

FALCON® V INTEGRAL SOLENOID VALVES

The Falcon V solenoid valve is an integral part of Westlock Quantum control monitors and is engineered specifically to address low power valve actuation requirements. It is available for single-acting or dual acting actuators



FEATURES

- Available in anodized aluminum (all wetted parts), nickel-plated brass with stainless steel internals and 316 SS (all wetted parts) material options.
- Valve body temperature range -4°F to +200°F (-20°C to 94°C) standard.
- Solenoid coil temperature range (-40°C to +75°C) standard for general purpose and non-incendive coils and (-40°C to +85°C) standard for intrinsically safe applications.
- Viton seals standard.
- Internal venting design standard.
- Increased C_v of the standard valve body (1.4 C_v standard) allows for automation of a wider range of actuators and reduces the need for increased stock.
- Reduced pilot pressure coil allows use on low supply pressure without external pilot.
- Anti-extrusion seal design.
- Common global porting system and location across all Westlock brands for ease of automation.
- New protected spool indicator design prevents incidental contact damage.
- Less than or equal to 5 cc air leakage at steady state reduces losses.
- Extended low temp (-50° degrees Celsius) seal optional.
- Suitable for use in a SIL 3 area for SIS system.
- Single and dual coils, with fail center option available for fail freeze applications.
- Stand-alone versions available for all materials.
- Suitable for high cycle applications.

TECHNICAL DATA

Operating pressure	30 - 120 psi (2.1 - 8.3 bar) - single coil 15 - 120 psi (1.0 - 8.3 bar) - dual coil
Operating temperature	-4°F to +166°F (-20°C to + 75°C) - standard -40°F to +166°F (-40°C to + 75°C) - low temperature -4°F to +185°F (-20°C to + 85°C) - IS only -40°F to +185°F (-40°C to + 85°C) - IS low temperature only Filtered air to 20 microns
Operating media	Filtered air to 20 microns
Standard specification	
Materials	Anodized aluminum, nickel plated brass, stainless steel
Valve flow rates	
Falcon V	1.4 C_v
Standard coil voltages	
Falcon V	24 V DC, 24 V AC, 120 V AC, 125 V DC, 220 V AC
Valve port tapping	
Falcon V	¼" NPT air ports for inlet, outlet and exhaust

Note: the new Falcon V is reverse compatible with all existing Falcon installations with the use of a standard retrofit kit and slight modification to the actuator tubing.



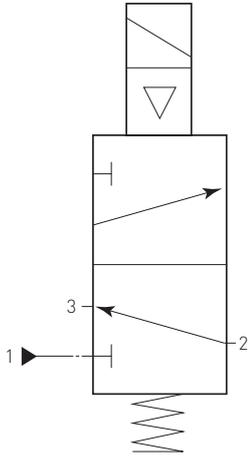
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PNEUMATIC OPERATION

Air line designation

1/4" NPT air ports for inlet, outlet and exhaust.

FIGURE 1 - SPRING RETURN VALVE 3-WAY

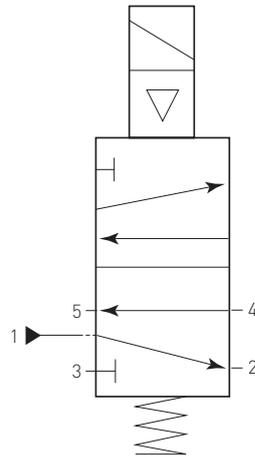


Operation

Solenoid de-energized - air flows from outlet port 2 to exhaust port 3.

Solenoid energized - air flows from inlet port 1 to outlet port 2.

FIGURE 2 - SPRING RETURN VALVE 4-WAY

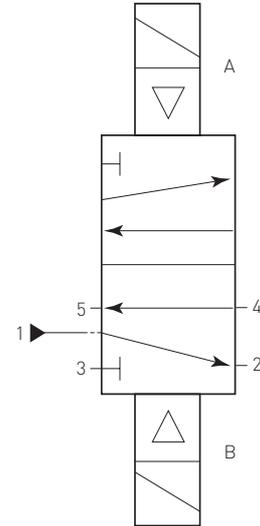


Operation

Solenoid de-energized - air flows from inlet port 1 to outlet port 2 and exhausts from port 4 to port 5.

Solenoid energized - air flows from inlet port 1 to outlet port 4 and exhausts from port 2 to port 3.

FIGURE 3 - DUAL COIL VALVE



Operation

Coil B de-energized - air flows from inlet port 1 to outlet port 2 and exhausts from port 4 to port 5.

Coil A energized - air flows from inlet port 1 to outlet port 4 and exhausts from port 2 to port 3.

FALCON MATERIAL SPECIFICATIONS

Components	Aluminum valve body	316 stainless steel valve body	Ni-plated brass valve body
Valve body	Black anodized aluminum	Passivated 316 SS	Ni-plated brass
Pilot piston end cap	Black anodized aluminum	Passivated 316 SS	Ni-plated brass
Spring end cap	Black anodized aluminum	Passivated 316 SS	Ni-plated brass
Spool	PTFE impregnated hard anodized aluminum	303 SS	PTFE impregnated hard anodized aluminum
Seals (std. operating temp.)	Nitrile	Nitrile	Nitrile
Bushes	Brass	Brass	Brass
Spring	Stainless steel	Stainless steel	Stainless steel

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FALCON V VALVE BODY OPTIONS

The standard range of Falcon V valve options is shown below. Please consult individual control monitor product datasheets for availability as applicable.

Code	C _v	Mode	Material	Code	C _v	Mode	Material	Code	C _v	Mode	Material
2V3	1.4	3-way	Brass	2VY	1.4	Dual coil	Brass	2V7	1.4	4-way	Brass
3V3	1.4	3-way	Aluminum	3VY	1.4	Dual coil	Aluminum	3V7	1.4	4-way	Aluminum
5V3	1.4	3-way	316 SS	5VY	1.4	Dual coil	316 SS	5V7	1.4	4-way	316 SS
3V4	3.5	3-way	Aluminum	3VZ	3.5	Dual coil	Aluminum	3V8	3.5	4-way	Aluminum
5V4	3.5	3-way	316 SS					5V8	3.5	4-way	316 SS

VALVE OPTIONS

0 - None

N - Manual reset with latch

With the coil first energized, the palm button is pushed in and latched. The inward movement of the palm button causes the valve to shift. When the coil is de-energized, the palm button and latching mechanism are tripped automatically, allowing the valve to return to its original position.

M - Momentary override

Spring return momentary push type. Must be held in to actuate.

R - No-voltage release (non-latching)

With the coil first energized, the palm button is pushed in. The inward movement of the palm button causes the valve to shift. When the coil is de-energized, the valve automatically returns to its original position.

L - Manual locking override

The palm button is pushed in and rotated clockwise to lock in position. It must be disengaged manually to return to its original position.

E - External pilot

The 1/8" NPT external pilot connection requires a separate auxiliary pressure line to the valve. This feature should be used when the controlled pressure is below the minimum 45 psi (3.1 bar) operating pressure.

FALCON / FALCON V CODE COMPARISON

The new Falcon V is reverse compatible with all existing Falcon installations with the use of a standard retrofit kit and slight modification to the actuator tubing. The tables below show the original Falcon code and the new Falcon V equivalent.

3-WAY VALVES

Falcon code	Falcon V equivalent
22	2V3
23	2V3
32	3V3
33	3V3
34	3V4
52	5V3
53	5V3

DUAL COIL VALVES

Falcon code	Falcon V equivalent
20	2VY
2Y	2VY
30	3VY
3Y	3VY
3Z	3VZ
50	5VY
5Y	5VY

4-WAY VALVES

Falcon code	Falcon V equivalent
26	2V7
27	2V7
36	3V7
37	3V7
56	5V7
57	5V7
58	5V8



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Westlock. We reserve the right to change designs and specifications without notice.