

plumb-mate ••

Expansion Control Valve (ECV)

Installation & Operations Manual



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Expansion Control Valve (ECV)

The plumb-mate Expansion Control Valve is a high-performance safety device designed to protect storage water heaters.

The valve is installed on the cold or inlet supply of a water heater.

It automatically relieves excess pressure caused by water expansion during the normal heating cycle and reseats once safe pressure levels are restored.

All products supplied with insulation jacket suitable for external installation.

Expansion Control Valves are a safety device and should be replaced every 4 years.

Key Features

Lead-Free bronze body

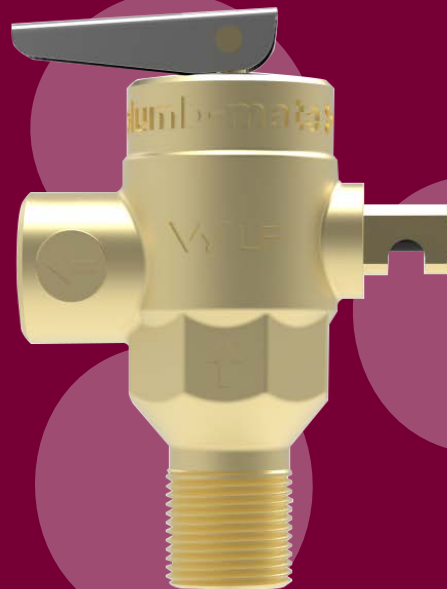
Fully compliant with the lead-free requirements of the National Construction Code Volume 3

Heavy duty auxiliary relief

Upgraded Lead-Free copper auxiliary relief valve provides a longer life expectancy

Flexible installation options

Valve is designed to work in either vertical or horizontal installations



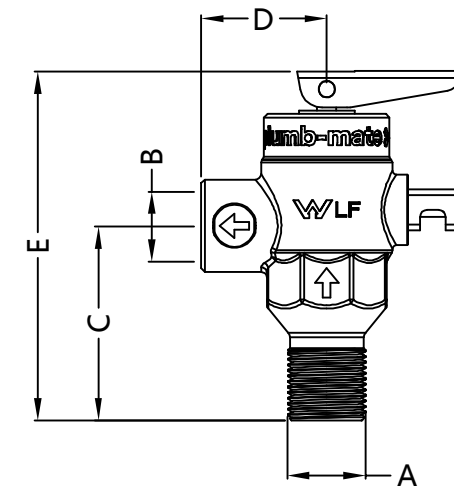
Product Technical Data

Designed and manufactured to meet AS 1357.1

Technical drawings

Pressure Rating	15mm ECV	20mm ECV
600 kPa (Black)	PMECV-15-600	PMECV-20-600
700 kPa (Blue)	PMECV-15-700	PMECV-20-700
850 kPa (Green)	PMECV-15-850	PMECV-20-850
1200 kPa (Red)	PMECV-15-1200	PMECV-20-1200

	DN15 Model	DN20 Model
Inlet Connection	R 1/2" Male	R 3/4" Male
Outlet (Drain) Connection	G 1/2" Female	G 3/4"
Pressure Ratings (kPa)	600 / 700 / 850 / 1200	
Expansion Rating	20 kW	46 kW



Model	Size	A	B	C	D	E
PMECV-15	DN15	R 1/2"	G 1/2"	52.5	34	95
PMECV-20	DN20	R 3/4"	G 3/4"	52.5	34	95

Installation & Operating Instructions

1. Installation Requirements

This valve must be installed by a licensed plumber in accordance with AS/NZS 3500.4 and local water authority requirements.

1.1 Pre-Installation Checklist

Pressure Matching: Ensure the ECV set pressure is lower than the Temperature & Pressure Relief (PTR) valve fitted to the water heater.

System Flushing: Thoroughly flush all supply lines to remove debris. Foreign matter can lodge under the valve seat, leading to premature failure or constant leaking.

Inspection: Do not install if the valve or probe is damaged.

1.2 Installation Steps

Placement: Install the ECV on the cold water inlet line between the Non-Return Isolation Valve and the water heater.

Orientation: The valve is suitable for both horizontal or vertical mounting.

Sealing: Apply PTFE thread tape to the male inlet thread. Ensure tape does not overhang the end of the thread, as loose fragments can cause the valve to leak.

Tightening: Do not use a wrench on the valve body. Use only the hexagonal spanner flats provided.

Isolating Devices: No valves, taps, or other isolating devices are to be fitted between the ECV and the water heater.

1.3 Drain Line Requirements

Sizing: The drain line must match the nominal size of the valve outlet (1/2" for DN15, 3/4" for DN20).

Fall: The line must have a continuous fall from the valve to the discharge point.

Blockage: The drain outlet must not be sealed or blocked. If a blockage occurs, the auxiliary relief device opposite the drain will discharge water.

Discharge Point: Must comply with AS/NZS 3500.4, ensuring discharge is visible and does not cause a nuisance or injury.

1.4 Inlet Pressure Control

High mains water pressure can cause excessive discharge. If the maximum inlet water pressure (typically at night) exceeds

80% of the ECV set pressure, a Pressure Limiting Valve (PLV) must be fitted to the cold water inlet.

2. Maintenance & Servicing

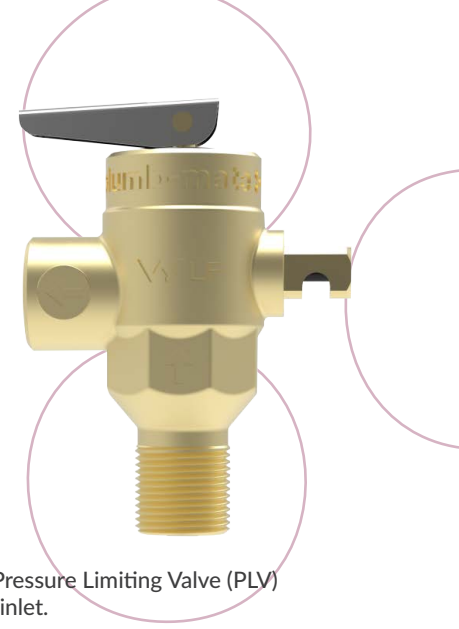
Field Service: This valve is factory set. It cannot be dismantled or serviced in the field. If faulty, the entire valve must be replaced.

6-Month Test: Manually operate the Stainless Steel lever every 6 months to flush out lime/calcium deposits and ensure the valve is functioning.

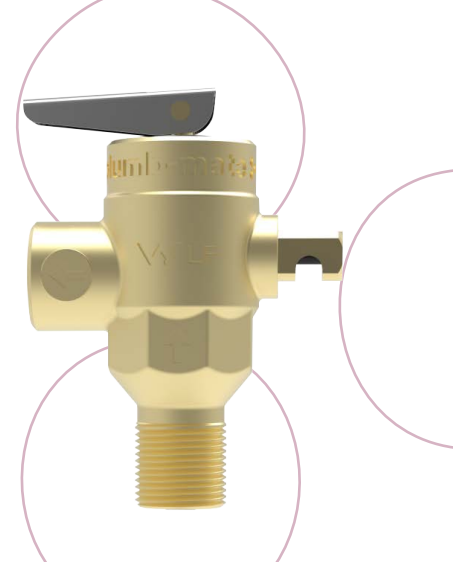
Replacement: It is recommended that ECVs be replaced every 4 years to ensure continued system safety.

3. Warranty & After-Sales

plumb-mate (manufactured by RBM Systems Pty Ltd) warrants this product against manufacturing defects for a period of **two (2) years** from the date of purchase. The warranty is void if the valve is tempered with, incorrectly installed, or used outside of its specified parameters.



Valve Selection & Identification



Valve Selection & Inlet Pressure Control Chart

To ensure the longevity of the system and prevent excessive discharge, the maximum inlet water pressure must not exceed **80%** of the set pressure of the operating relief valve.

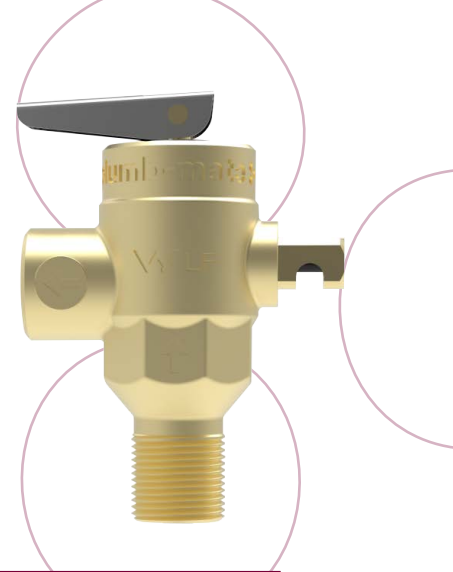
PTR Valve Setting (on water heater)	Recommended plumb-mate ECV Setting	PLV Required if Mains Pressure Exceeds	PLV Setting (If required)
700 kPa	600 kPa	480 kPa	350 kPa
850 kPa	700 kPa	560 kPa	350 kPa
1,000 kPa	850 kPa	680 kPa	500 kPa
1,400 kPa	1,200 kPa	960 kPa	600 kPa

Identification

The plumb-mate ECV uses a colour-coded rating plate for easy identification and matching with the corresponding plumb-mate PTR valves.

Rating Plate Colour	ECV Model	PTR Model
Black 	PMECV-15-600 PMECV-20-600	PMPTR-15-700 PMPTR-20-700
Blue 	PMECV-15-700 PMECV-20-700	PMPTR-15-850 PMPTR-20-850
Green 	PMECV-15-850 PMECV-20-850	PMPTR-15-1000 PMPTR-20-1000
Red 	PMECV-15-1200 PMECV-20-1200	PMPTR-15-1400 PMPTR-20-1400

Troubleshooting Guide



This guide is designed to help licensed plumbers identify and resolve common issues with the plumb-mate Expansion Control Valve (ECV).

Caution!

Water escaping from the drain line may be hot and could cause scalding.

If the system is malfunctioning, switch off the energy source and call a qualified service technician.

Symptom	Probable Cause	Recommended Action
Slight dripping from the drain line during heating cycle	Normal Operation: The valve is designed to relieve excess pressure caused by water expansion during heating	No action required; this indicates the valve is functioning correctly
Continuous dripping or leaking from the drain line	Debris Contamination: Dirt or scale may be lodged under the valve seat	Manually operate the easing lever several times to flush out deposits. If leaking persists, replace the valve
	High Mains Pressure: Inlet pressure exceeds 80% of the valve's set pressure	Install a Pressure Limiting Valve (PLV) on the cold water inlet
Water discharging from the auxiliary relief device (opposite the drain)	Drain Line Blockage: The main drain line is obstructed or sealed	Clear the obstruction from the drain line immediately. Ensure the drain line has a continuous fall
Excessive or constant discharge (not just during heating)	Mains Pressure Spike: Usually occurs at night during low water usage	Verify inlet pressure and install a PLV if it exceeds the recommended limits
	Faulty Valve: Internal component failure or spring seizure	Replace the valve; the ECV is factory set and cannot be repaired in the field
No water flows when easing lever is lifted	Inlet Blockage: Debris in the valve housing or inlet pipe	Disconnect and clean out all deposits from the valve housing or replace the valve

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