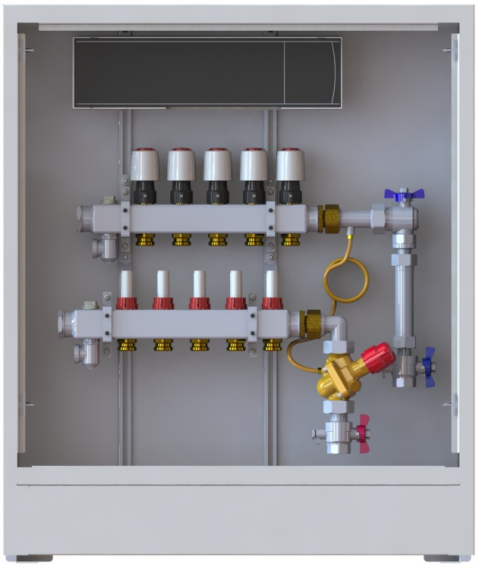
ENGINEERING TOMORROW

Data Sheet

UnoFloor Control

Description



The **Danfoss UnoFloor Control** is a pre-assembled pressure independent underfloor heating electronic balancing and control distribution unit. UnoFloor comes wired and pre-mounted. The UnoFloor's Danfoss Icon™ Master controller 24V is modular heating center for individual room control. It can be configured as a wired or wireless system or as a combination, if required. Can connect up to 10 thermal actuators and room thermostats.

The SSM stainless-steel manifold is used for controlling water flow. 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.

The The AB-PM set ensures optimal hydronic balance. Flow limitation independent of differential pressure is now guaranteed.

Features:

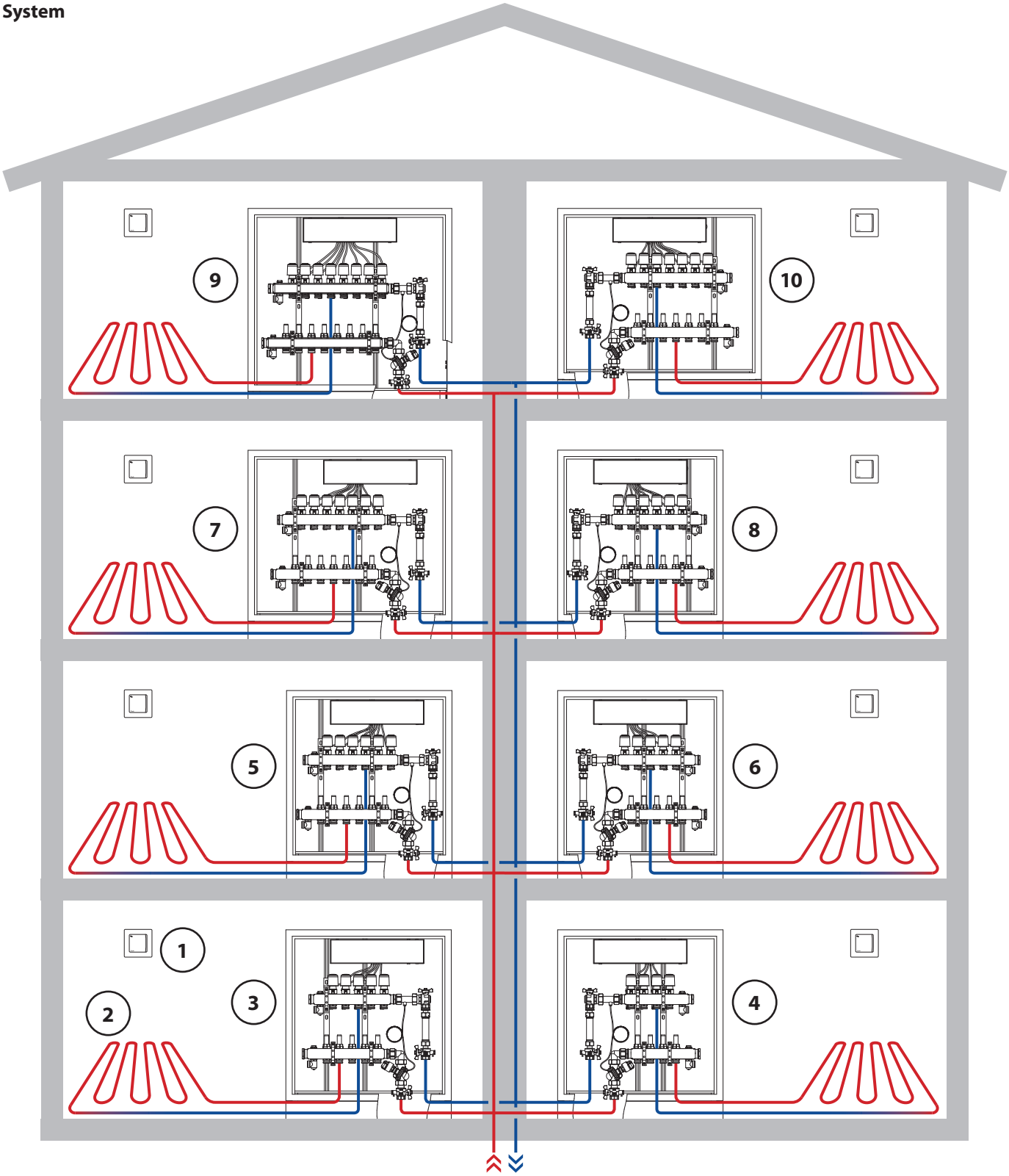
- Compact design - fits in even the smallest places.
- In-wall cabinet ensures flush installation.
- Pre-mounted - minimal risk of installation faults.
- Easy ordering - only one number necessary.
- Short installation time.
- Correct heat distribution, even under partial load.
- Reliable hydronic balancing for lower heating costs.
- Auto balancing provided by Danfoss Icon™ Master controller
- Intuitive touch user interface.

Ordering

Description	Type	Code no.
Pressure independent Underfloor heating Electronic Balancing and control distribution unit • Danfoss Icon Master controller 24V • Actuators • Stainless steel manifold • AB-PM set • Cabinet • Nominal pressure PN 6 • Max. Temperature 90 ° C Use heating water according VDI 2035.	UnoFloor Control 4L	**088X3604**
	UnoFloor Control 5L	**088X3605**
	UnoFloor Control 6L	**088X3606**
	UnoFloor Control 7L	**088X3607**
	UnoFloor Control 8L	**088X3608**
	UnoFloor Control 10L	**088X3610**
	UnoFloor Control 12L	**088X3612**
	UnoFloor Control 4R	**088X3624**
	UnoFloor Control 5R	**088X3625**
	UnoFloor Control 6R	**088X3626**
	UnoFloor Control 7R	**088X3627**
	UnoFloor Control 8R	**088X3628**
	UnoFloor Control 10R	**088X3630**
	UnoFloor Control 12R	**088X3632**

Key UnoFloor Control 4L, Comfort - version, 4- number of circuits, L - left assembly, if R - right assembly

System



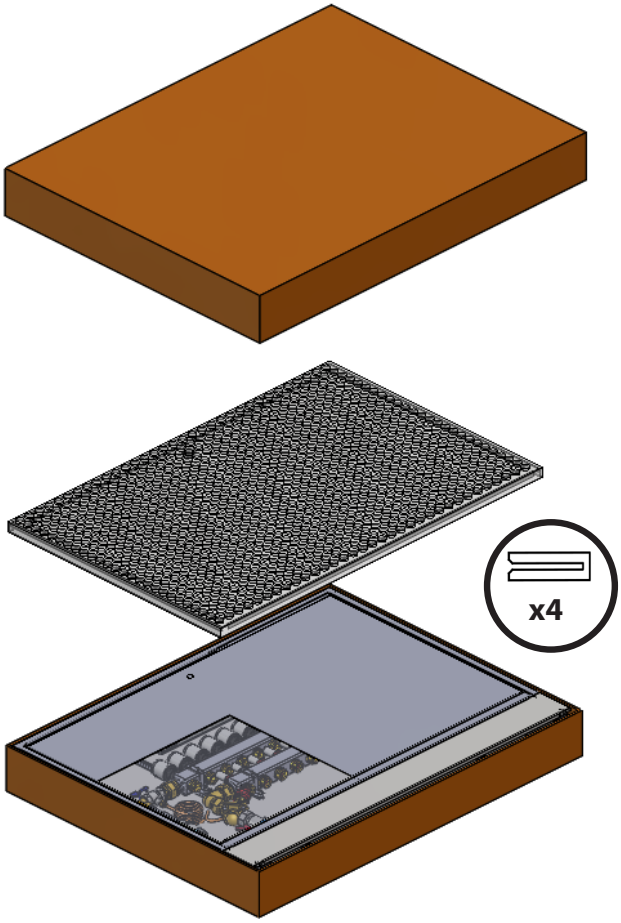
1. Room Thermostats
2. Underfloor heating circuit
3. UnoFloor Control 5R
4. UnoFloor Control 4L
5. UnoFloor Control 6R
6. UnoFloor Control 5L
7. UnoFloor Control 7R
8. UnoFloor Control 6L
9. UnoFloor Control 8R
10. UnoFloor Control 7L

UnoFloor Control is a Time saving provider

Time saving solution provider:

- Manifold mounted in the cabinet
- premounted AB-PM set
- Icon Master Controller fixed
- All TWA actuators are wired with the Icon Master Controller

Take the prefab for each apartment and put away frame and door which are packed together for protection. The cardboard box can be used to protect frames and doors during construction phase.



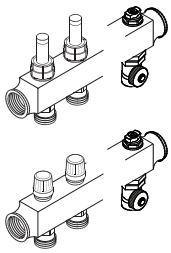
Accessories

	Description	Code no.	24V	Wireless
	Danfoss Icon™ Display, In-wall	**088U1050**	✓	
	Danfoss Icon™ Display, On-wall	**088U1055**	✓	
	Danfoss Icon™ Display, On-wall	**088U1081**		✓
	Danfoss Icon™ Infrared, On-wall	**088U1082**		✓
	Floor sensor	**088U1110**	✓	✓
	App module	**088U1101**	✓	✓
	ZigBee Radio module	**088U1130**	✓	✓
	Radio module (not for inside cabinet installation)	**088U1103**		✓
	Repeater	**088U1102**		✓
	Expansion module	**088U1100**	✓	✓
	Dew-point sensor	**088U0251**	✓	✓
	Surface temperature sensor, ESM-11	**087B1165**	✓	✓

SSM
Floor Heating Manifold

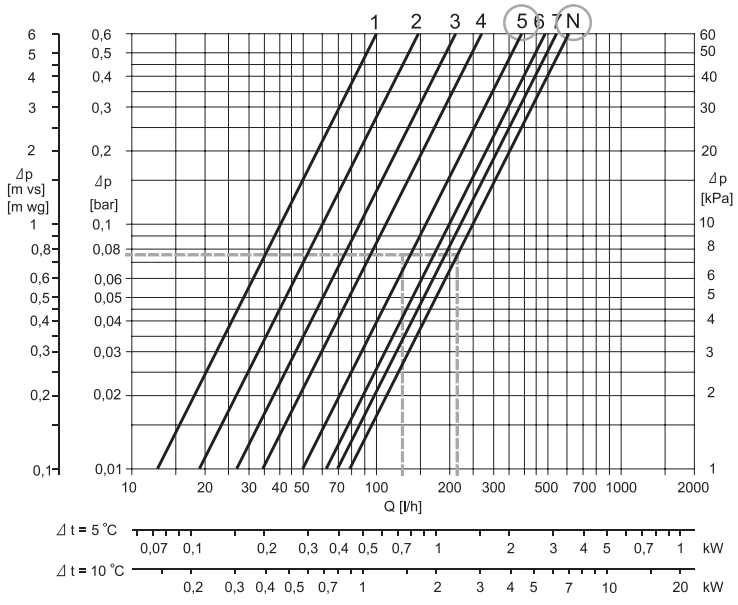
The SSM manifold is used for controlling water flow in under floor heating systems. Each tube of the floor heating system is connected to the manifold, thus making it possible to control water flow or heat supply to each room in the building individually.

Part of assembly

Description		Type
	Manifold set 4+4, with flowmeter	SSM-4F
	Manifold set 5+5, with flowmeter	SSM-5F
	Manifold set 6+6, with flowmeter	SSM-6F
	Manifold set 7+7, with flowmeter	SSM-7F
	Manifold set 8+8, with flowmeter	SSM-8F
	Manifold set 10+10, with flowmeter	SSM-10F
	Manifold set 12+12, with flowmeter	SSM-12F

Pre-setting diagram

Manifold with flowmeter

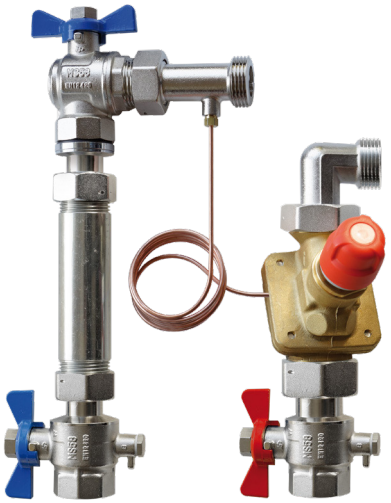


Presetting the manifold valves

The diagram shows the capacities for each heating circuit at different presettings of the manifold valves.

Based on the above calculations and capacity diagram each manifold valve is preset by rotating the red ring until the correct value on the ring is in-line with the sight mark on the valve.

AB-PM DN20 HP set vertical



The AB-PM connection set is an 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.

One packing unit contains the following products:

- AB-PM valve
- Impulse tube, 1,5 m, R 1/16
- Adapter R 1/16 for AB-PM impulse tube connection
- 3-piece ball valve with connection for impulse tube heat meter
- Adapter for heat meter
- Connector/bracket for underfloor heating distributor G 1 A

Part of assembly

Type	External thread AB-PM (ISO 228/1)	External thread connection to underfloor heating distributor (ISO 228/1)
AB-PM DN20 HP set vertical	G 1 A	G 1 A

Technical data

Nominal diameter		DN 20 HP
Qmax (at Δp_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	Ext. thread ISO 228/1	G 1 A
	Actuator	M 30 × 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 (Δpr). Manifold pre-setting data are presented on page 4. Max AB-PM flow data are presented in table 1.

For any other Q and Δpr needed, AB-PM size and setting can be indetified 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	

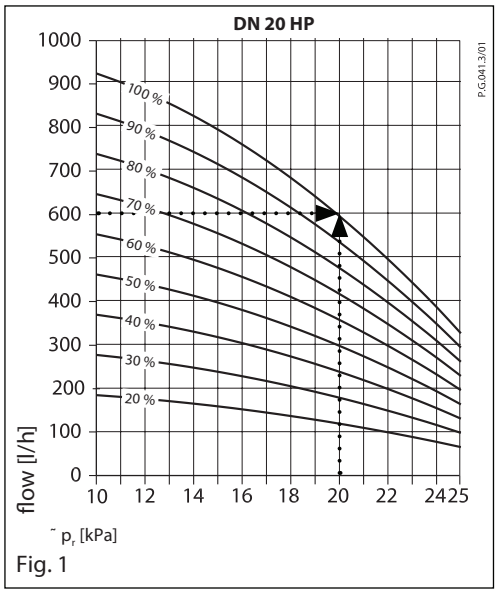
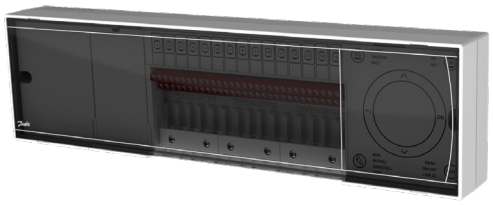


Fig. 1

Danfoss Icon™ Master Controller 24V



Danfoss Icon™ is a modular heating system for individual room control. It can be configured as a wired or wireless system or as a combination, if required.

The center of the system is the Danfoss Icon™ Master Controller 24 V, which configures and ties the system together.

Installation and set-up of the Danfoss Icon™ Master Controller 24 V is made easy by using the pre-defined application and intuitive touch user interface.

Technical data

For all applications please see Installation guide for Expansion Module.

Master Controller 24V and Expansion Module (optional)

Supply voltage	220-240 V AC
Supply frequency	50/60 Hz
Output voltage, actuators	24 V DC
Max. power consumption per actuator output	2 W
Number of actuator outputs (1 actuator per output terminal)	10
Output voltage, thermostats	24 V DC
Max. number of thermostats	10
Dimensions	W: 370 mm, H: 100 mm, D: 53 mm
Encapsulation (IP Class)	IP 20

TWA Thermal Wax Actuator

The TWA is a small actuator for electrical on/off controls to activate several types of valves and floor heating manifolds.

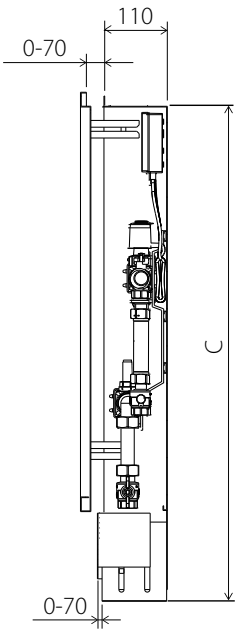
Ordering

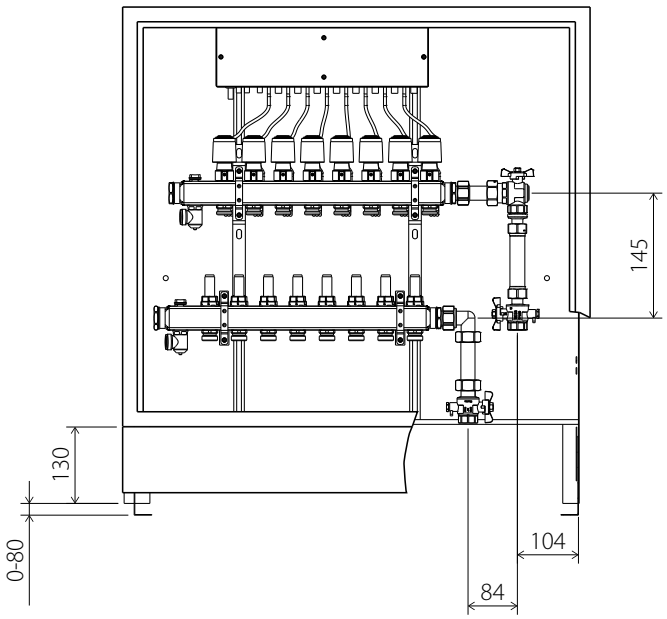
Actuator	Connection type	Supply Voltage	Function
TWA-A	RA	24 V AC/DC	NC

Technical specifications

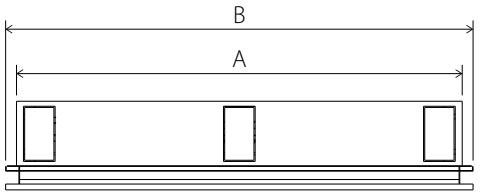
Supply voltage	24 V (Class II (SELV))
Max. inrush current	350 mA
Frequency	50-60 Hz
Running power consumption	2 W
Spindle travel time	~3 min.
Ambient temperature	0 °C to 60 °C
Enclosure	IP 41
Cable length	950 mm
k_{VS} (m^3/H)	0,10 to 1,10
Max. Δp (Bar)	0,6

Dimensions





Number of circuits	A	B	C
4, 5, 6	610 mm	647 mm	750 mm
7, 8	760 mm	797 mm	750 mm
10, 12	960 mm	997 mm	750 mm



Tender text

Pre-assembled pressure independent underfloor heating electronic balancing and control distribution unit must come wired and pre-mounted, suit-able for left- and 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 960 mm in width and 110 mm in depth.

It must be possible to connect the room thermostats to the NC/NO actuators via a connection box. The connection box must have not less 10 chan-nels and 10 actuator outputs, have potential free relay, one micro disconnection output and perma-nent 230 V (max 50W) output. Supply voltage: 230 V AC. Output voltage for actuators: 24 V DC, max. power per output: 2 W. It must be possible to set up to 10 actuators for 1 room thermostat. It must be possible to control system by smartphone app and have presetted work profiles with applica-tions. Connection box must have possibility to be upgraded to wireless solution by Wireless mod-ule. For accuracy hydronic control, automatic heat load control feature must be available.

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 mani-fold 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 m

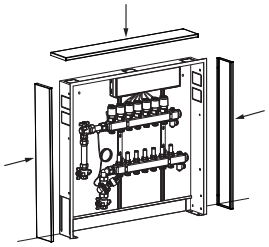
The actuator must be pre-mounted on a valve. The actuator receives a signal from the room thermostat. Based on the signal, it opens and closes the valve which makes it possible to regulate the energy supply to each room in the building independently. For easy and secure installation, the actuator must 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 results1). Nominal pressure rating 16 bar.

Accessories

Panels for on wall mounting are available on demand.

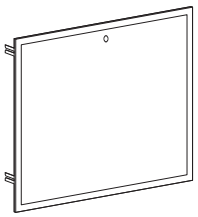
Description	Code no.
On wall panels for cabinet 610	**088X3014**
On wall panels for cabinet 760	**088X3016**
On wall panels for cabinet 960	**088X3018**



Spare parts

Frame and door for service are available on demand.

Description	Code no.
Frame and door for cabinet 610	**088X3008**
Frame and door for cabinet 760	**088X3010**
Frame and door for cabinet 960	**088X3012**



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