Climate
Control

IMI Heimeier

Multibox Mini

Floor heating controllers

Compact individual room control for
floor heating systems

Breakthrough
engineering for
a better world

Multibox Mini

Multibox Mini is used for decentralized control of floor or wall heating systems or combined floor/radiator heating systems. For out-of-true installation offsetting up to 4° on each side. Cover with concealed screw connection. Adjustable fitting for all wall structures, 30 mm depth compensation.

Key features

Compact design for space saving installation

Cover with concealed screw connection

For out-of-true installation offsetting up to 4° on each side

Adjustable fitting for all wall structures, 30 mm depth compensation

Technical description

Applications:
Floor heating systems, wall heating systems, combined floor/radiator heating systems

Functions:
Multibox Mini DX:
Individual room temperature control,
Presetting (V-exact II),
Shut-off,
Venting
Multibox Mini RTL:
Maximum limitation of the return temperature,
Shut-off,
Venting

Dimensions:
Valve body DN 15.
The flush box has an overall depth of 60 mm.
Flexible mounting thanks to variable spacing between flush box and cover of up to 30 mm.
The cover can compensate for slanted mounting of the flush box of up to 4° on each side.
See also Dimensions.

Pressure class:
PN 10

Temperature:
Max. working temperature: 90°C
Min. working temperature: 2°C
For all Multibox Mini models, ensure that the system supply temperature is suitable for setting up the floor heating system.
See also Information!

Setting range:
Thermostatic head DX:
6 °C to 28 °C
Return temperature limiter RTL:
0 °C to 50 °C

Pipe connection:
Pipe-side G3/4 adaptor with cone suitable for compression fittings for plastic, copper, precision steel and multi-layer pipe.

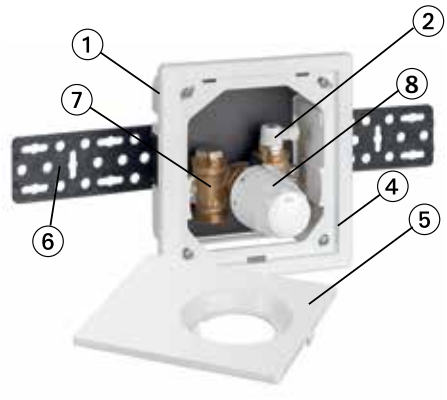
Material:
Valve body: Corrosion resistant Gunmetal
O-rings: EPDM rubber
Valve disc: EPDM rubber
Return spring: Stainless steel
Valve insert: Brass, PPS (polyphenylsulphide) and SPS (syndiotactic polystyrene)
Spindle: Niro-steel spindle with double O-ring sealing. The outer O-ring can be replaced under pressure.
Plastic parts of ABS and PA.
Sensor element: Thermostatic head DX with liquid filled sensor. Return temperature limiter (RTL) filled with an expansible medium.

Surface treatment:
All models with cover and visible graduation cap in white RAL 9016.

Marking:
THE, flow direction arrows, II-Designation.

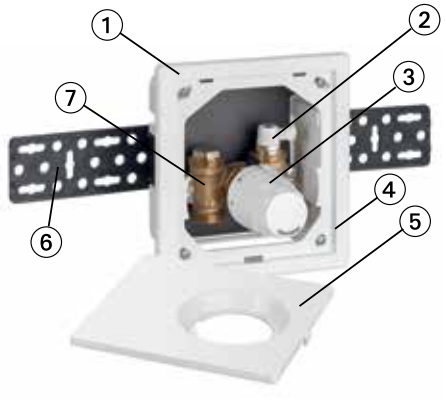
Construction

Multibox Mini DX



1. Flush box
2. Venting valve
3. Thermostatic head DX
4. Frame

Multibox Mini RTL



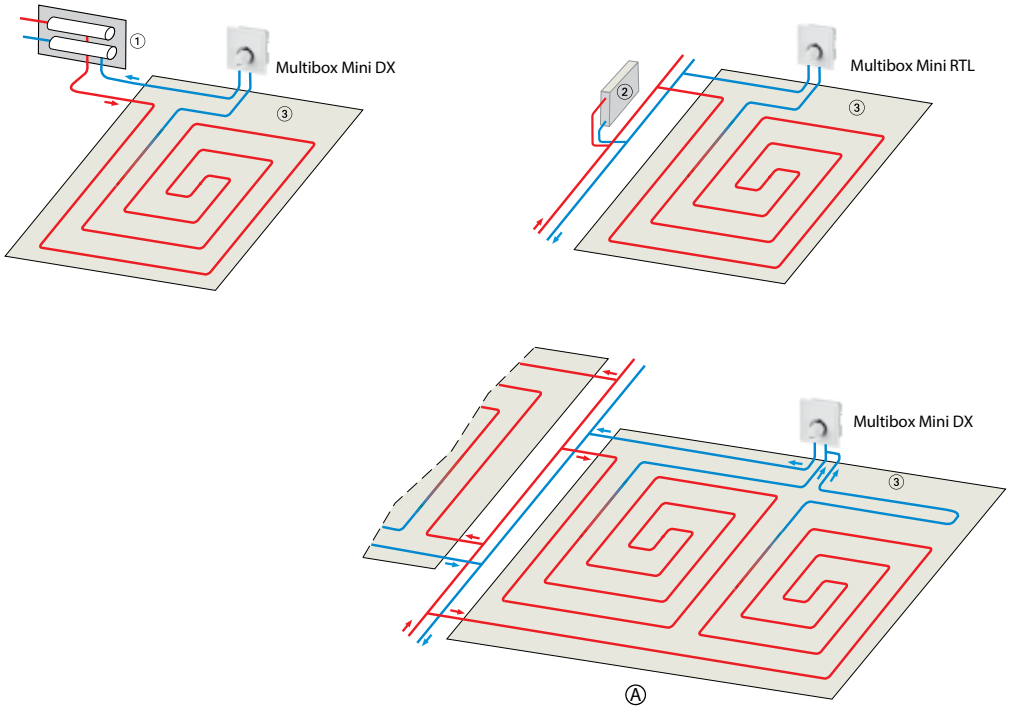
5. Cover plate
6. Fixing bar
7. Valve body of corrosion resistant gunmetal
8. Return temperature limiter (RTL)

Applications

Multibox Mini DX
Multibox Mini DX is used for the individual room temperature control of, for instance, floor heating systems in association with low temperature heating systems.
Multibox Mini DX is also used in wall heating systems.
Use the V-exact II insert for hydraulic balancing.

Multibox Mini RTL
Multibox Mini RTL is used for maximum limitation of the return temperature with, for instance, combined floor/radiator heating systems for temperature control of floor areas.
Only the return temperature is controlled.

Sample application



1. Manifold
2. Radiator
3. Floor heating area

A. Floor heating without central manifold with e.g. two equally long heating circuits per room and Multibox Mini (see Planning Information).

Temperature setting

Thermostatic head DX

Cue number	*	1	2	3	4	5
Room temperature [°C]	6	12	16	20	24	28

Return temperature limiter (RTL)

Cue number	0	1	2	3	4	5
Return temperature [°C]	0	10	20	30	40	50

(Opening temperature)

Function

Multibox Mini DX
From the control aspect, the thermostatic valve integrated in Multibox Mini DX is a constant proportional controller (P-controller) without any auxiliary power. It does not need any electrical connection or other outside power source.

The change of the room air temperature (controlled variable) is proportional to the change of the valve lift (correcting variable). A rise in the room air temperature e.g. from the sun's rays, results in an expansion of the liquid in the temperature sensor and it acts on the bellows. By means of the valve spindle, this cuts back on the supply of water in the floor heating circuit. The procedure is reversed given a falling room air temperature.

Multibox Mini RTL
From the control aspect, the return temperature limiter integrated in Multibox Mini RTL is a constant proportional controller (P-controller) without any auxiliary power. It does not need any electrical connection or other outside power source.

The temperature change of the fluid flowing through (controlled variable) is proportional to the change of the valve lift (correcting variable) and is transferred to the sensor by means of thermal conduction. Any rise in the return temperature due to, for instance, to lowered heating output of the floor heating system as a result of outside thermal effects causes the substance in the temperature sensor to expand and act on the diaphragm plunger. By means of the valve spindle, this cuts back on the supply of water in the floor heating circuit. The procedure is reversed given a falling fluid temperature.
The valve opens when the set limiting figure is exceeded.

Information

Planning notes

- **For all Multibox Mini models, ensure that the system supply temperature is suitable for setting up the floor heating system.**
- **All Multibox Mini models are to be connected to the return pipe at the end of the floor heating circuit. Heed direction of flow (see Examples of use).**
- Depending on piping pressure loss, all Multibox Mini models are suitable for heating areas up to approx. 20 m^2.
- The length of 12 mm internal diameter pipe in any heating circuit should not exeed 100 m.
- With heating areas >20 m^2 and/or pipe lengths >100 m, a T-piece, for instance, should be used to connect two equally long heating circuits to the Multibox Mini. (see Examples of use).
- To ensure low-noise system operation, differential pressure over the valve should not exceed 0.2 bar.
- The floor heating pipe is to be laid spirally in the flooring screed (see Examples of use).
- The set value of the RTL should not be below ambient temperature - otherwise it will not open.

Thermal fluid

To stop any damage and scale in hot water heating systems, the composition of the thermal fluid is to conform to VDI Directive 2035. For industrial and longdistance energy systems, see applicable codes VdTÜV and 1466/AGFW FW 510. Mineral oil in the thermal fluid and/or all kinds of lubricants containing mineral oil lead to considerable swelling and, in most cases, to the failure of EPDM seals.
When using nitrite-free antifreeze and anti-corrosive based on ethylene glycol, technical advice – especially on additive concentration – is to be taken from the anti-freeze/anti-corrosive manufacturer's documentation.

Functional heating

Carry out functional heating of heating screed conforming to standards in keeping with EN 1264-4.

Earliest start for functional heating:

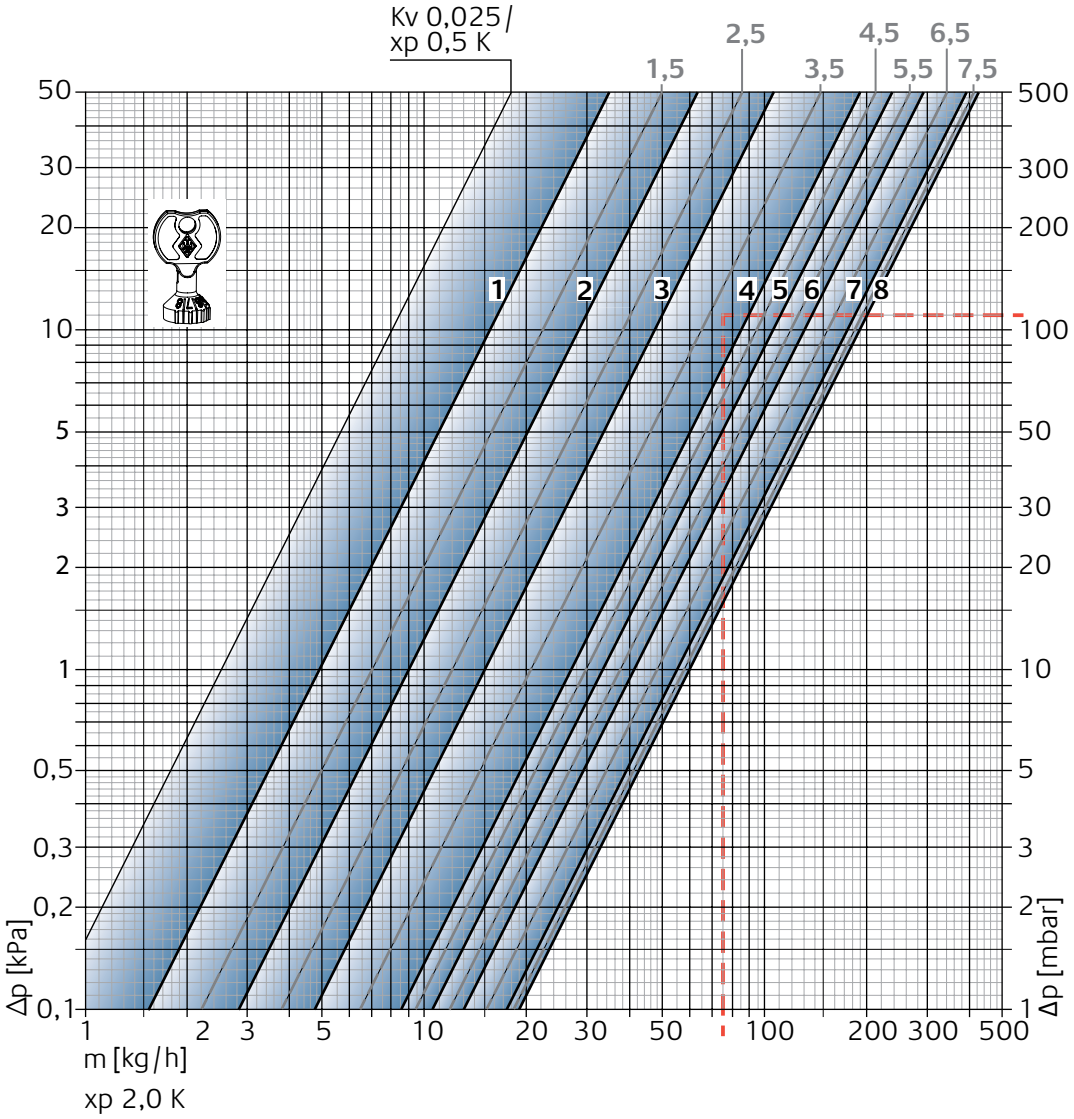
- Cement screed: 21 days after laying
- Anhydrite screed 7 days after laying

Begin 20 °C - 25 °C flow temperature and maintain for 3 days. Then set maximum design temperature and maintain for 4 days. Flow temperature can be regulated by controlling the heat generator. Turn the protective cap anticlockwise to open valve or turn RTL head to Position 5.
Refer to the screed manufacturer's information!

Do not exceed maximum floor temperature at the heating pipes:

- Cement and anhydrite screed: 55 °C
- Poured asphalt screed: 45 °C
- according to screed manufacturer's technical advice!

Technical data – Multibox Mini DX



Valve body with thermostatic head		Presetting							
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
P-band [xp] **1.0K**	Kv-value	0,049	0,082	0,130	0,215	0,246	0,303	0,335	0,343
P-band [xp] **2.0K**	Kv-value	0,049	0,090	0,150	0,265	0,330	0,409	0,560	0,600
Kvs		0,049	0,102	0,185	0,313	0,332	0,518	0,619	0,670

Kv/Kvs = m^3/h at a pressure drop of 1 bar.

Sample calculation
To be found:
Setting range

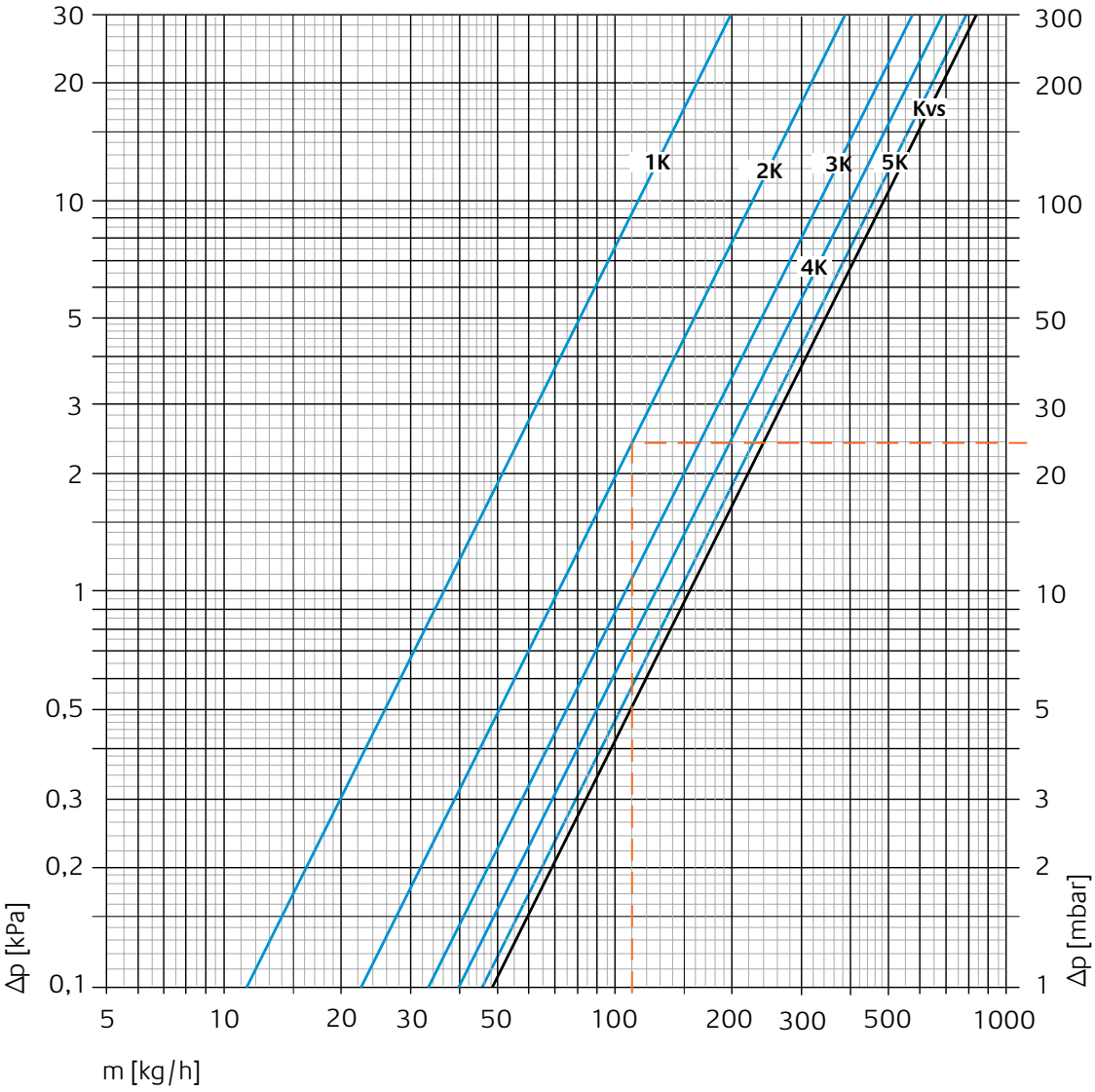
Given:
Heat flow Q = 1308 W
Temperature spread Δt = 15 K (65/50 °C)
Pressure loss Multibox Mini DX ΔpV = 110 mbar

Solution:
Mass flow m = Q / (c · Δt) = 1308 / (1,163 · 15) = 75 kg/h
Setting range from Diagram:
With P-band **max. 2.0 K**: 4

$$Cv = \frac{Kv}{0,86}$$

$$Kv = Cv \cdot 0,86$$

Technical data – Multibox Mini RTL



Controller with valve body	Kv-value Multibox Mini RTL					Kvs
	P-band xp [K]					
DN 15	1	2	3	4	5	1,55
	0,36	0,72	1,05	1,29	1,44	

Kv/Kvs = m^3/h at a pressure drop of 1 bar.

Sample calculation
To be found:
Preset figure Multibox Mini RTL

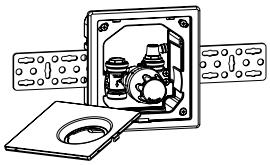
Given:
Thermal flux Q = 1025 W
Temperature spread Δt = 8 K (44/36° C)
Pressure loss Multibox Mini RTL Δp_v = 24 mbar

Solution:
Mass flow m = Q / (c · Δt) = 1025 / (1,163 · 8) = 110 kg/h
P-band from diagram: 2

$$Cv = \frac{Kv}{0{,}86}$$

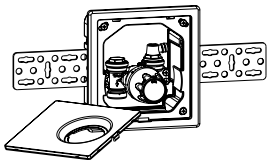
$$Kv = Cv \cdot 0{,}86$$

Articles



Multibox Mini DX
with thermostatic valve

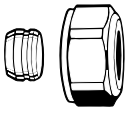
Colour	EAN	Article No
Cover and thermostatic head DX white RAL 9016	4024052907311	9305-00.800



Multibox Mini RTL
with return temperature limiter (RTL)

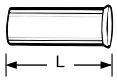
Colour	EAN	Article No
Cover and RTL thermostatic head white RAL 9016	4024052907410	9304-30.800

Accessories



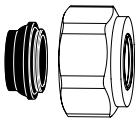
Compression fitting
for copper or precision steel pipe according to DIN EN 1057/10305-1/2.
Connection external thread G3/4 according to DIN EN 16313 (Eurocone).
Metal-to-metal joint.
Nickel-plated brass.
With a pipe wall thickness of 0.8-1 mm insert supporting sleeves. Heed pipe manufacturer's technical advice.

Ø Pipe	EAN	Article No
12	4024052214211	3831-12.351
15	4024052214617	3831-15.351
16	4024052214914	3831-16.351
18	4024052215218	3831-18.351



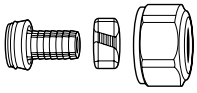
Support sleeve
for copper or precision steel pipe with a 1 mm wall thickness.
Brass.

Ø Pipe	L	EAN	Article No
12	25,0	4024052127016	1300-12.170
15	26,0	4024052127917	1300-15.170
16	26,3	4024052128419	1300-16.170
18	26,8	4024052128815	1300-18.170



Compression fitting
for copper or precision steel pipe according to DIN EN 1057/10305-1/2 and stainless steel pipe.
Connection external thread G3/4 according to DIN EN 16313 (Eurocone).
Soft sealed, max. 95°C.
Nickel-plated brass.

Ø Pipe	EAN	Article No
15	4024052515851	1313-15.351
18	4024052516056	1313-18.351

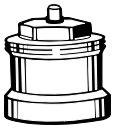


Compression fitting
for plastic pipe according to DIN 4726, ISO 10508.
PE-X: DIN 16892/16893, EN ISO 15875; PB: DIN 16968/16969.
Connection external thread G3/4 according to DIN EN 16313 (Eurocone).
Nickel-plated brass.

Ø Pipe	EAN	Article No
14x2	4024052134618	1311-14.351
16x2	4024052134816	1311-16.351
17x2	4024052134915	1311-17.351
18x2	4024052135110	1311-18.351
20x2	4024052135318	1311-20.351

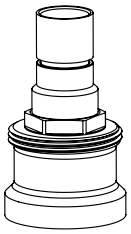
Compression fitting
for Alu/PEX multi-layer pipe according to DIN 16836.
Connection external thread G3/4 according to DIN EN 16313 (Eurocone).
Nickel-plated brass.

Ø Pipe	EAN	Article No
16x2	4024052137312	1331-16.351



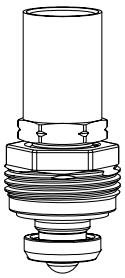
Spindle extension for DX thermostatic head with Multibox Mini DX
when maximum installation depth exceeded.

L	EAN	Article No
Brass nickel-plated		
20	4024052528813	2201-20.700
30	4024052528912	2201-30.700
Plastic, black		
15	4024052553310	2001-15.700
30	4024052165018	2002-30.700



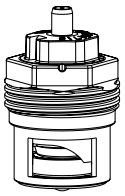
Spindle extension for RTL thermostatic head with Multibox Mini RTL
when maximum installation depth exceeded.
Brass nickel-plated.

L	EAN	Article No
20	4024052500215	9153-20.700



Replacement insert for Multibox Mini RTL from 08.2013
for valve bodies with II-marking.

EAN	Article No
4024052909711	1305-02.300

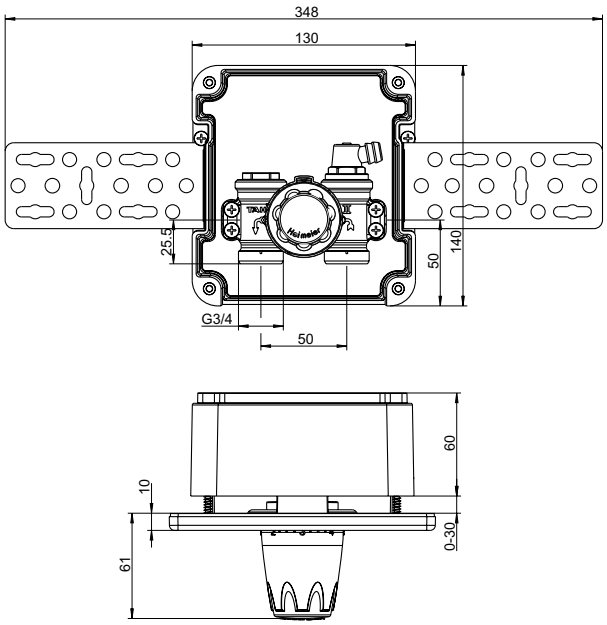


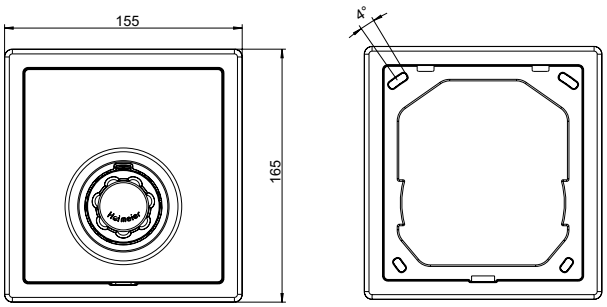
V-exact II replacement insert for Multibox Mini DX from 08.2013
for valve bodies with II-marking.

EAN	Article No
4024052841417	3700-02.300

Dimensions

Multibox Mini DX





Multibox Mini RTL