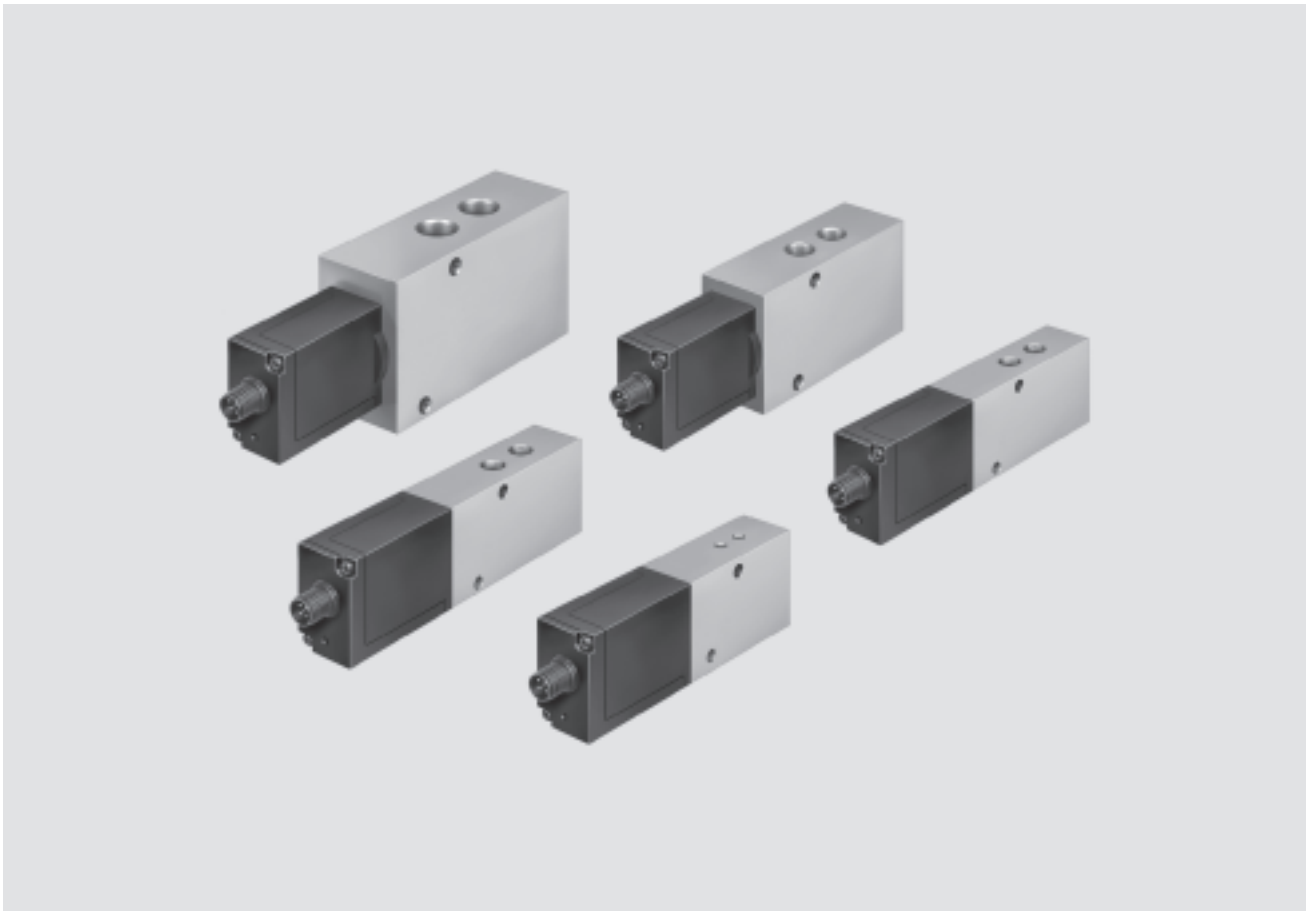


- High dynamics
- Final control element for closed control loops
- 5/3 –way function

# Proportional directional control valves MPYE

Key features

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## General information

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

## Wide choice of variants

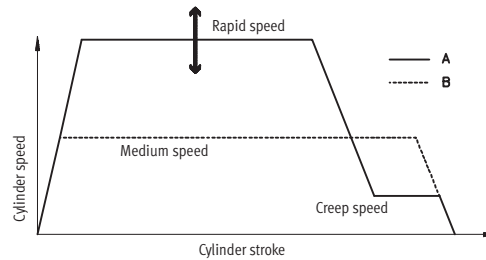
- Setpoint value input
  - Analogue voltage signal
  - Analogue current signal
- Flow rates from 100 ... 2 000 l/min

# Proportional directional control valves MPYE

Key features and type codes

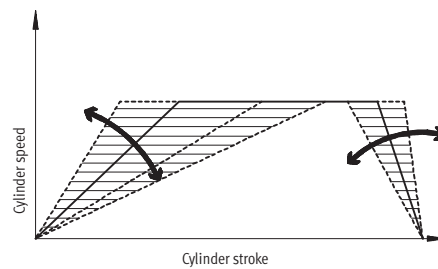
## Short machine cycle times – fast switching of programmed flow rates

- Reduce machine cycle times by optimising cylinder speeds
    - Assembly technology
    - Handling technology
    - Furniture industry
- A: Proportional valves allow different speed levels and speed ramps to be set.
- B: Speed regulation with directional control valves is more difficult and is performed by means of exhaust air flow control.



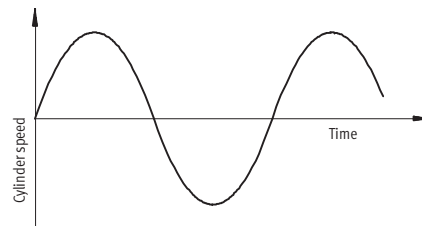
## Flexible cylinder speeds – Achieving variable flow rates

- Flexibly adapting cylinder speeds to the process. Traversing individual acceleration ramps (gentle approach with delicate goods)
  - Automobile suppliers
  - Production technology
  - Conveyor technology
  - Test engineering



## Proportional directional control valve as final control element – Dynamic and fast changing of flow rates

- Fatigue tests
- Pneumatic positioning with SPC200
- SoftStop with end-position controller SPC11



## Type codes

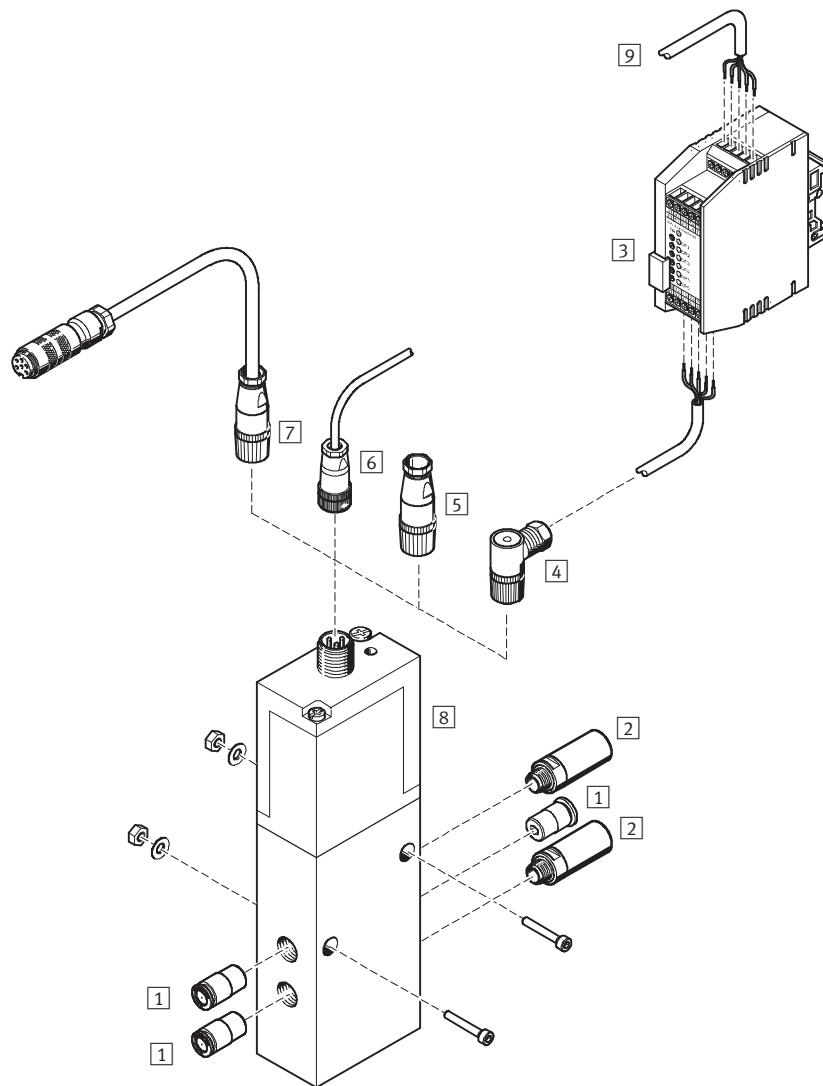
MPYE – 5 – 1/8 LF – 010 – B

Type	
MPYE	Proportional directional control valve
Valve function	
5	5/3-way valve
Pneumatic connection	
M5	M5
1/8 LF	G1/8 Low Flow
1/8 HF	G1/8 High Flow
1/4	G1/4
3/8	G3/8
Setpoint value input	
010	Analogue voltage signal
420	Analogue current signal
Generation	
B	B series

# Proportional directional control valves MPYE

Peripherals overview

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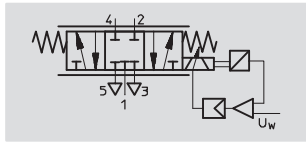


Accessories		
	Brief description	→ Page/Internet
1	Push-in fitting QS	quick star
2	Silencer	u
3	Setpoint module MPZ	–
4	Sensor socket SIE-WD-TR	8
5	Sensor socket SIE-GD	8
6	Connecting cable KMPYE	8
7	Connecting cable KVIA-MPYE	8
8	Proportional directional control valve MPYE	5
9	Digital input/output	–

# Proportional directional control valves MPYE

Technical data

## Function



- Voltage  
17 ... 30 V DC
- Flow rate  
100 ... 2 000 l/min
- Pressure  
0 ... 10 bar

## Variants

- Setpoint value input as analogue voltage signal 0 ... 10 V
- Setpoint value input as analogue current signal 4 ... 20 mA

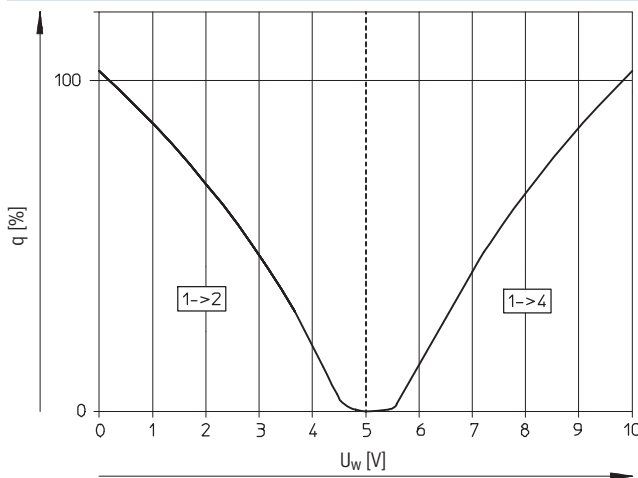


General technical data						
Pneumatic connection	M5	G $\frac{1}{8}$		G $\frac{1}{4}$	G $\frac{3}{8}$	
		Low flow	High flow			
Valve function	5/3-way, normally closed					
Constructional design	Piston spool, directly actuated, controlled piston spool position					
Sealing principle	Hard					
Actuation type	Electrical					
Type of reset	Mechanical spring					
Type of pilot control	Direct					
Direction of flow	Non-reversible					
Type of mounting	Via through-holes					
Mounting position <sup>1)</sup>	Any					
Operating medium	Compressed air, filtered (to 5 $\mu$ m), unlubricated					
Nominal size	[mm]	2	4	6	8	10
Standard nominal flow rate	[l/min]	100	350	700	1 400	2 000
Product weight	[g]	290	330	330	530	740

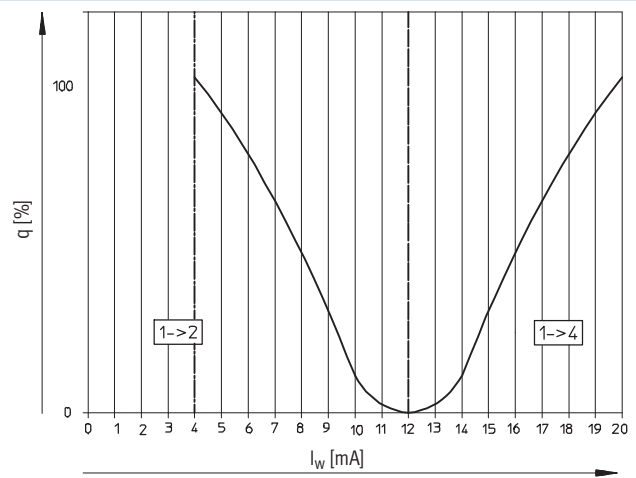
1) If the proportional directional control valve is in motion during operation, it must be mounted at right angles to the direction of movement.

## Flow rate $q$ at 6 $\rightarrow$ 5 bar as a function of the setpoint voltage $U$

Voltage type MPYE-5-...-010-B



Current type MPYE-5-...-420-B



# Proportional directional control valves MPYE

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Technical data

Electrical data			M5		G $\frac{1}{8}$		G $\frac{1}{4}$	G $\frac{3}{8}$
Pneumatic connection			Low flow		High flow			
Power supply	[V DC]		17 ... 30					
Max. current consumption	in mid-position	[mA]	100					
	at full stroke	[mA]	1 100					
Setpoint value	Voltage type	[V DC]	0 ... 10					
	Current type	[mA]	4 ... 20					
Max. hysteresis <sup>1)</sup>		[%]	0.4					
Valve mid-position	Voltage type	[V DC]	5 ( $\pm 0.1$ )					
	Current type	[mA]	12 ( $\pm 0.16$ )					
Duty cycle <sup>2)</sup>		[%]	100					
Critical frequency <sup>3)</sup>		[Hz]	125	100	100	90	65	
Safety setting	Active mid-position in the event of setpoint value cable break							
Protection against polarity reversal	Voltage type	For all electrical connections						
	Current type	For setpoint value						
Protection class	IP65							
Electrical connection	4-pin plug socket, round design, M12x1							

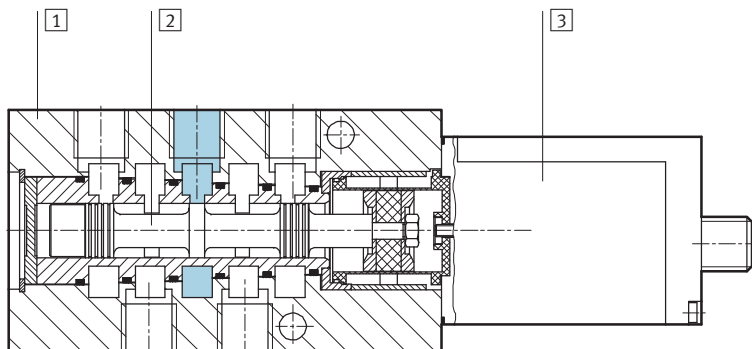
- 1) Referred to the maximum stroke of the piston spool.
- 2) The proportional direction control valve automatically switches off if it overheats (goes to mid-position) and switches back on once it cools down.
- 3) Corresponds to the 3dB frequency at the maximum movement stroke of the piston spool.

Operating and environmental conditions		
Operating pressure	[bar]	0 ... 10
Ambient temperature	[°C]	0 ... 50
Vibration resistance <sup>1)</sup>	To DIN/IEC 68 Parts 2 -6, severity level 2	
Continuous shock resistance <sup>1)</sup>	To DIN/IEC 68 Parts 2 -27, severity level 2	
CE symbol	To 89/336/EEC (EMC regulation)	
Temperature of medium	[°C]	5 ... 40, condensation not permitted

- 1) If the proportional directional control valve is in motion during operation, it must be mounted at right angles to the direction of movement.

## Materials

Sectional view



1	Housing	Anodised aluminium
2	Valve spool	Tempered aluminium
3	Housing for electronics	Galvanised acrylic butadiene styrene
-	Seals	Nitrile rubber

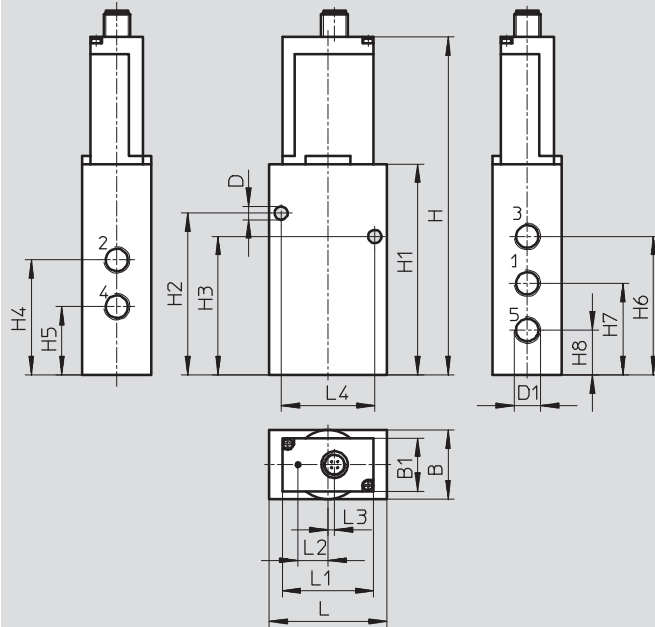
# Proportional directional control valves MPYE

Technical data

FESTO

## Dimensions

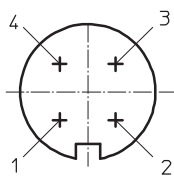
Download CAD data → [www.festo.com](http://www.festo.com)



Pneumatic connection D1	B	B1	D Ø	H	H1	H2	H3	H4
M5	26	–	5.5	129.9	69	56.1	38.1	32.1
G $\frac{1}{8}$	26	–	5.5	149.3	88.4	71.3	55.1	45.8
G $\frac{1}{4}$	35	26	6.5	164.6	103.7	79.6	68.1	56.6
G $\frac{3}{8}$	40	26	6.5	176.6	115.7	98.4	79.4	65.4

Pneumatic connection D1	H5	H6	H7	H8	L	L1	L2	L3	L4
M5	20.1	38.1	26.1	14.1	45	–	14.8	3.2	32
G $\frac{1}{8}$	26.8	55.3	36.3	17.3	45	–	14.8	3.2	35
G $\frac{1}{4}$	33.6	68.1	45.1	22.1	58	45	14.8	3.2	46
G $\frac{3}{8}$	37.4	82.4	51.4	20.4	67	45	14.8	3.2	54

## Terminal allocation



- 1 24 V DC, supply voltage
- 2 GND
- 3  $U_w/I_w$ , setpoint input
- 4 GND


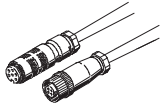




## Ordering data

Pneumatic connection	Voltage type 0 ... 10 mV		Current type 4 ... 20 mA	
	Part No.	Type	Part No.	Type
M5	154 200	MPYE-5-M5-010-B	162 959	MPYE-5-M5-420-B
G $\frac{1}{8}$	151 692	MPYE-5- $\frac{1}{8}$ LF-010-B	161 978	MPYE-5- $\frac{1}{8}$ LF-420-B
	151 693	MPYE-5- $\frac{1}{8}$ HF-010-B	161 979	MPYE-5- $\frac{1}{8}$ HF-420-B
G $\frac{1}{4}$	151 694	MPYE-5- $\frac{1}{4}$ -010-B	161 980	MPYE-5- $\frac{1}{4}$ -420-B
G $\frac{3}{8}$	151 695	MPYE-5- $\frac{3}{8}$ -010-B	161 981	MPYE-5- $\frac{3}{8}$ -420-B

# Proportional directional control valves MPYE

Accessories

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Ordering data			
	Description	Cable length [m]	Part No. Type
Connecting cable			Technical data → Internet: kmpye, kvia
	Screened	5	<b>151 909</b> KMPYE-5
		X length <sup>1)</sup>	<b>151 910</b> KMPYE-...
	Connecting cable to the analogue module of valve terminal type 03	5	<b>161 984</b> KVIA-MPYE-5
		10	<b>161 985</b> KVIA-MPYE-10
	Connecting cable to the axis interface of the axis controller SPC200	0.3	<b>170 239</b> KMPYE-AIF-1-GS-GD-0,3
		2	<b>170 238</b> KMPYE-AIF-1-GS-GD-2
Sensor socket			Technical data → Internet: sie-gd
	Straight, 4-pin, M12x1	–	<b>18 494</b> SIE-GD
Sensor socket			Technical data → Internet: sie-wd
	Angled, 4-pin, M12x1	–	<b>12 956</b> SIE-WD-TR
Setpoint module			Technical data → Internet: mpz
	Generation of 6+1 analogue setpoint values	–	<b>546 224</b> MPZ-1-24DC-SGH-6-SW5

1) Max. 10 m