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APPROVED

 **ATEX NEMA 4,4X**



DESCRIPTION

Airpower Solenoid Valves are designed and manufactured with advanced patented air control technology making them the superior choice for all your pneumatic actuation needs.

Outdoor units eg. model AP500 have an “environmentally-protected structure” which offers protection against the ingress of liquids, dusts or other foreign matter. They operate in a constant self cleaning action with every position shift, thereby enabling the valves to achieve over a million trouble-free cycles. All the exhaust ports are threaded, allowing the use of silencers and tube connectors and various material and coil protection options are available, enabling this range to be used in any environment and hazardous classification.

FEATURES

- Different models to perform 3/2 or 5/2 functions controlling double-acting or single-acting pneumatic actuators.
- Manual override, stainless steel fasteners and anodized body are standard.
- Models cover pilot operated with single/dual (mono/bi-stable) coils and low watt miniature pilot valve.
- Coils cover a wide range of applications suitable for use as a standard coil or various flame-proof and intrinsically safe.
- Coils certified for use in all hazardous areas including Class I, Div. 1&2, Group A, B, C and D, Ex d IICT6, Ex ia CT6 and Ex m II T6, see page 4 for coil selection.
- High temperature models can be used in temperatures ranging from -40 to +150°C.

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BASIC OPERATING PRINCIPLE

Port 1 is the air supply (inlet) port and ports 5 and 3 are exhaust ports which may be equipped with silencers or speed controls to control the actuation time. Port 2 and 4 are outlet ports to be connected to the actuator input ports, A and B marked on Airpower actuators, which move the pistons of the actuator by pressure air. The airpower namur solenoid valve is normally closed as standard so that air is directed to port B of actuator when the coil is energized.

When the coil is de-energized (Figure 1), a spring on the plunger will return the plunger to its seat, blocking internal pilot air opening one of the vent ports. This vent port will allow the air on the piston to escape, and will return the spool to its normal position. In this position, the spool directs flow of supply air from inlet port 1 to outlet port 4 while outlet port 2 is connected to exhaust port 3. As for the standard assembly, the outlet port 4 is connected with port B of actuator. The air from outlet port 4 will return the pistons of actuator to closed position without electric power on the coil.

When the coil is energized (Figure 2), is energized it creates a magnetic field surrounding the plunger assembly and plunger. The plunger is lifted off its seat by this magnetic force and supply air provides an internal pilot pressure that is directed to the spool and compresses the spring. This shifting directs the flow of supply air from inlet port 1 to outlet port 2 while outlet port 4 is connected to exhaust port 5. The outlet port 2 is connected with port A of actuator moving the pistons of actuator to the open position.

Figure 1. Coil De-energized

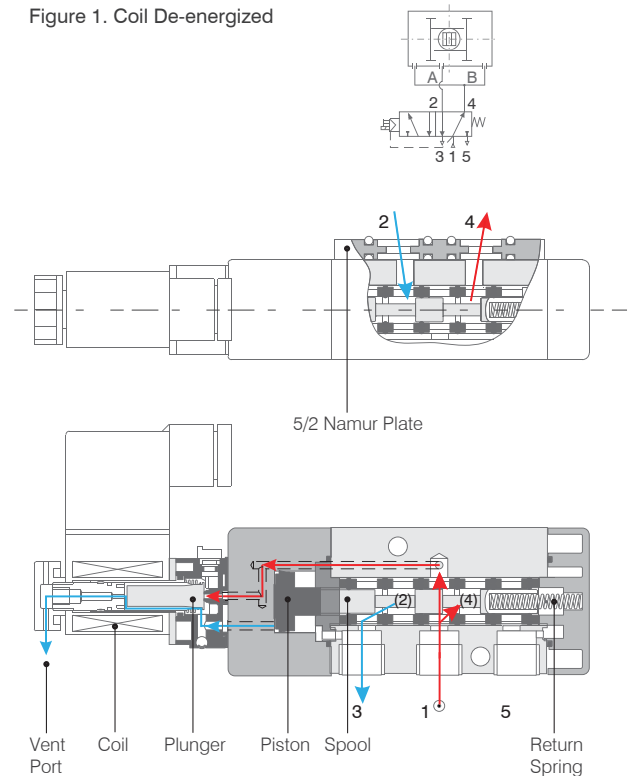
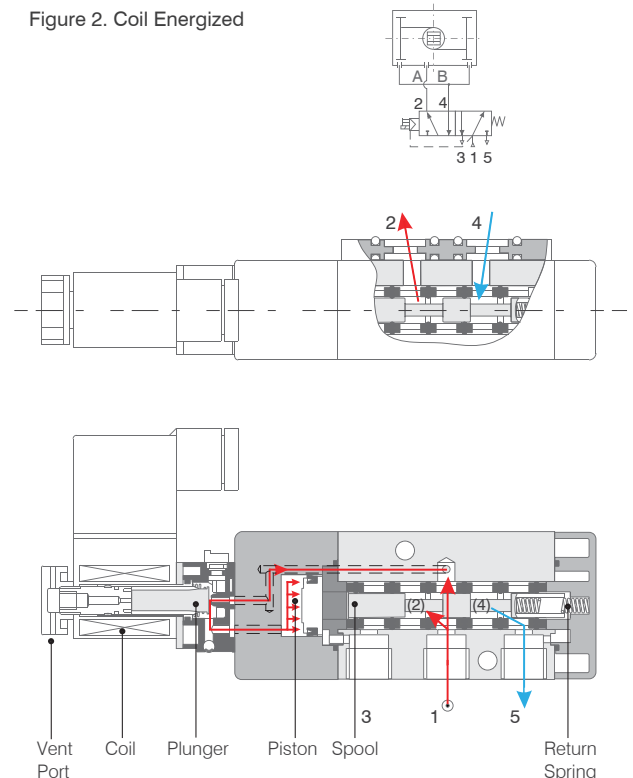


Figure 2. Coil Energized






ORDERING GUIDE

CODE OF AIRPOWER SOLENOID VALVES	TYPE OF SPOOL VALVE/ BODY	NO. OF COILS	FUNCTION OF THE VALVE	COIL AND PILOT
<i>Example: AP</i>	<i>3</i>	<i>10</i>	<i>F3</i>	<i>C0</i>
AP	0. PA + 30% glass fiber Direct Acting Valve (1/8" or 1/4" Ports).	10. Single Coil (Monostable)	F1. Namur 3/2NC, three ways & two positions.	C0. Standard Coil (Nema4,4X, IP65)
	1. Anodized Aluminium Direct Acting Valve (1/8" or 1/4" Ports, 24x32 Namur Connection, 3/2 or 5/2.)	20. Dual Coils (Bistable)	F2. Namur 5/2, five ways & two positions.	C1. 15mm Miniature Pilot Coil (FIM-IP65)
	2. Stainless Steel Spool Valve (1/8" or 1/4" Ports and 3/2 Screw Connection).		F3. Namur both for 3/2NC & 5/2 with adaptable plate.	For ASI or PLC Connected: C2. 15mm Miniature Pilot Coil (CROUZET-IP65)
	3. Anodized Aluminium Spool Valve (1/4" Ports, 24x32 Namur Connection, 3/2 or 5/2).		P1. In-Line 3/2NC, three ways & two positions.	For ASI or PLC Connected: C3. 15mm Miniature Pilot Coil (Ex ia IIC T6)
	4. Anodized Aluminium Spool Valve (1/2" Ports, 40x45 Namur Connection, 3/2 or 5/2).		P2. In-Line 5/2, five ways & two positions.	For ASI or PLC Connected: C4. S.S Enclosure Flameproof Coil (Ex d IIC T6)
	5. Anodized Aluminium Spool Valve (1/4" Ports, 24x32 Namur Connection, 3/2 and 5/2).		P3. In-Line both for 3/2NC & 5/2 with adaptable plate.	C5. Aluminium Enclosure Flameproof Coil (Ex d IIC T6)
	6. Stainless Steel Spool Valve (1/4" Ports, 24x32 Namur Connection, 3/2 and 5/2).			C6. Aluminium Enclosure Low Power Coil
				C7. Encapsulation Coil (Ex mb IIT4 or T5)

See over for optional details ►

SPOOL VALVE PERFORMANCE DATA

MODEL NO.	AP000	AP100	AP200
			
BODY AND FLUID CONTACT MATERIALS	PA, SS316 & NBR	Anodized Aluminium & NBR	SS316 & NBR
FUNCTION	3/2 Direct Acting, Spring Return, NC	3/2 Direct Acting, Spring Return, NC	3/2 Direct Acting, Spring Return, NC
AIR PORTS	1/8" or 1/4" BSPP or NPT	1/8" or 1/4" BSPP or NPT	1/8" or 1/4" BSPP or NPT
MOUNTING	Threaded connections	Namur & threaded connections	Namur & threaded connections
MANUAL OVERRIDE	As standard	As standard	As standard
WORKING TEMPERATURE	-25°C to 80°C	-25°C to 80°C	-25°C to 80°C
PRESSURE RATING	0-8 bar	0-8 bar	0-8 bar
WORKING MEDIUM	Filtered dry air or inert gas 40 micron or better	Filtered dry air or inert gas 40 micron or better	Filtered dry air or inert gas 40 micron or better
THE ORIFICE SIZE	Ø1.3 mm	Ø1.3 mm	Ø1.3 mm
APPLICATION	Indoor/ Outdoor	Indoor/ Outdoor	Indoor/ Outdoor
WORKING LIFE	Minimum 1 million	Minimum 1 million	Minimum 1 million
MAX ACTION FREQUENCY	8 cycle/sec	8 cycle/sec	8 cycle/sec









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MODEL NO.	AP300	AP400	AP500	AP600
				
BODY AND FLUID CONTACT MATERIALS	Anodized Aluminium, Glass-filled PA & NBR	Anodized Aluminium, Glass-filled PA & NBR	Anodized Aluminium, Glass-filled PA, POM & NBR	SS316, Glass-filled PA, POM & NBR
FUNCTION	5/2 or 3/2 NC	5/2 or 3/2 NC	5/2 & 3/2 NC	5/2 & 3/2 NC
AIR PORTS	1/4" BSPP or NPT	1/2" BSPP or NPT	1/4" BSPP or NPT	1/4" BSPP or NPT
MOUNTING	Namur mounting or In-Line	Namur mounting or In-Line	Namur mounting or In-Line	Namur mounting or In-Line
MANUAL OVERRIDE	As standard	As standard	As standard	As standard
WORKING TEMPERATURE	-5°C to 80°C	-5°C to 80°C	-25°C to 80°C On request: -40°C to 80°C	-25°C to 80°C On request: -40°C to 80°C
PRESSURE RATING	2-8 bar	2-8 bar	2-8 bar	2-8 bar
WORKING MEDIUM	Filtered dry air or inert gas 40 micron or better	Filtered dry air or inert gas 40 micron or better	Filtered dry air or inert gas 40 micron or better	Filtered dry air or inert gas 40 micron or better
THE ORIFICE SIZE	Ø5.64 mm	Ø7.98 mm	Ø5 mm	Ø5 mm
APPLICATION	Indoor/ Outdoor	Indoor/ Outdoor	Indoor/ Outdoor	Indoor/ Outdoor
WORKING LIFE	Minimum 1 million	Minimum 1 million	Minimum 1 million	Minimum 1 million
MAX ACTION FREQUENCY	5 Cycle/ Sec	5 Cycle/ Sec	5 Cycle/ Sec	5 Cycle/ Sec

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COILS AND PILOT COILS PERFORMANCE DATA

MODEL NO.	C0	C1	C2	C3	C4	C5	C6	C7
								
NAME	Standard Coil	15mm Miniature Pilot Coil	15mm Miniature Pilot Coil	15mm Miniature Pilot Coil	Stainless Steel Enclosure Coil	Aluminum Enclosure Coil	Aluminum Enclosure Coil	Encapsulation Coil
VOLTAGE WATTAGE/ POWER CONSUMPTION	12VDC-4W 24VDC-4W 48VDC-4W 240VAC-4VA (50/60HZ) 110VAC-4VA (50/60HZ) 210VAC-4VA (50/60HZ) 220VAC-4VA (50/60HZ) 240VAC-4VA (50/60HZ)	12VDC-2.3W 24VDC-2.3W 110VAC-2.5VA (50/60HZ) 220VAC-2.5VA (50/60HZ)	24VDC-1W	24VDC-0.7W	24VDC-3.5W 110VAC-4VA (50/60HZ) 220VAC-4VA (50/60HZ)	24VDC-3.5W 110VAC-4VA (50/60HZ) 220VAC-4VA (50/60HZ)	24VDC-0.7W	24VDC-3W 110VAC-4VA (50/60HZ) 220VAC-4VA (50/60HZ)
VOLTAGE TOLERANCE	±10%	±10%	±10%	±10%	±10%	±10%	±10%	±10%
DUTY CYCLE	100%	100%	100%	100%	100%	100%	100%	100%
WIRING CONNECTION	C/W Din Plug (6-8mm)	C/W Din Plug (4-6mm)	C/W Din Plug (4-6mm)	C/W Din Plug (4-6mm)	M20x1.5 Terminal Strips	M20x1.5 Terminal Strips	M20x1.5 Terminal Strips	Flying Leads
INSULATION PROTECTION	F Class Coil	F Class Coil	F Class Coil	F Class Coil	F Class Coil	F Class Coil	F Class Coil	H Class Coil
OPERATING TEMPERATURE	-50°C to 150°C	-5°C to 50°C	-5°C to 50°C	-10°C to 50°C	-25°C to 65°C	-25°C to 65°C	-25°C to 65°C	-25°C to 65°C
WEATHER PROTECTION	IP65, NEMA4, 4X	IP65	IP65	IP65	IP66	IP66	IP66	IP65
HAZARDOUS AREA	—	—	—	Ex ia IIC T6	Ex d IIC T6	Ex ia IIC T6	—	Ex mB II T4 or T5
APPROVED	CE, NEMA4,4X	CE	CE, UL,cUL	CE, UL,cUL	CE, Ex, ATEX	CE, Ex, ATEX	CE	CE, Ex, ATEX

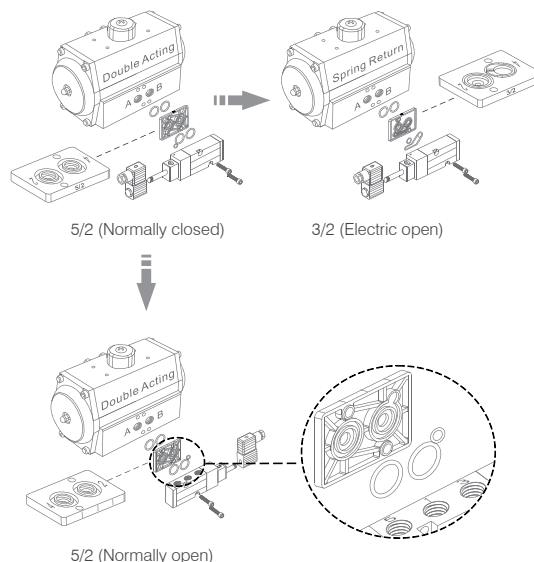
ASSEMBLY ON THE ACTUATOR

Before installing the Airpower Solenoid Valve, please depressurize all pipes and clean them internally to avoid particles entering the system (such items as PTFE tape sealant and thread compounds can damage the valve).

The valve is mounted directly onto the interface of the pneumatic actuator, as it matches the standard. The 3/2 and 5/2 function can be achieved by changing the direction of the interface plate.

The Airpower Solenoid valve and interface plate are fixed to the pneumatic actuator with 2 x M5 (torque 4 to 5 Nm) screws provided. For details see Figure 3.

FIGURE 3. ASSEMBLY DRAWING


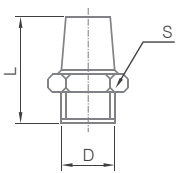


COLOUR CHOICES


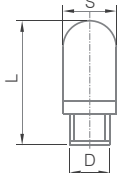


SILENCERS


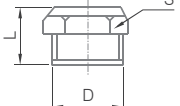
CONE BRASS

MODEL NO.	DIMENSIONS			
		L	D	S
M11	1/4"	29	15	
M12	3/8"	37	18	
M13	1/2"	41	21	


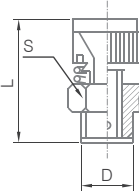
CONE BRASS

MODEL NO.	DIMENSIONS			
		L	D	S
M31	1/4"	39	Ø17	
M32	3/8"	65	Ø25	
M33	1/2"	70	Ø25	

FLAT BRASS

MODEL NO.	DIMENSIONS			
		L	D	S
M21	1/4"	17	16	
M22	3/8"	18	19	
M23	1/2"	20	24	

SPEED CONTROL BRASS

MODEL NO.	DIMENSIONS			
		L	D	S
M51	1/4"	27	14	
M52	3/8"	33	17	
M53	1/2"	33	21	