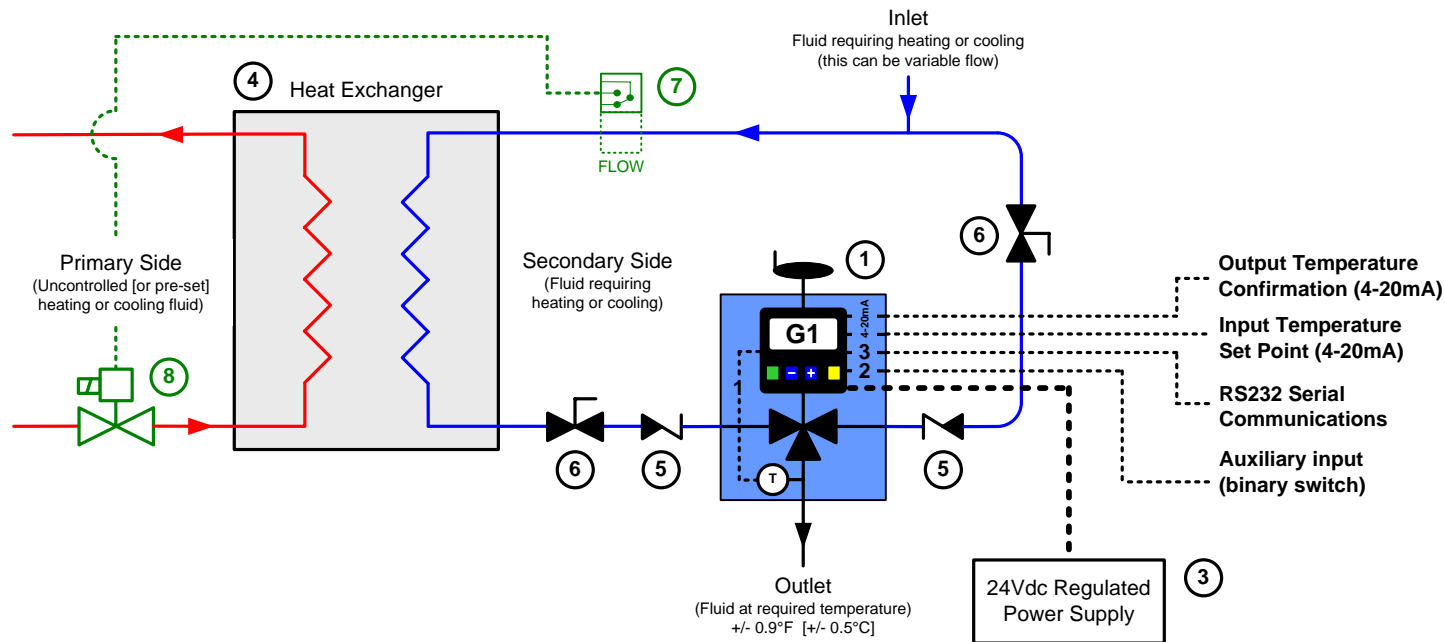


APPLICATION  
PROVEN IN  
INDUSTRY



## Advantages of the Emech Valve and Actuator

OUT OF THE BOX solution

①

Local closed loop control of temperature

Constructed of CF8M (316) stainless steel

Durable corrosion resistant ceramic discs

Very high resolution capability (0.03° rotational)

High speed electronic actuator

IP65/Nema 4 electronics enclosure

High speed temperature sensor

Top entry allows inline access to internal valve parts



**Figure 1:** The Emech temperature control solution consisting of the F3 mixing valve and G1 actuator with integrated temperature sensor.

## Application

To provide fast and accurate fluid temperature control by utilizing the secondary side of a heat exchanger.

## Operation

As the control valve and temperature sensor are physically close together, the Emech controller can be set with very 'aggressive gains'. The result is FAST, STABLE control REGARDLESS of variable flows and large step change disturbances

## Advantages

No control valve is required on the 'Primary Flow' side of the heat exchanger.

The temperature sensor 'T', is located in the valve outlet. The sensor measures any error in output temperature, and the actuator can respond immediately. There is NO DELAY due to heat exchanger thermal transfer, or transport lags.

If the Primary side flow or temperature is reduced, the Emech controller automatically DIRECTS and REDUCES the flow through the heat exchanger to achieve the desired outlet temperature. i.e. set point is achieved regardless of significant upset in the heat transfer availability.

High performance stand alone closed loop temperature control out of the box solution.  
Accurate to +/- 0.5°C (0.9°F) over a 0 – 100°C (32 - 212°F) control range.  
Minimized seal replacement requirements and plant down time.

### Key

- 1 Emech F3 + G1 Temperature Controller
- 2 Circulating Pump (maybe required)
- 3 24Vdc Regulated Power Supply
- 4 Heat Exchanger
- 5 Check Valve (non return)
- 6 Manual Isolation Valve
- 7 Flow Switch (optional)
- 8 Solenoid Operated Isolation Valve (optional)

**Disclaimer:** This diagram is for general discussion purposes only. The information is solely intended to provide a general understanding of the subject matter and to assist Emech's customers and potential customers to assess whether they require further information.

Contact Emech for customized application sketches

**Note:** Proposal sketch for discussion purposes.

— Water pipe  
 - - Steam pipe  
 - - - - 24Vdc power cable  
 ······ Signal cable

### Emech Control

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