High-Style valves for designer heating systems Convertible radiator valves and lockshield valves

400 series.





Function

Convertible radiator valves and lockshield valves are typically used to shut off and balance the flow rate of medium on the terminal emitters of heating and cooling systems.

Thermostatic control heads, on the other hand, are used to automatically regulate the ambient temperature to the set value: for this reason convertible radiator valves can be transformed from manual to thermostatic simply by replacing the control knob with the thermostatic or electronic control head (for available couplings please refer to the accessories page).

The finish and special design of this series of products make them particularly suited to the aesthetic requirements of towel warmers.

Product range

WHITE FINISH

Code 400101 Convertible radiator valve and angled lockshield valve Code 400301 Convertible radiator valve and double-angled lockshield valve, right-side version Code 400311 Convertible radiator valve with central connection, right-side version Code 400401 Convertible radiator valve and double-angled lockshield valve, left-side version Code 400411 Convertible radiator valve with central connection, left-side version

HIGH CHROME FINISH

Code 400100 Convertible radiator valve and angled lockshield valve Code 400300 Convertible radiator valve and double-angled lockshield valve, right-side version Code 400310 Convertible radiator valve with central connection, right-side version Code 400400 Convertible radiator valve and double-angled lockshield valve, left-side version Code 400410 Convertible radiator valve with central connection, left-side version

BLACK FINISH

Code 400103 Convertible radiator valve and angled lockshield valve Code 400303 Convertible radiator valve and double-angled lockshield valve, right-side version Code 400313 Convertible radiator valve with central connection, right-side version Code 400403 Convertible radiator valve and double-angled lockshield valve, left-side version Code 400413 Convertible radiator valve with central connection, left-side version

* Can be coupled with series 437-447-679-681

size 1/2" radiator x 23 p.1,5 pipe* size 1/2" radiator x 23 p.1,5 pipe*

size 1/2" radiator x 23 p.1,5 pipe* size 1/2" radiator x 23 p.1,5 pipe* size 1/2" radiator x 23 p.1,5 pipe* size 1/2" radiator x 23 p.1,5 pipe* size 1/2" radiator x 23 p.1,5 pipe*

size 1/2" radiator x 23 p.1,5 pipe* size 1/2" radiator x 23 p.1,5 pipe* size 1/2" radiator x 23 p.1,5 pipe* size 1/2" radiator x 23 p.1,5 pipe* size 1/2" radiator x 23 p.1,5 pipe*

Technical specifications of valves and lockshield valves

| Materials: Body: | | brass EN 12165 CW617N finish: - code 4000: high chrome - code 4001: white RAL 9010 |
|---|------|--|
| Headwork: Obturator control stem and spri Lockshield valve obturator: Hydraulic seals: | ng: | - code 4003: black RAL 9005 brass EN 12164 CW614N stainless steel brass EN 12164 CW614N EPDM |
| Valve knob: | ABS, | finish: - code 4000: high chrome - code 4001: white RAL 9010 - code 4003: black RAL 9005 |
| Knob cap: PA, finish: | | - code 4000: high chrome - code 4001: white RAL 9010 - code 4003: black RAL 9005 |
| Lockshield valve knob: | | brass EN 12164 CW614N finish: - code 4000: high chrome - code 4001: white RAL 9010 |
| Pipe-cover shell: | ABS, | finish: - code 4000: high chrome - code 4001: white RAL 9010 - code 4003: black RAL 9005 |

Performance:

| Medium: water, glycol solutions | |
|--|-----------------|
| Maximum percentage of glycol: | 30 % |
| Maximum working pressure: | 10 bar |
| Maximum differential pressure with control fitted: | 1 bar |
| Thermal carrier medium working temperature range: | 5–100 °C |
| Valve and lockshield connections: | 1/2" x 23 p.1.5 |

Controls adjustment range 200 series

| 0 | * | 1 | 2 · · | ••3•• | • • 4 | 5 |
|------|------|-------|-------------------|-------|-------|-------|
| 5 °C | 7 °C | 12 °C | 16 [°] C | 20 °C | 24 °C | 28 °C |

Technical specifications of 200 series thermo-electric actuators

| Adjustment scale: | ≉–5 |
|-------------------------------|---------|
| Adjustment temperature range: | 7–28 °C |
| Frost protection cut-in: | ~ 7 °C |
| Maximum ambient temperature: | 50 °C |

Dimensions











Operating principle of thermostatic control head

The control device of the thermostatic valve is a proportional temperature regulator, composed of a bellows containing a specific thermostatic liquid.

As the temperature increases, the liquid increases in volume and causes the bellows to expand. As the temperature decreases, the inverse process occurs; the bellows contracts due to the thrust of the counter-spring. The axial movements of the sensitive element are transmitted to the valve actuator by means of the connecting stem, thereby adjusting the flow of medium in the heat emitter.

Construction details

Valve

The stainless steel control stem (1) has a double EPDM O-Ring seal (2) - (3). In this way the upper portion of the headwork (4) can be replaced even with the system running.

Valvola chiusa

Valvola

The obturator (5) is shaped so as to optimise the hydraulic characteristics of the valve during the progressive action of opening or closing in thermostatic operation.

The wide passage between the seat and obturator causes reduced pressure drops in manual operation.



Lockshield valve

The lockshield valve hydraulic seal is guaranteed by the use of EPDM O-Rings on the headwork (1) and on the control stem of the lockshield (2), while the O-Ring on the obturator (3) permits full closure of the radiator, if necessary.



1

Γ

2

Tailpiece with rubber seal

The radiator connection thread coupling tailpiece is equipped with a special shaped rubber ring (1). This system ensures a hydraulic seal without using additional sealing materials such as hemp or PTFE tape.

A perfect hydraulic seal with the valve body is, however, ensured by the double O-Ring (2).

Use with towel warmers with central connection

The adjacent figure shows the **HIGH**-**STYLE** valve installation process for towel warmers with a central connection, leftside version, which can also be fitted with a thermostatic control head.



Valve and lockshield coupling with towel warmer

The coupling between valve/ lockshield and towel warmer must be made using the specific watertight tailpiece (1a), which should be screwed onto the radiator using the wrench for Caleffi unions code 387127.

On completing the coupling, lock the valve to the tailpiece by screwing the grub screw into the hole shown.







Telescopic pipe-cover shell

A telescopic chrome plated or white - depending on the model - pipe-cover shell is supplied in the package to provide a decorative covering for the length of the connection between the valve/lockshield and piping.

The coupling between the shell and valve body is telescopic in order to adjust the distances between the valves/lockshields and the wall structure from which the piping originates. Max. extension 25 mm. Lastly, the shell is secured to the valve with its specific screw.





Interchangeable lockshield and valve headworks

With the system already installed there could be the drawback of having swapped over the flow and return, causing malfunctioning

and noise. To get round this problem it is possible, with the system empty, to swap over the two headworks (A) and (B) of the valves.



Hydraulic characteristics

Convertible radiator valves with angled connections, HIGH-STYLE, with manual adjustment: code 400100/400101/400103



Convertible radiator valves with angled connections, HIGH- Convertible radiator valves with double square connections, STYLE, with thermostatic regulation, 2K proportional band: code 400100 + 200013/200015

code 400101 + 205000/205005



HIGH-STYLE lockshield valves, angled connections: - code 400100/400101/400103



Convertible radiator valves with double square connections, HIGH-STYLE, with manual adjustment: code 400300/400400/400301/400401/400303/400403 and with central connection, with manual adjustment:

code 400310/400410/400311/400411/400313/400413



HIGH-STYLE, with thermostatic regulation:

- code 400300/400400 + 200013/200015
- code 400301/400401 + 205000/205005 and with central connection, with thermostatic regulation:
- code 400310/400410 + 200013/200015
- code 400311/400411 + 205000/205005



HIGH-STYLE lockshield valves, double square connections:

- code 400300/400400/400301/400401/400303/400403 and with central connection:
- code 400310/400410/400311/400411/400313/400413



System sizing

To correctly size the system operating with thermostatic control, the valves are normally selected by identifying the pressure drop according to the flow rate in the 2K diagrams shown above (adjustment with 2K proportional band).

Valve conversion from manual to thermostatic



Before installing the thermostatic control head, turn turn the knob into the fullyopen position (Pos. 5).



Operations to carry out before fitting the tamper-proof cap

Temperature restriction



1. Turn the knob to the fully-open position (Pos. 5). Use a screwdriver to release the locking nut and push it towards the valve body until it is fully up against it.



2. Turn the knob to the new desired fully open position (example pos. 3). Turn the locking nut counterclockwise to its limit.



3. Re-engage the locking nut. The valve is now set for temperature limiting in the temperature range between 0 and the new set value.

Locking the temperature



1. Turn the knob to the fully-open position (Pos. 5). Use a screwdriver to release the locking nut and push it towards the valve body until it is fully up against it.

Resetting the restriction and temperature locking



1. Use a screwdriver to release the locking nut and push it towards the valve body until it is fully up against it.



2. Set the valve to the desired temperature and turn the locking nut clockwise, to its limit.



3. Re-engage the locking nut. The valve is now locked at the new temperature setting.



3. Re-engage the locking nut. The valve now has no limit or lock settings.



knob to its fully opened position, and the locking nut counterclockwise, to its limit. The RESET

arrows will match.

Tamper-proof and anti-theft cap

The tamper-proof and anti-theft version of the thermostatic control head is obtained by fitting the relevant cap on the knob as shown below. It is secured with two screws equipped with a special head that can only be tightened by using the special wrench.



Accessories

215510

Comfort control

Wireless electronic control for thermostatic or convertible radiator valves.

Operates through Gateway, Gateway PRO, the CALEFFI CODE $^{\circ}$ app and the front buttons.

Built-in temperature sensor.

Radio communication: RF 868 MHz.

Quick-coupling installation with adapter. Battery electric supply: 2 x 1,5 V AA (supplied in pack).

,5 V AA (supplied in pack). Compatible with rechargeable batteries. Protection class: IP 30. Ambient temperature: 0–55 °C. White RAL 9003.







200015

Thermostatic control head for convertible radiator valves for towel warmers; built-in sensor with liquid-filled element. For valves in the 4001, 4003, 4004 and 3380

series. **High chrome finish**.

Graduated scale for adjustment from * to 5, corresponding to a temperature range of 7 °C to 28 °C.

With adapter, tamper-proof cap and cap tightening wrench.



209004

Tamper-proof and anti-theft cap for public installations. For 200 series thermostatic control head. **High chrome finish**.

To be used with tamper-proof key, code 209001.

209001

Special wrench for tightening tamper-proof anti-theft cap. For use with tamper-proof cap, 209 series.

215510 BLK

Comfort control

Wireless electronic control for thermostatic or convertible radiator valves. Operates through Gateway, Gateway PRO, the CALEFFI CODE® app

and the front buttons. Built-in temperature sensor. Radio communication: RF 868 MHz.

Quick-coupling installation with adapter. Battery electric supply: 2 x 1,5 V AA (supplied in pack).

Compatible with rechargeable batteries. Protection class: IP 30. Ambient temperature: 0–55 °C. Colour black RAL 9005.



CE



205005

Thermostatic control head for convertible radiator valves for towel warmers; built-in sensor with liquid-filled element.

For valves in the 4001, 4003, 4004 series. White finish.

Graduated scale for adjustment from * to 5, corresponding to a temperature range of 7 °C to 28 °C. With adapter temper proof con and con

With adapter, tamper-proof cap and cap tightening wrench.



209000

Tamper-proof and anti-theft cap for public installations. For 200, 202, 205 series and code 199000 CNT thermostatic control heads. **To be used with tamper-proof key, code** 209001

387127

Universal key. Can be used for unions from 3/8" to 1".

200013



Thermostatic control head for convertible radiator valves for towel warmers; built-in sensor with liquid-filled element. For valves in the 4001, 4003, 4004 and 3380 series.

High chrome finish.

Graduated scale for adjustment from to 5, corresponding to a temperature range of 7 °C to 28 °C. With adapter.



205000

Thermostatic control head for convertible radiator valves for towel warmers; built-in sensor with liquid-filled element. For valves in the 4001, 4003, 4004 series. White finish

Graduated scale for adjustment from to 5, corresponding to a temperature range of 7 °C to 28 °C. With adapter.





SPECIFICATION SUMMARIES

4001 series

Convertible radiator valve and lockshield valves, HIGH-STYLE, with angled connections, for towel warmers, white finish (high chrome or black); valve fitted for thermostatic and thermo-electric control heads. Pipe connection 23 p.1,5. Connection to radiator 1/2" M with nipples, equipped with EPDM sealing gasket. Brass valve body, white finish (high chrome or black). ABS knob, white finish (high chrome or black). Obturator control stem and spring in stainless steel. EPDM hydraulic seals. Brass lockshield valve body, white finish (high chrome or black). Brass obturator. Brass knob, white finish (high chrome or black). ABS pipe-covering shell, white finish (high chrome or black). Allen key for tightening valve. Medium water and glycol solutions; max. percentage of glycol 30 %. Maximum working pressure 10 bar. Maximum differential pressure with control head fitted 1 bar. Working temperature range: 5–100 °C.

4003 series

Convertible radiator valve and lockshield valves, HIGH-STYLE, with double-angled connections for towel warmers, right-side version, white finish (high chrome or black); valve fitted for thermostatic and thermo-electric control heads. Pipe connection 23 p.1,5. Connection to radiator 1/2" M with nipples, equipped with EPDM sealing gasket. Brass valve body, white finish (high chrome or black). ABS knob, white finish (high chrome or black). Obturator control stem and spring in stainless steel. EPDM hydraulic seals. Brass lockshield valve body, white finish (high chrome or black). Brass obturator. Brass knob, white finish (high chrome or black). ABS pipe-covering shell, white finish (high chrome or black). Allen key for tightening valve. Medium water and glycol solutions; max. percentage of glycol 30 %. Maximum working pressure 10 bar. Maximum differential pressure with control head fitted 1 bar. Working temperature range: 5–100 °C.

4004 series

Convertible radiator valve and lockshield valves, HIGH-STYLE, with double-angled connections for towel warmers, left-side version, white finish (high chrome or black); valve fitted for thermostatic and thermo-electric control heads. Pipe connection 23 p.1,5. Connection to radiator 1/2" M with nipples, equipped with EPDM sealing gasket. Brass valve body, white finish (high chrome or black). ABS knob, white finish (high chrome or black). Obturator control stem and spring in stainless steel. EPDM hydraulic seals. Brass lockshield valve body, white finish (high chrome or black). Brass obturator. Brass knob, white finish (high chrome or black). ABS pipe-covering shell, white finish (high chrome or black). Allen key for tightening valve. Medium water and glycol solutions; max. percentage of glycol 30 %. Maximum working pressure 10 bar. Maximum differential pressure with control head fitted 1 bar. Working temperature range: 5–100 °C.

Code 215510/215510 BLK

Wireless electronic control for thermostatic or convertible radiator valves.

Operates through the front buttons, Gateway PRO and Caleffi CODE[®] app. Built-in temperature sensor: NTC type with \pm 0,5 °C accuracy. Radio communication: RF 868 MHz. Quick-coupling installation with adapter. Battery electric supply: 2 x 1,5 V AA (included in pack). Compatible with rechargeable batteries. Protection class IP 30. Colour: white RAL 9003 (code 215510), black RAL 9005 (code 215510 BLK). Ambient temperature 0–55 °C. Storage temperature (with batteries) 10–25 °C.

Code 205005

Thermostatic control head for HIGH-STYLE convertible radiator valves for towel warmers. Built-in sensor with liquid-filled element. White finish. Maximum working pressure 10 bar. Maximum differential pressure with control head fitted 1 bar. Working temperature range: 5–100 °C. Maximum ambient temperature 50 °C. Graduated scale from % to 5, corresponding to a working temperature range of 7 to 28 °C, with the option of locking and restricting the temperature. Frost protection cut-in ~7 °C. Tamper-proof and anti-theft cap code 209000 for thermostatic control head, for use in public sites, white finish. Special key code 209001 for tightening the tamper-proof anti-theft cap. With adapter.

Code 205000

Thermostatic control head for HIGH-STYLE convertible radiator valves for towel warmers. Built-in sensor with liquid-filled element. White finish. Maximum working pressure 10 bar. Maximum differential pressure with control head fitted 1 bar. Working temperature range: 5–100 °C. Maximum ambient temperature 50 °C. Graduated scale from % to 5, corresponding to a working temperature range of 7 to 28 °C, with the option of locking and restricting the temperature. Frost protection cut-in ~7 °C.

Code 200015

Thermostatic control head for HIGH-STYLE convertible or thermostatic radiator valves for towel warmers. Built-in sensor with liquid-filled element. Shiny chrome finish. Maximum working pressure 10 bar. Maximum differential pressure with control head fitted 1 bar. Working temperature range: 5–100 °C. Maximum ambient temperature 50 °C. Graduated scale from % to 5, corresponding to a working temperature regulation range of 7 to 28 °C, with the option of locking and restricting the temperature. Frost protection cut-in ~7 °C.

Tamper-proof and anti-theft cap code 209004 for thermostatic control head, for use in public sites, high chrome finish. Special key code 209001 for tightening the tamper-proof anti-theft cap. With adapter.

Code 200013

Thermostatic control head for HIGH-STYLE convertible or thermostatic radiator valves for towel warmers. Built-in sensor with liquid-filled element. Shiny chrome finish. Maximum working pressure 10 bar. Maximum differential pressure with control head fitted 1 bar. Working temperature range: 5–100 °C. Maximum ambient temperature 50 °C. Graduated scale from to 5, corresponding to a working temperature regulation range of 7 to 28 °C, with the option of locking and restricting the temperature. Frost protection cut-in ~7 °C. With adapter.

Code 387127

Universal key. Can be used for unions from 3/8" to 1"

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