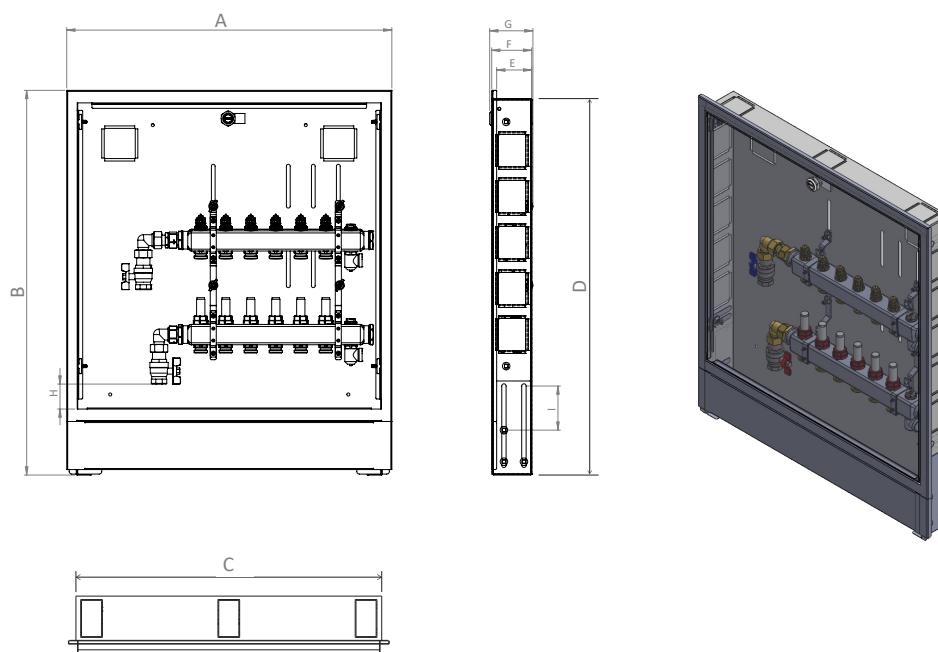
Wireless/wired solution – UnoFloor Control with ICON2™ Advanced Master Controller Installed

Code number		
088U2121	Danfoss ICON2™ RT display thermostat Wireless	
088U2122	Danfoss ICON2™ Featured RT display thermostat with infrared floor sensor Wireless	
088U2120	Danfoss ICON2™ Sensor, no settings or display Wireless	
088U2128	Danfoss ICON2™ On-wall thermostat 2-wire 24V	
088U2125	Danfoss ICON2™ In-wall thermostat 2-wire 24V	
088U1110	Floor sensor	
014G2400	Danfoss Ally™ Gateway (for user-app)	

Media Use heating water according to VDI2035 or Ö-NORM H5195-1, fluid category ≤ 3 according to EN1717

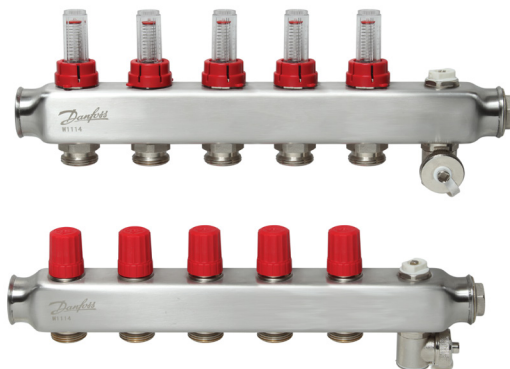
Product details

Dimensions



Dimensions [mm]	A	B	C	D	E	F	G	H	I
2 circuits	650	769	619	752	101	111	115	21	88
3 circuits	650	769	619	752	101	111	115	21	88
4 circuits	650	769	619	752	101	111	115	21	88
5 circuits	650	769	619	752	101	111	115	21	88
6 circuits	650	769	619	752	101	111	115	21	88
7 circuits	800	769	769	752	101	111	115	21	88
8 circuits	800	769	769	752	101	111	115	21	88
10 circuits	1000	769	969	752	101	111	115	21	88
12 circuits	1000	769	969	752	101	111	115	21	88

Connections

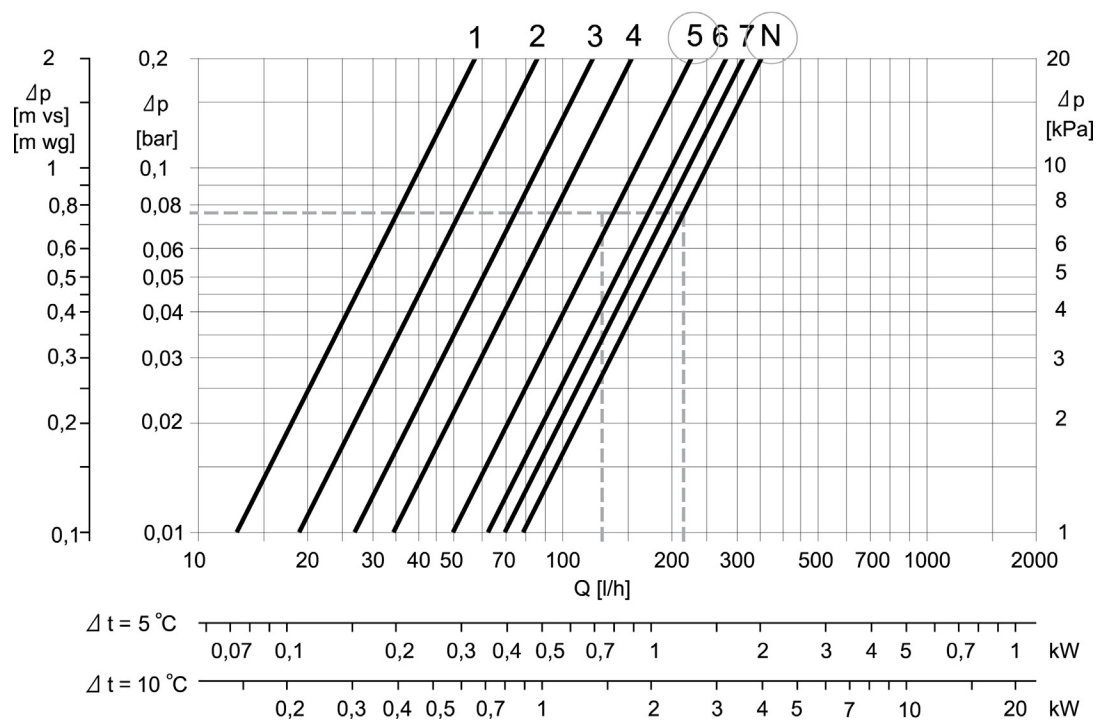


SSM Floor heating manifold

The SSM manifold is used for controlling water flow in underfloor heating system. Each tube of the floor heating system is connected to the manifold, thus making it possible to control water flow or heat supply to each room in the building individually.

Nominal pressure	PN 6
DH supply temperature Tmax	60 °C
Supply voltage	230V
Output voltage	230V
Connection sizes	G ¾" (IT)

Pre-setting diagram

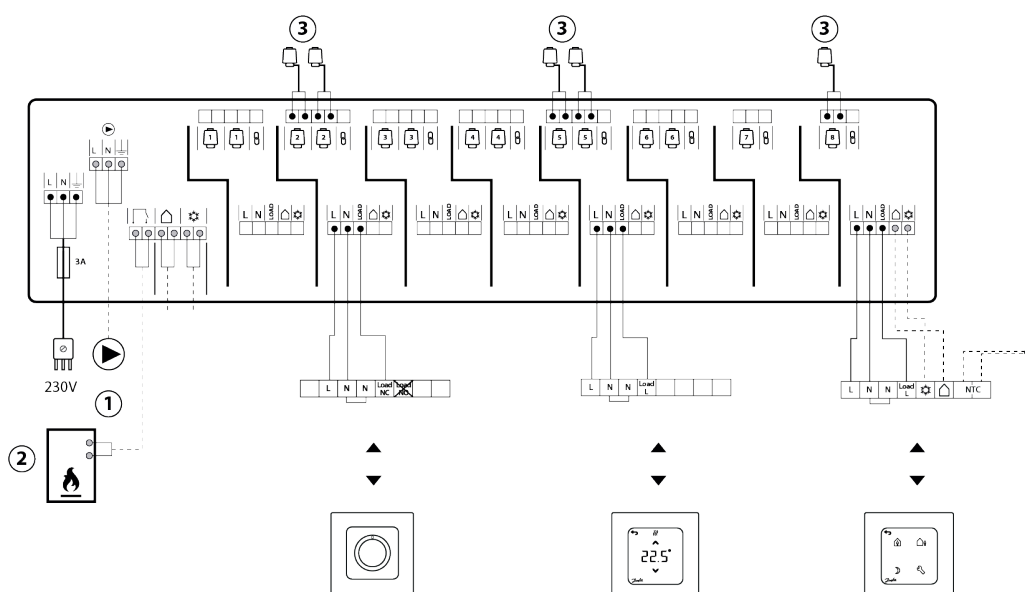




ICON™ Wiring Center (Basic / Comfort)

Danfoss ICON™ Wiring Center is a connection box for use in hydronic floor heating using 230V thermostats and actuators.

Can connect up to 14 thermal actuators from up to 8 room thermostats. It is provided with 230V circulation pump output and voltage-free relays for controlling a boiler. The relays are activated when one or more thermostats require heat.



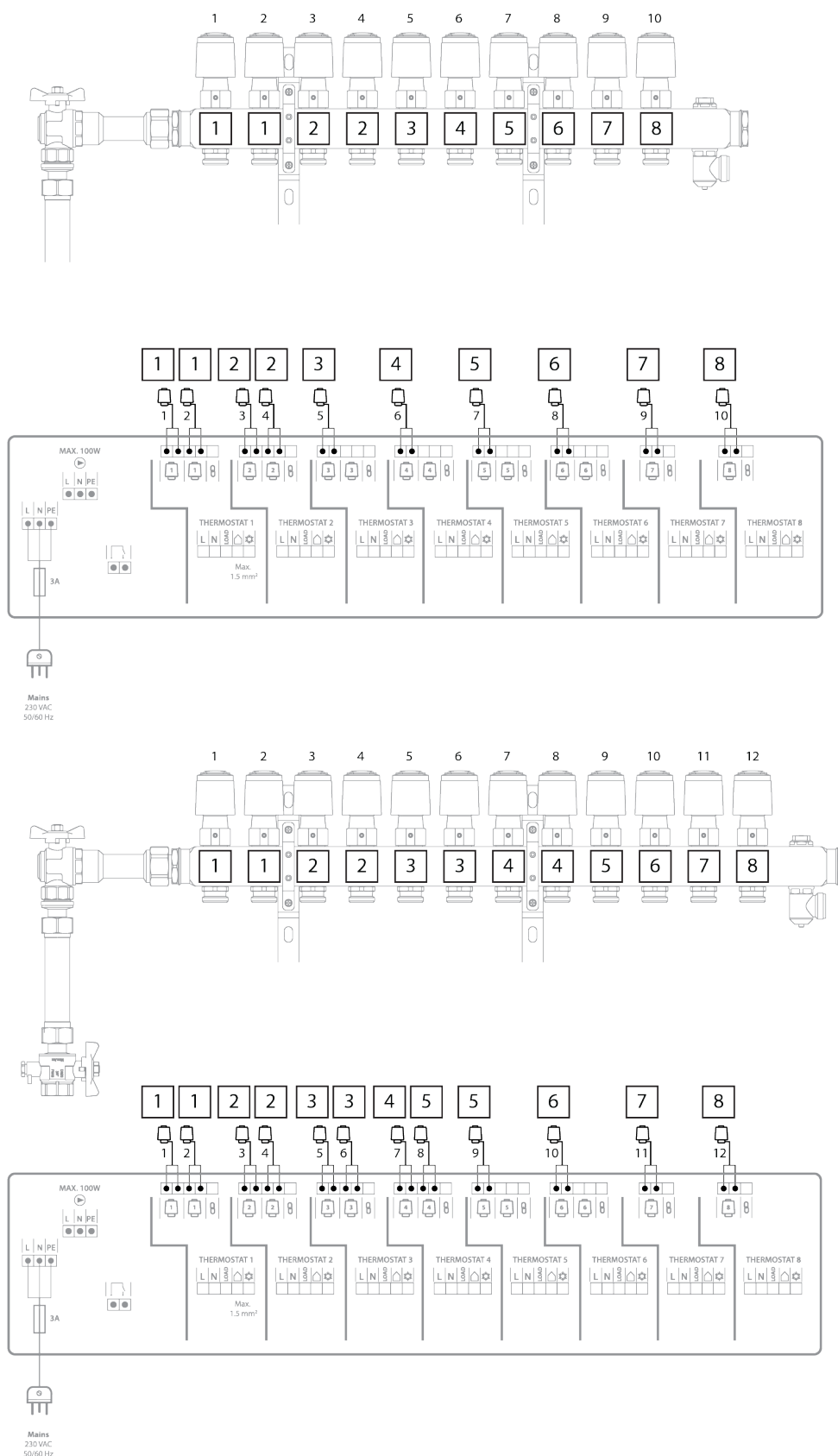
- 1 Circulation pump
- 2 Heat signal (potential free)
- 3 230V thermal actuator, NC

Note! It is possible to connect up to 8 room thermostats. This means that with 10 and 12 circuits, one or two room thermostats must control two circuits each.

The TWA's is connected from the factory, see how on the next page. But it will be possible to change the connections afterwards.

Actuator wiring LEFT variant

The actuators are wired to respective terminals on the Wiring Center as below.
Actuators and cables will be marked accordingly.

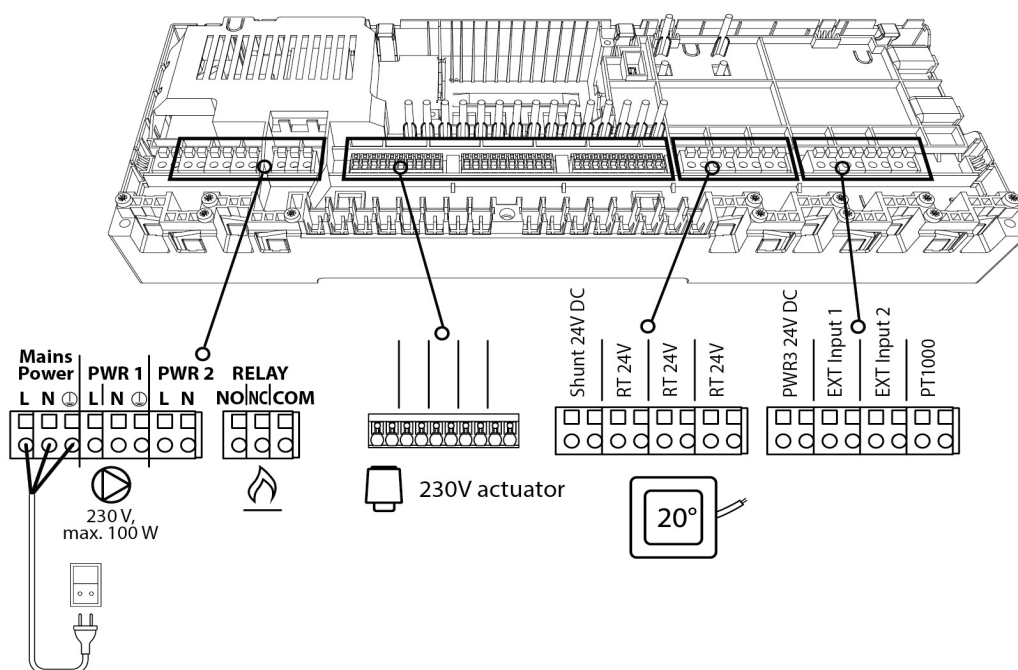




ICON2™ Advanced Master Controller (Control)

Danfoss ICON2™ Advanced Master Controller is a control box for use in hydronic floor heating using wireless or wired thermostats and 230V actuators.

- Automatic balancing (PWM+), which ensure that hydraulic balancing of the system is done by the master controller based on the actual room demand.
- Requires no pre-setting on the manifold
- On/Off control possibility
- Possibility to combine wired and wireless thermostats in same installation



- 1 Circulation pump
- 2 Heat signal (potential free)
- 3 230V thermal actuator, NC

AB-PM DN20 (Comfort / Control)



The AB-PM connection set is an compact and time saving conguration — designed for creating optimal hydronic balance in horizontal loops — radiator and underoor heating applications. Flow limitation independent of dierential pressure is now guaranteed. It can be combined with most types of manifolds, heat meters and manifold cabinets.

Technical data

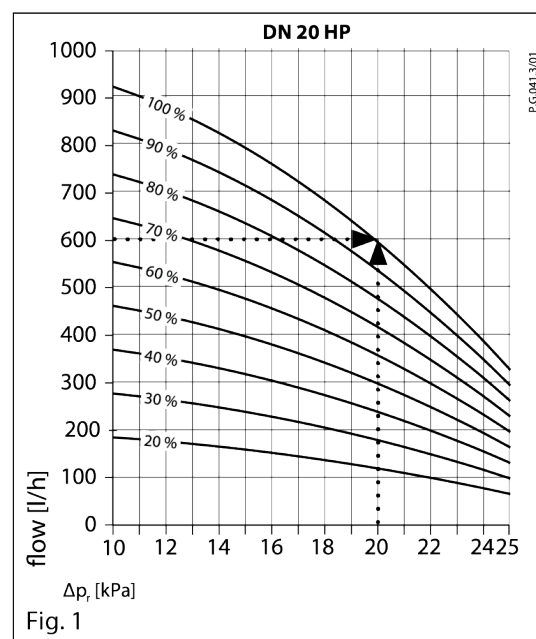
Q _{max} (at $\Delta p_r = 20$ kPa)	600 l/h (at 100% setting)
Upper limit of pressure controller at zero flow	35 kPa
Differential pressure (Δp for the valve + circuit)	28 - 400 kPa
Nominal maximal pressure	16 bar (PN 16)
Control valves characteristic	Linear
Shut-off leakage rate	Acc. to ISO 5208 class A - no visible leakage
Medium temperature	-10 °C to 120 °C
CV stroke	2.25 mm
Connection - external thread ISO	G 1 A
Connection - actuator	M30 X 1.5

Sizing

AB-PM is to be sized based on manifold's needed flow (Q) [l/h], and needed diierential pressure drop for the loop (pr). Max AB-PM flow data are presented in table below.

For any other Q and pr needed, AB-PM size and setting can be indetied based on Fig. 1.

Type	DN 20 HP at 100% setting	
Q _{max}	600 l/h	915 l/h
Maximum pressure drop available for system at max flow	20 kPa	10 kPa
Upper limit of pressure controller at zero flow	35 kPa	
Start required differential pressure (for the valve)	8 kPa	



Certificates,
declarations
and approvals

CE	
EU RoHS	

Tender text
UnoFloor Basic

Pre-assembled underfloor heating balancing and control distribution unit must come wired and pre-mounted, suitable for left- or right-hand side connection to the manifold, fitted in in-wall cabinet.

Cabinet must be painted in white (RAL 9016), X mm in height, up to X mm in width and X mm in depth.

It must be possible to connect the room thermostats to the NC actuators via a connection box. The connection box must have not less 8 channels and 14 actuator outputs, have two potential free relays: one for the pump and one for the boiler. Distribution voltage: 230 V AC. Voltage: 230 V AC, max. power per output: 3 W.

The manifold is used for heat regulation in floor heating systems. Each circuit in the floor heating system is connected to the manifold, which makes it possible to regulate the heat supply to each room in the building independently.

The manifold shall consist of a flow and return manifold where the flow manifold must be able to close each circuit independently. The return manifold must be equipped with presetting valves, ensuring optimal balancing of the system. Flow control of the floor heating system shall be done on a visible presetting scale, so that the value can be read and checked after commissioning. Valves shall be controlled electronically by thermal actuators installed without adapters.

The manifold must be provided in modules with air vent and drain / fill function valve.

The manifold must be made of stainless steel and have the following specifications:

- Maximum flow temperature : 90 °C;
- Maximum differential pressure: 0,6 bar;
- Maximum operating pressure: 6 bar;
- Max Kv setting of the valve (N): 0,97 m²/h.

The actuator must be pre-mounted on a valve. The actuator receives a signal from the room thermostat. Based on the signal, it opens and closes the valve which makes it possible to regulate the energy supply to each room in the building independently. For easy and secure installation, the actuator must be delivered as one part (no adapter) and mounted on the manifold by use of an Allen screw.

The heat meter connection set must be suitable for left and right hand side connection to the distributor/collector. Connection set must include 110 mm length meter spool piece with no reducing 3/4" connection and flat seals. The connection to the manifold is 1" flat sealing.

Tender text
UnoFloor Comfort

Pre-assembled pressure independent underfloor heating balancing and control distribution unit must come wired and pre-mounted, suitable for left- or right-hand side connection to the manifold, fitted in in-wall cabinet.

Cabinet must be painted in white (RAL 9016), X mm in height, up to X mm in width and X mm in depth.

It must be possible to connect the room thermostats to the NC actuators via a connection box. The connection box must have not less 8 channels and 14 actuator outputs, have two potential free relays: one for the pump and one for the boiler. Distribution voltage: 230 V AC. Voltage: 230 V AC, max. power per output: 3 W.

The manifold is used for heat regulation in floor heating systems. Each circuit in the floor heating system is connected to the manifold, which makes it possible to regulate the heat supply to each room in the building independently.

The manifold shall consist of a flow and return manifold where the flow manifold must be able to close each circuit independently. The return manifold must be equipped with presetting valves, ensuring optimal balancing of the system. Flow control of the floor heating system shall be done on a visible presetting scale, so that the value can be read and checked after commissioning. Valves shall be controlled electronically by thermal actuators installed without adapters.

The manifold must be provided in modules with air vent and drain / II function valve.

The manifold must be made of stainless steel and have the following specifications:

- Maximum flow temperature: 60 °C;
- Maximum differential pressure: 0,6 bar;
- Maximum operating pressure: 6 bar;
- Max Kv setting of the valve (N): 0,97 m²/h.

The actuator must be pre-mounted on a valve. The actuator receives a signal from the room thermostat. Based on the signal, it opens and closes the valve which makes it possible to regulate the energy supply to each room in the building independently. For easy and secure installation, the actuator must be delivered as one part (no adapter) and mounted on the manifold by use of an Allen screw.

The pressure independent balancing and control set must consist of a linear control valve, impulse tube with adapters to it, 3-piece ball valve with connection to impulse tube and heat meter, connector to manifold. The valve could be used as an automatic flow limiter. The valve should have a mechanism to adjust the flow from 100 % to 0 % of the maximum flow. Maximum recommended flow setting should not be more than 600 l/h at maximum system pressure drop 10 kPa, and no more than 915 l/h at maximum system pressure drop 5 kPa. Shut off service function should be possible with setting mechanism. The authority of the pressure independent control valve should be 1 at all settings (control valve characteristic is not changed). Upper limit of pressure controller at zero flow must be 35 kPa. (Supplier of the valve should provide lab test results). Nominal pressure rating 16 bar.

Tender text
UnoFloor Control

Pre-assembled pressure independent underfloor heating balancing and control distribution unit must come wired and pre-mounted, suitable for left- or right-hand side connection to the manifold, fitted in in-wall cabinet.

Cabinet must be painted in white (RAL 9016), 750 mm in height, up to 1000 mm in width and 110 mm in depth.

It must be possible to connect the room thermostats to the NC actuators via a ICON2 Advanced Master controller. The underfloor controller must have not less 15 channels and 15 actuator outputs, have two potential free relays: one for the pump and one for the boiler. Distribution voltage: 230 V AC. Voltage:

230 V AC, max. power per output: 2 W.

The manifold is used for heat regulation in floor heating systems. Each circuit in the floor heating system is connected to the manifold, which makes it possible to regulate the heat supply to each room in the building independently.

The manifold shall consist of a flow and return manifold where the flow manifold must be able to close each circuit independently. The return manifold must be equipped with presetting valves, ensuring optimal balancing of the system. Flow control of the floor heating system shall be done on a visible presetting scale, so that the value can be read and checked after commissioning. Valves shall be controlled electronically by thermal actuators installed without adapters.

The manifold must be provided in modules with air vent and drain / II function valve.

The manifold must be made of stainless steel and have the following specifications:

- Maximum flow temperature: 60 °C;
- Maximum differential pressure: 0,6 bar;
- Maximum operating pressure: 6 bar;
- Max Kv setting of the valve (N): 0,97 m²/h.

The actuator must be pre-mounted on a valve. The actuator receives a signal from the room thermostat. Based on the signal, it opens and closes the valve which makes it possible to regulate the energy supply to each room in the building independently. For easy and secure installation, the actuator must be delivered as one part (no adapter) and mounted on the manifold by use of an Allen screw.

The pressure independent balancing and control set must consist of a linear control valve, impulse tube with adapters to it, 3-piece ball valve with connection to impulse tube and heat meter, connector to manifold. The valve could be used as an automatic flow limiter. The valve should have a mechanism to adjust the flow from 100 % to 0 % of the maximum flow. Maximum recommended flow setting should not be more than 600 l/h at maximum system pressure drop 10 kPa, and no more than 915 l/h at maximum system pressure drop 5 kPa. Shut off service function should be possible with setting mechanism. The authority of the pressure independent control valve should be 1 at all settings (control valve characteristic is not changed). Upper limit of pressure controller at zero flow must be 35 kPa. (Supplier of the valve should provide lab test results). Nominal pressure rating 16 bar.

It must be possible for the installer to set up the underfloor heating control via an app. In the app, it must be possible to generate a commissioning report as a PDF that can be sent to the building owner as documentation.

It must be possible to offer the user an app from which he can control the heat in his home.

ENGINEERING
TOMORROW



Danfoss A/S

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