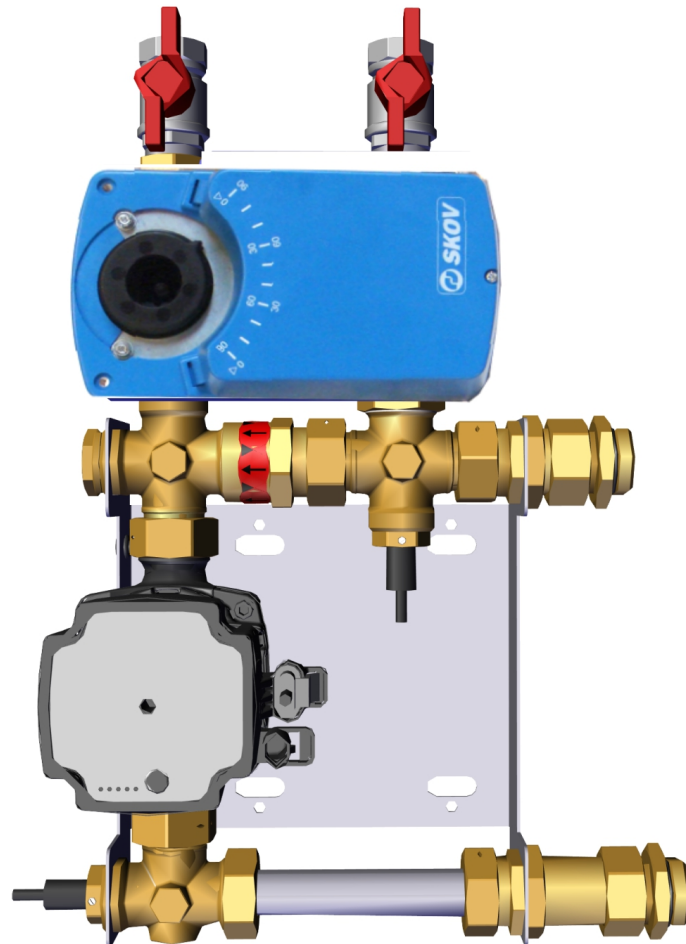


Floor Heating System

Technical Info



1 Product description

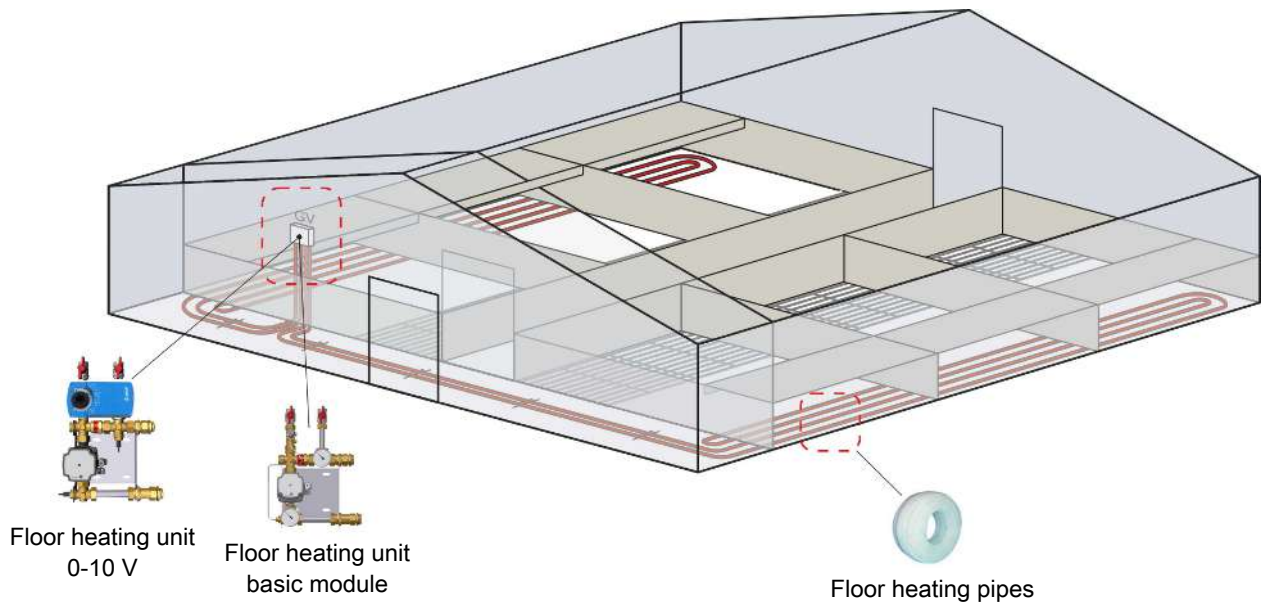
Floor heating systems are water-based on section level.

Floor heating unit 0-10 V can be controlled via the house controller.

Floor heating unit basic module is controlled by manual thermostat. The pump can be switched on and off as required by a relay in the house controller.

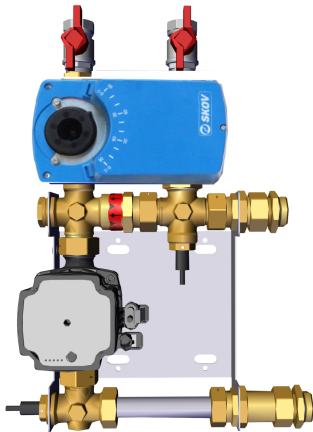
The heating system in the individual section typically includes some or all components mentioned below:

Floor heating unit (heater regulation/mixing loop), manifold, insulation, etc.



2 Product survey

2.1 Floor heating



[439334 DA 4100 floor heating unit 0-10 V

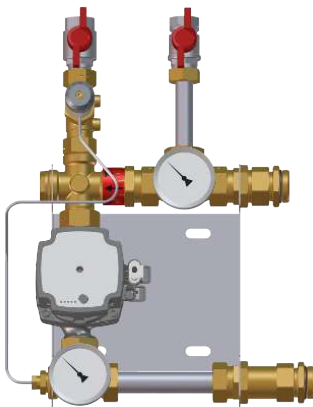
DA 4100 floor heating unit 0-10 V is used for adjustment of floor heating.

DA 4100 floor heating unit 0-10 V is mounted on a stainless plate and contains circulation pump, 010 V actuator, 2-way control valve (Cv. 1.6), non-return and shut-off valves and temperature sensor (DOL 12) on supply and return flow.

DA 4100 floor heating unit 0-10 V is stepless. The motor-operated valve is controlled by a 0-10 V control signal from the SKOV house controller with software version 6.6 or newer.

DA 4100 floor heating unit 0-10 V must be used together with the manifold kits 1+1 to 10+10. See below.

When using a 2-house controller, temperature sensor 1 must be a DOL 114 in both houses.



439335 Floor heating unit basic module UPM3 15-70

Floor heating unit basic module including temperature control valve. Temperature control valve Cv. 2.1 / regulating range: 20-70 °C.

Including non-return valve, thermometer on supply and return flow, circulation pump and control valve.

The capillary tube between valve and temperature sensor is corrosion-resistant and suitable for use in livestock houses.

The basic module is to be used together with the manifold kits 1+1 to 10+10. See below.



- 439400 Manifold kit 1+1
- 439410 Manifold kit 2+2
- 439420 Manifold kit 3+3
- 439430 Manifold kit 4+4
- 439300 Manifold kit 5+5
- 439310 Manifold kit 6+6
- 439440 Manifold kit 7+7
- 439290 Manifold kit 8+8
- 439320 Manifold kit 9+9
- 439450 Manifold kit 10+10

The manifold kit is used together with the floor heating unit basic module mentioned above.

The figures specify how many supply flows + return flows can be connected. Each floor heating circuit is equipped with supply and return flow; the floor heating circuits thus require a manifold kit 4+4.

From manifold kit 4+4 and up to 10+10 the manifold must be supported (not supplied by SKOV).

Is delivered complete with connection set and automatic air vent.

2.2 Accessories



- 439471 Floor h. pipe 20mmPn6 incl./oxygen b.120Mtr./rl. 95gr**
- 439476 Floor h. pipe 20mmPn6 incl./oxygen b. 240Mtr./rl. 95gr**
- 439491 Floor h. pipe 20mmPn6 incl./oxygen b. 480 Mtr./rl.95gr**

Floor heating pipes for laying and casting in concrete floor.



439975 Tubolit pipe coil 22mm 13mm Insulation 2m

Foam insulation for insulation of floor heating pipe in areas where there is no requirement for heating of floor/heat loss. E.g. passages or under the sows in the farrowing sections.



439940 Bending fittings T/pex pipe 20mm

Bracket for fixing bends of the floor heating pipe.

Bending radius = 150mm.

Secures the bend in a 90° position and prevents breakage of the pipe.



439995 Flashing for floor heating – start

Protection rail for floor heating pipes above floor level.

Use one as shield of up to two circuits (up to 2+2).



439996 Flashing for floor heating - next

Is used together with 439995.

Use one per commenced two circuits, in addition to the two circuits which are covered by the start module.

3 Technical data

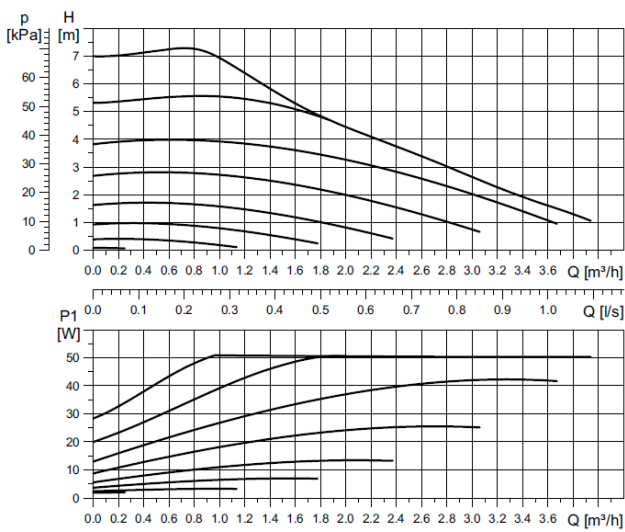
3.1 Actuator

		Actuator
Electrical		
Rated voltage	V DC	24
Operating voltage	V DC	19 - 28
Max. power consumption	A	0.14
Effect	W	3
Control signal H2	V DC	0 - 10
Relay switch H10a/11a, H12a		
Max. current	A	3
Max. voltage	V	230
Mechanical		
Torque	Nm	24
Running time	Sec.	70 - 90
Angle of rotation		
Working angle	°	90
Relay activated at	°	>3
Cable glands		2 x M16 (max. ø7.5 mm cable)
Environment		
Operating temperature	°C	-20 to +50
Storage temperature	°C	-30 to +60
Ambient humidity, operation	% RH	10 - 95
Protection class	IP	54
Shipment		
Dimension HxWxD	mm	180x100x95
Dimensions when packed HxWxD	mm	200x110x80
Weight	g	1200
Shipping weight	g	1410

3.2 Circulation pump UPM3

Circulation pump UPM3		
Electrical		
Rated voltage	V AC	230
Operating voltage	V AC	196 – 253
Frequency	Hz	50
Max. Initial fuse	A	13
Max. power consumption	A	0.52
Effect	W	52
Control signal	V DC	0 - 10
Water		
Max. pass-through Q 1-2-3	m ³ /h	4
Max. total head H	m	7
Max. water pressure	bar	10
Water temperature	°C	+2 to +110
Mechanical		
Material		Cast iron GG15, EN-GJL150
LxHxW	mm	130x128x117
Thread	"	1
Environment		
Operating temperature	°C	Max. 70
Storage temperature	°C	-40 to +75
Media temperature	°C	95
Protection class	IP	44
Noise level	dB	43
Shipment		
Dimensions LxWxH	mm	572x228x193
Packing dimensions LxWxH	mm	600x300x200
Weight	g	9000
Shipping weight	g	11000

3.2.1 Performance diagram for pumps



UPM3 15-70

3.3 Temperature control valve

Floor heating unit base module temperature control valve		
Materials		
Valve housing		Dezincification resistant brass
Valve seat/cone/stem		Stainless, acid-proof steel
Impulse tube		Stainless steel
Sensor		Stainless steel
Pressure, temperatures, Cv		
Pressure stage		PN 16
21 bar	bar	6
Max. temp. (primary)	°C	120
Setting range	°C	20 - 70
Cv value		2.1
Dimensions		
Connection		3/4" pipe thread valve housing (ex. screw joint)
Sensor wire, length	mm	380
Sensor orientation		Random / universal

3.4 Control valve

Floor heating unit 0-10 V control valve		
Materials		
Valve housing		Nickel-plated brass
Pressure, temperatures, Cv		
Pressure stage		PN 16
Max. temp. (primary)	°C	6 to 120
Cv value		1.6
Dimensions		
Connection		$\frac{3}{4}$ " pipe thread valve housing (ex. screw joint)

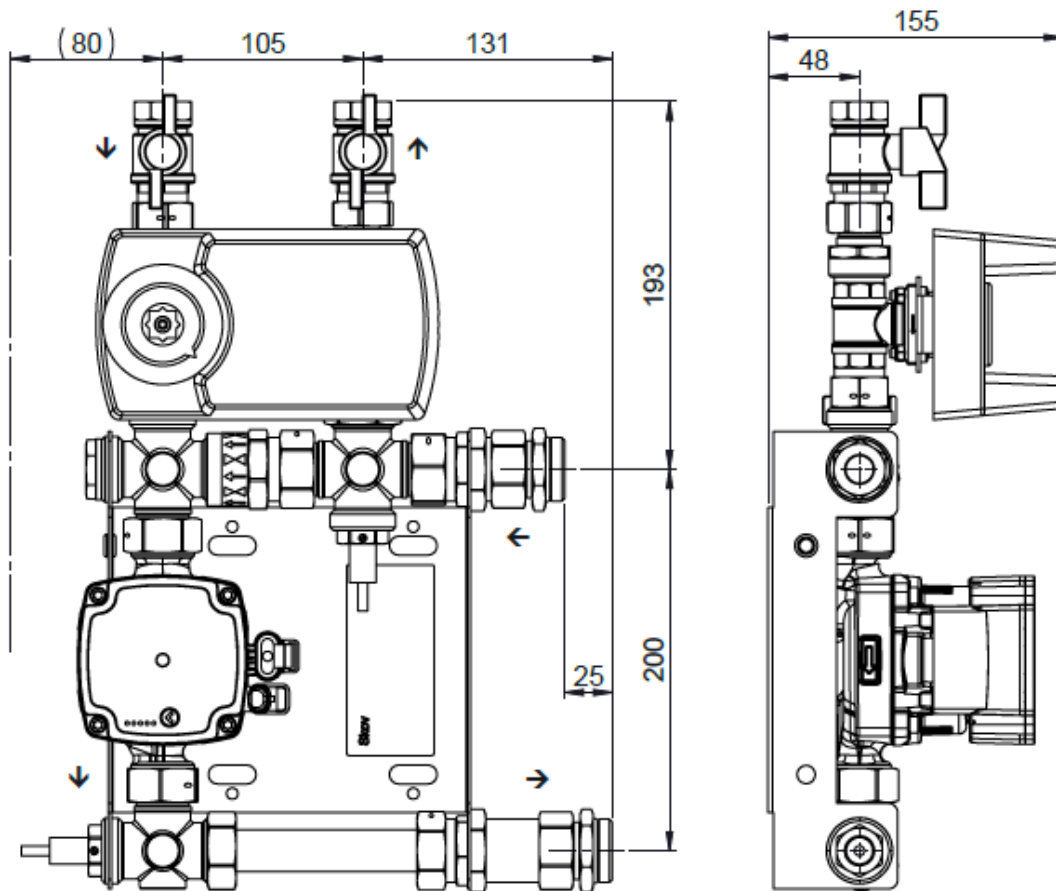
3.5 Shipping data

		Floor heating unit basic module	Floor heating unit 0-10 V
Shipment			
Dimensions (H x W x D)	mm	407 x 312 x 158	393 x 316 x 155
Packing dimensions H x W x D	mm	505 x 400 x 245	505 x 400 x 245
Weight	g	6700	6956
Shipping weight	g	7500	8082

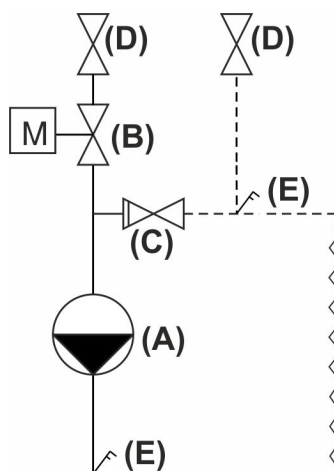
3.6 Dimension sketch and flow diagram

3.6.1 Floor heating unit 0-10 V

Dimensions are in mm.



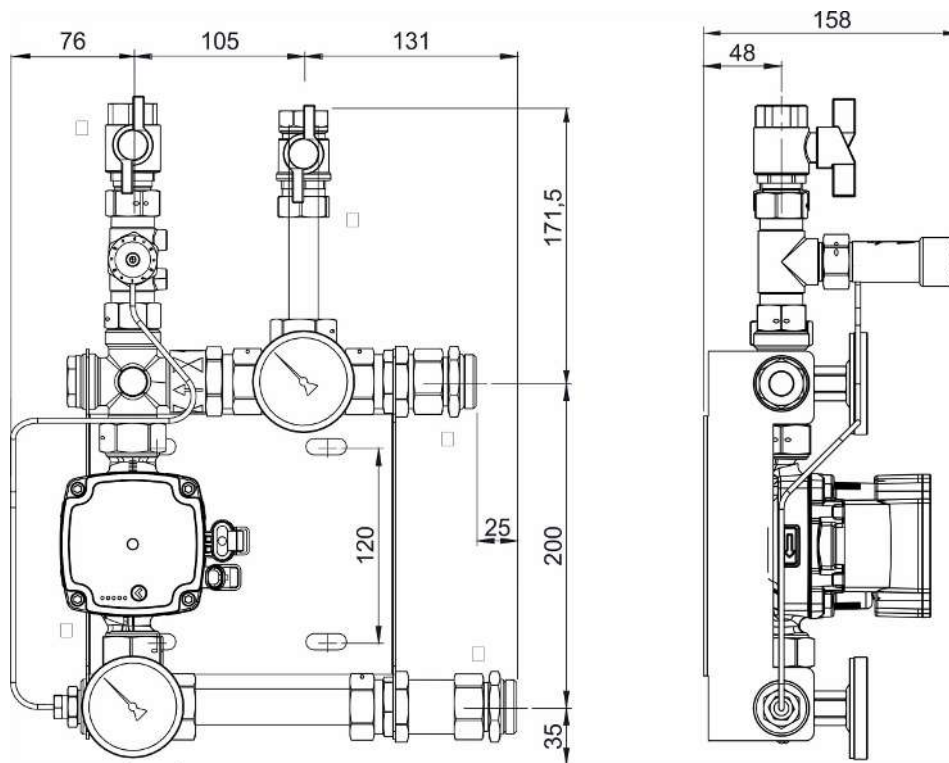
Flow diagram



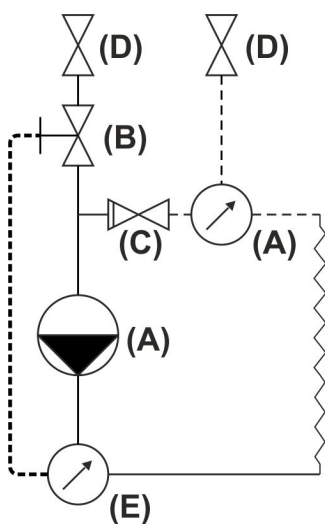
- (A) Grundfos UMP3 15-70
- (B) Control valve with actuator
- (C) Non-return valve
- (D) Shut-off valve DN20(3/4")
- (E) DOL 12 temperature sensor

3.6.2 Floor heating unit basic module

Dimensions are in mm.



Flow diagram



- (A) Grundfos UMP3 15-70
- (B) Temperature control valve 20-70°C
- (C) Non-return valve
- (D) Shut-off valve DN20(3/4")
- (E) Thermometer 0-120°C

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