

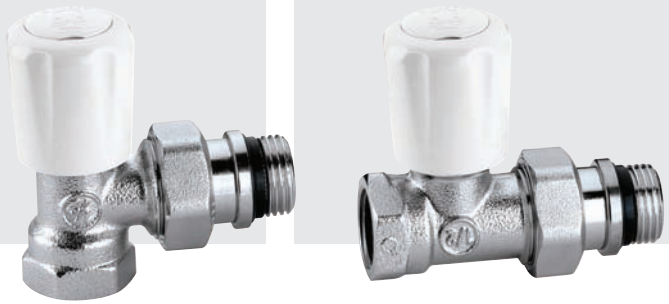
pre-settable

commercial radiator valves



altecnic

pre-settable radiator valves



Design

The Altecnic range of pre-settable radiator valves are suitable for use with the ecocal manual handwheel operator or thermostatic controller.

They are used to control the room temperature by regulating the flow of hot water into the radiator or other heat emitter.

The maximum flowrate to each radiator can be pre-set enabling the temperature in each room to be controlled individually, thus saving energy.

When used with a thermostatic controller the ambient temperature in the room will automatically be kept constant, at the set temperature, thus saving energy.

Their aesthetic design satisfies the requirements of modern commercial buildings and domestic interiors.

With chrome plated bodies with white controllers they match other valves in the ecocal range and give an unobtrusive appearance and complements most decors.

The inlet connection to all valves is a female pipe thread to BS EN 228 for use with steel pipe or an adaptor for other pipe systems.

The outlet connection is a union tailpipe with an 'O' ring and external pipe thread to BS EN 228.

Supplied with manual cap for stem protection and manual isolation.

Altecnic thermostatic radiator valves are BS EN 215 certified.

Thermostatic Radiator Valves - TRV

Thermostatic radiator valves are typically used for regulating the flow to radiators of central heating systems. They can also be used with a remote sensor to control the flow to heated ceilings and fancoils.

The thermostatic controller contains a liquid filled element which automatically controls the opening of the valve to keep the ambient temperature of the room at the set temperature.

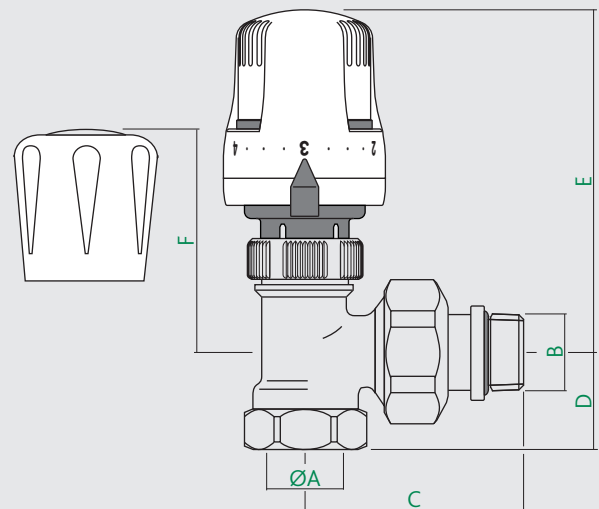
This prevents temperature fluctuations in the room and achieves considerable energy savings.

The thermostatic controller has a '0' setting which prevents flow but when positive isolation is required the manual cap must be used.

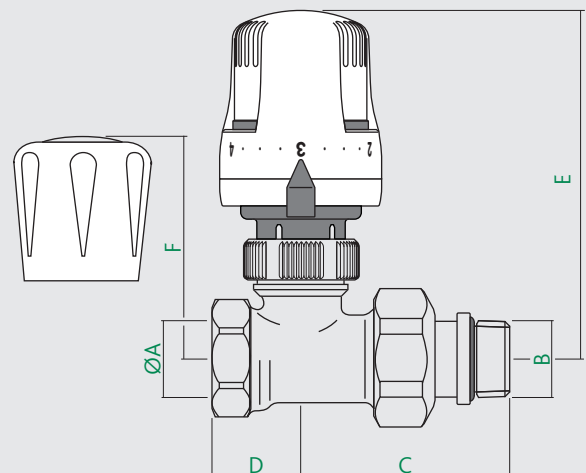
The frost setting prevents the radiator and pipework from freezing and causing damage from flooding to floor coverings and structural items.

Note: For the frost setting to operate the heating system must be switched on.

Dimensions



| Prod Code | A | B | C | D | E | F |
|-----------|----|----|------|----|-----|------|
| 421402* | R½ | R½ | 53.5 | 23 | 100 | 51.5 |



| Prod Code | A | B | C | D | E | F |
|-----------|----|----|----|----|-----|----|
| 422402* | R½ | R½ | 52 | 22 | 103 | 55 |

* Body only

Operators

| Prod Code | Description |
|-----------|--------------------------------|
| 200001 | ecocal handwheel operator |
| CA-200000 | ecocal thermostatic controller |

pre-settable radiator valves

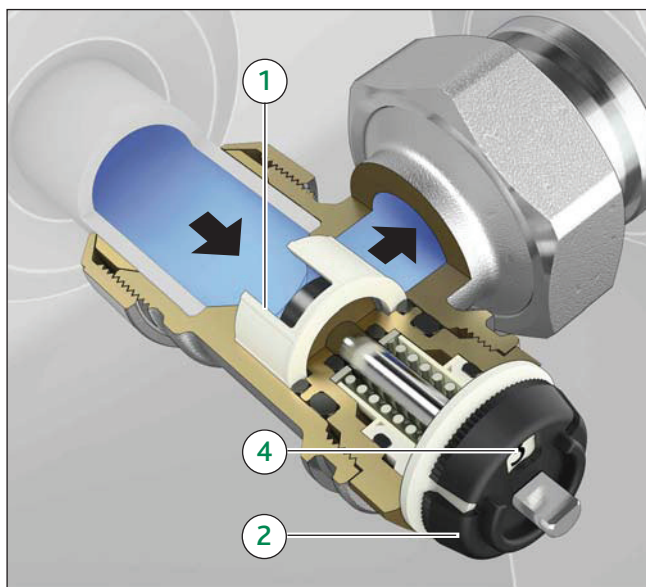
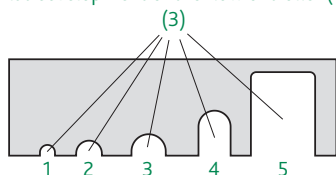
Operating Principle

The Altecnic pre-settable radiator valve has an internal flow controller (1) which determines the head loss characteristics of the valve.

The flow controller (1) has predetermined flow passages or 'orifices' (3) which are selected by rotating the selection disc (2) to create the required resistance.

Each flow passage or 'orifice' (3) as a predetermined cross section to create a specific Kv value, which corresponds to the setting positions on the indicator (4) visible through the window in the selection disc (2).

Flat development of the flow controller (1)



The Altecnic pre-settable radiator valve is multi-functional capable of regulating and isolating the flow in the circuit, with the pre-setting feature performing the same balancing function as a lockshield radiator valve.

The valve can be fitted with a manual handwheel operator, an Altecnic standard thermostatic controller or a thermoelectric actuator.

When fitted with the thermostatic controller or thermoelectric actuator the valve operates as a 2-port control valve, making it ideally suited to control independent circuits when used with a variable speed pump in a variable volume heating system.

Materials of Construction

| | | |
|----------------------|-----------------------------|---------------------------------------|
| Body | Brass | BS EN 12165 CW617N |
| Union nut | Brass | BS EN 12164 CW617N |
| Tailpiece | Brass | BS EN 12164 CW614N |
| Stem | Stainless Steel | |
| Seals - 'O' rings | EPDM | |
| TRV insert assembly | Brass with EPDM disc facing | |
| Manual operator | Thermoplastic | ABS (RAL 9010) ABS - chrome finish |
| TRV controller cover | Thermoplastic | ABS (RAL 9010) ABS - chrome finish |
| Body finish | Chrome Plated | |

Technical Specification

| | |
|---------------------------------|------------------------|
| Max. working pressure (static): | 10 bar |
| Max. temperature: | 100 °C |
| Medium: | water, glycol solution |
| Max percentage of glycol: | 30% |

TRV Specification

| | |
|-----------------------------|------------|
| Max. differential pressure: | 1 bar |
| Scale of adjustment: | 0 to V |
| Temperature range: | 0 to 28 °C |
| Frost setting: | 7 °C |
| Max. ambient temperature: | 50 °C |
| Liquid filled element | |

TRV Accessories

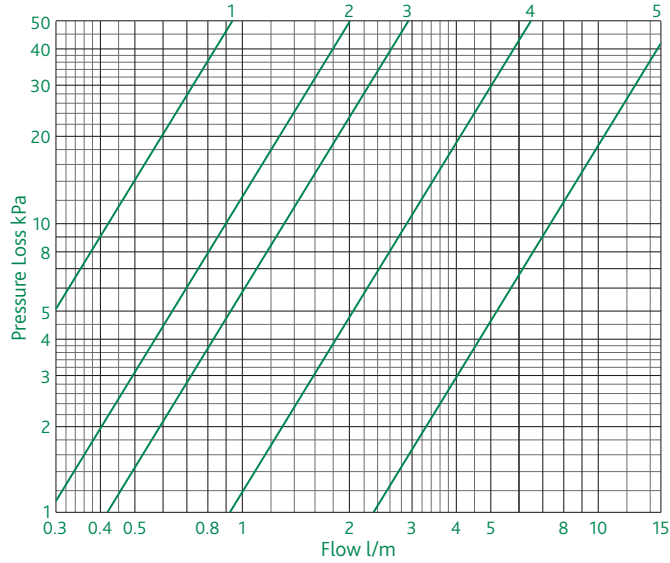
A range of accessories are available to compliment the Altecnic radiator valve range, to suit site conditions or applications.

- Remove sensor with 2m capillary - used when the thermostatic head is situated behind curtains or furniture.
Product Code: 2m 201000
- Remote transmitter with 2m capillary - the thermostatic element is mounted away from the valve body which may be concealed or in the ceiling space.
Product Code: 2m 472000
- 220v thermoelectric actuator
Product Code: 656102
- 24v thermoelectric actuator
Product Code: 656104
- Tamperproof guard - for addition securing between the valve body and thermostatic head.
Product Code: CA-100793

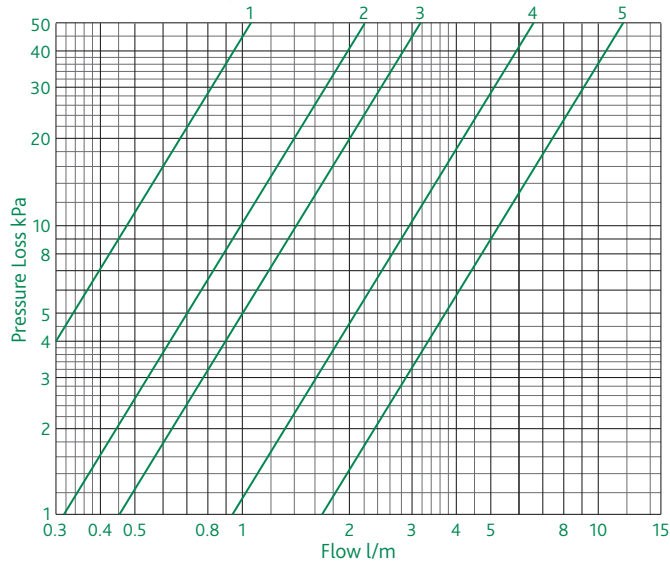
pre-settable radiator valves

Hydraulic characteristics

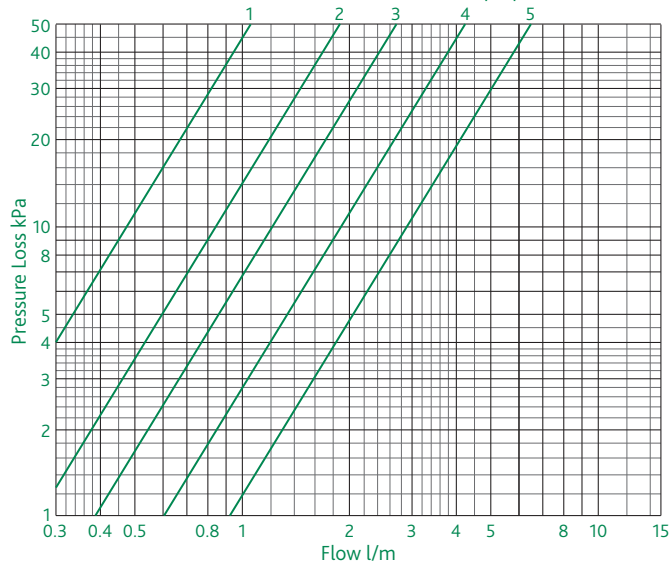
Pre-settable radiator angled valve with handwheel








Pre-settable radiator straight valve with handwheel













Pre-settable radiator valve with thermostatic controller, proportional band 2K



Hydraulic characteristics

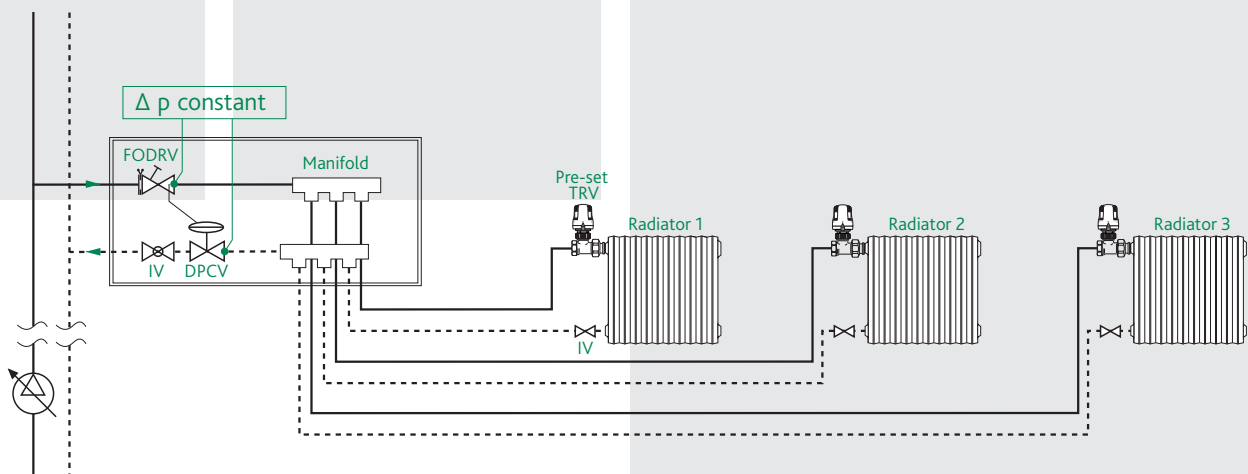
| Pre-setting Position | Kv (m ³ /h) Valve Fully Open Angled |
|---|--|
| 1  | 0.08 |
| 2  | 0.17 |
| 3  | 0.25 |
| 4  | 0.55 |
| 5  | 1.40 |

| Pre-setting Position | Kv (m ³ /h) Valve Fully Open Straight |
|---|--|
| 1  | 0.09 |
| 2  | 0.19 |
| 3  | 0.27 |
| 4  | 0.56 |
| 5  | 1.00 |

| Pre-setting Position | Kv (m ³ /h) P Band 2K Angled & Straight |
|---|--|
| 1  | 0.09 |
| 2  | 0.16 |
| 3  | 0.23 |
| 4  | 0.36 |
| 5  | 0.55 |

pre-settable radiator valves

Setting selection



Consider a simple radiator circuit consisting of;

FODRV = fixed orifice double regulating valve or similar balancing valve with connection for impulse tube.

DPCV = differential pressure control valve.

IV = isolating valve.

Pair of manifolds.

Pre-settable radiators valves fitted with thermostatic controllers.

Impulse tube = small bore copper pipe connecting the DPCV to the flow pipe.

The DPCV is set to maintain a constant 20 kPa across the circuit.

The FODRV is regulated to give the design flowrate.

Pressure will be lost through the manifolds, pipes and fittings.

Assume the designer has determined the following conditions

Radiator 1 = 1.33 l/m and a pressure loss of 11.5 kPa

Radiator 2 = 1.9 l/m and a pressure loss of 6.5 kPa

Radiator 3 = 3.33 l/m and a pressure loss of 13.2 kPa

The TRV on the least favoured circuit, radiator 3 is often set fully open, setting 5.

Kv can be calculated from the formula

$$Kv = (Q * 6/100) / \sqrt{(\Delta p/100)} \quad \text{where } Q = \text{flow rate in l/m}$$

$$\Delta p = \text{pressure lose on kPa}$$

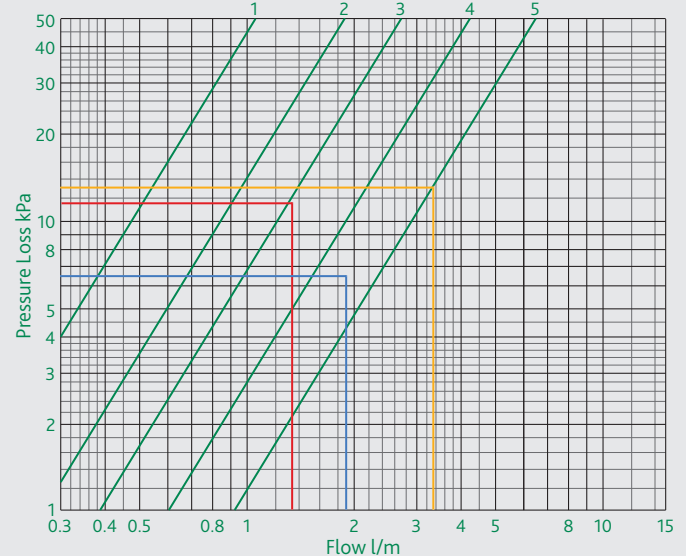
$$\text{Radiator 1 } Kv = (1.33 * 6/100) / \sqrt{(11.5/100)} = 0.236 = \text{Setting 3}$$

$$\text{Radiator 2 } Kv = (1.9 * 6/100) / \sqrt{(6.5/100)} = 0.447 = \text{Setting 5}$$

$$\text{Radiator 3 } Kv = (3.33 * 6/100) / \sqrt{(13.25/100)} = 0.550 = \text{Setting 5}$$

Alternatively the flow data chart for 2K proportional band can be used to determine the set positions.

Pre-settable radiator valve with thermostatic controller, proportional band 2K



Radiator 1 = Setting 3

Radiator 2 = Setting 5

Radiator 3 = Setting 5

E & O.E

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