

Motorised temperature regulating unit for heating systems



01239/17 GB

replaces dp 01239/15 GB

167 series



Function

The motorised temperature regulating unit **is configured for use with an outside compensated or modulating temperature regulator to control the flow temperature** in heating systems.

Complete with motorised three-way mixing valve, flow and return temperature gauges, secondary circuit shut-off valves and pre-formed shell insulation.

This unit can be coupled to the 559 series SEPCOLL separator/distribution manifold with 125 mm centre distance connections.

The differential by-pass valve (code 519006), safety thermostat (code 165004) and mounting bracket (code 165001) are optional.



Product range

Upward flow, flow on RH side

Downward flow - flow on LH side

Code 167600A2L Motorised temperature regulating unit. With UPM3 Auto L 25-70 pump. Centre distance 125 mm _____ size DN 25 (1")

Code 167601UPM Motorised temperature regulating unit. With UPML 25-95 pump. Centre distance 125 mm _____ size DN 25 (1")

Upward flow, flow on LH side

Downward flow - flow on RH side

Code 167610A2L Motorised temperature regulating unit. With UPM3 Auto L 25-70 pump. Centre distance 125 mm _____ size DN 25 (1")

Code 167611UPM Motorised temperature regulating unit. With UPML 25-95 pump. Centre distance 125 mm _____ size DN 25 (1")

Technical specifications

Materials

Regulating unit with motorised three-way valve

Body:	brass EN 12165 CW617N
Headwork:	brass EN 12164 CW614N
Obturator:	brass EN 12164 CW614N
Seals:	EPDM

Connection pipes

Material:	steel Fe 360
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Check valve

Body:	brass EN 12164 CW614N
Obturator:	PPAG40

Shut-off valves

Body:	brass EN 12165 CW617N
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Actuator technical specifications

Synchronous motor. Three-point type	
Electric supply:	230 V (ac)
Power consumption:	6 VA
Auxiliary microswitch contact rating:	6 (2) A (230 V)
Protection class:	IP 65
Operating time	50 s (90° rotation)
Supply cable length:	0,8 m
Dynamic torque:	9 N·m

Performance

Medium:	water, glycol solutions
Max. percentage of glycol:	30%
Maximum working pressure:	1000 kPa (10 bar)
Minimum working pressure:	80 kPa (0,8 bar)
Primary inlet temperature range:	5–100°C
Connections:	
- system side:	1" F (ISO 228-1)
- boiler side:	1 1/2" M (ISO 228-1)
- connection centre distance:	125 mm

Insulation

Material:	EPP
Average thickness:	30 mm
Density:	45 kg/m ³
Working temperature range:	-5–120°C
Thermal conductivity:	0,037 W/(m·K) at 10°C
Reaction to fire (UL94):	class HBF

Pump

High-efficiency pump: model:	UPM3 Auto L 25-70 UPML 25-95
Body:	cast iron GG 15/20
Electric supply:	230 V - 50/60 Hz
Max. ambient humidity:	95%
Max. ambient temperature:	UPM3 Auto L 25-70: 70°C UPML 25-95: 55°C
Protection class:	UPM3 Auto L 25-70: IP 44 UPML 25-95: IPX2D
Pump centre distance:	130 mm
Pump connections:	1 1/2" (ISO 228-1) with nut

Temperature gauges

Double scale:	0–80°C (32–176°F)
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Safety thermostat kit code 165004 (optional)

Setting temperature:	55°C
Protection class:	IP 55
Contact rating:	10 A/ 240 V

Differential by-pass valve code 519006 (optional)

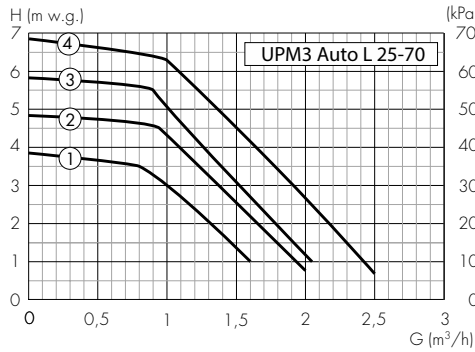
Body:	brass EN 1982 CB753S
Obturator:	EPDM
Spring:	stainless steel EN 10270-3 (AISI 302)
Seals:	EPDM
Max. working pressure:	10 bar
Max. working temperature:	100°C
By-pass setting range:	2–30 kPa (0,2–3 m w.g.)
Connections:	1" M x 1" M (ISO 228-1)

Mounting bracket code 165001 (optional)

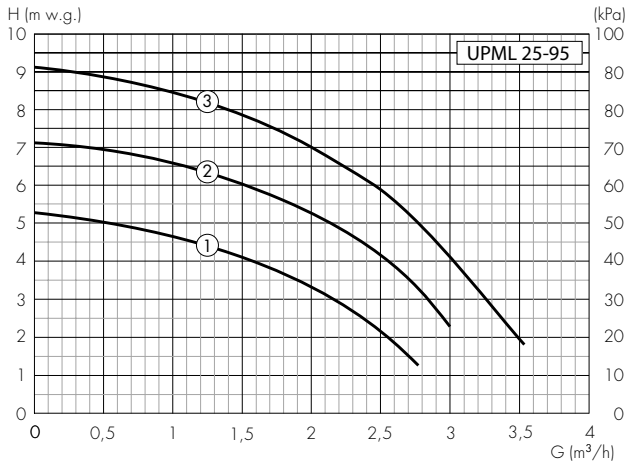
Material:	stainless steel
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Head available at the regulating unit connections

Test performed with constant speed control



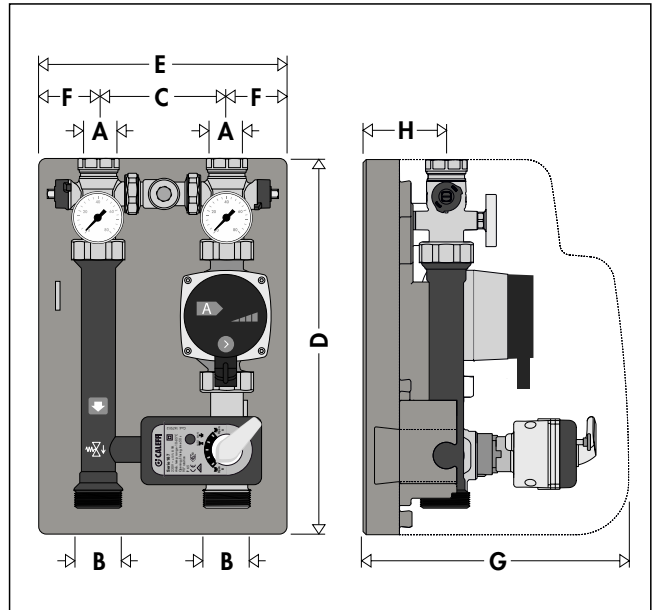
Test performed with constant pressure control



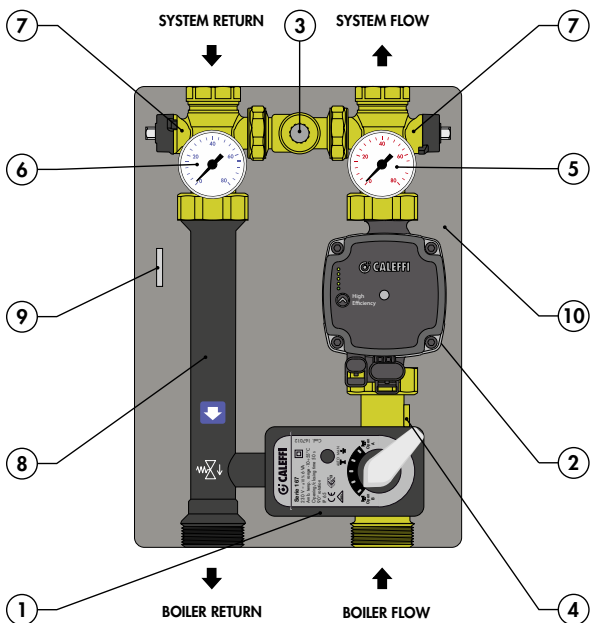
Note:

The pumps can operate with constant speed control (UPM3 only), constant or proportional pressure control, which adapts the performance to system requirements. For further details, see the installation instruction sheet of the pump supplied in the package.

Dimensions



Code	A	B	C	D	E	F	G	H	Mass (kg)
167600A2L/167610A2L	1"	1 1/2"	125	360	250	62,5	255	80	7,1
167601UPM/167611UPM	1"	1 1/2"	125	360	250	62,5	255	80	9,0

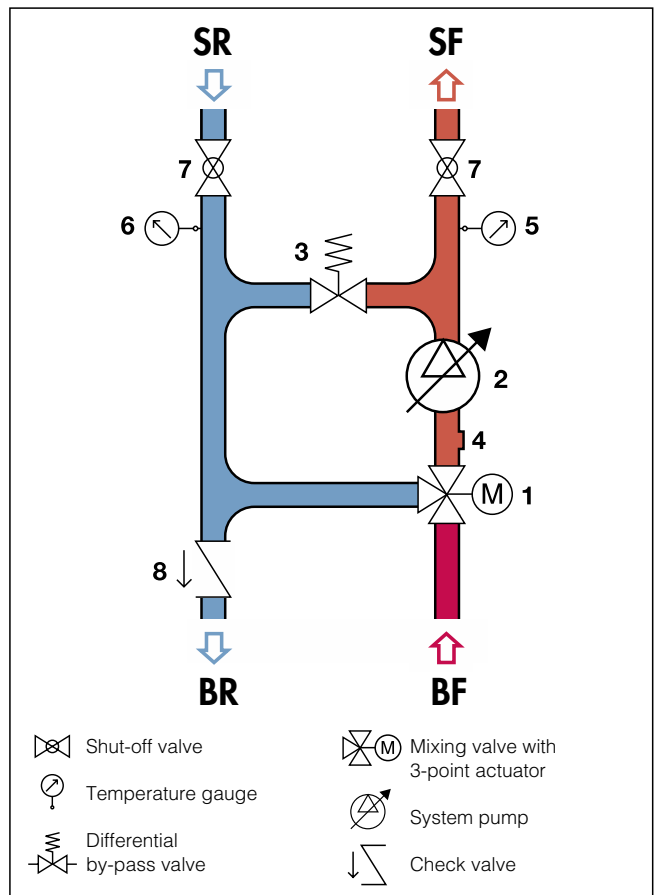


Characteristic components

- 1 Mixing valve with three-point actuator
- 2 High-efficiency pump UPM3 Auto L 25-70 or UPML 25-95
- 3 Differential by-pass valve (optional)*
- 4 Regulator probe connection
- 5 Flow temperature gauge
- 6 Return temperature gauge
- 7 Secondary circuit shut-off valves
- 8 Connection pipe (with check valve)
- 9 Operating spanner for shut-off valves on secondary circuit
- 10 Insulation

*The factory setup includes installation of a blind spacer (closed)

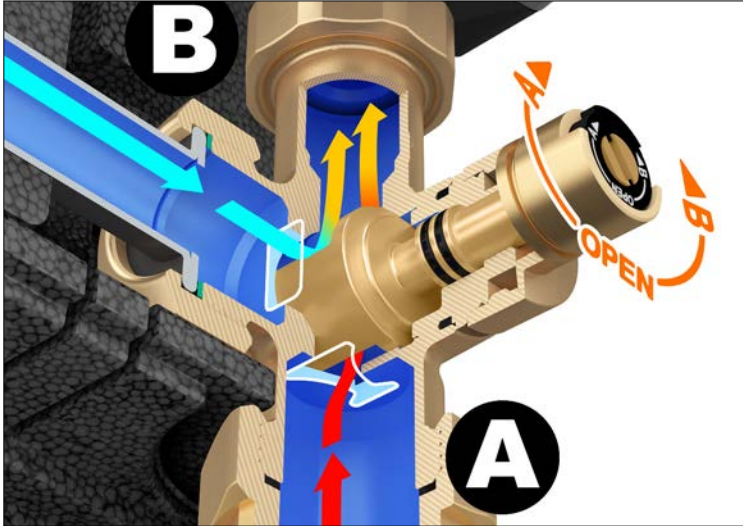
Hydraulic diagram



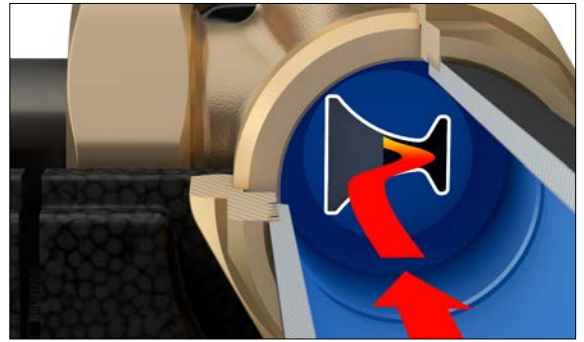
Construction details

Mixing valve

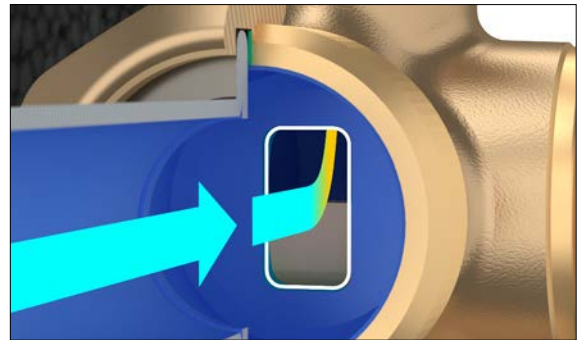
The mixing valve is a three-way model with sector obturator featuring adjustment and by-pass ports specifically constructed to obtain equipercentage/linear characteristics. This adjustment characteristic guarantees the best possible system response to the various load conditions.



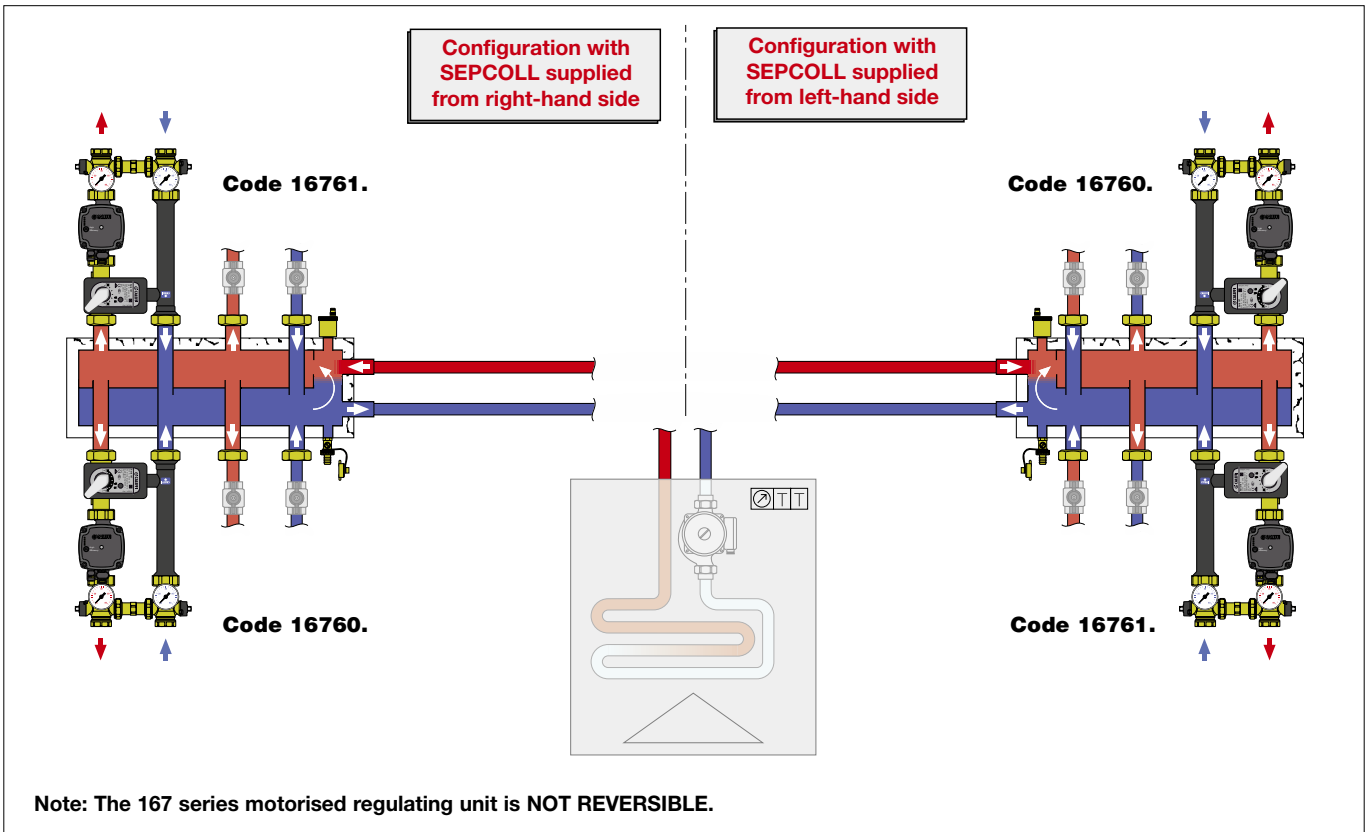
Adjustment port - A



By-pass port - B



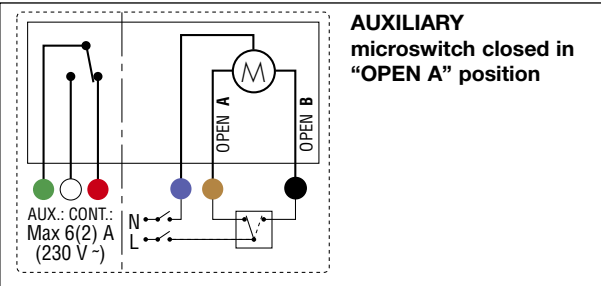
Installation



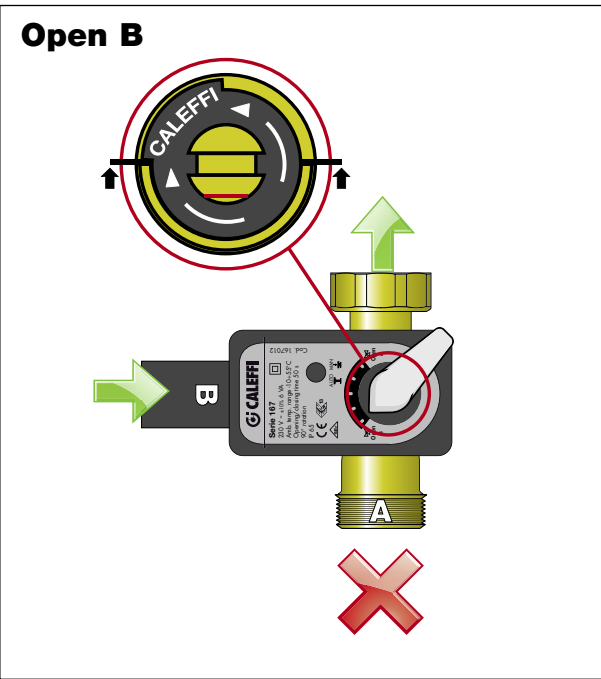
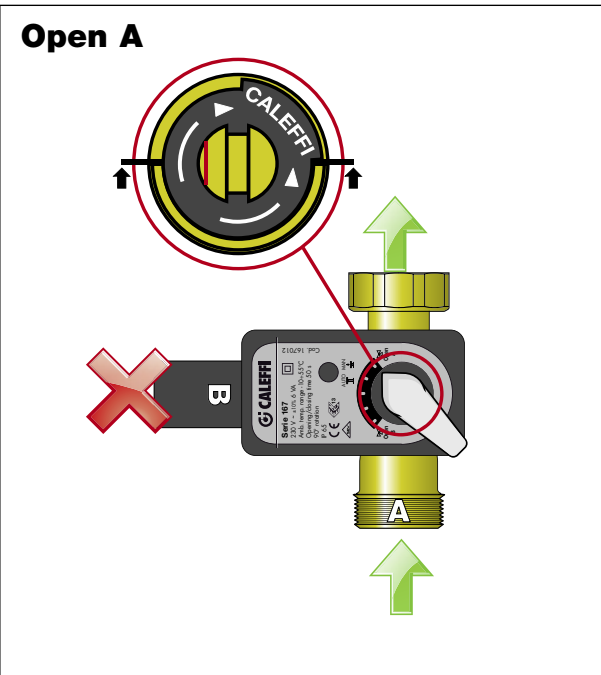
Mixing valve operating principle

UPWARD flow version. Flow on RH side.
Code 167600A2L, Code 167601UPM.

Wiring diagrams

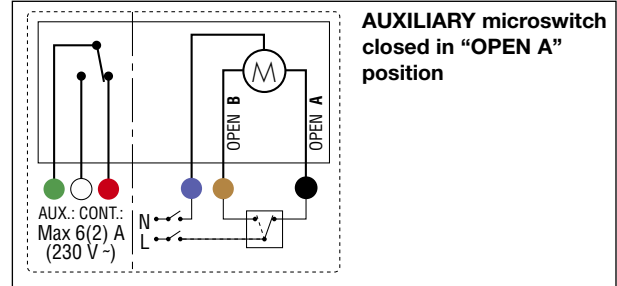


Mixing valve actuator operating principle

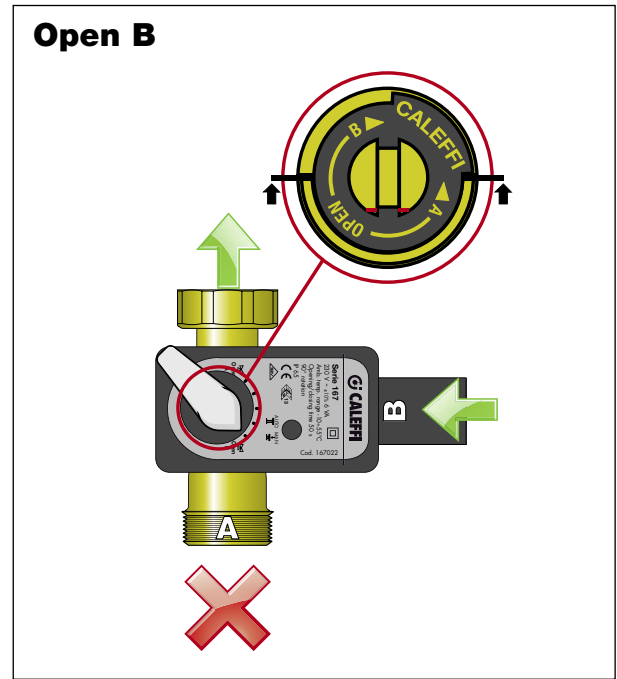
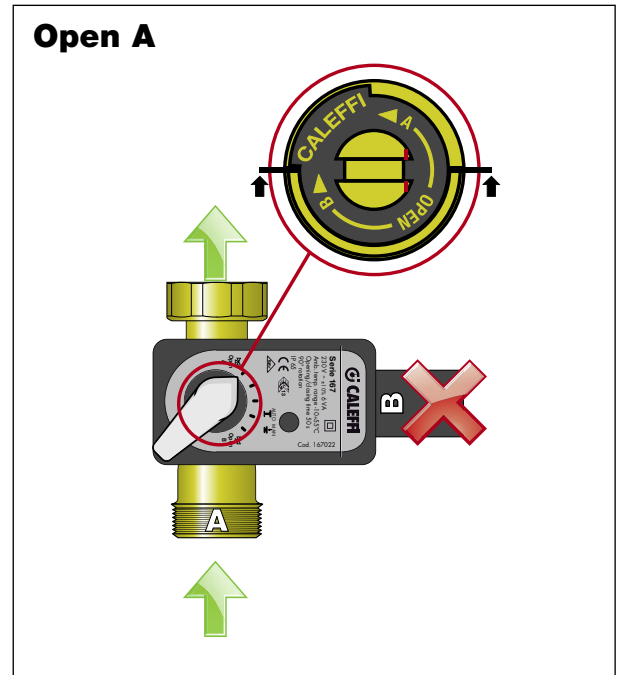


UPWARD flow version. Flow on LH side.
Code 167610A2L, Code 167611UPM.

Wiring diagrams



Mixing valve actuator operating principle



Accessories

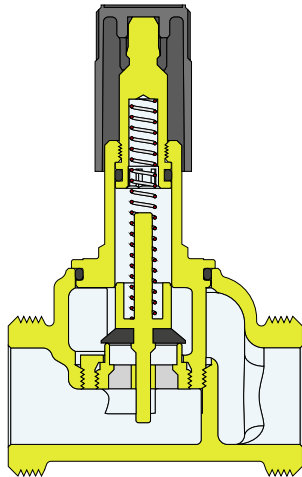
Differential by-pass



519006

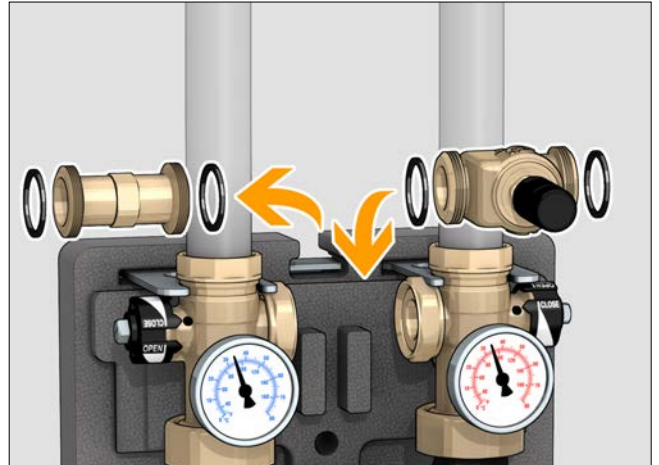
Differential by-pass
 Max. working pressure: 10 bar.
 Max. working temperature: 100°C.
 Setting range: 2–30 kPa (0,2–3 m w.g.).
 Connections 1" M x 1" M.

The differential by-pass valve is used to control the head to which the secondary distribution circuit is subjected. When the differential pressure setting value is reached, the obturator opens and allows the medium to pass from the flow to the return line of the circuit, limiting the differential pressure at the set value. This action is particularly useful when single circuits are shut off by automatic two-way ON/OFF, modulating or thermostatic valves.

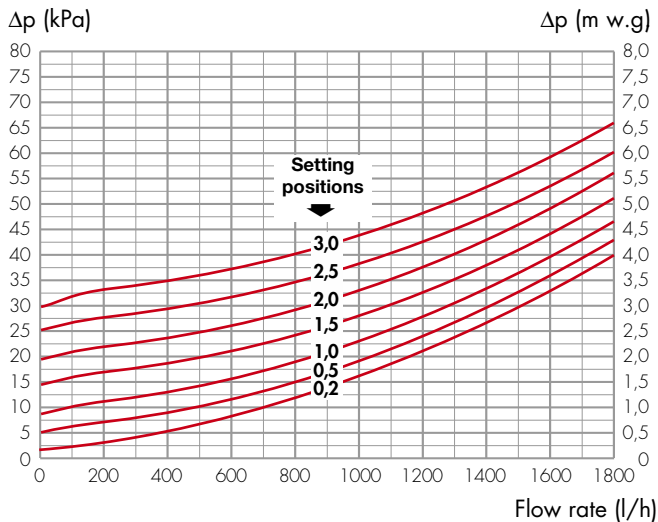


Installation of the differential by-pass valve

To fit the differential by-pass, it should be applied in place of the by-pass spacer template. After shutting off the ball valves using the specific supplied spanner, unscrew the captive nuts as illustrated in the following figures.



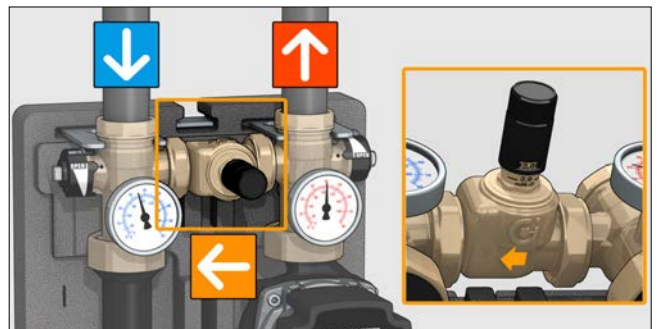
Hydraulic characteristics



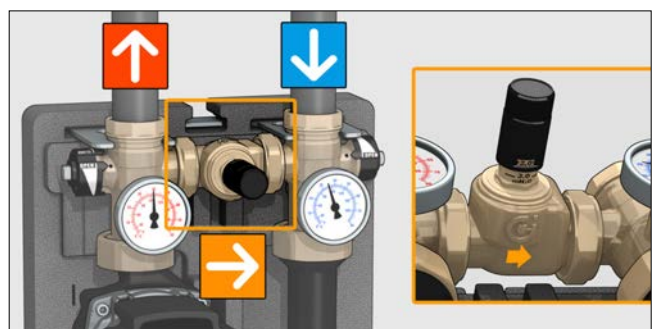
The hydraulic characteristics are calculated while taking account of the ball shut-off valves fitted.

Installation differs depending on the supply direction in the flow circuit:

- by-pass installation in the version with RH side flow and upward flow (equivalent to LH side flow and downward flow);



- by-pass installation in the version with LH side flow and upward flow (equivalent to RH side flow and downward flow).



Hydraulic separators-manifolds

559222 SEPCOLL 2+2


 [tech. broch. 01084](#)



Hydraulic separator-manifold for heating systems.
Centre distance: 125 mm.
Steel body, PN 6. **With insulation.**
Main connections 1 1/4" F.

Outlet connections 1 1/2" with captive nut:
two at the top and two at the bottom.
Working temperature range: 0–110°C.
Complete with mounting brackets.

559231 SEPCOLL 3+1


 [tech. broch. 01084](#)



Hydraulic separator-manifold for heating systems.
Centre distance: 125 mm.
Steel body, PN 6. **With insulation.**
Main connections 1 1/4" F.

Outlet connections 1 1/2" with captive nut:
three at the top and one at the bottom (or viceversa).
Working temperature range: 0–110°C.
Complete with mounting brackets.

559221 SEPCOLL 2+1

 [tech. broch. 01084](#)



Hydraulic separator-manifold for heating systems.
Centre distance: 125 mm.
Steel body, PN 6. **With insulation.**
Main connections 1" F.

Outlet connections: two at the top, 1 1/2" with captive nut,
and one at the side, 1" F.
Working temperature range: 0–110°C.
Complete with mounting brackets.

559220 SEPCOLL 2

 [tech. broch. 01084](#)



Hydraulic separator-manifold for heating systems.
Centre distance: 125 mm.
Steel body, PN 6. **With insulation.**
Main connections 1" F.

Outlet connections: two at the top, 1 1/2" with captive nut.
Working temperature range: 0–110°C.
Complete with mounting brackets.

Accessories



165006

Pair of eccentric tailpieces.
Centre distance: 105–145 mm.
Connections: 1 1/2" F with captive nut x 1" F.



559001

Pair of plugs with gaskets for unused outlets.



559002

Pair of fittings with gaskets.

Mounting bracket

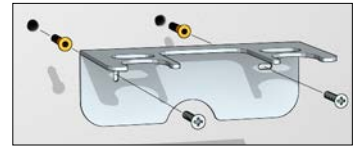


165001

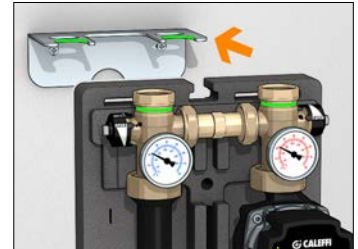
Mounting bracket.
In stainless steel.

Bracket installation

The mounting bracket for wall installation must be secured using wall anchors, using the corresponding holes on the base.



The unit should be applied to the bracket, using the corresponding seats under the hexagonal part of the shut-off valves.



Safety thermostat kit



165004

Safety thermostat kit for heating.
Setting temperature 55°C ±3.
Protection class: IP 65.
M4 threading.



165003

Sensor holder extension.
Connections 1" M x 1" F.
Side connections
M4 F x M4 F x 1/8" F x 1/4" F

The safety thermostat kit is used to control the maximum flow temperature to the system. In the event of a fault, it stops circulation by shutting off the pump, thus preventing the system from being damaged.



Wiring diagram

For safety thermostat electric connection details, please refer to the documentation corresponding to the three-point regulator.

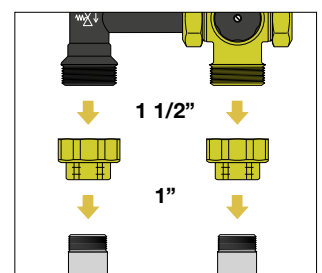


165002

Female union with captive nut,
complete with seal.
Connections: 1 1/2" F with captive nut x 1" F.

Installation example

The union with captive nut allows installation of the 167 series unit on any 1" M pipe.



Regulators



161

tech. broch. 01122

Digital regulator with synoptic diagram for heating complete with immersion flow probes with pocket and return probe with contact probe holder. Optional outside compensated probe. Temperature adjustment range: 5–95°C. Supply: 230 V - 50/60 Hz. Protection class: IP 20 / EN 60529. Probe cable length: 2,5 m.



Code

161010



1520

Outside compensated temperature regulator complete with flow contact probes and outside probe. Adjustment range: 20–90°C. Electric supply: 230 V - 50 Hz. Protection class: IP 40.



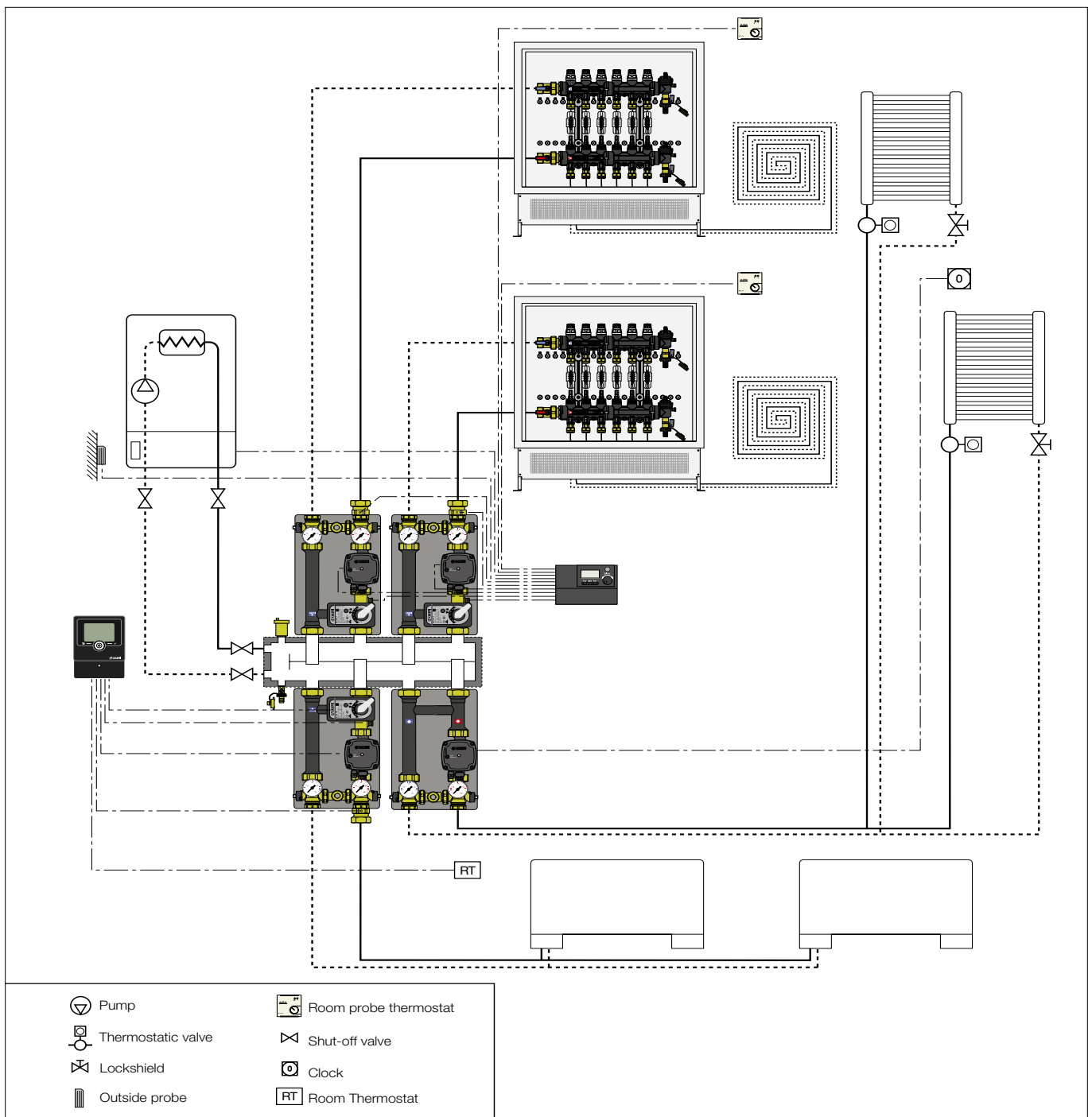
Code

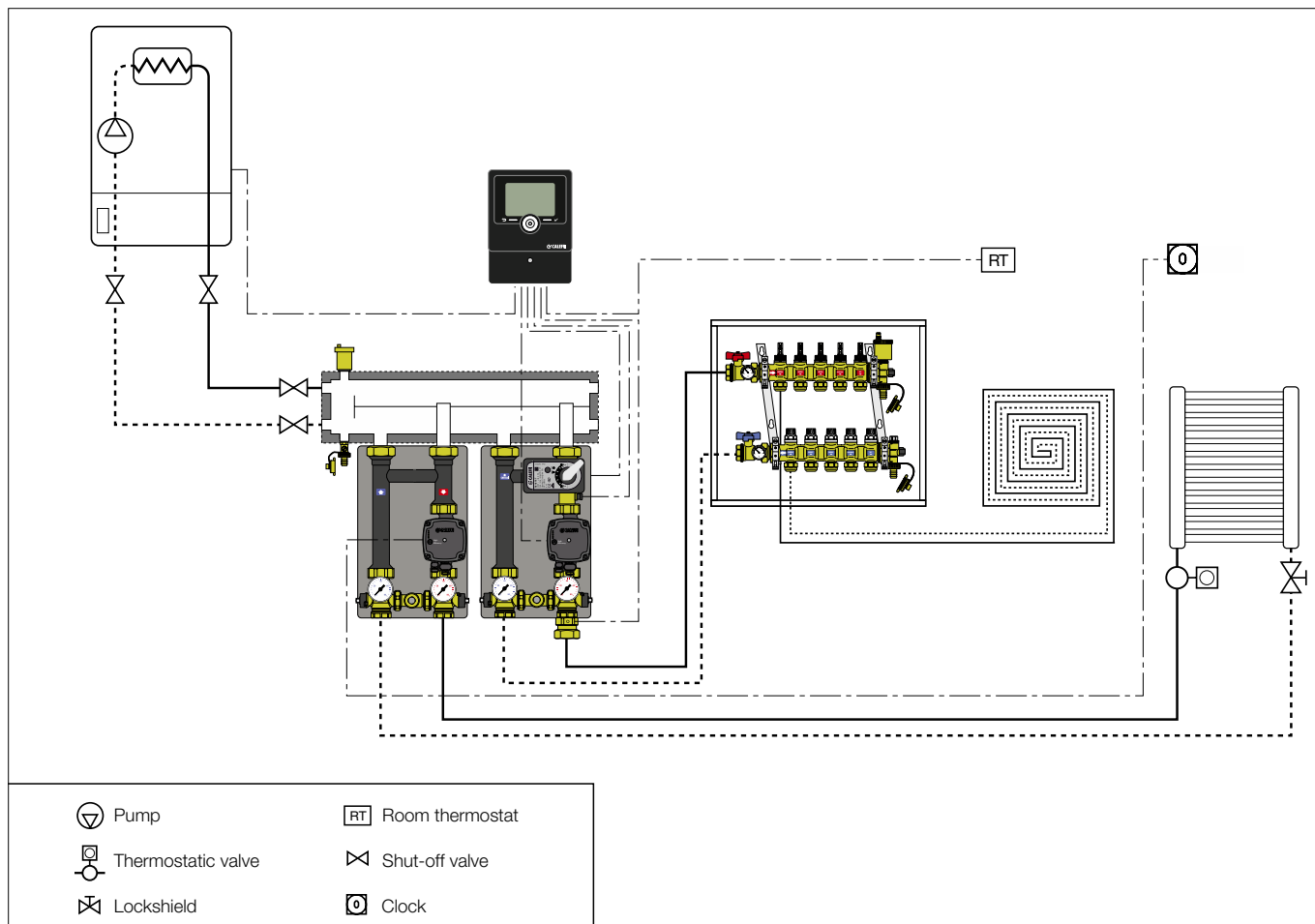
152001 with 1 channel

152002 with 2 channels

152003 with 3 channels

Application diagrams





SPECIFICATION SUMMARY

167 series

Motorised temperature regulating unit for heating systems. Configuration with upward flow and flow on right hand side (and downward flow and flow on left hand side). Connections to primary circuit 1 1/2" M (ISO 228-1). Connections to secondary circuit 1" F (ISO 228-1). Connection centre distance to the primary and secondary circuit 125 mm. Primary inlet temperature range 5–100°C. Maximum working pressure 1000 kPa (10 bar). Minimum working pressure 80 kPa (0,8 bar). Complete with: motorised three-way mixing valve, brass body, brass obturator. Three-point actuator, electric supply 230 V (ac), protection class IP 65. High-efficiency pump UPM3 Auto L 25-70 (UPML 25-95) protection class IP 44 (UPML 25-95 IPX2D); temperature gauges with double scale 0-80°C (32-176°F); secondary circuit shut-off valves. With pre-formed shell insulation in EPP.

Code 165004

Safety thermostat kit, setting temperature 55°C ±3. Protection class IP 65. M4 threading.

Code 519006

Differential by-pass valve. Brass body. Connections 1" M x 1" M. Stainless steel spring. Setting range from 0,2 to 3 m w.g. (2–30 kPa). Maximum working pressure 10 bar. Maximum working temperature 100°C.

Code 165001

Stainless steel mounting bracket.

Code 165002

Female union with captive nut, complete with seal. Connections 1 1/2" F with captive nut x 1" F (ISO 228-1).

Code 165003

Sensor holder extension. Connections 1" M x 1" F (ISO 228-1) with captive nut.

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