Proportional directional control valve MPYE

Characteristics

At a glance

General information:

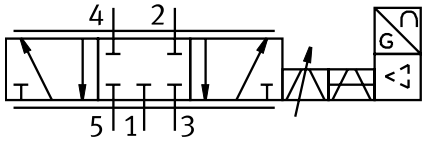
- The directly actuated proportional directional control valve has a position-controlled spool. This converts an analogue input signal into a corresponding opening cross-section at the valve outputs.
- In combination with an external position controller and displacement encoder, this can be used to create a precise pneumatic positioning system.
- Flow control function for varying the cylinder speed
- 5/3-way function to vary the direction of movement

Wide range of variants

- Setpoint input: analogue voltage signal; analogue current signal
- Flow rates from 100 ... 2000 l/min

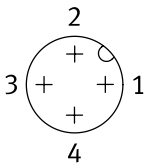
Valve function

[P53C]	5/3-way valve, mid-position closed



Series

[MPYE]	Proportional directional control valve



Pin 1: 24 V DC, supply voltage
Pin 2: GND
Pin 3: Setpoint value input
Pin 4: GND

Type code

001	Series	
MPYE	Proportional directional control valve	

002	Valve function	
5	5/3-way valve	

003	Pneumatic connection	
M5	M5	
1/8	G1/8	
1/4	G1/4	
3/8	G3/8	

004	Flow rate	
	Standard	
HF	High flow rate	
LF	Low flow rate	

005	Setpoint input for individual valves	
010	0 ... 10 V	
420	4 ... 20 mA	

006	Generation	
B	Series B	

Datasheet

General technical data

Pneumatic connection, port 1	M5	G1/8		G1/4	G3/8
Standard nominal flow rate (standardised to DIN 1343)	100 l/min	350 l/min	700 l/min	1,400 l/min	2,000 l/min
Valve function	5/3-way, closed				
Design	Piston gate valve				
Sealing principle	Hard				
Type of actuation	Electrical				
Type of reset	Magnetic spring				
Type of piloting	Direct				
Flow direction	Non-reversible				
Type of mounting	With through-hole				
Mounting position [1]	Any				
Nominal size	2 mm	4 mm	6 mm	8 mm	10 mm
Product weight	255 g	285 g		510 g	685 g

1) If the proportional directional control valve moves during operation, it must be mounted transverse to the direction of movement.

Electrical data

Pneumatic connection, port 1	M5		G1/8		G1/4		G3/8	
SETPOINT/ACTUAL values	Voltage type 0 - 10 V	Current type 4-20 mA	Voltage type 0 - 10 V	Current type 4-20 mA	Voltage type 0 - 10 V	Current type 4-20 mA	Voltage type 0 - 10 V	Current type 4-20 mA
Operational voltage range DC	17 ... 30 V							
Switching time	–							
Max. hysteresis [1]	0.4%							
Duty cycle [2]	–							
Residual ripple	5%							
Limit frequency [3]	115 Hz		95 Hz		80 Hz		70 Hz	
Reverse polarity protection	For all electrical connections	For setpoint value	For all electrical connections	For setpoint value	For all electrical connections	For setpoint value	For all electrical connections	For setpoint value
Degree of protection	IP65							
Electrical connection	4-pin, M12x1, Plug, Round design							

1) Related to the maximum stroke of the piston spool valve.

2) The proportional directional control valve switches off automatically (moves into the mid-position) if it overheats and switches on again once it has cooled down.

3) Corresponds to the 3 dB echo frequency at maximum movement stroke of the piston spool valve.

Operating and ambient conditions

Operating pressure	0 ... 1 MPa
Operating pressure	0 ... 10 bar
Operating medium	Compressed air to ISO 8573-1:2010 [6:4:4]
Note on operating and pilot medium	Lubricated operation not possible
Ambient temperature	0 ... 50°C
Media temperature	5 ... 40°C
Approval	RCM
Shock resistance [1]	–
Vibration resistance [2]	–
CE mark (see declaration of conformity) [4]	To EU EMC Directive In accordance with EU RoHS Directive
UKCA marking (see declaration of conformity)[5]	To UK instructions for EMC To UK RoHS instructions
KC mark	KC-EMV
Corrosion resistance class CRC [6]	2 - Moderate corrosion stress
Note on materials	RoHS compliant
LABS (PWIS) conformity	VDMA24364-B2-L

1) If the proportional directional control valve moves during operation, it must be mounted transverse to the direction of movement.

2) If the proportional directional control valve moves during operation, it must be mounted transverse to the direction of movement.

4) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... d Support/Downloads.
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

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6) More information www.festo.com/x/topic/crc

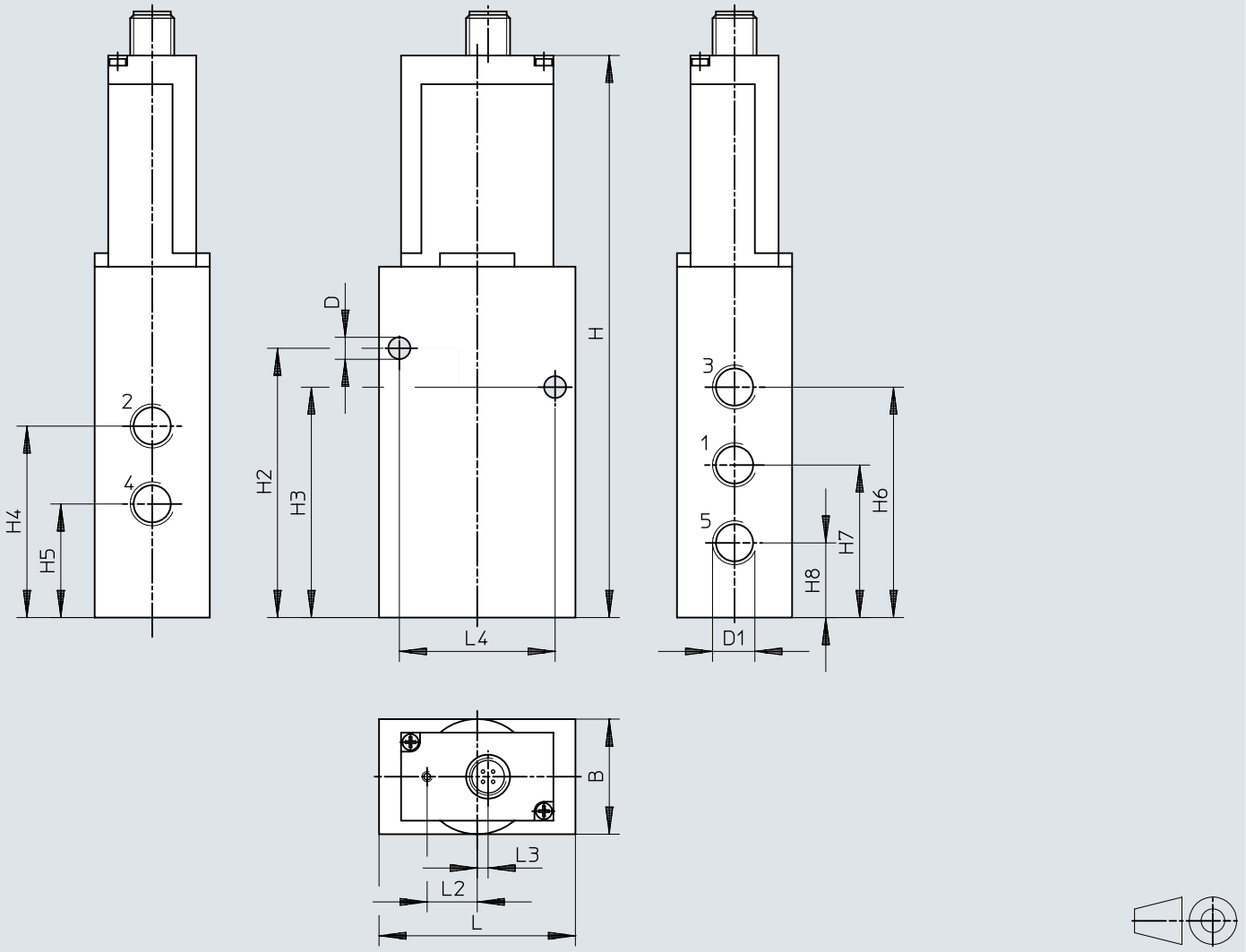
Datasheet

Materials	
Material housing [1]	Aluminium, anodised
Material seals	NBR
Material cover	ABS, coated

1) If the power supply cable breaks, the valve assumes the closed mid-position.

Dimensions

Dimensions – Proportional directional control valve MPYE Download CAD data www.festo.com



	D1	B	D ø	H	H2	H3	H4	H5	H6	H7	H8	L	L2	L3	L4
MPYE-5-M5-...-B	M5	26	5,5	130	57	39	32,3	20,3	38,3	26,3	14,3	45	14,8	3,2	32
MPYE-5-1/8-...-B	G1/8	26	5,5	149,3	71,3	55,3	45,8	26,8	55,3	36,3	17,3	45	14,8	3,2	35
MPYE-5-1/4-...-B	G1/4	35	6,5	162,5	77,5	66	54,5	31,5	66	43	20	58	14,8	3,2	46
MPYE-5-3/8-...-B	G3/8	40	6,5	174,5	96,3	77,3	63,3	35,3	80,3	49,3	18,3	67	14,8	3,2	54

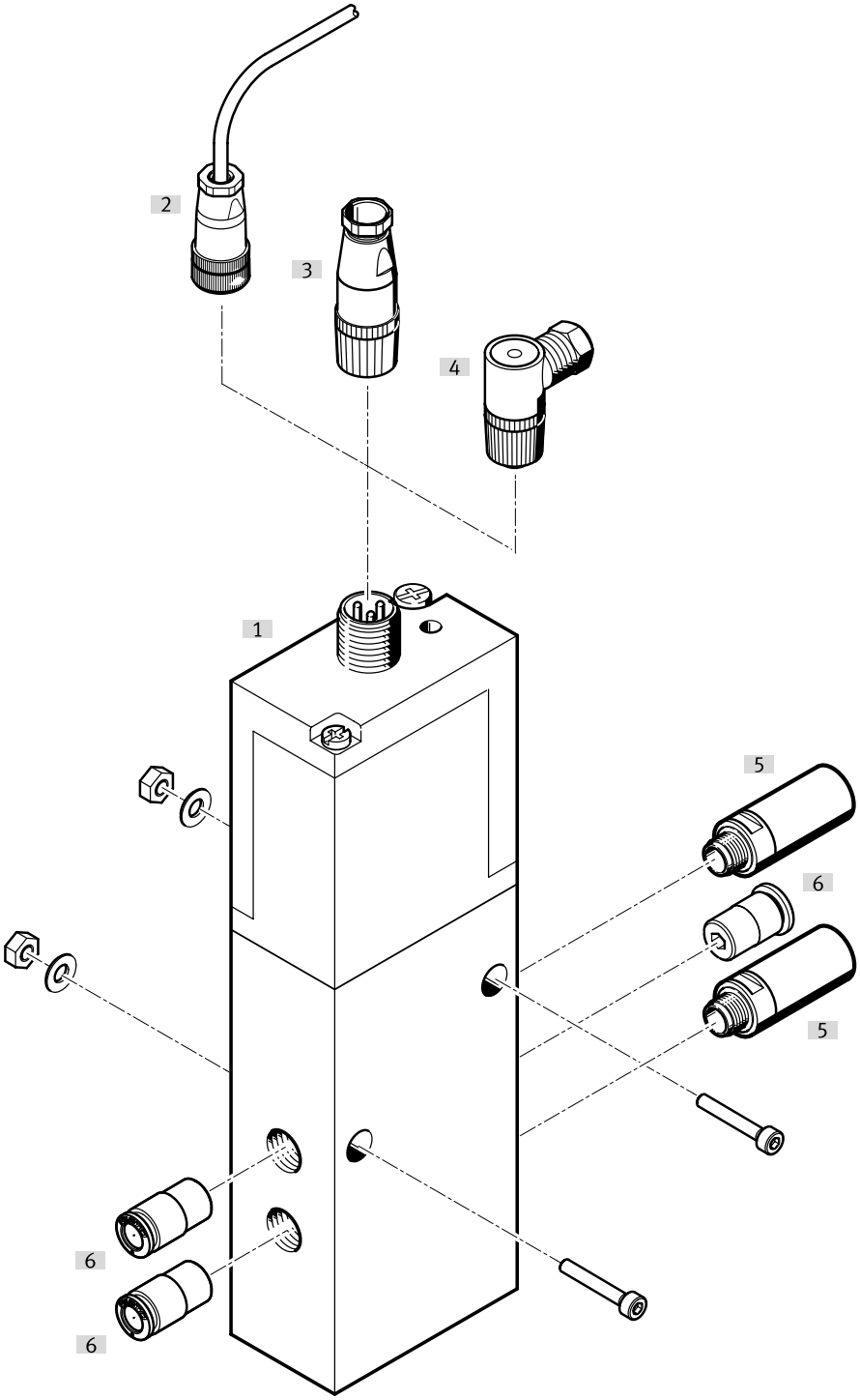
Ordering data

Proportional directional control valves MPYE

SETPOINT/ACTUAL values	Pneumatic connection, port 1	Standard nominal flow rate (standardised to DIN 1343)	Part no.	Type
Voltage type 0 - 10 V	M5	100 l/min	**154200**	**MPYE-5-M5-010-B**
	G1/8	350 l/min	**151692**	**MPYE-5-1/8-LF-010-B**
		700 l/min	**151693**	**MPYE-5-1/8-HF-010-B**
	G1/4	1,400 l/min	**151694**	**MPYE-5-1/4-010-B**
	G3/8	2,000 l/min	**151695**	**MPYE-5-3/8-010-B**
Current type 4-20 mA	M5	100 l/min	**162959**	**MPYE-5-M5-420-B**
	G1/8	350 l/min	**161978**	**MPYE-5-1/8-LF-420-B**
		700 l/min	**161979**	**MPYE-5-1/8-HF-420-B**
	G1/4	1,400 l/min	**161980**	**MPYE-5-1/4-420-B**
	G3/8	2,000 l/min	**161981**	**MPYE-5-3/8-420-B**

Peripherals

Peripherals overview



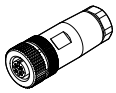
Accessories			→ Link
	Type/order code	Description	
[1]	Proportional directional control valve MPYE	–	–
[2]	Connecting cable	–	9
[3]	Sensor socket, straight	Straight, 4-pin, M12x1	9
[4]	Sensor socket, angled	Angled, 4-pin, M12x1	9
[5]	Silencer	For mounting in exhaust ports	u
[6]	Push-in fitting	For connecting tubing with standard O.D.	npqh

Accessories

Connecting cable

Electrical connection 1, connection type	Electrical connection 1, cable outlet	Electrical connection 1, connector system	Electrical connection 1, number of connections/ cores	Electrical connection 2, connector system	Cable length	Part no.	Type
Socket	Straight	M12x1, A-coded to EN 61076-2-101	4	Open end	5 m	**151909**	**KMPYE-5**

Sensor socket, straight



Electrical connection 1, connector system	Part no.	Type
M12x1, A-coded to EN 61076-2-101	**8162290**	**NECB-M12G4-C2**

Sensor socket, angled

Electrical connection 1, connector system	Part no.	Type
M12x1, A-coded to EN 61076-2-101	**8162292**	**NECB-M12W4-C2**