



## Drayton RT414 Two Pipe Thermostatic Radiator Valves With Automatic Balancing Instructions

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# Drayton

by **Schneider** Electric

RT414 Two Pipe Thermostatic Radiator Valves With Automatic Balancing Instructions



## Two-pipe Thermostatic Radiator Valves with automatic balancing

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## RT414 Two Pipe Thermostatic Radiator Valves With Automatic Balancing

### Installation and operating instructions

**Approved to EN215:** All Drayton Thermostatic Radiator Valves are approved to the European Standard EN215.

**Quality Standards:** All Drayton Thermostatic Radiator Valves are manufactured in factories assessed and certified to BS EN ISO 9001.

### General description

Drayton's auto-balancing TRVs maintain a constant flow rate in the radiator regardless of changes in system pressure or other TRVs in the system opening and closing. As such they help to avoid cold spots in the home and contribute to improved boiler efficiency.

### Description of operation

The auto-balancing valves contain a cartridge which maintains flow rate through the radiator at all times. Note that the valve must simply be set according to the output of the radiator to ensure that each radiator receives the correct flow of water at all times.

### Installation

**IMPORTANT:** observe the flow direction indicated on the side of the valve.

When filling and commissioning the system ensure that valve insert is in commissioning position (the valve is delivered in the commissioning position).

Use the balancing key 07 35 162 or a 11mm spanner to adjust the hex at the top of the valve insert and align setting value with index mark according to the table in this document. This will ensure that the radiators always receive the correct flow regardless of system pressure and other valves opening and closing.

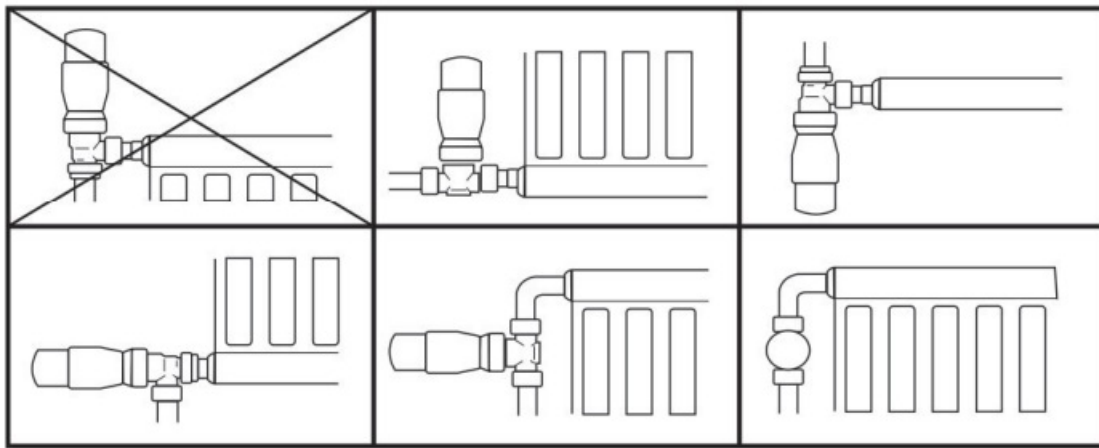
The lock shield should be fully open and only used only to isolate the radiator.

### Mounting

When using jointing compound, care must be taken to avoid any excess being transferred to the valve seat, as this could cause malfunction of the valve.

DO NOT FIT CAPILLARY FITTINGS near to these valves as excessive heat from a blowtorch may damage the internal valve components. The maximum temperature of the thermostatic head is 50° C.

### Integral TRVs



Setting values with different radiator performances and system differential temperatures

$\dot{Q}$ [W]	$\Delta t = 10$ K	$\Delta t = 15$ K	$\Delta t = 20$ K	<b>Example:</b> $\dot{Q} = 1000$ W $\Delta t = 15$ K Setting value: 6 ( $\approx 60$ l/h)  1 = 10 l/h .. 5 = 50 l/h ... 10 = 100 l/h ... 15 = 150 l/h  $\Delta p$ min. 10–100 l/h = 0.1 bar  $\Delta p$ min. 100–150 l/h = 0.15 bar  $\Delta p$ max. = 0.6 bar
200	2	1	1	
250	2	1	1	
300	3	2	1	
400	3	2	2	
500	4	3	2	
600	5	3	3	
700	6	4	3	
800	7	5	3	
900	8	5	4	
1000	9	6	4	
1200	10	7	5	
1400	12	8	6	
1600	14	9	7	
1800	15	10	8	
2000		12	9	
2200		13	10	
2400		14	10	
2600		15	11	
2800			12	
3000			13	
3200			14	
3400			15	

O = Radiator performance,  $\Delta t$  = System differential temperature,  $\Delta p$  = Differential pressure  
 1 W = 3.4120 BTU/h

## General considerations on balancing

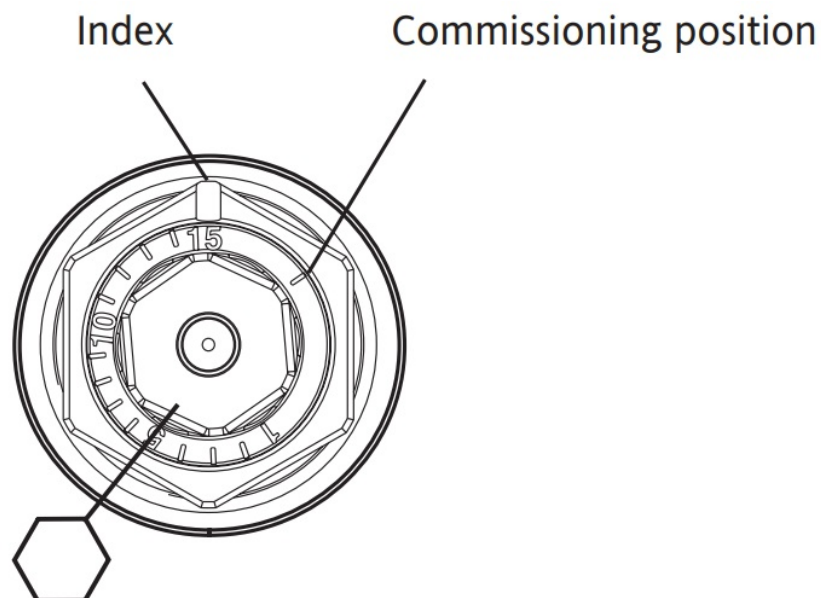
- Unnecessarily higher return water temperatures reduce the operational efficiency of the heat source.
- Unbalanced systems can result in radiators not heating up properly, causing hot and cold spots to emerge within a property.

- Unbalanced, ineffective heating system leads to consumer dissatisfaction.
- Manual balancing is accurate only for a single set of conditions; when TRVs start to close the flow rate will increase on the other radiators.
- Settings can be lost when decorating or replacing radiators.
- Balancing with a Lock shield valve is less than precise due to unsuitable valve authority.

### Solutions:

- Installing a modulating pump and setting to the lowest setting that will achieve the correct  $\Delta T$  drop across index circuit.
- Installing Automatic Balancing TRVs to always deliver the required flow rate and achieve the correct  $\Delta T$  across all radiators. Any radiator acting as a bypass and is always ON should also have an auto-balancing valve fitted.

When draining/refilling or cleaning the system always leave the valves in their commissioning position (as supplied) before setting according to the individual radiator output.



If the output of the radiator is not known please use the setting position calculator on the Drayton website, here:



<https://www.draytoncontrols.co.uk/calculator>

You'll also find further help and advice on radiator balancing.



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## Documents / Resources

	<p><a href="#">Drayton RT414 Two Pipe Thermostatic Radiator Valves With Automatic Balancing</a> [pdf] Instructions</p> <p>RT414, RT414 Two Pipe Thermostatic Radiator Valves With Automatic Balancing, Two Pipe Thermostatic Radiator Valves With Automatic Balancing, Thermostatic Radiator Valves With Automatic Balancing, Radiator Valves With Automatic Balancing, Automatic Balancing</p>
	<p><a href="#">Drayton RT414 Two Pipe Thermostatic Radiator Valves With Automatic Balancing</a> [pdf] Instruction Manual</p> <p>RT414, RT414 Two Pipe Thermostatic Radiator Valves With Automatic Balancing, Two Pipe Thermostatic Radiator Valves With Automatic Balancing, Thermostatic Radiator Valves With Automatic Balancing, Radiator Valves With Automatic Balancing, Automatic Balancing</p>
	<p><a href="#">Drayton RT414 Two Pipe Thermostatic Radiator Valves With Automatic Balancing</a> [pdf] Instruction Manual</p> <p>RT414, RT414 Two Pipe Thermostatic Radiator Valves With Automatic Balancing, Two Pipe Thermostatic Radiator Valves With Automatic Balancing, Thermostatic Radiator Valves With Automatic Balancing, Radiator Valves With Automatic Balancing, Automatic Balancing</p>

## References

- [D Drayton Controls | Heating controls, TRVs and thermostats](#)
- [D Radiator Calculator | Drayton Controls : Heating controls, TRVs and thermostats](#)