

# Motorised temperature regulating unit for Sepcoll 559 series



## 164 series



BSI EN ISO 9001:2000  
Cert. n° FM 21654



UNI EN ISO 9001:2000  
Cert. n° 0003



### Function

The motorised temperature regulating unit is configured for being combined with an outside compensated or modulating temperature regulator to control the flow temperature in heating and air-conditioning systems.

This unit is specially made for connection to the Sepcoll 559 series separator/manifold, either in the exposed or concealed versions.

Supplied complete with motorised three-way mixing valve, three-speed pump, safety thermostat, differential by-pass valve, flow and return temperature gauges, secondary circuit shut-off valves.

Supplied complete with pre-formed insulation shell, suitable for heating and cooling.

### Product range

Code 164600 Motorised temperature regulating unit for Sepcoll. Flow upwards, supply on right hand side \_\_\_\_\_ Size 1"  
Code 164610 Motorised temperature regulating unit for Sepcoll. Flow upwards, supply on left hand side \_\_\_\_\_ Size 1"

### Technical specifications

#### Materials

##### Regulating unit with motorised three-way valve

Body: brass EN 1982 CB753S  
Headwork: brass EN 12164 CW614N  
Obturator: stainless steel  
Seals: EPDM

##### By-pass valve

Body: brass EN 1982 CB753S  
Spring: stainless steel  
Obturator: EPDM  
Seals: EPDM

##### Shut-off valves

Body: brass EN 12165 CW617N, nickel plated  
Ball: brass EN 12164 CW614N, chrome plated  
Seals: EPDM

#### Actuator

Three-point type  
With auxiliary microswitch  
Electric supply: 230 V - 50 Hz  
Operating time: 50 s (120° rotation)  
Power consumption: 8 VA  
Microswitch contact rating: 0,8 A (230 V)  
Protection class: IP 44  
Max. ambient temperature: 55°C  
Protective cover: self-extinguishing VO

#### Safety thermostat

Factory set: 55°C ±3°C  
Protection class: IP 55  
Contacts rating: 10 A / 240 V

#### Performance

Medium: water, glycol solutions  
Max. percentage of glycol: 30%  
Primary inlet temperature range: 5–100°C  
Max. working pressure: 10 bar  
By-pass setting range: 10–60 kPa (1–6 m w.g.)  
Temperature gauges scale: 0–80°C  
Connections: - primary circuit: 1" F with union  
- secondary circuit: 1" F  
- connections centre distance: 90 mm

## Pump

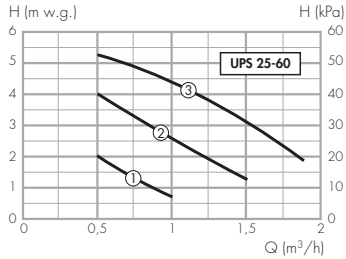
Three-speed pump:  
Material: - Body:

Model UPS 25-60  
Cast iron GG 15/20

Electric supply:  
Max. ambient humidity:  
Max. ambient temperature:  
Protection class:  
Pump centre distance:  
Pump connections:

230 V-50 Hz  
95%  
80°C  
IP 44  
130 mm  
1 1/2" with nut

## Head available at the unit connections



## Power consumption

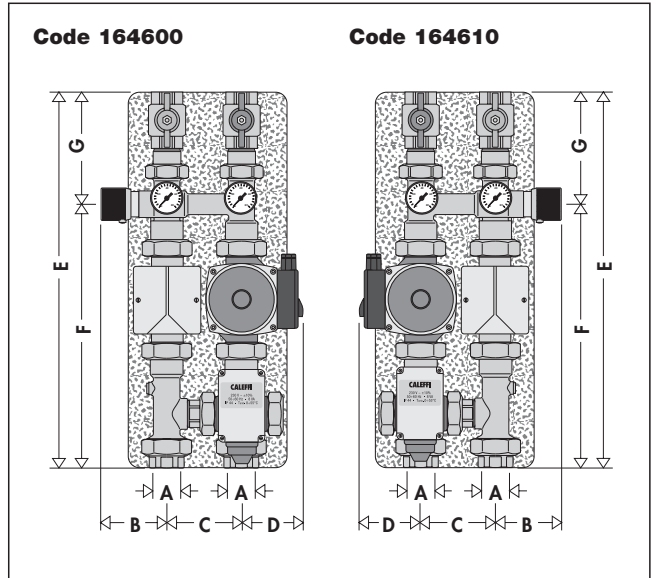
Speed	I (A)	P (W)	n (rpm)
3	0,40	90	1800
2	0,30	65	1100
1	0,20	45	700

## Insulation

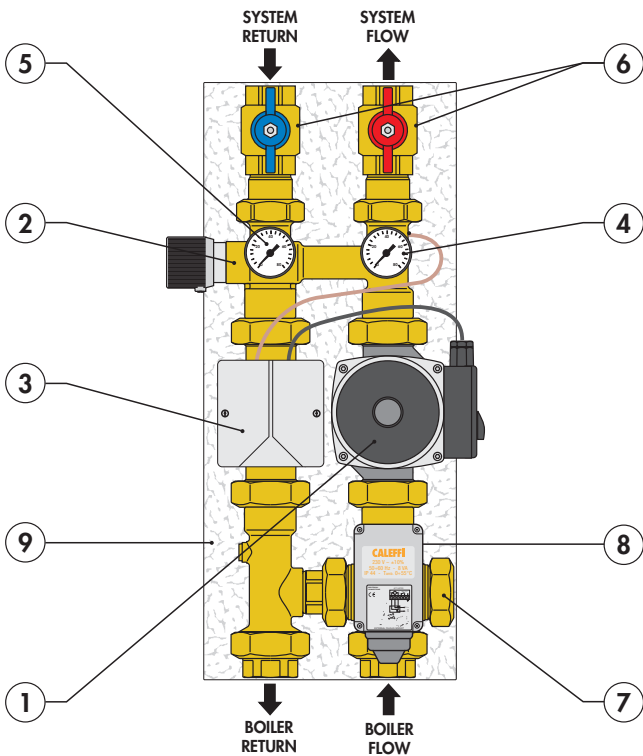
Material: expanded PE-X with closed cells  
Thickness: 20 mm  
Density: - internal part 30 kg/m<sup>3</sup>  
- external part 50 kg/m<sup>3</sup>  
Heat conductivity (DIN 52612): - at 0°C 0,038 W/(m·K)  
- at 40°C 0,045 W/(m·K)

Coefficient of resistance to the diffusion of water vapour (DIN 52615): > 1.300  
Temperature range: 0-100°C  
Reaction to fire (DIN 4102): Class B2

## Dimensions



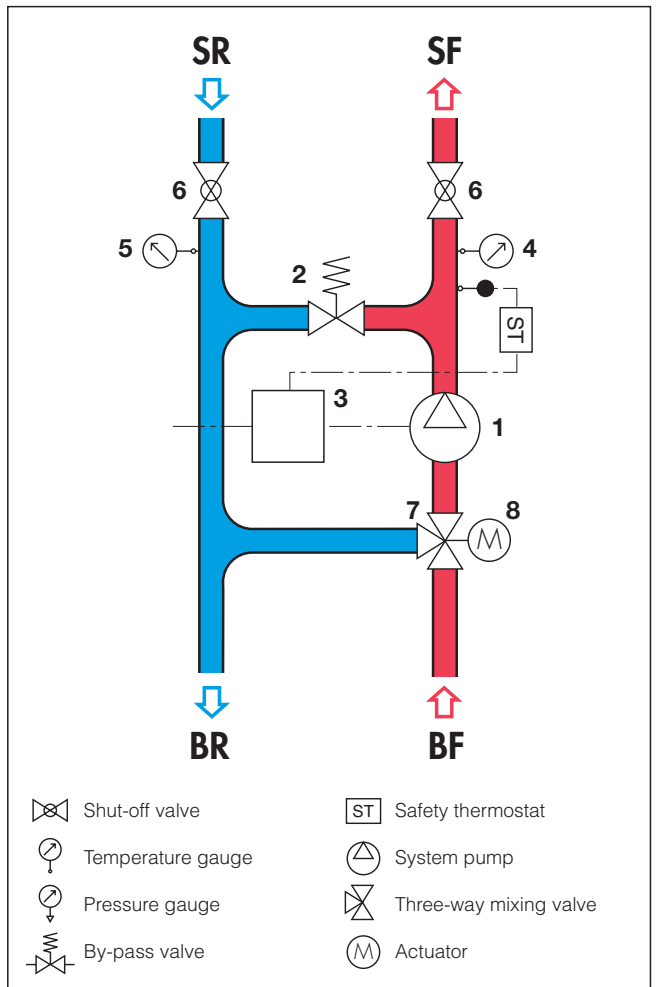
Code	A	B	C	D	E	F	G	Weight (kg)
164600	1"	95	90	77	460	320	140	9,0
164610	1"	95	90	77	460	320	140	9,0



## Characteristic components

- 1 Three-speed pump UPS 25-60
- 2 Differential by-pass valve
- 3 Electrical wiring box
- 4 Secondary flow temperature gauge
- 5 Secondary return temperature gauge
- 6 Shut-off valves on secondary circuit
- 7 Three-way mixing valve
- 8 Three-point actuator
- 9 Insulation

## Hydraulic diagram



- Shut-off valve
- Temperature gauge
- Pressure gauge
- By-pass valve
- Safety thermostat
- System pump
- Three-way mixing valve
- Actuator

## Construction details

### Mixing valve

The mixing valve is a three-way type with a sector obturator. The internal regulating element is made entirely of stainless steel so as to minimize wear on the moving parts and ensure performance is maintained over time.

The obturator and the valve body are sized so as to ensure a high flow rate with reduced overall dimensions while permitting accurate regulation of the water flows. Thus providing the best conditions for precise adjustment of the temperature of the mixed water sent to the system.

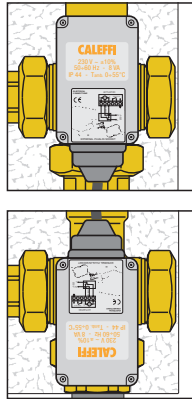
### Actuator

The actuator is a three-point type so it can easily be combined with the most widely used temperature regulators, both outside compensated and modulating.

The actuator is moreover equipped with an auxiliary microswitch that can be used to shut down the boiler or the chiller unit when the valve is closed.

The microswitch contacts are closed when the valve is approximately 20% open.

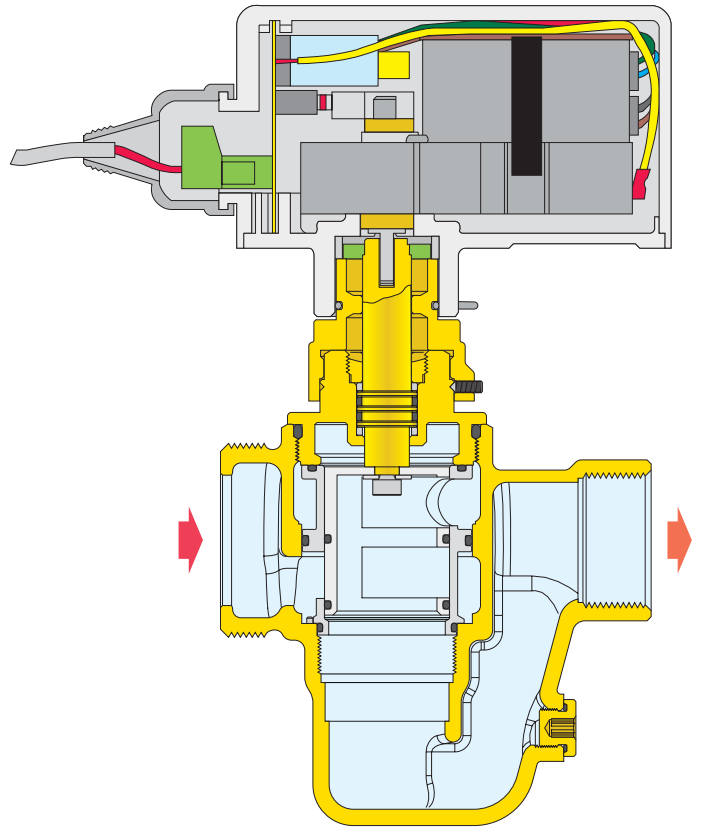
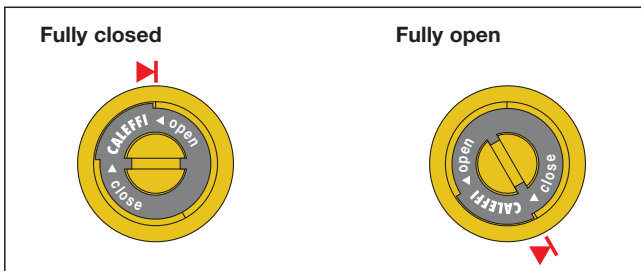
The actuator can be fitted on the valve body in the two shown positions. Fastening is done with a stainless steel clip.



### Manual opening

By removing the actuator, the valve can be opened-closed manually by using a screwdriver.

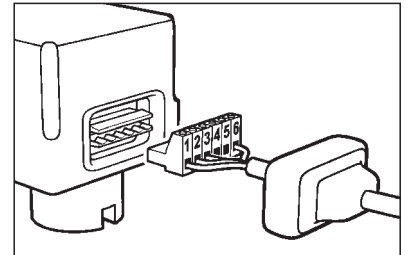
### Regulating way - primary inlet



### Electrical connections

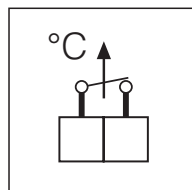
The electrical connection of the actuator consists of an external plug-in socket system, which does not require the cover to be opened for the supply cable to be connected.

This solution is particularly useful if the actuator needs to be replaced. An efficient rubber protective cover safeguards the connection system.

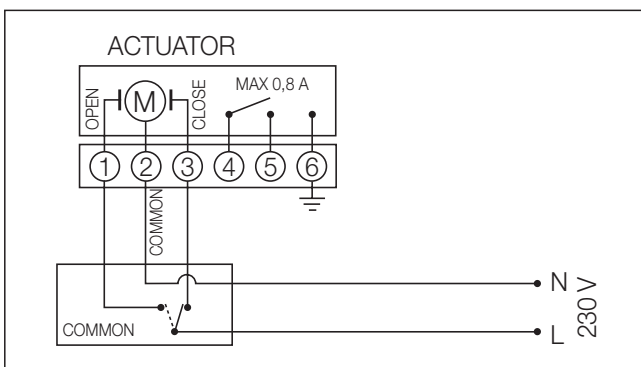


### Using the safety thermostat

The safety thermostat, equipped with a special quick-coupling connector, can be used to shut down the boiler and protect the panel circuit from dangerously high temperatures.



### Actuator electrical connection diagram



### Accessories



**161**

broch. 01122

Digital controller for heating and cooling complete with f/r probes. Control temperature range: 7–78°C. Electric supply: 230 V - 50 Hz. Protection class: IP 40. Sensor connection: 1/8" M. Length of probe cable: 0,55 m.

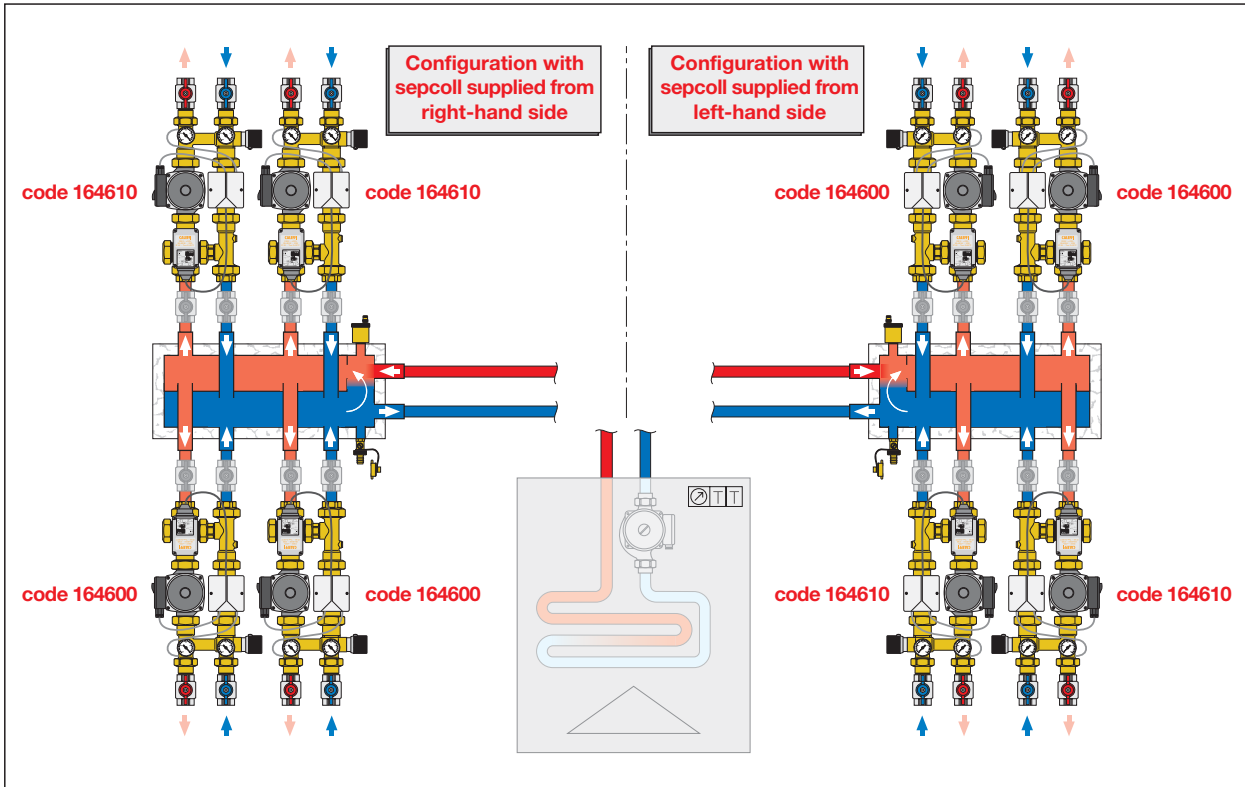


**1520**

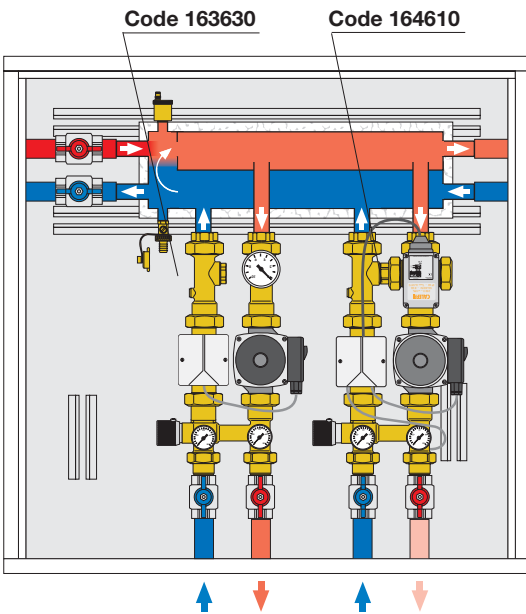
Outside compensated temperature controller complete with flow probe and outside probe. Setting range: 20–90°C. Electric supply: 230 V - 50 Hz. Protection class: IP 40.



## Installation - Exposed Sepcoll

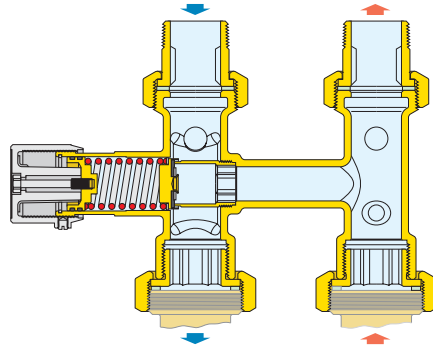


## Concealed Sepcoll

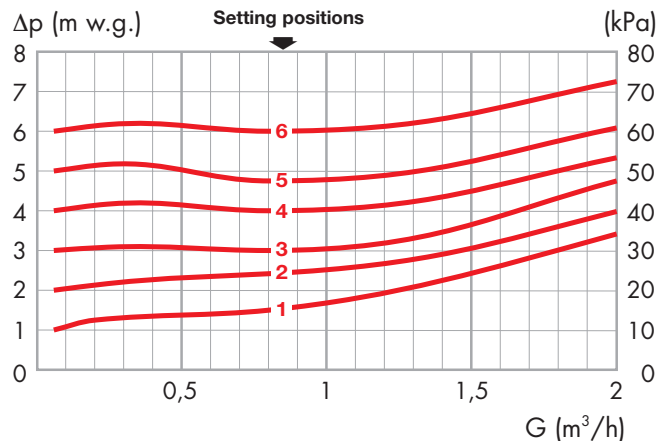


## Differential by-pass

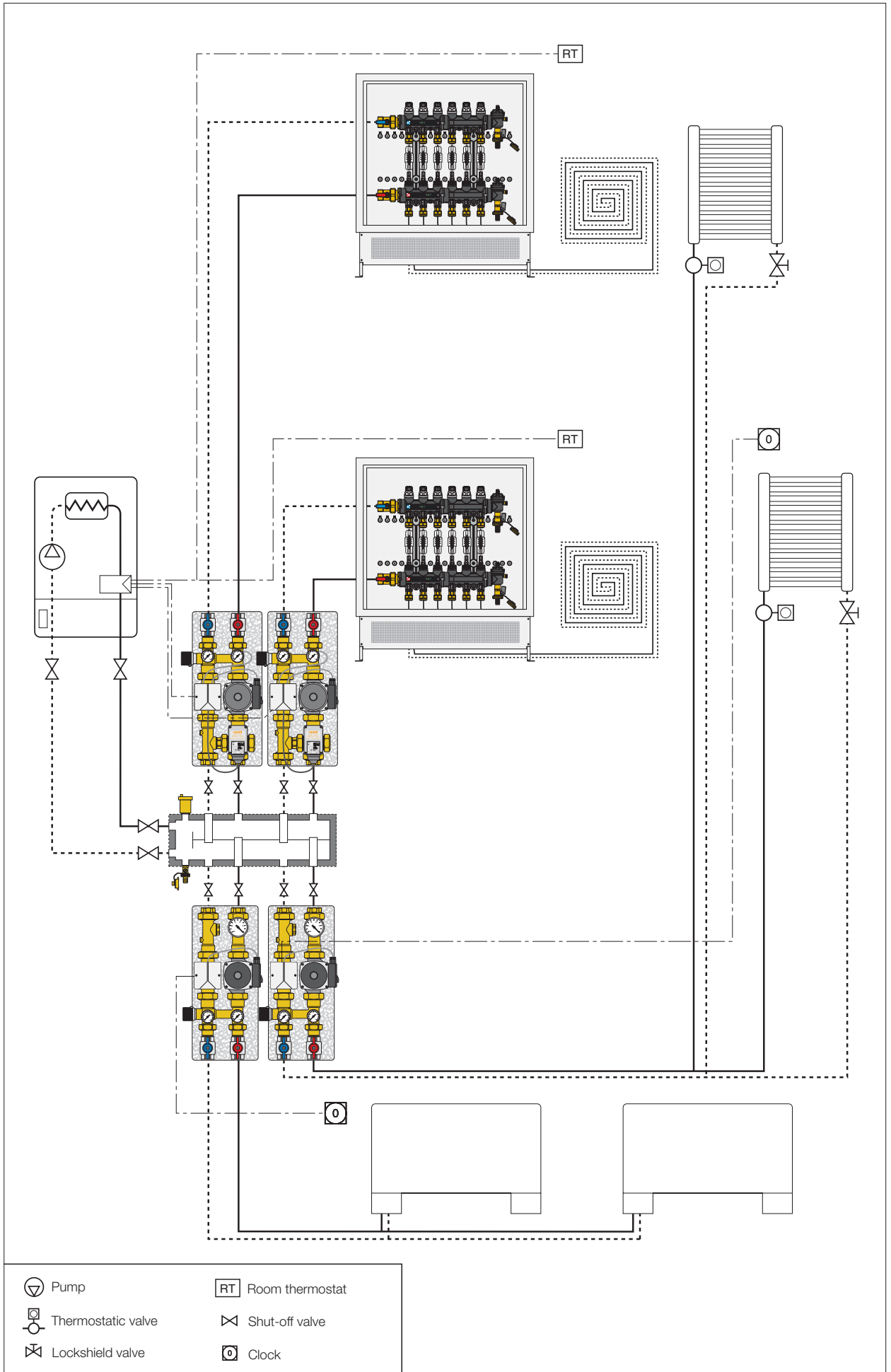
The differential by-pass valve is used to control the total head of water in the secondary supply circuit. When the set differential pressure value is reached, the obturator opens and allows fluid to pass from the supply to the return circuit, keeping the pressure differential at the set value. If the individual circuits are shut off by automatic two-way on/off, modulating or thermostatic valves, the valve prevents pump over-heating and excessive fluid velocity.

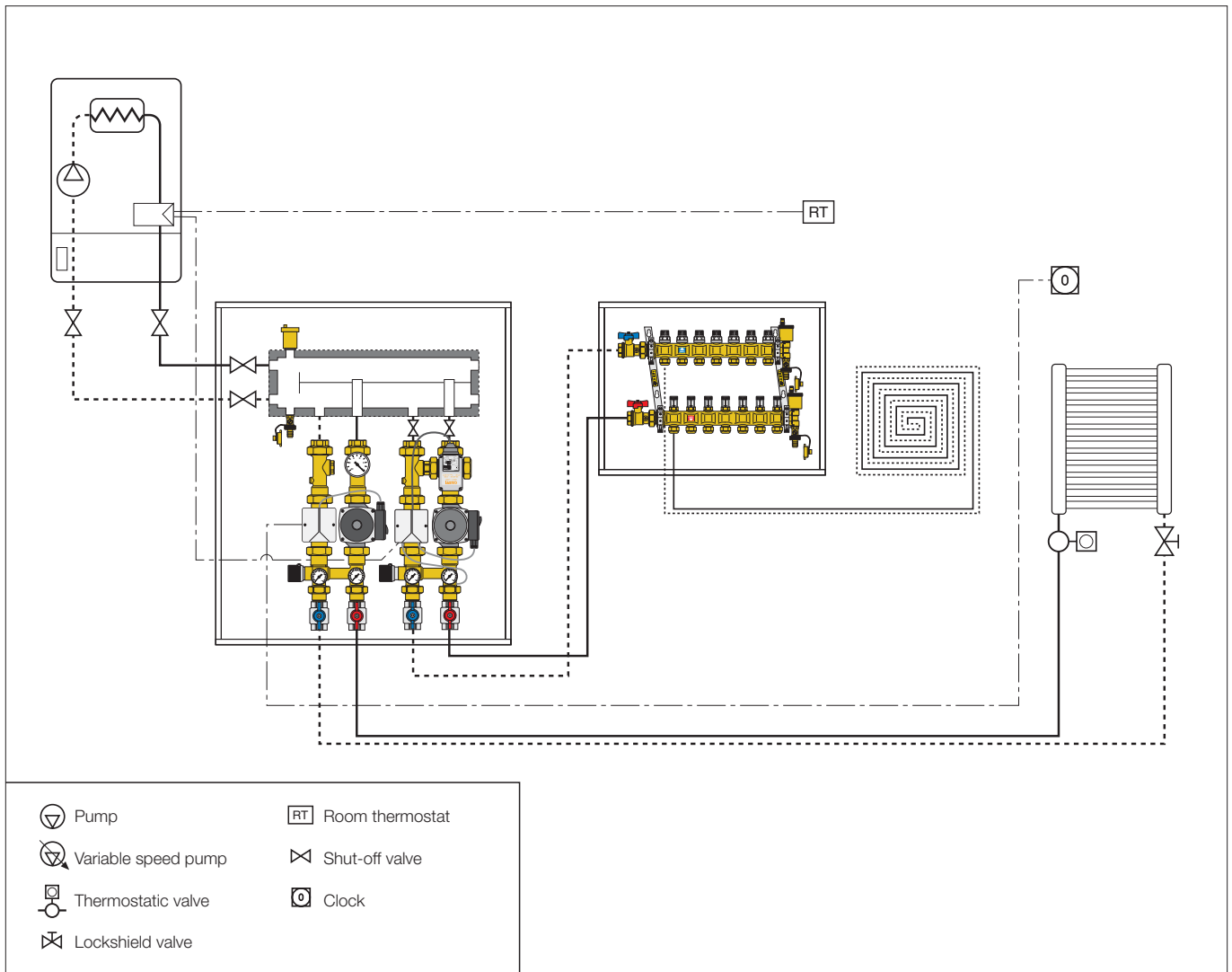


## By-pass hydraulic characteristics



**Application diagrams**





## SPECIFICATION SUMMARIES

### 164 series

Motorised temperature regulating unit for SEPCOLL 59 series. Configuration with bottom-up flow and supply right side (or supply left side). 1" F union connection to primary circuit. 1" F connection to secondary circuit. Centre distance between primary and secondary circuit connections 90 mm. Maximum temperature at inlet of primary circuit 100°C. Maximum working pressure 10 bar. Complete with: Three-way mixing valve, brass body, stainless steel obturator; Three-point actuator, electric supply 230 V - 50 Hz, protection class IP 44; Three-speed pump UPS 25-60, electric supply 230 V - 50 Hz, maximum ambient temperature 55°C, protection class IP 44; Temperature gauge scale 0-80°C; Differential by-pass valve, brass body, stainless steel spring, setting range 10-60 kPa; Shut-off valves on secondary circuit. With pre-formed shell insulation in expanded closed cell PE-X.

We reserve the right to make changes and improvements to the products and related data in this publication, at any time and without prior notice.



CALEFFI S.P.A. · I · 28010 FONTANETO D'AGOGNA (NO) · S.R. 229, N.25 · TEL. +39 0322 8491 R.A. · FAX +39 0322 863723

· [www.caleffi.com](http://www.caleffi.com) · [info@caleffi.com](mailto:info@caleffi.com) ·

© Copyright 2007 Caleffi S.P.A.