



Emech™ 3 Port Mixing Valve - Model E100WR

General Features

The 3 port valve utilizes a rotary turret style control geometry to provide high performance dynamic fluid mixing. Fitted with the electronic actuator and a temperature sensor inserted into the outlet pipe the system delivers high performance stand alone closed loop temperature control.

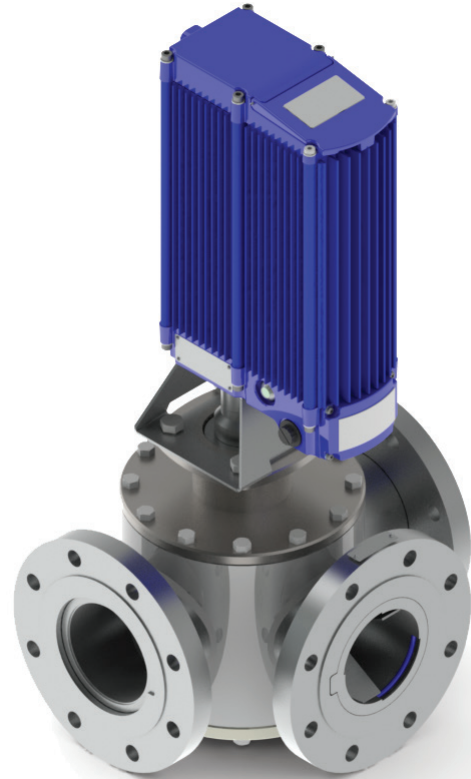
The temperature feedback signal in combination with the fast acting actuator provides temperature control accuracy to $\pm 2^\circ\text{F}$ ($\pm 1^\circ\text{C}$) over a $32^\circ\text{--}212^\circ\text{F}$ ($0^\circ\text{--}100^\circ\text{C}$) control range, capable of blending from 0% to 100% of either inlet temperature. Even with sudden changes of Inlet pressure and temperature to the valve, the actuator controller aggressively minimizes outlet temperature variations, making the system ideal for use in industrial applications as a simple stand-alone or integrated mixing solution. The E100WR can also be used as a diverting valve.

Valve Features

- ISO 5211, 5210 actuator flange mounting (F12)
- Main internal parts and valve body constructed of CF8M (316) stainless steel
- High flow capacity: 4" valve Flow Coefficient Cv (Kv): 329 (286)
- End Connection: 4" ASME 816.5 Class 150 standard.
- ANY TWO PORTS can be configured as the inlets
- NTC temperature probe assembly requires fitting into pipework 15.75" (400mm) downstream of the outlet port (fits into 1/2" NPT female thread)
- Elastomer seal material options are available to support NON water temperature control applications, e.g. glycol, hydraulic fluid.
- Top entry allows inline access to internal valve parts
- Operating temperature range: -13°F to 257°F (-25°C to 125°C)
- Rated pressure: 232 psi (16 bar) at 212°F (100°C)
- Seat leakage FCI 70-2-1998 CLASS IV ($<0.01\%$ of rated valve capacity)
- Design verification to ASME 816.34
- International patents pending
- Standard stroke: T-way mixing 180° , L-way mixing 90°

Electronic Actuator Features

- Analog (4-20mA) input and output control signals for Interfacing with SCADA control
- Software configurable control settings
- Very high resolution capability (0.03° rotational)
- External RS232 connection for actuator configuration
- Stand-alone closed loop temperature control, or remote analog (4-20mA) control options
- Power: regulated 24Vdc 5 amp supply required
- Failsafe position feedback (non-contact absolute encoder)
- Keypad: 4 membrane switches with 'dual touch' safety features
- Display: 3.5 digit LCD display with back light
- Extra digital input for interfacing ancillary devices (e.g. flow switch, level switch)
- 90° stroke time as low as 1.5 seconds for fast control action
- Gearbox: planetary, lifetime lubrication, low backlash
- 100% duty cycle rated actuator



Important Notes

Consult the "Installation, Operation and Maintenance" Manual (IOM) to review key requirements, recommendations and considerations when planning your installation. Failure to do so may affect the performance of the product. A copy of the (IOM) is provided with the valve and is also available from the Armstrong website.

- Hot and Cold input ports can be interchanged and alternative orientations of the actuator on the valve can be specified.
- Please consult with the Armstrong factory at time of order placement if you require non standard format product for your installation.

Electronic Water Temperature Mixing System - Model E100WR	
Standard model code	E100WR - Type Actuator - Valve model - Orientation (as shown)
Shipping weight	195 lbs (88kg) [incl packaging]
Shipping box size	17.5" x 33.75" x 17.75" (WxLxH) 445mm x 855mm x 450mm (WxLxH)

Flow Capacity (US gpm and lpm)

Port Connction Sizes (ASME B16.5 Class 150 flanges) Inlets x Outlet	Pressure Drop across both inlet ports (psi)											Nominal Min. Flow Note 6	Max. Flow	Flow Co-efficient (mixing)
	Model	5	10	15	20	25	30	35	40	45	50			
4"x4" Us gpm	E100WR	740	1040	1275	1470	1645	1800	1950	2080	2210	2330	160	Note 2.	Cv = 329
Pressure Drop (bar)		0.3	0.5	0.75	1.0	1.25	1.5	2.0	2.5	3.0	3.5			
4"x4" Lpm	E100WR	2610	3370	4130	4770	5330	5840	6740	7540	8260	8920	600	Note 2.	Kv = 286

Note 1. Check valves **MUST** be installed prior to the inlets.

Note 2. Sensible pipeline velocities are the only limit to the E100WR mixing valve flows.

Note 3. Armstrong's Engineering Team is available to assist you with Application Support and Component Selection.

Note 4. Ensure the sections of straight pipe to the valve are as long as practical.

Note 5. Elbows prior to inlet ought to be a long 'sweep' style and no closer than 6 pipe diameters from the inlet.

Note 6. The 'nominal recommended' Min. Flow is described as: "The minimum flow at which temperature control can be readily achieved for the given valve size with the Actuator set at STANDARD control gain setting." Contact the factory for applications where flow conditions are lower than those stated above.

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Designs, materials, weights and performance ratings are approximate and subject to change without notice. Visit armstronginternational.com for up-to-date information.