

## Thermostatic regulator for domestic hot water recirculation circuits

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**116 AUS series**

### Installation, commissioning and servicing instructions

#### Function

The thermostatic regulator, installed on each return branch of the recirculation circuit, automatically maintains the set temperature. This device modulates the medium flow rate in accordance with the water inlet temperature by means of the action of a dedicated internal thermostatic cartridge. When the water temperature approaches the set value, the obturator progressively reduces the passage. The medium flow rate supplied by the recirculation pump is thus distributed to the other network branches, resulting in effective automatic thermal balancing. If necessary, the regulator can be upgraded or selected with a thermal disinfection function, which is useful if the system temperature is to be increased to values over 55–60 °C.

#### Product range



**116141** AUS DN 15 (1/2")

**116151** AUS DN 20 (3/4")

**W**  
**Lead Free**  
WMTS 468  
WM-040195



**116010**

*included as standard  
on 116141/51 AUS*



**116000** AUS

*optional*



**656...**

*actuator optional*

Technical specifications

Materials

Body:	dezincification resistant alloy EN 12165 CW724R
Adjustable cartridge:	PSU
Hydraulic seals:	EPDM
Adjustment knob:	ABS
Springs:	stainless steel EN 10270-3 (AISI 302)

Connections

	1/2" F (EN 10226-1)
	3/4" F (EN 10226-1)
Thermometer/probe pocket:	Ø 10 mm

Performance

Kv max (m³/h):	1,8
Kv dis (m³/h):	1
Kv min (m³/h) at 58 °C (DN 20):	0,120 ±20 %
Kv min (m³/h) at 58 °C (DN 15):	0,100 -20 %
Kv (Δt = 5K) (m³/h):	0,45
Max. working pressure:	1600 kPa
Max. differential pressure:	100 kPa
Adjustment temperature range:	40–65 °C
Factory setting:	52 °C
Max. inlet temperature:	90 °C
Disinfection temperature (when available on specific version):	70 °C
Closing temperature (when available on specific version):	75 °C

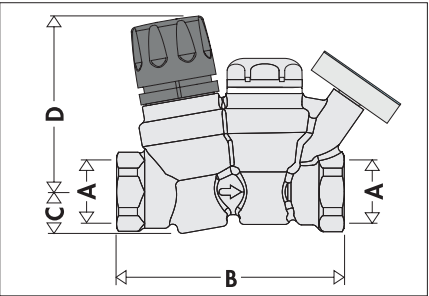
Temperature gauge

Scale 0–80°C.

Ø 40 mm

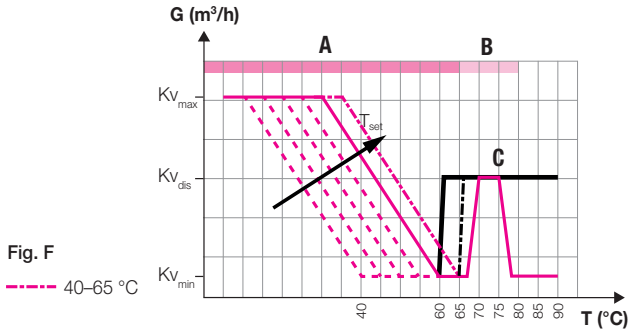
Complies with: WMTS468:2016 Hot Water System. Recirculation valves  
It complies with WMK Lead Free and Clause A5G4 of NCC 2022 Volume Three  
(Plumbing Code of Australia)

Dimensions



A	B	C	D
1/2"	100	18,5	74,5
3/4"	100	18,5	74,5

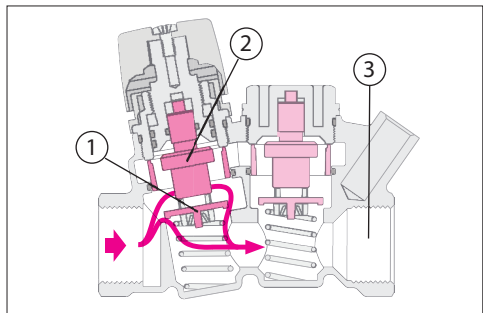
## Function



Disinfection function (B) when available on specific version.

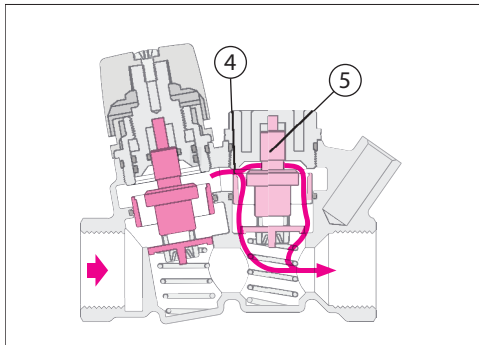
### Function A

On reaching the set temperature, the obturator (1), governed by the thermostatic sensor (2), modulates the closure of the hot water outlet (3), thereby aiding circulation towards the other connected circuits. If the temperature decreases, there is the opposite action and the passage reopens, so as to ensure that all the branches of the system reach the required temperature. The characteristic curve of the valve is shown in fig. F, curve A.



### Function B (if thermostatic disinfection cartridge is installed)

The characteristic curve of operation B is the same as curve A until a temperature higher than 65 °C is reached. At this value the second thermostatic sensor (5) intervenes with the aim of controlling the disinfection process, allowing circulation independently of the action of the first thermostat. This allows a passage of medium through a special by-pass (4), opening a passage up to the temperature of 70 °C. If the temperature rises beyond this value, the flow through the by-pass circuit is reduced so as to allow thermal balancing to be performed even during the disinfection process. When it reaches about 75 °C, the regulator reduces the orifice so as not to circulate medium at a high temperature, to avoid possible problems in the system. The characteristic curve of the valve is shown in fig. F, curve A+B.



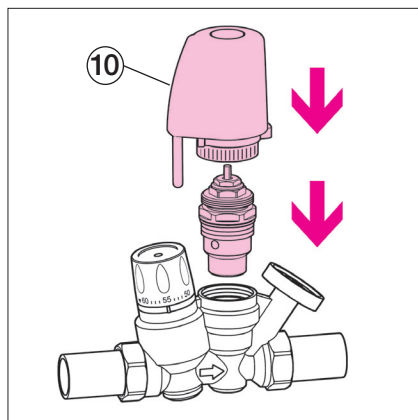
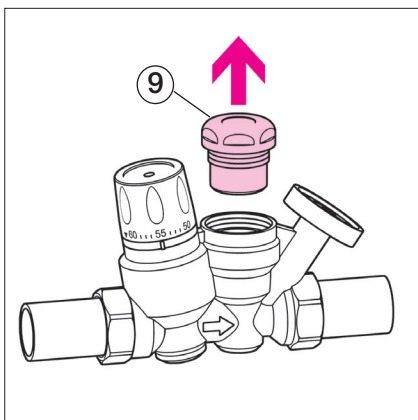
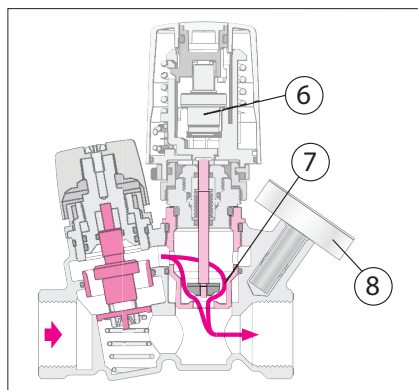
### Function C (if optional actuator is installed)

The characteristic curve of operation C is the same as curve A until the temperature of intervention of the electronic disinfection system is reached. At this value (which is controlled by a dedicated thermostat or electronic system), the thermo-electric actuator 656, series (6) intervenes with the aim of controlling the disinfection process, allowing circulation independently of the action of the first thermostat, by means of a dedicated by-pass (7). In this case, the minimum head loss is produced during thermal disinfection against Legionnaires' disease. The characteristic curve of the valve is shown in fig. F, curve A+C.

For the transformation of the valve in the version with a thermal disinfection function controlled by an actuator (10), it is sufficient (with the system cold or empty) to remove the plug (9) and screw the cartridge, code 116000 AUS, into place.

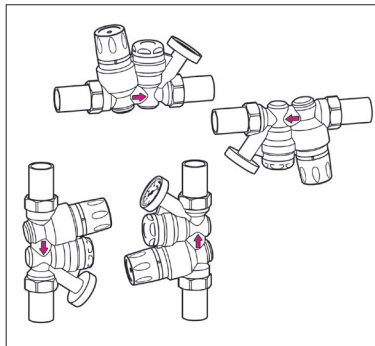
The regulator is equipped with a temperature gauge for measuring and controlling the temperature of the hot water in the circuit, code 116010 (8).

The temperature gauge pocket can also be used for automatic temperature monitoring to a BMS system by inserting a 10 mm immersion probe. This probe should be sourced from your BMS provider in order to ensure compatibility with their system.



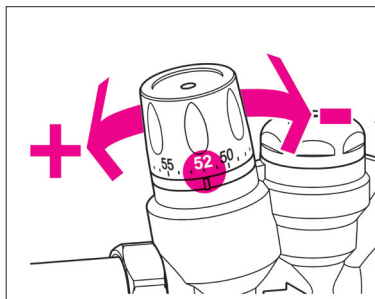
## Installation

Installation of the thermostatic regulator has to be performed by an authorised plumber in accordance with AS/NZS 3500 and local legislation. Before fitting the thermostatic regulator, the pipes must be flushed to ensure that none of the impurities in circulation will reduce its performance. We recommend always installing strainers of sufficient capacity at the inlet from the water mains. System flushing, cleaning and disinfection of the pipework to which the valve is installed shall be performed by suitably qualified persons in accordance with the system component manufacturer's instructions, AS/NZS 3500 along with any other applicable local authority requirements. Exceeding the maximum stated chemical concentrations and/or duration of exposure may negatively impact on the performance of the system and/or components installed such as the pressure reducing valve. Chemical dosed products must be chemically compatible with materials used for the construction of the thermostatic regulator, specified in its technical documentation. The thermostatic regulator can be fitted in any position, vertical or horizontal, by respecting the flow direction indicated by the arrow on the valve body. The thermostatic regulator must be installed according to the diagrams given in this manual. It must be installed in such a way as to allow free access to the device, for checking operation and maintenance.



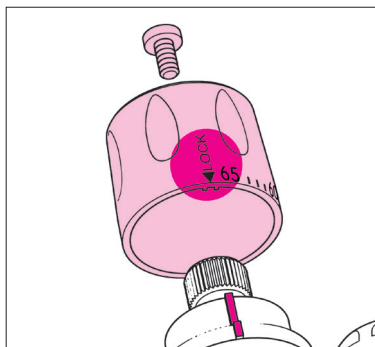
## Temperature adjustment

The temperature is set at the desired value by turning the special knob. The graduated scale shows the temperatures at which the indicator can be set. It is recommended to set the valve temperature at a value about 5K greater than the inlet temperature, taking into account the heat losses along the line, to limit the head required at the recirculation pump. Take care to ensure the minimum flow rate at the mixing valves in the central heating system.



## Adjustment locking

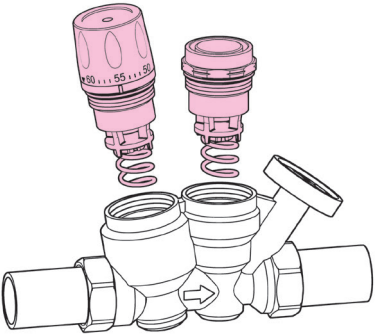
After adjusting the temperature, the setting can be locked at the desired value using the control knob. For this purpose, unscrew the locking screw at the top of the control knob, remove the knob and then put it back on so that the internal reference couples with the protrusion on the knob holder nut. Caution when this block is used, the reference of the indication of the temperature values on the knob is lost. To restore it, completely unscrew the regulating headwork counter-clockwise. Reposition the knob on MAX value. Tighten the locking screw.



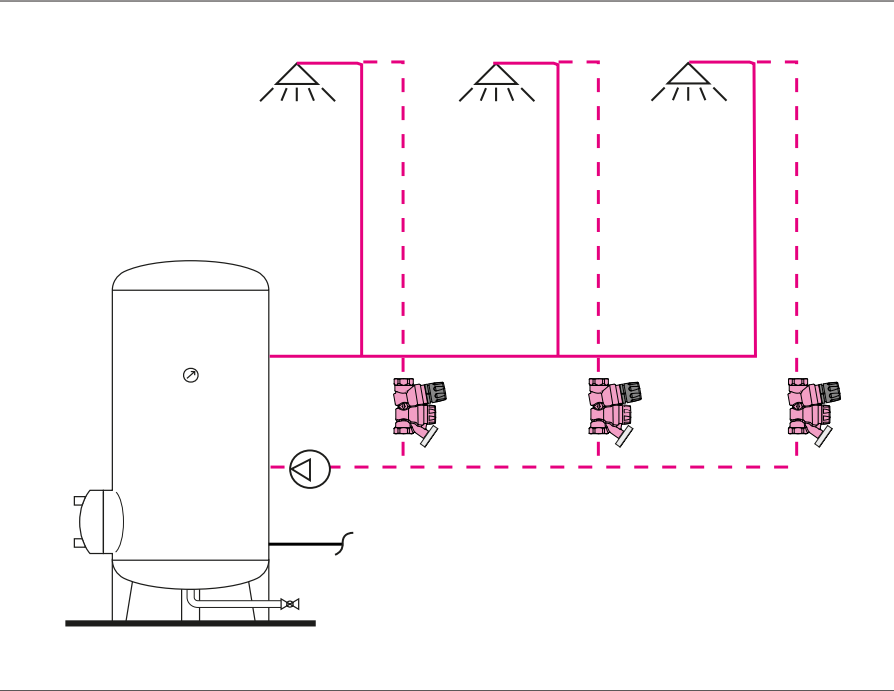
# Maintenance

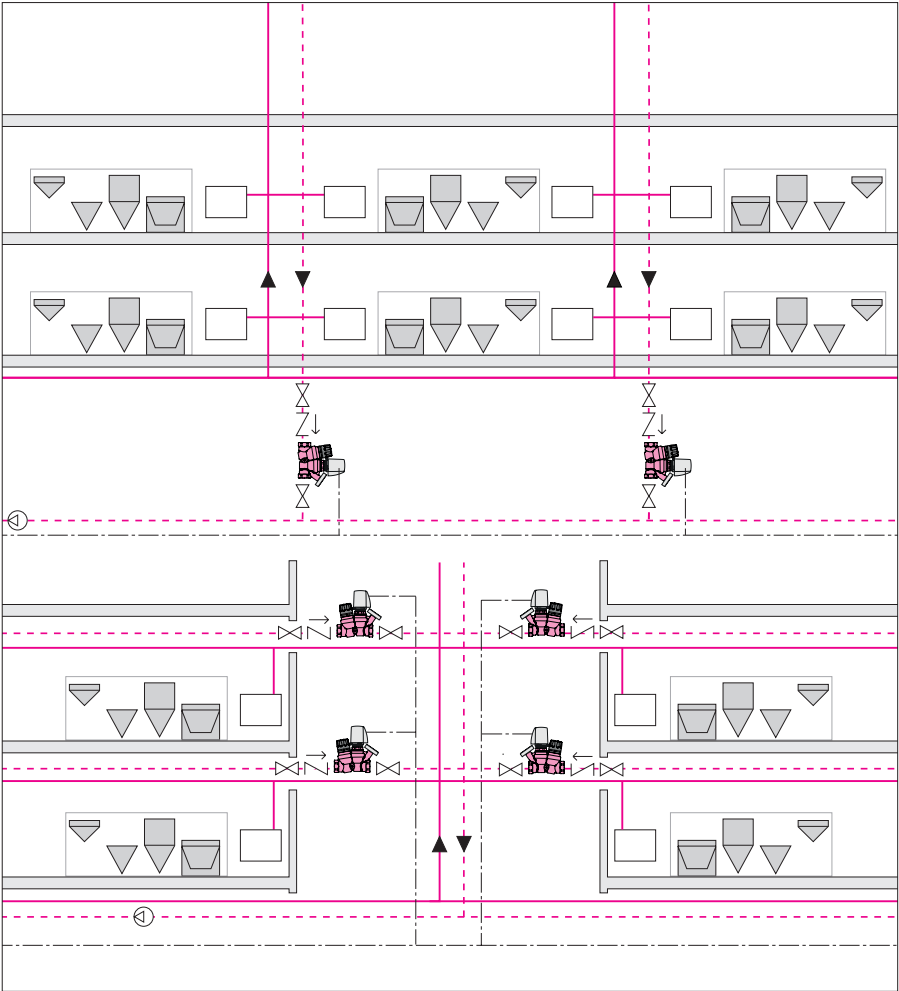
Both the adjustment cartridge and the disinfection control cartridge can be removed from the valve body for checking, cleaning or replacement (with the system cold or empty).

version with  
disinfection  
cartridge shown



# Application diagrams





**Safety**

If the thermostatic regulator is not installed, commissioned and maintained properly in accordance with the instructions contained in this manual, it may not operate correctly, and may cause damage to objects and/or persons.

Make sure that all the connections are water-tight.

When installing the thermostatic regulator, make sure not to over-tighten the connections to the valve, as, over time, a failure can occur with subsequent water leakage causing damage.

In the case of highly aggressive water, arrangements must be made to treat the water before it enters the pressure reducing valve, in accordance with current legislation. Otherwise, the thermostatic regulator may be damaged and not function correctly.

**Leave this manual as a reference guide for the user**

**AUSTRALIAN AGENT**

**All Valve Industries**

**Unit 2, 18-28 Sir Joseph Banks Drive  
Kurnell NSW 2231**

**Ph: (02) 8543 9811**

**Fax: (02) 8543 9822**

**Email: [info@allvalve.com.au](mailto:info@allvalve.com.au)**

