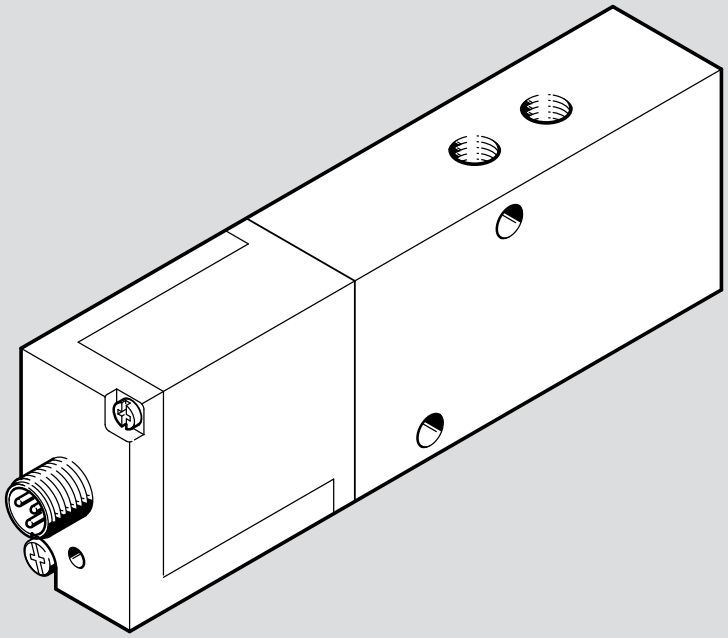
MPYE-5-...-B
Proportional directional control valve



FESTO

Operating instruction

8206934

8206934
2024-03h
[8206936]

Original instructions

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1 Applicable documents

All available documents for the product ➔ www.festo.com/sp.

2 Safety

2.1 Safety instructions

- Use non-lubricated compressed air only.
- Before working on the product: Switch off the power supply, ensure that it is off and secure it against being switched on again.
- Only use the product if it is in perfect technical condition.
- Only use the product in its original condition without unauthorised modifications.

2.2 Intended use

The proportional directional control valve controls the speed and positioning of a cylinder. The product is suitable for use only in industrial areas.

3 Additional information

- Contact the regional Festo contact if you have technical problems ➔ www.festo.com.
- Accessories and spare parts ➔ www.festo.com/catalogue.

4 Product overview

4.1 Structure

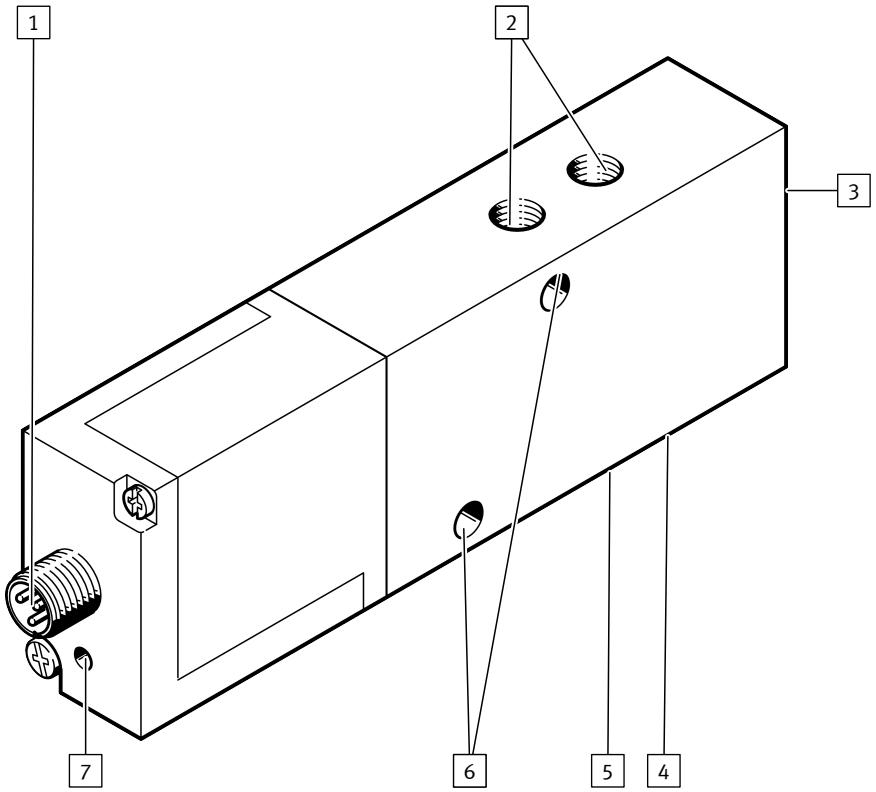


Fig. 1: Rear view

1 Electrical connection
2 Working air ports (2) and (4)
3 Inspection window for the position of the valve spool, rear
4 Exhaust ports (3) and (5), bottom
5 Compressed air connection (1), bottom
6 Mounting holes (2x)
7 Earth terminal

4.2 Function

The valve spool stroke in the proportional directional control valve is set proportionally to a specified setpoint value. The analogue electrical input signal initiates infinitive adjustment of the valve spool. The MPYE thereby controls the volume and direction of the volumetric flow rate.

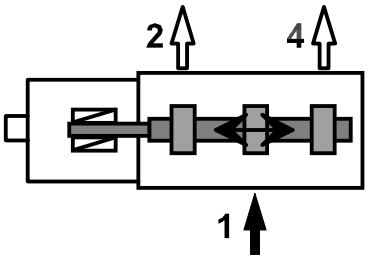


Fig. 2: Functional diagram

5 Mounting

5.1 Preparation

- Make sure there is sufficient space for the connecting cable and tubing connections.
- Place the valve as close to the consumer as possible.
- Keep the inspection window clear for checking the valve spool.

5.2 Fixing

1. For mounting on moving parts, mount the proportional directional control valve perpendicular to the direction of acceleration of the moving part.
2. When installing MPYE-5-1/8 and MPYE-5-M5, use washers between the valve body and the mounting surface.
3. Insert screws into both mounting holes.
4. Mount the proportional directional control valve at the intended location.

6 Installation

6.1 Installation, pneumatic

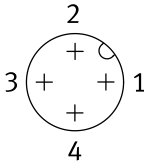
Do not seal the fitting with a PTFE sealing band. PTFE material may penetrate the valve during mounting.

1. Connect the compressed air connection.
2. Connect the working air connections.
3. Screw a silencer into the exhaust ports.

Use only silencers or tubing connections in the exhaust ports. Operational reliability will be impaired when closing with blanking plugs.

6.2 Installation, electrical

1. Use a plug socket with cable.
2. Lay out the cable without crushing, kinking or stretching it.
3. Tighten the union nut of the connection box to maximum 0.3 Nm.
4. Connect the flat plug to the earth connection ➔ maximum tightening torque 0.5 Nm.
5. Wire the valve housing to the earth potential with the flat plug.

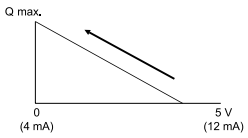
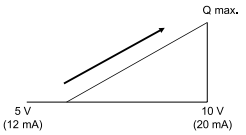
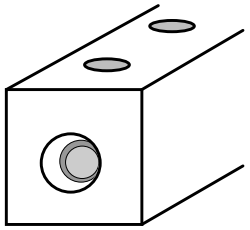
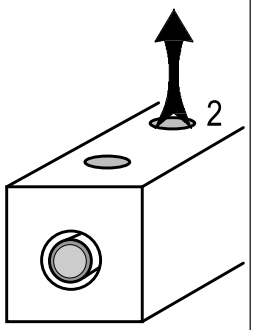
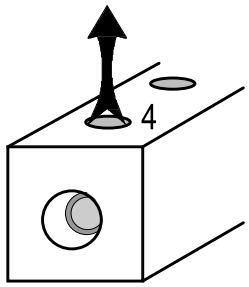
Connection	Pin	MPYE-5-...-010-B	MPYE-5-...-420-B
	1	Supply voltage	
	2	0 V/–	
	3	Setpoint voltage, 0 ... 10 V	Setpoint current, 4 ... 20 mA, +
	4	Setpoint voltage, 0 V / –	Setpoint current, 0 mA / –

Tab. 1: Pin allocation

7 Commissioning

1. Switch on the power supply.
2. Energise the product with the defined setpoint value. The valve spool is in the mid-position. The Q flow rate is blocked.
3. Adjust the setpoint value if necessary.

4. Slowly pressurise the product.

Setpoint specification			
MPYE-5-...-010-B	5 V	0 ... 5 V	5 ... 10 V
MPYE-5-...-420-B	12 mA	4 ... 12 mA	12 ... 20 mA
Volumetric flow rate	Flow rate blocked	Flow rate at output 2 increases. 	Flow rate at output 4 increases. 
Connections	All connections closed	Pressurisation: 1 → 2 Exhaust: 4 → 5	Pressurisation: 1 → 4 Exhaust: 2 → 3
Valve spool motion	Mid-position, unchanged 	Towards the inspection window. 	Away from the inspection window. 

Tab. 2: Setpoint voltage and setpoint current

8 Maintenance

Clean the outside of the product with a soft cloth as required.

9 Fault clearance

Malfunction	**Cause**	**Remedy**
Valve spool does not move	Power supply off	– Check 24 V power supply, connection.
	No setpoint value	– Check control unit. – Check connection.
	Valve spool jammed	– Send product to Festo.
Valve spool oscillates	Supply voltage too low	– Ensure 17...30 V power supply.
	Cable shield missing or incorrectly connected	– Shielding at the end of the cable away from the valve.
	Earth loop present	– Mount MPYE insulated.
Cylinder speed too low	Restriction of the flow cross section by connection technology (swivel fittings)	– Use alternative connections.

Tab. 3: Fault clearance

10 Technical data

10.1 Technical data, general

MPYE-5-...-B		
Certificates, declaration of conformity		➔ www.festo.com/sp
Operating medium		Compressed air to ISO 8573-1:2010 [6:4:4]
Information on the operating medium		Lubricated operation not possible
Mounting position		Any
		Accelerated parts must be perpendicular to the direction of movement
Storage temperature	[° C]	–20 ... +60
Ambient temperature	[° C]	0 ... +50
Temperature of medium	[° C]	+5 ... +40 Non-condensing
Degree of protection		IP65
Max. hysteresis		0.4% on maximum slide stroke
Materials		
Housing		Anodised aluminium
Seals		NBR
Screws		Galvanised steel
Electronics housing		PC/ABS
Valve spool and valve sleeve		Aluminium, hardened

Tab. 4: Technical data, general

10.2 Technical data, pneumatic

MPYE-5-...-B		-M5	-1/8-LF	-1/8-HF	-1/4	-3/8
Max. operating pressure	[MPa]	1.0				
	[bar]	10				
	[psi]	145				
Standard nominal flow rate	[l/min]	100 ± 10%	350 ± 10%	700 ± 10%	1400 ± 10%	2000 ± 10%
Max. normal leakage	[l/min]	7	20	25	30	35

Tab. 5: Technical data, pneumatic

10.3 Technical data, electrical

MPYE-5-...-B		-M5	-1/8-LF	-1/8-HF	-1/4-	-3/8
Operating voltage range	[V DC]	17 ... 30				
Setpoint voltage at MPYE-5-...-010-B	[V DC]	0 ... 10				
Setpoint current at MPYE-5-...-420-B	[mA]	4 ... 20				
Input current at MPYE-5-...-010-B	[µA]	–60 at 0 V				
		0 at 5 V				
		120 at 10 V				
Power consumption	[W]	2 ... 20				
Input resistance at MPYE-5-...-420-B	[Ω]	255				

Tab. 6: Technical data, electrical

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