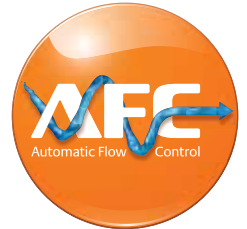


Multibox Eclipse



Flush-mounted individual room control
with automatic flow limitation for floor heating
systems

Multibox Eclipse

The Multibox Eclipse is used for decentralized individual room temperature control or maximum limitation of the return temperature in the case of floor heating systems. The integrated flow limiter guarantee the requested flow is not exceeded. Equalization in the event of out-of-true installation, offsetting up to 6° on each side. Cover with concealed screw fastening. Flexible fitting for all wall structures, 30 mm depth compensation.



Key features

- > **Integrated flow limiter**
Eliminates over flows
- > **Simple adjustment of the flow**
to various heating loads
- > **For out-of-true installation**
offsetting up to 6° 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 Eclipse K:

Individual room temperature control, Automatic flow limiting, Shut-off, Venting

Multibox Eclipse RTL:

Maximum limitation of the return temperature, Automatic flow limiting, Shut-off, Venting

Multibox Eclipse K-RTL:

Individual room temperature control, Maximum limitation of the return temperature, Automatic flow limiting, 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 6° on each side. See also Dimensions.

Pressure class:

PN 10

Setting range:

Thermostatic head K: 6°C to 28°C
Return temperature limiter RTL: 0°C to 50°C

Temperature:

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

Flow range:

The flow can be stepless pre-set within the range: 10-150 l/h.
Factory setting: Commissioning

Differential pressure (Δp_v):

Max. differential pressure: 60 kPa (<30 dB(A))
Min. differential pressure: 10 – 100 l/h = 10 kPa
100 – 150 l/h = 15 kPa

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 K with liquid filled sensor. Return temperature limiter (RTL) filled with an expansible medium.

Surface treatment:

Cover and visible graduation cap in white RAL 9016.

Marking:

THE, flow direction arrows, II+-Designation.

Pipe connection:

Pipe-side G 3/4 adaptor with cone suitable for compression fittings for plastic, copper, precision steel and multi-layer pip

Construction

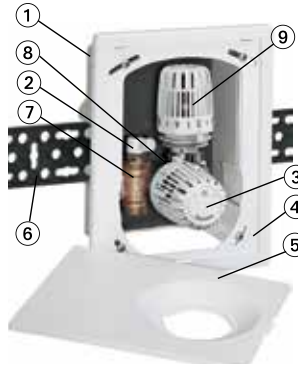
Multibox Eclipse K



Multibox Eclipse RTL



Multibox Eclipse K-RTL



1. Flush box
2. Venting valve
3. Thermostatic head K
4. Frame
5. Cover plate
6. Fixing bar
7. Valve chamber of corrosion resistant gunmetal
8. Thermostatic insert with flow limiter
9. Return temperature limiter (RTL)

Application

Multibox Eclipse K

Multibox Eclipse K is used for the individual room temperature control of, for instance, floor heating systems in association with low temperature heating systems. Multibox Eclipse K is also used in wall heating systems.

Multibox Eclipse RTL

Multibox Eclipse 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.

Multibox Eclipse K-RTL

Multibox Eclipse K-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.

With all Multibox Eclipses, the maximum necessary flow to the individual heating circuits is set directly on the flow limiter, thereby performing automatic flow limitation in a single turn. The adjusted flow will never be exceeded. Even if there is an oversupply of pressure due to load changes in the system - for example other valves closing or during morning start up, the flow will automatically be adjusted to the set value. In the case of combined floor-radiator heating systems, the following valves with automatic flow limitation (AFC) should be used on the terminal unit together with a Multibox Eclipse:

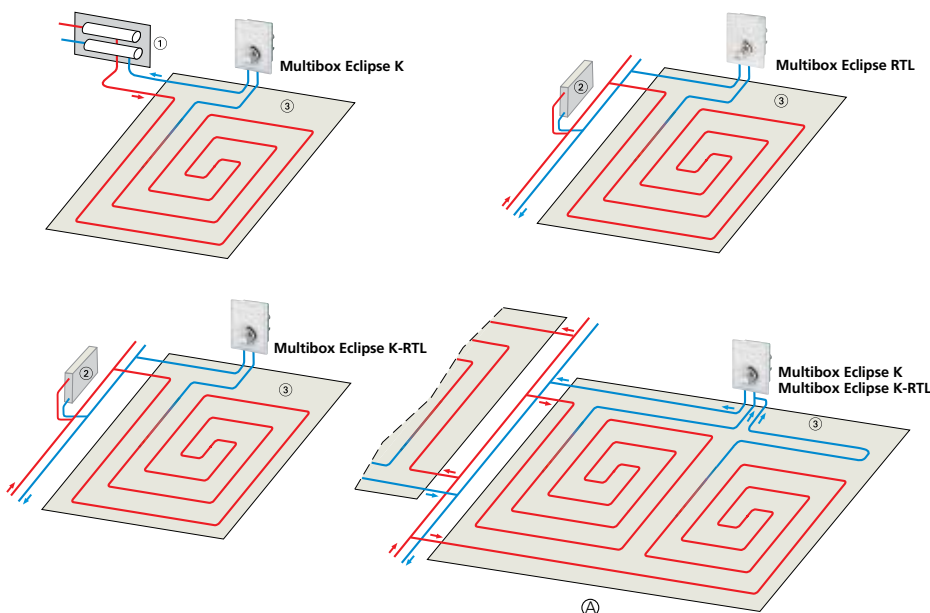
- Eclipse thermostat valve substructures,
- Multilux 4-Eclipse-Set for bathroom hot-water radiators and valve radiators.

Noise behaviour

To ensure low-noise performance, the following conditions must be met:

- The differential pressure above Eclipse should not exceed 60 kPa = 600 mbar = 0,6 bar (<30 dB(A)).
- Flow must be correctly adjusted.
- The system must be completely deaerated.

Sample application



1. Manifold
2. Radiator with Eclipse
3. Floor heating area

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

Function

Multibox Eclipse K

From the control aspect, the thermostatic valve integrated in Multibox Eclipse K 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.

At the flow controller, the adjusted flow [l/h] will never be exceeded. Even if there is an oversupply of pressure due to load changes in the system - for example other valves closing or during morning start up - Multibox Eclipse K will guarantee the requested flow.

Multibox Eclipse RTL

From the control aspect, the return temperature limiter integrated in Multibox Eclipse 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.

At the flow controller, the adjusted flow [l/h] will never be exceeded. Even if there is an oversupply of pressure due to load changes in the system - for example other valves closing or during morning start up - Multibox Eclipse RTL will guarantee the requested flow.

Multibox Eclipse K-RTL

From the control aspect, the thermostatic valve integrated in Multibox Eclipse K-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 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 of the thermostatic head 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 Eclipse K-RTL is additionally provided with a return temperature limiter (RTL) which stops the set return temperature from being exceeded. The valve opens when the set limiting figure is exceeded.

At the flow controller, the adjusted flow [l/h] will never be exceeded. Even if there is an oversupply of pressure due to load changes in the system - for example other valves closing or during morning start up - Multibox Eclipse K-RTL will guarantee the requested flow.

Temperature setting

Thermostatic head K

Cue number	*	1)	2	3	4	5
Room temperature [°C]	6	12	14	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)

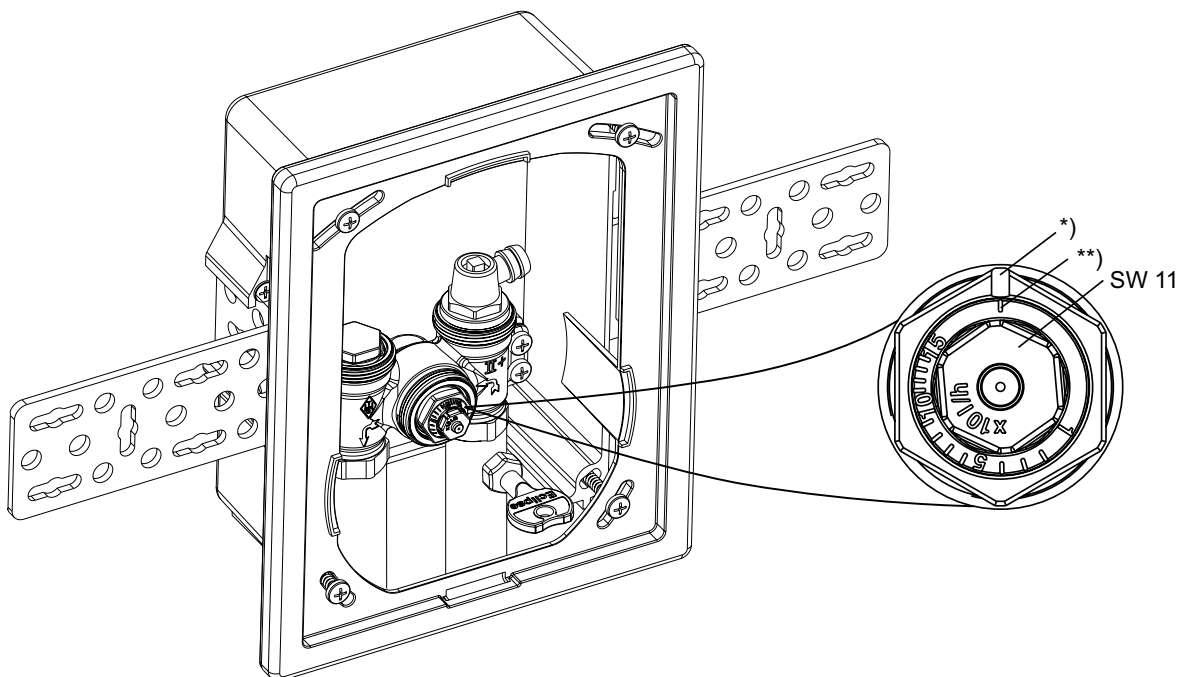
Operation

Flow setting

Stepless setting between 1 to 15 (10 to 150 l/h).
The setting is changed using a special setting key (article No. 3930-02.142) or an 11 mm end wrench, to ensure tamper proof setting.

- Place the setting key on the valve insert.
- Turn the setting tool so that desired setting value is pointing at the index* of the valve body (see fig.).
- Remove the key or 11 mm end wrench. The valve is now set.

Front-end and lateral visibility



*) Index

**) Commissioning setting

Setting	1	I	I	I	5	I	I	I	I	10	I	I	I	I	15
l/h	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150

P-band [xp] max. 2 K.

P-band [xp] max. 1 K up to 90 l/h.

Setting table

Setting values with different heating performances and system differential temperatures

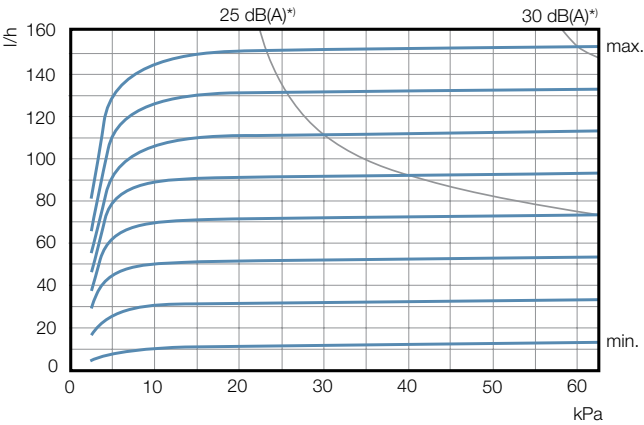
Q̇ [W]	200	250	300	400	500	600	700	800	900	1000	1200	1400	1600	1800	2000	2200	2400	2600
Δt [K]	l/h																	
5	3	4	5	7	9	10	12	14										
8	2	3	3	4	5	7	8	9	10	11	13	15						
10	2	2	3	3	4	5	6	7	8	9	10	12	14					
15	1	1	2	2	3	3	4	5	5	6	7	8	9	10	12	13	14	15

Δp min. 10 - 100 l/h = 10 kPa
Δp min. 100 - 150 l/h = 15 kPa

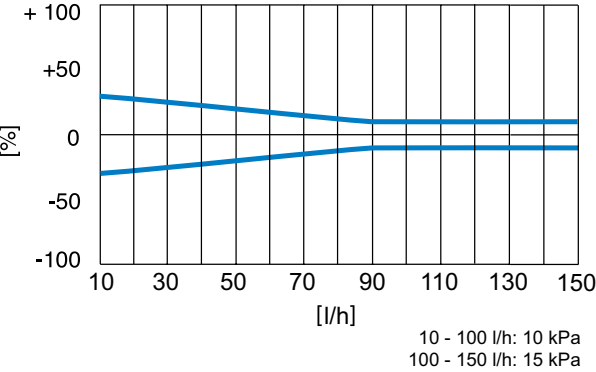
Q = Heating performance
Δt = System differential temperature
Δp = Differential pressure

Sample:
Q = 1000 W, Δt = 8 K
Setting value: 11 (=110 l/h)

Diagram



Lowest flow tolerances



Information

Planning notes

- **For all Multibox models, ensure that the system supply temperature is suitable for setting up the floor heating system.**
- **All Multibox 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 models are suitable for heating areas up to approx. 20 m².
- The length of 12 mm internal diameter pipe in any heating circuit should not exceed 100 m.
- With heating areas >20 m² and/or pipe lengths >100 m, a T-piece, for instance, should be used to connect two equally long heating circuits to the Multibox. (see Examples of use).
- To ensure low-noise system operation, differential pressure over the valve should not exceed 0.6 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.

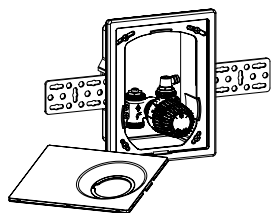
Then set maximum design temperature and maintain for 4 days. Flow temperature can be regulated by controlling the heat generator. Turn the protective cap anticlockwise to open valve or turn RTL head to Position 5.

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!

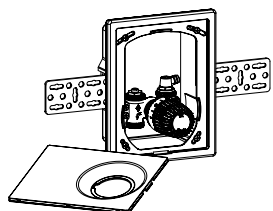
Articles



Multibox Eclipse K

with thermostatic valve

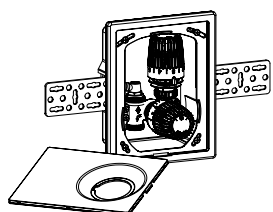
Colour	EAN	Article No
Cover and thermostatic head K white RAL 9016	4024052902415	9318-00.800



Multibox Eclipse RTL

with return temperature limiter (RTL)

Colour	EAN	Article No
Cover and RTL thermostatic head white RAL 9016	4024052902514	9319-00.800



Multibox Eclipse K-RTL

with thermostatic valve and return temperature limiter (RTL)

Colour	EAN	Article No
Cover and thermostatic head K white RAL 9016	4024052902316	9317-00.800

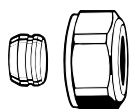
Accessories



Setting key

for Eclipse. Color orange.

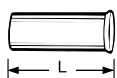
EAN	Article No
4024052937714	3930-02.142



Compression fitting

for copper or precision steel pipe according to DIN EN 1057/10305-1/2. Connection male thread G 3/4 according to DIN EN 16313 (Eurocone). Metal-to-metal joint. Brass nickel-plated. With a pipe wall thickness of 0.8-1 mm insert supporting sleeves. Heed pipe manufacturer's technical advice.

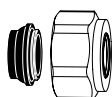
Ø Pipe	EAN	Article No
12	4024052214211	3831-12.351
15	4024052214617	3831-15.351
16	4024052214914	3831-16.351
18	4024052215218	3831-18.351



Support sleeve

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

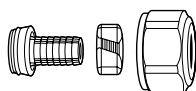
Ø Pipe	L	EAN	Article No
12	25,0	4024052127016	1300-12.170
15	26,0	4024052127917	1300-15.170
16	26,3	4024052128419	1300-16.170
18	26,8	4024052128815	1300-18.170



Compression fitting

for copper or precision steel pipe according to DIN EN 1057/10305-1/2. Connection male thread G 3/4 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 male thread G 3/4 according to DIN EN 16313 (Eurocone). Nickel plated brass.

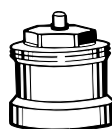
Ø Pipe	EAN	Article No
14x2	4024052134618	1311-14.351
16x2	4024052134816	1311-16.351
17x2	4024052134915	1311-17.351
18x2	4024052135110	1311-18.351
20x2	4024052135318	1311-20.351



Compression fitting

for Alu/PEX multi-layer pipe according to DIN 16836. Connection male thread G 3/4 according to DIN EN 16313 (Eurocone). Nickel-plated brass.

Ø Pipe	EAN	Article No
16x2		1331-16.351



Spindle extension for K thermostatic head with Multibox Eclipse K and Multibox Eclipse K-RTL

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 Eclipse RTL

when maximum installation depth exceeded.

Brass nickel-plated.

L	EAN	Article No
20	4024052500215	9153-20.700



Replacement thermostatic insert

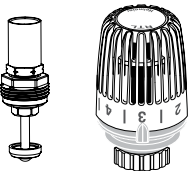
with automatic flow limiter for Eclipse.

EAN	Article No
4024052940912	3930-02.300



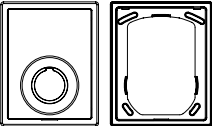
RTL Thermostatic head especially for Multibox Eclipse RTL for reverse-flow temperature control
White RAL 9016.

	EAN	Article No
0 °C - 50 °C	4024052595112	6510-00.500



RTL insert and RTL thermostatic head
specially for converting Multibox K/
Multibox Eclipse K into Multibox K-RTL/
Multibox Eclipse K-RTL.

	EAN	Article No
RTL insert	4024052497812	9303-00.300
RTL thermostatic head	4024052275311	6500-00.500

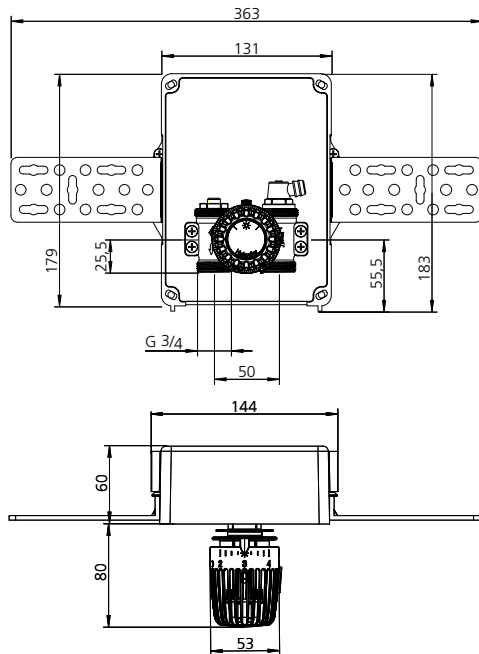


Frame and cover plate
Replacement for Multibox K/Multibox
Eclipse K, Multibox RTL/Multibox Eclipse
RTL and Multibox K-RTL/Multibox Eclipse
K-RTL.

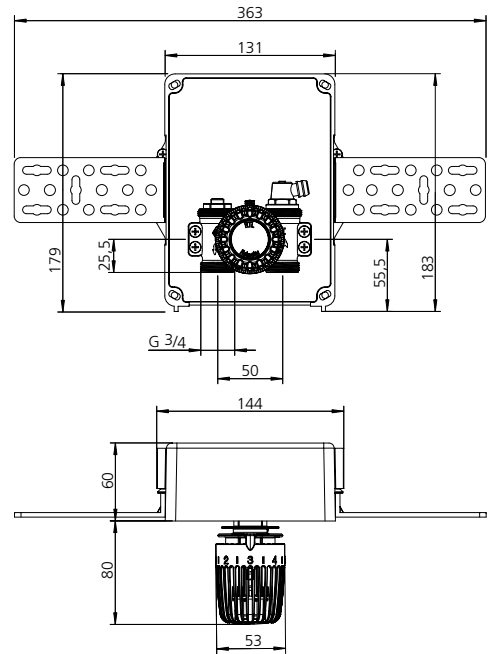
Colour	EAN	Article No
White RAL 9016	4024052489671	9300-00.800

Dimensions

Multibox Eclipse K



Multibox Eclipse RTL



Multibox Eclipse K-RTL

