

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**

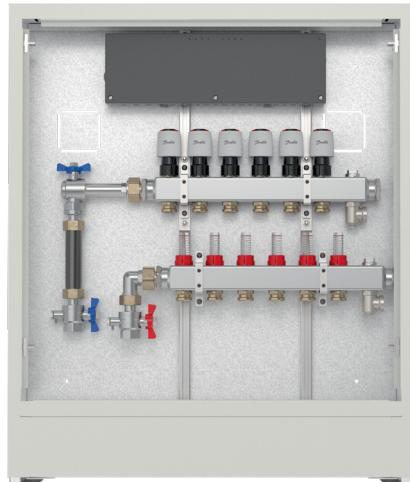
| Distribution unit | Basic | Comfort | Control |
|---------------------------|----------|----------|----------|
| 2 circuits left version | - | 088X3202 | - |
| 3 circuits left version | . | 088X3203 | - |
| 4 circuits left version | 088X3104 | 088X3204 | 088X3644 |
| 5 circuits left version | 088X3105 | 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

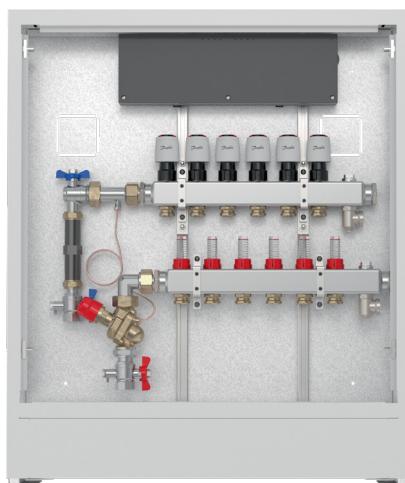
| Code number | |
|-------------|--|
| 013G7376 | Service built-in valve for manifold |
| 088U0819 | Replacement flowmeter for FHF & SSM manifold |
| 088H3112 | TWA-A, RA , NC, 230V |
| 088U1040 | ICON Wiring Center |
| 088U2110 | ICON2 Advanced Master Controller |
| 088X3008 | Frame and door for UniFloor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

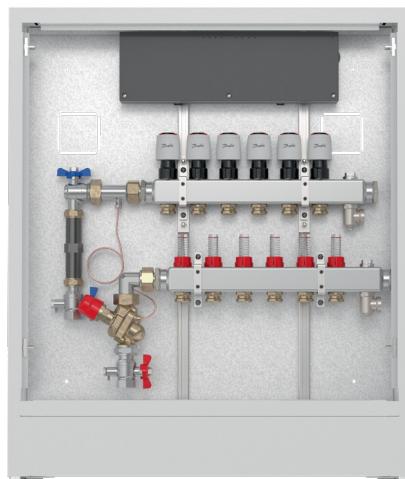
**Comfort**

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.

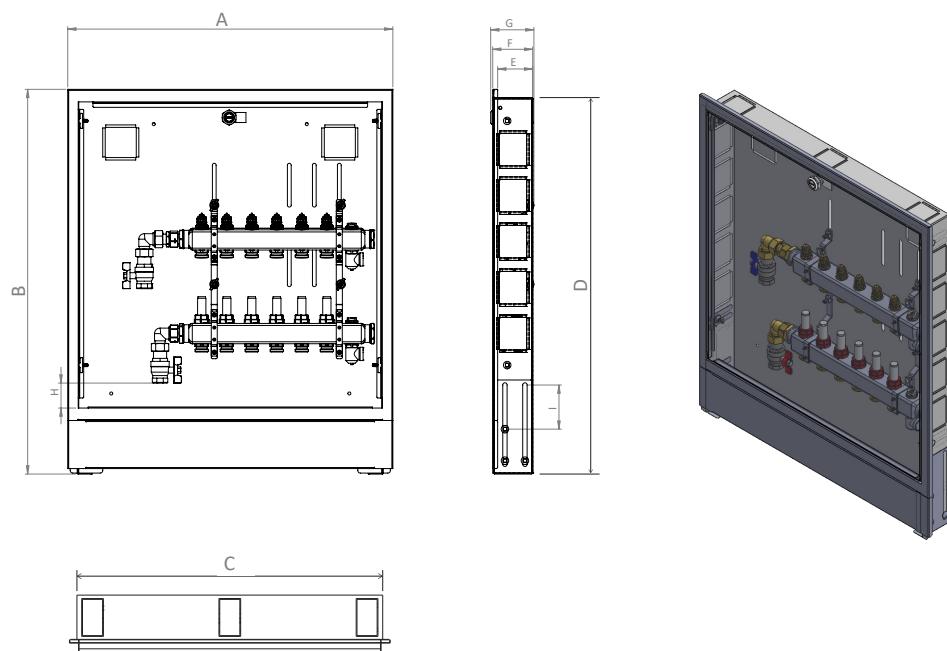
By purchasing an Ally gateway, the end-user can control the room heating in his home via the Danfoss Ally app.

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

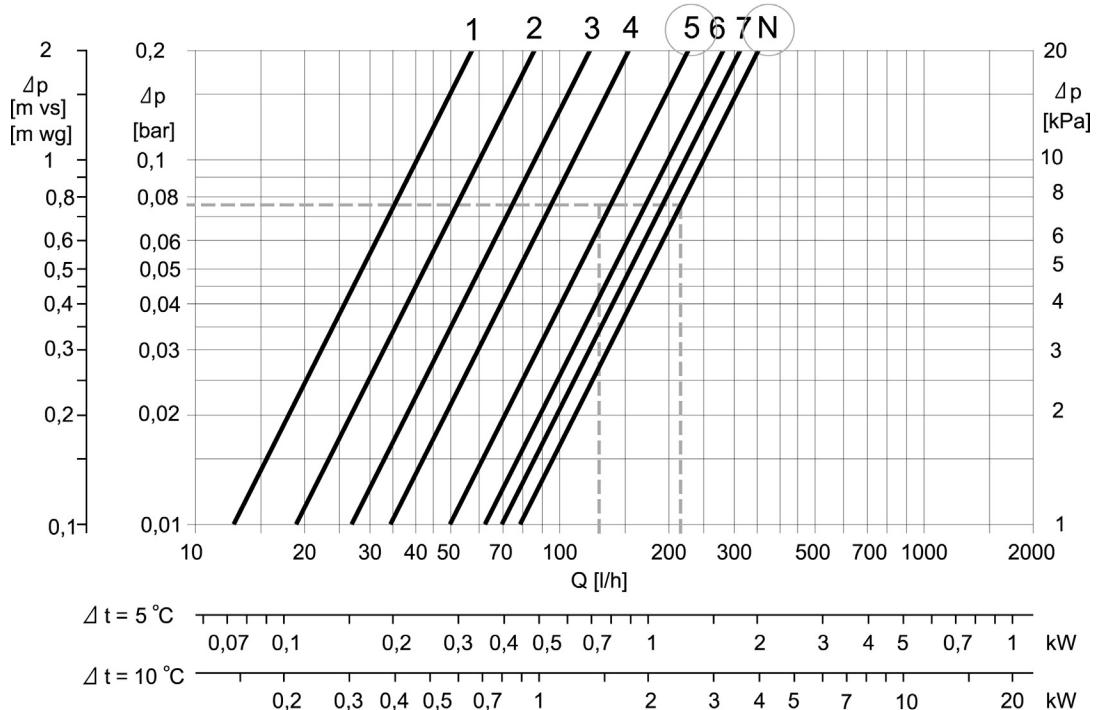


SSM Floor heating manifold

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 3/4" (IT) |

Pre-setting diagram

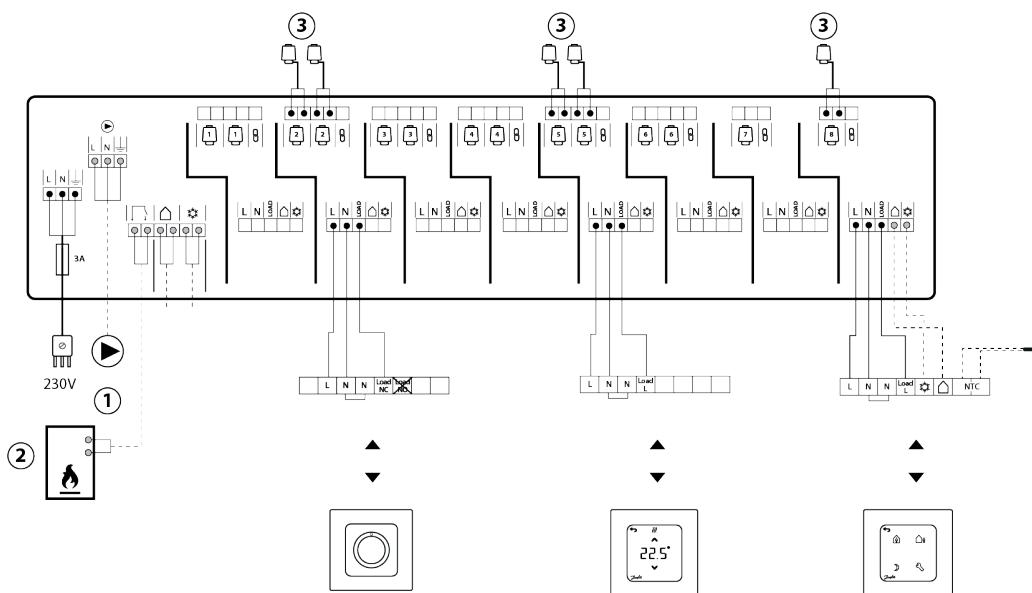




ICON™ Wiring Center (Basic / Comfort)

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.



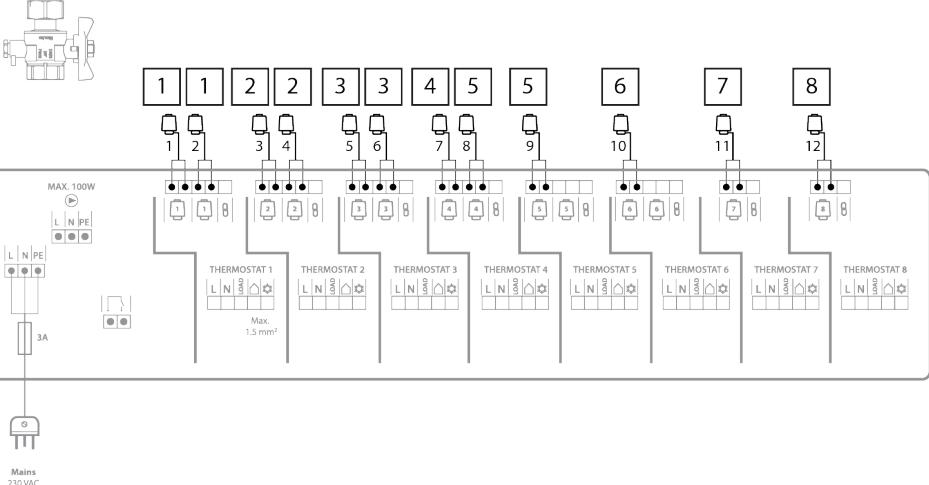
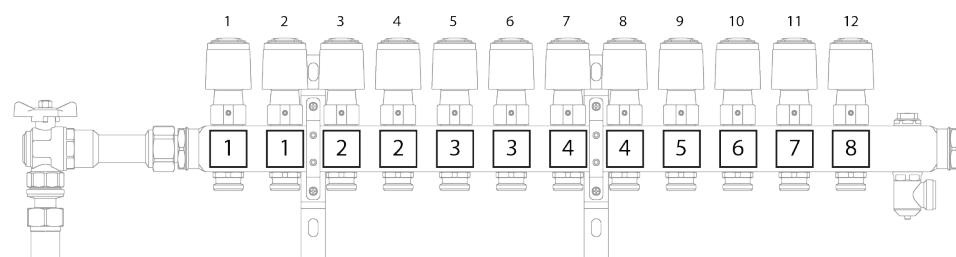
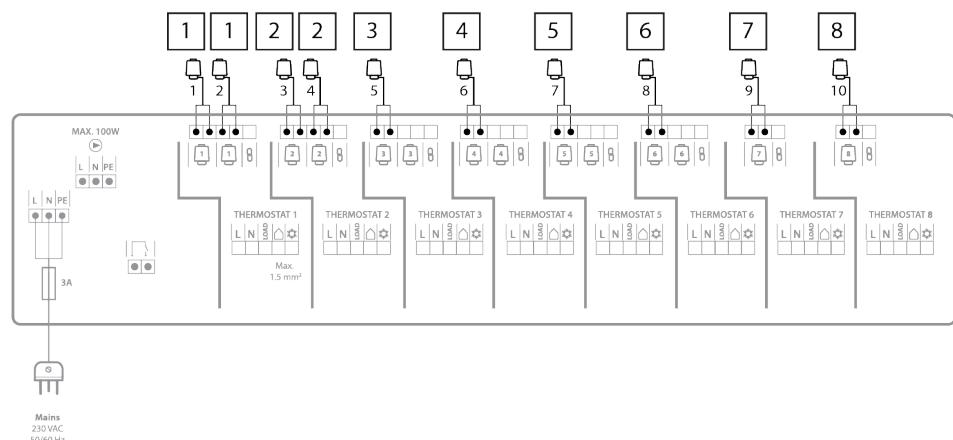
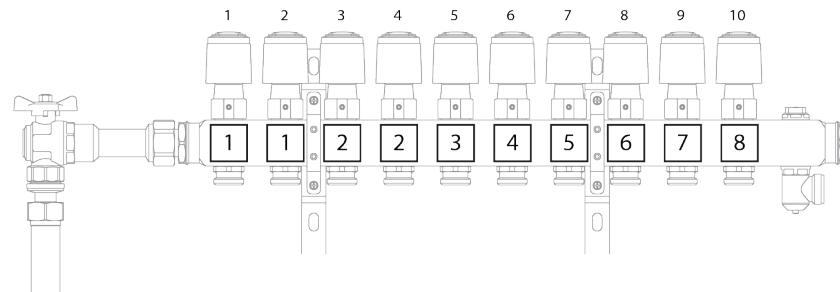
- 1 Circulation pump
- 2 Heat signal (potential free)
- 3 230V thermal actuator, NC

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.

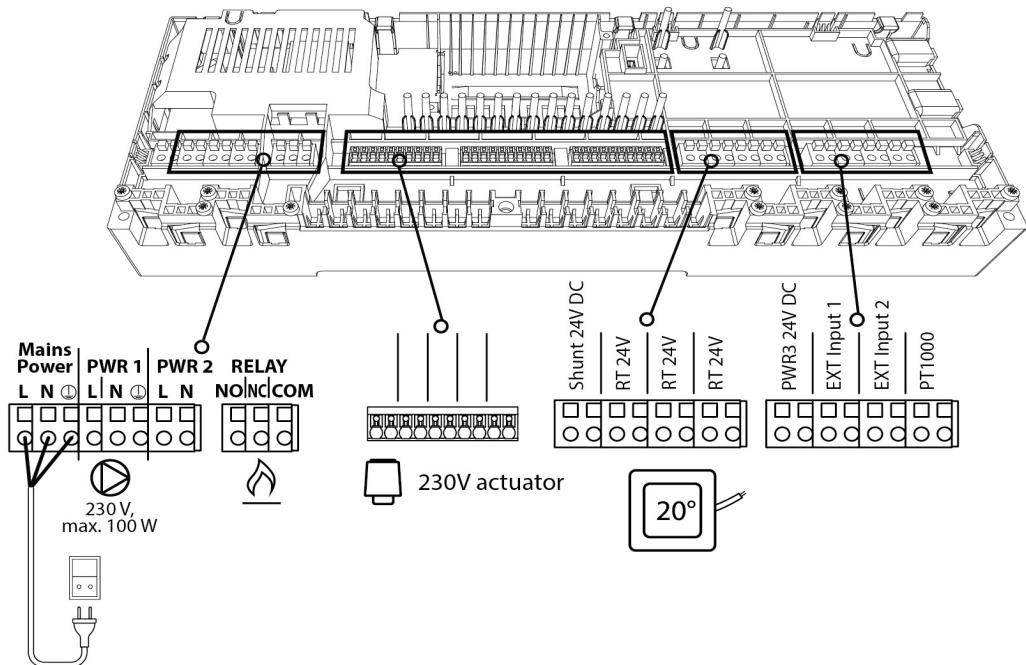




ICON2TM Advanced Master Controller (Control)

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



AB-PM DN20 (Comfort / Control)



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

Technical data

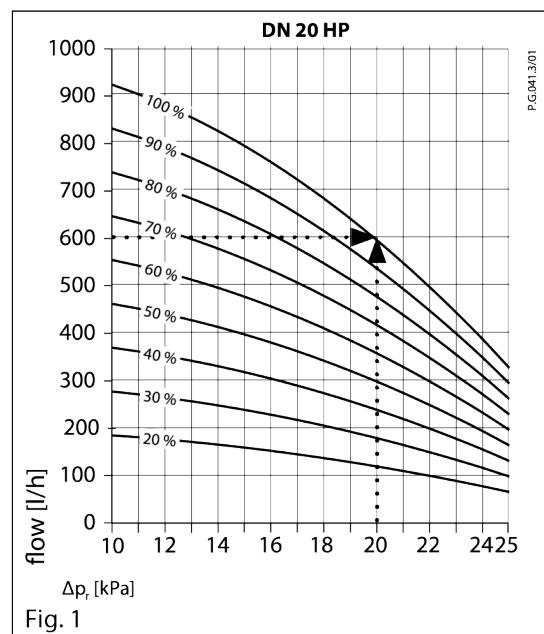
| | |
|---|---|
| Qmax (at $\Delta p_r = 20$ kPa) | 600 l/h (at 100% setting) |
| Upper limit of pressure controller at zero flow | 35 kPa |
| Differential pressure (Δp for the valve + circuit) | 28 - 400 kPa |
| Nominal maximal pressure | 16 bar (PN 16) |
| Control valves characteristic | Linear |
| 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 differential 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 determined based on Fig. 1.

| Type | DN 20 HP at 100% setting | |
|--|--------------------------|---------|
| Qmax | 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 ¾" 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 / fill 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 / fill 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

Climate Solutions • danfoss.com • +45 7488 2222

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