

24V VALVES

FUEL CELL ELECTRONIC CONTROL VALVES



- For fuel cell applications
- 3-Way flow paths for Bypass, Rad & FC Stack
- Electronic actuator & precision control
- Coolant medium:
 - Fuel cell, 50% deionized water / 50% glycol
 - Engine, 50% water / 50% glycol
- Brushless motors
- Multi-protocol communication (CAN / PWM)
- IP67
- Compact & Lightweight construction
- Robust mechanical design
- High flow with low pressure drop

The Calatherm fuel cell 3-way control valves are advanced electronic coolant valves to support precise thermal management in hydrogen fuel cell powertrain systems. Forming part of our new-energy electronic product suite, these 3-way valves intelligently direct coolant flow between cooling, bypass, or radiator paths based on system temperature demands.

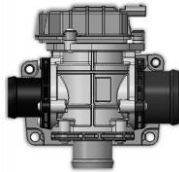
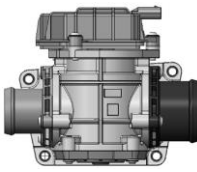
The valves incorporate an electronic actuator, valve body with multiple inlet/outlet ports, and ECU-compatible control logic to deliver rapid and accurate flow modulation. They maintain optimal operating temperatures for the fuel cell stack, improving system efficiency, durability, and responsiveness.

Engineered for robustness, the 3-way valves operate reliably across a wide temperature range and feature automotive-grade protection. Their design reduces internal leakage and integrates position feedback for closed-loop control and diagnostic communication, making them suitable for demanding automotive thermal management applications.

BENEFITS

- Precisely directs coolant flow to keep the stack within its narrow, efficiency-critical temperature window.
- Improves fuel cell efficiency and performance, through stable thermal control.
- Protects fuel cell stack durability.
- Enables intelligent bypass and warm-up strategies to bring the stack to operating temperature more quickly.
- Rapid valve actuation allows the cooling system to react immediately to changes in power demand.
- Three-way valve architecture reduces system complexity while enabling multiple cooling paths.
- Automotive-grade sealing and temperature resistance for consistent operation in demanding fuel cell duties.
- Durable electronic actuation and diagnostic capability help prevent unexpected failures.
- Adaptable valve control logic supports different stack sizes, vehicle classes, and cooling strategies.

TECHNICAL SPECIFICATION

Model		VALVE-3-24-BL-1-1	VALVE-3-24-BL-2-1	VALVE-3-24-BL-3-1	VALVE-3-24-BL-4-1
		VALVE-3-24-BL-1-4	VALVE-3-24-BL-2-4	VALVE-3-24-BL-3-4	VALVE-3-24-BL-4-4
Image					
Type		Brushless	Brushless	Brushless	Brushless
Direction		3 Way	3 Way	3 Way	3 Way
Voltage		18 ~ 32 VDC	18 ~ 32 VDC	18 ~ 32 VDC	18 ~ 32 VDC
Current		0.6 A Max	0.6 A Max	0.6 A Max	0.6 A Max
Maximum Pressure		300 kPa(G)	300 kPa(G)	300 kPa(G)	300 kPa(G)
Working Temperature		-40°C to +105°C	-40°C to +105°C	-40°C to +105°C	-40°C to +105°C
Noise		≤ 60 dB(A), 1m	≤ 60 dB(A), 1m	≤ 60 dB(A), 1m	≤ 60 dB(A), 1m
Nozzle	Radiator	38 mm	51 mm	51 mm	38 mm
	Bypass	38 mm	38 mm	38 mm	38 mm
	FC Stack	38 mm	38 mm	40 mm ID	40 mm ID
Communication		CAN	CAN	CAN	CAN
		PWM	PWM	PWM	PWM
Ingress Protection		IP67	IP67	IP67	IP67
Mass		967 g	975 g	950 g	942 g
Size	Length	162 mm	164 mm	164 mm	162 mm
	Width	157 mm	157 mm	135 mm	135 mm
	Height	97 mm	97 mm	97 mm	97 mm

OUTLINE DIMENSIONS

Note that the image below is representative of the models 'VALVE-3-24-BL-2-1 / VALVE-3-24-BL-2-4'.

