



Emech™ is digital hardware that is faster, simpler, and smarter with one goal in mind: unparalleled performance in industrial applications. Emech™ digital control valves are available for steam/water and hot/cold water industrial service. The unique range of Emech™ multi-patented ceramic disc/stainless steel disc rotary 3 port mixing when combined with the Emech™ digital actuator delivers superior closed-loop performance in terms of speed, precision and reduced mechanical wear when compared to traditional mixing and control valve systems.

The mixing valve system is a highly optimized temperature control system with patented valve disc system, swirl mixing action, high speed in valve sensing, with embedded PID control of a 100% duty cycle rated stepper motor digital actuator.

A series of 2 port flow control valves are also available, which when combined with the Emech™ actuator and sensing technology forms a system providing superior temperature control to a range of industry standard processes, through its high speed and software configurable control dynamics.

Actuator Features

- Electric Stepper Motor Control
- 100% Duty Cycle rated for continuous control
- Planetary lifetime lubricated, low backlash gearbox
- High speed 1.3 second quarter-turn response
- Precise positioning achieving 0.03° valve seat placement
- Software configurable PID control for individual application loop tuning and special modes via RS232
- Two operating modes: Stand alone control via onboard keypad or Remote control via external 4-20mA
- 4-20mA input and output ports
- Additional auxiliary switch control available
- Epoxy powder-coated aluminum NEMA 4 enclosure
- Two sizes:
 - G12 model 310 in.lb torque: 24vDC 3.5 Amp
 - G13 model 885 in.lb torque: 24vDC 5 Amp

Valve Features:

- One piece rotary spindle design
- Top entry maintenance and simple seals/o-rings
- Pressure rated to 145psi, designed to ASME B16.34
- Mechanical valve mounting to ISO5211,5210

Primary Markets Include:

- Food Manufacturing Industries
- Pharmaceutical Manufacturing Industries
- General Process Industries

High Speed Accuracy, Increase in Productivity

Decrease production downtime, improve product consistency and boost revenue.

Emech™ Digital Control Valves are specifically designed to instantly respond accurately. Emech™'s response time is incredibly rapid which directly affects productivity.

The technology of Emech™ simply achieves more in less time, increasing productivity while lowering utility and maintenance cost. Emech™'s superior valve performance allows manufacturers to run their plans closer to constraints, thereby increasing production and yield.

Maintenance Friendly

Featuring a CF8M/316 stainless steel valve body along with ceramic or nickel chrome stainless steel action discs and "simple" valve seals design kits, the Emech™ system is built to resist corrosion and minimize wear while providing maximum performance.

Emech™ is manufactured to meet the highest possible standards, every Emech™ system is designed, built and tested to provide reliable service with minimal maintenance.

- Manual Over-Ride Handle standard (not shown)
- Lockable Security feature

Push button "soft start" electronics

Graduated visual indicator on shaft coupling

Internationally patented "shear action" valve seat design and "mix+sense" technology

Valve constructed from CF8M (316) stainless steel

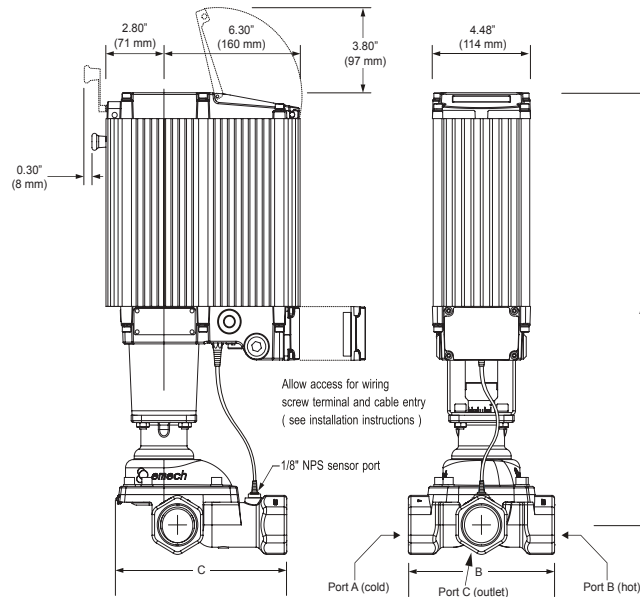
- Local Keypad or mA loop "Set Value" capability
- LCD Display "Set Value and "Process Value", Degrees F or C or valve position
- Hinged magnetic latching and lockable display cover
- Error signal indication

- Epoxy powder coated aluminium enclosure with stainless steel fasteners
- Corrosion resistant finish
- O-ring enclosure seals and energized cup shaft seal
- NEMA 4 (IP65)

Separate Terminal Enclosure, sealed from the electronics enclosure

- mA loop input/output terminals
- 24Vdc power terminals
- Common 'blade' mini-fuse + spare
- Self retaining screws
- Integrated Overvoltage protection

Integrated "In Valve" high-speed temperature sensor

Hot/Cold Water Mixing Systems – Model EXXW


Dimensions						
Model	A		B		C	
	in	mm	in	mm	in	mm
E20W	17.60	447.00	4.72	119.00	5.43	137.90
E25W	17.90	454.60	4.72	119.00	6.42	163.00
E40W	19.10	485.10	6.77	172.00	7.83	198.90
E50W	22.20	563.90	8.66	220.00	10.67	271.00

Flow Capacity (gpm)													
Model	Port Connection Sizes (NPT) Inlets x Outlets	Pressure Drop (psi)										Nominal Min. Flow*	C _v
		5	10	15	20	25	30	35	40	45	50		
E20W	3/4" x 1"	18	26	31	36	40	44	48	51	54	57	0.9	8.1
E25W	1" x 1-1/4"	28	40	49	56	63	69	74	80	84	89	4.0	12.6
E40W	1-1/2" x 1-1/2"	44	62	76	88	98	108	116	124	132	139	6.0	19.6
E50W	2" x 2-1/2"	107	151	185	213	239	261	282	302	320	337	20.0	47.5

Flow Capacity (lpm)													
Model	Port Connection Sizes (NPT) Inlets x Outlets	Pressure Drop (bar)										Nominal Min. Flow*	K _v
		0.3	0.7	1.0	1.4	1.7	2.1	2.4	2.8	3.1	3.4		
E20W	3/4" x 1"	68	98	117	136	151	167	182	193	204	216	4.0	7.0
E25W	1" x 1-1/4"	106	151	185	212	238	261	280	303	318	337	18.0	11.0
E40W	1-1/2" x 1-1/2"	167	235	288	333	371	409	439	469	500	526	26.0	17.0
E50W	2" x 2-1/2"	405	572	700	806	905	988	1,067	1,143	1,211	1,276	70.0	41.0

*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.

*last updated 11/15

Steam/Water Mixing Valves - Model EXXS

Dimensions								
Model	Port Connection Sizes (NPT) Inlets x Outlets	A		B		C		C _v
		in	mm	in	mm	in	mm	
E25S	1" x 1-1/4"	17.90	454.60	4.72	119.00	6.42	163.00	8
E40S	1-1/2" x 1-1/2"	19.10	485.10	6.77	172.00	7.83	198.90	13.3
E50S	2" x 2-1/2"	22.20	563.90	8.66	220.00	10.67	271.00	26.6

The shear action disc design of the EXXS valve provides precise controlled mixing of steam and water. Fitted with the electronic actuator and an integrated temperature sensor, the system ensures fast, accurate and stable temperature control. The single compact assembly simplifies installation. The independence of this standalone unit provides a reliable solution for hot water supply for industrial applications.

The calibrated temperature probe fits into a 1/8" NPSM port in the outlet, and connects via a cable to the actuator. With this temperature feedback signal, the actuator can provide temperature control accuracy of ±1°F (±0.5°C) and up to 200°F (95°C) heated water at the outlet.

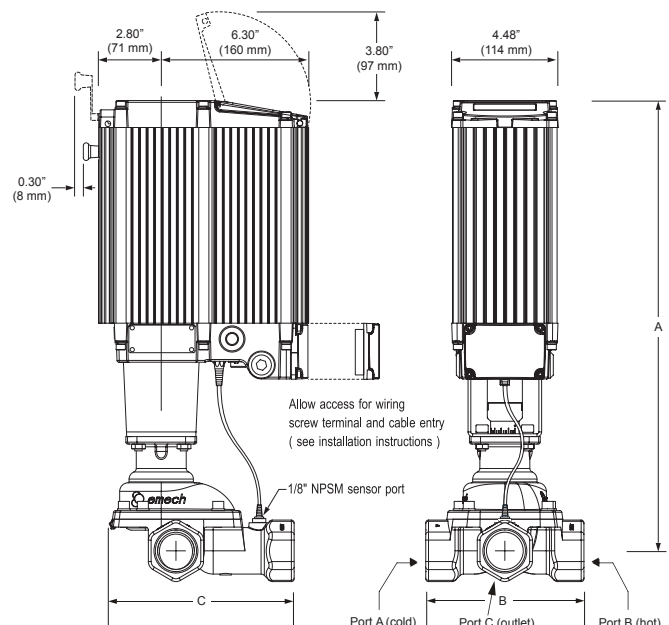
The EXXS can handle a variety of input temperatures and pressures to give a temperature rise. With sudden changes of inlet pressure and temperature to the valve, the controller aggressively minimizes outlet temperature variations.


Valve Features

- ISO 5211, 5210 actuator flange mounting
- Nickel chrome and cobalt coated CF8M (316) stainless steel discs
- Valve constructed of CF8M (316) stainless steel
- Top entry allows inline access to internal valve parts
- Maximum inlet steam temperature 482°F (250°C)
- Rated pressure: 145 psi (10 bar)
- Seat leakage is approximately 0.05% of the valves Cv(max)
- Design verification to ASME B16.34
- U.S. patent approved

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 (cable supplied)
- Stand-alone closed loop temperature control, or remote analog (4-20mA) control options
- Power: regulated 24Vdc 5 Amp supply required
- Fail-safe position feedback (non-contact absolute encoder)
- Keypad: 4 membrane switches with "dual touch" safety features
- Display: 3.5 digit LCD display with back light
- Push-button power switch
- Extra analog 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



- Steam/Water mixing systems utilize Stainless Steel disc sets and CRPTFE based seals technology.
- Direct steam inject is a specialty.
- Consult factory for sizing and installation details.

*last updated 11/15