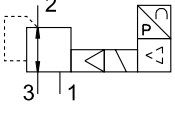
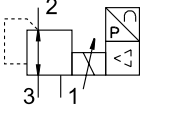


## Proportional-pressure regulators MPPE/MPPES

**FESTO**

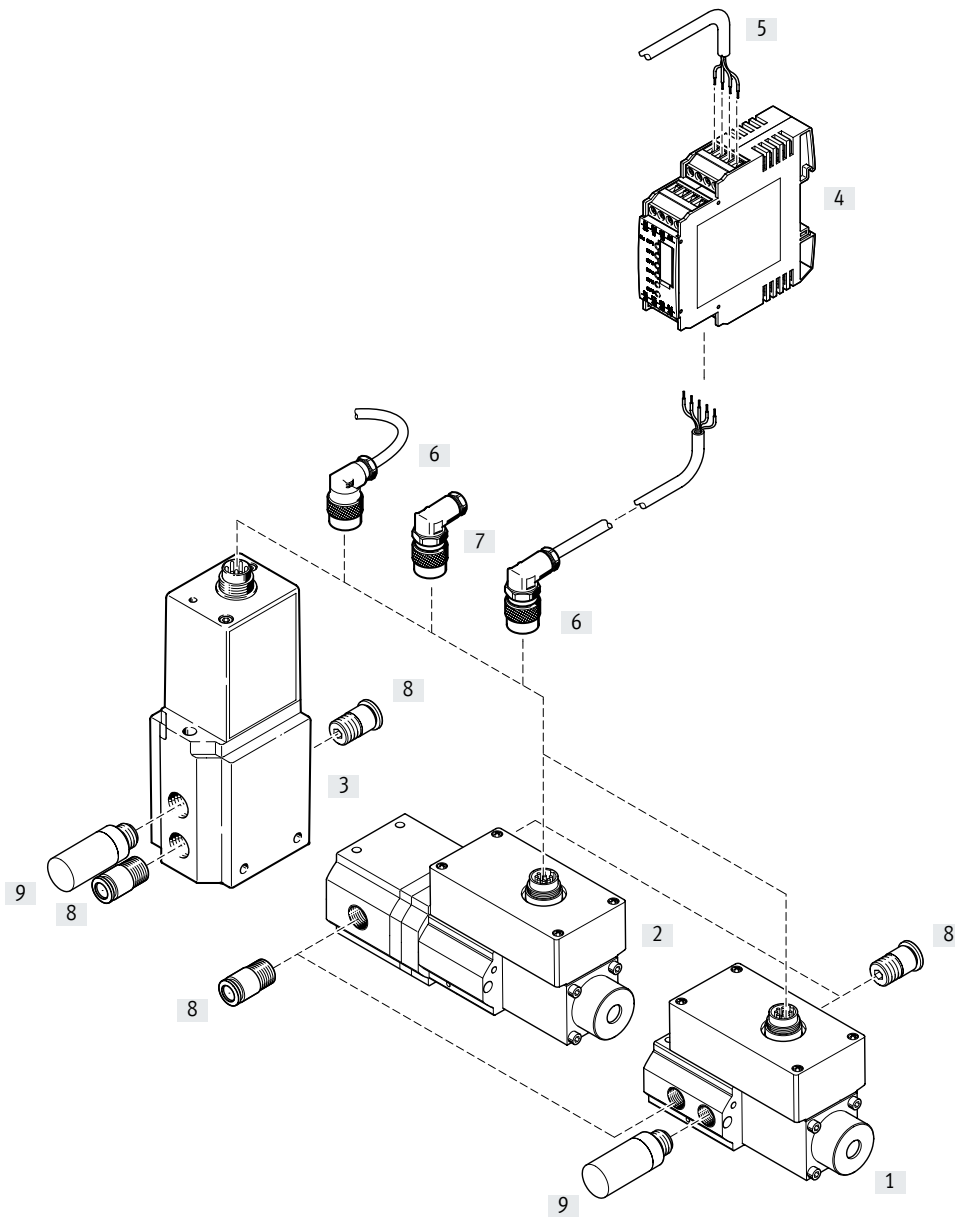


Product range overview

Function	Type	Circuit symbol	Design	Pneumatic connection 1	Nominal width for pressurisation/exhaust [mm]	Pressure regulation range <sup>1)</sup> [bar]	Setpoint input		→ Page/Internet
							Voltage type	Current type	
Proportional-pressure regulators	<b>With switching valves</b>								
	MPPE		Pilot-actuated valve	G1/8	5/5	0 ... 1 0 ... 2.5 0 ... 6 0 ... 10	■	■	4
				G1/4	7/7		■	■	
				G1/2	11/12		■	■	
	<b>With proportional solenoid</b>								
	MPPES		Directly actuated valve	G1/8	3/2	0 ... 2 0 ... 6 0 ... 10	■	■	11
Pilot-actuated valve				G1/4	7/7		■	■	
				G1/2	11/12		■	■	

1) Pressure regulation range also on customer request

## Peripherals overview



Accessories		Type	Description	→ Page/Internet
[1]	Proportional-pressure regulator	MPPES	Directly actuated	12
[2]	Proportional-pressure regulator	MPPES	Indirectly actuated	12
[3]	Proportional-pressure regulator	MPPE	Indirectly actuated	5
[4]	Setpoint module	MPZ	For generating 6+1 analogue voltage signals	18
[5]	Digital input/output	–	For controlling the setpoint module	–
[6]	Plug socket with cable	KMPE-B	–	18
[7]	Angled plug socket	MPPE-3-B	–	18
[8]	Push-in fitting	QS	For connecting compressed air tubing	qs
[9]	Silencer	U	For mounting in exhaust ports	u

## Type codes

001	Series	
<b>MPPE</b>	Proportional-pressure regulator	

002	Valve function	
<b>3</b>	3/3-way valve, normally closed	


003	Pneumatic connection	
<b>G18</b>	G1/8	
<b>G14</b>	G1/4	
<b>G12</b>	G1/2	


004	Upper pressure value of control range	
<b>1H</b>	1 bar	
<b>10H</b>	10 bar	
<b>6H</b>	6 bar	
<b>2,5H</b>	2.5 bar	


005	Setpoint input for individual valves	
<b>A4</b>	4 ... 20 mA	
<b>V1</b>	0 ... 10 V	

006	Generation	
<b>B</b>	Series B	

Data sheet

-  Flow rate  
350 ... 8800 l/min

-  Voltage  
18 ... 30 V DC

-  Pressure regulation ranges  
0 ... 1 bar  
0 ... 2.5 bar  
0 ... 6 bar  
0 ... 10 bar

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

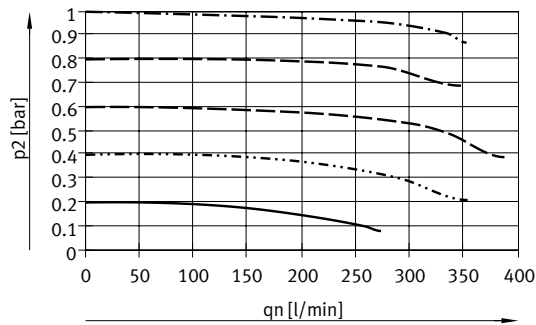


General technical data			G1/8	G1/4	G1/2
Pneumatic connection			G1/8	G1/4	G1/2
Design			Pilot-actuated piston regulator		
Valve function			3-way proportional-pressure regulator, closed		
Pneumatic connection 1, 2, 3			G1/8	G1/4	G1/2
Sealing principle			Soft		
Actuation type			Electrical		
Type of mounting			With through-hole		
Mounting position			Any		
Nominal width	Pressurisation	[mm]	5	7	11
	Exhaust	[mm]	5	7	12
Standard nominal flow rate			→ Graphs		
Product weight			710	920	2400

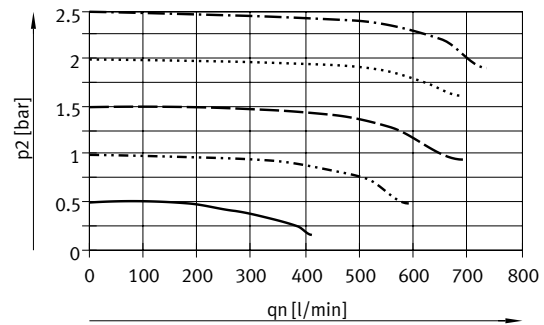
Flow rate qn as a function of output pressure p2

Pneumatic connection G1/8

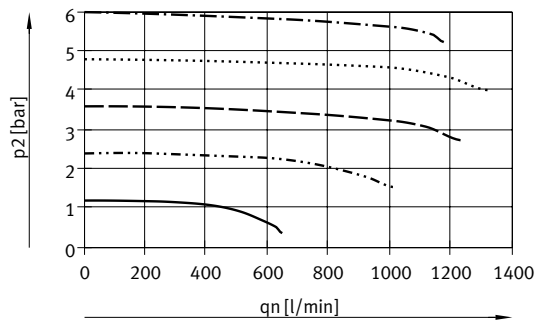
Pressure regulation range 0 ... 1 bar



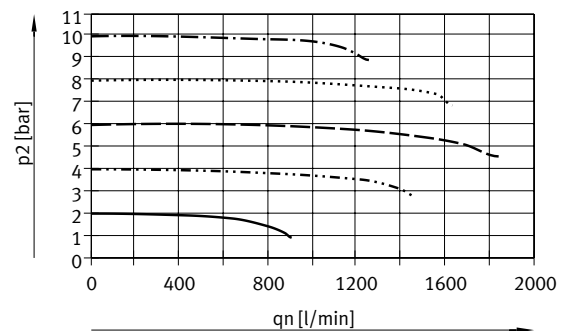
Pressure regulation range 0 ... 2.5 bar



Pressure regulation range 0 ... 6 bar



Pressure regulation range 0 ... 10 bar

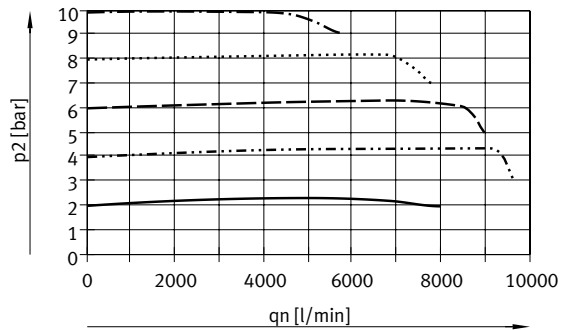


Data sheet

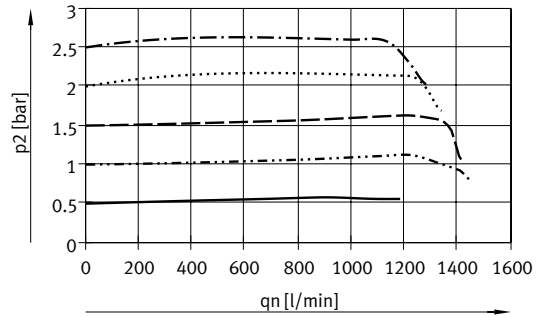
Flow rate  $q_n$  as a function of output pressure  $p_2$

Pneumatic connection G1/4

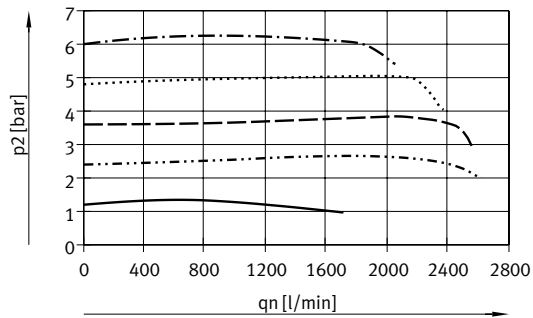
Pressure regulation range 0 ... 1 bar



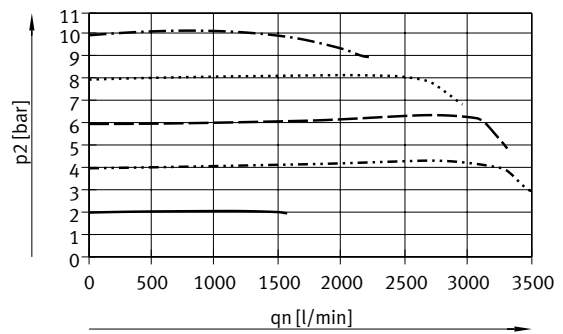
Pressure regulation range 0 ... 2.5 bar



Pressure regulation range 0 ... 6 bar



Pressure regulation range 0 ... 10 bar

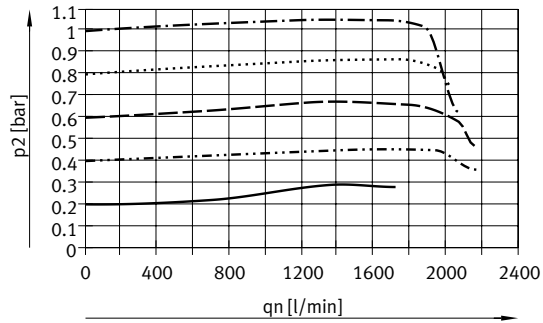


Data sheet

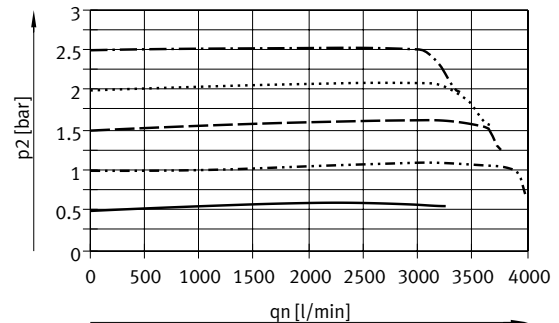
Flow rate  $q_n$  as a function of output pressure  $p_2$

Pneumatic connection G1/2

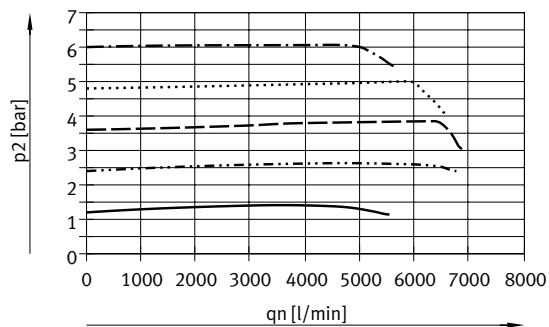
Pressure regulation range 0 ... 1 bar



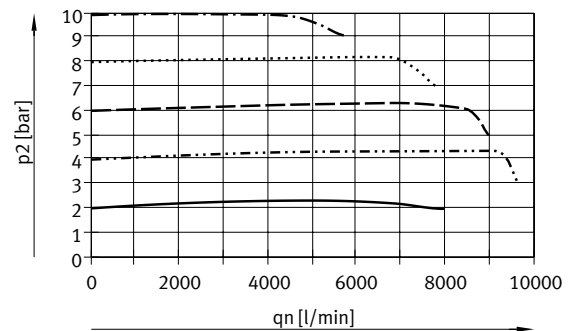
Pressure regulation range 0 ... 2.5 bar



Pressure regulation range 0 ... 10 bar



Pressure regulation range 0 ... 10 bar



## Data sheet

Operating and environmental conditions		0 ... 1	0 ... 2.5	0 ... 6	0 ... 10
Pressure regulation range	[bar]	0 ... 1	0 ... 2.5	0 ... 6	0 ... 10
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4] Inert gases			
Note on the operating/pilot medium	Basic type	Lubricated operation possible (in which case lubricated operation will always be required)			
Input pressure 1	[bar]	1.5 ... 2	3.5 ... 4.5	7 ... 8	11 ... 12
Max. pressure hysteresis	[mbar]	30	40	40	50
Ambient temperature	[°C]	0 ... 50			
Temperature of medium	[°C]	0 ... 60			
Corrosion resistance CRC <sup>1)</sup>		2 <sup>1)</sup>			
Certification		RCM			
CE marking (see declaration of conformity)		In accordance with EU EMC Directive <sup>2)</sup>			
KC mark	Basic type	KC EMC			

1) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

2) For information about the area of use, see the EC declaration of conformity at: [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

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.

Electrical data		0 ... 1	0 ... 2.5	0 ... 6	0 ... 10
Pressure regulation range	[bar]	0 ... 1	0 ... 2.5	0 ... 6	0 ... 10
Electrical connection		Plug, round design to DIN 45326, M16 x 0.75, 8-pin			
Operating voltage range	U <sub>B</sub> [V DC]	18 ... 30			
Residual ripple		10 %			
Setpoint input signal	Voltage U <sub>w</sub> [V DC]	0 ... 10			
	Current I <sub>w</sub> [mA]	4 ... 20			
Actual value output signal	Voltage U <sub>x</sub> [V DC]	0 ... 10			
	Current I <sub>x</sub> [mA]	4 ... 20			
Degree of protection		IP65			
Safety instructions		Safety position MPPE-B: If the setpoint cable (current) or the supply voltage cable breaks, the output pressure is maintained unregulated. Leakage will result in different deviations over time. In case of a setpoint cable break (voltage), the output pressure is set to 0 bar.			
Reverse polarity protection	Basic type	For all electrical connections			
Short circuit current rating	Basic type	For all electrical connections			
Reference voltage		10 V			

Pressure range		0 ... 1	0 ... 2.5	0 ... 6	0 ... 10
Pressure regulation range	[bar]	0 ... 1	0 ... 2.5	0 ... 6	0 ... 10
Operating pressure	Basic type	≤ 2 bar	≤ 4.5	≤ 8	≤ 12
	Special adaptation type [bar]	-	-	-	0 ... 10
Input pressure 1	[bar]	1.5 ... 2	3.5 ... 4.5	7 ... 8	11 ... 12
Max. pressure hysteresis	[bar]	0.03	0.04	0.04	0.05

Switching times – Basic type		0 ... 1	0 ... 2.5	0 ... 6	0 ... 10
Pressure regulation range	[bar]	0 ... 1	0 ... 2.5	0 ... 6	0 ... 10
Switching time on	G1/8 [ms]	95	140	100	125
	G1/4 [ms]	140	150	150	160
	G1/2 [ms]	70	85	170	140
Switching time off	G1/8 [ms]	165	250	190	220
	G1/4 [ms]	225	260	260	280
	G1/2 [ms]	500	205	510	535

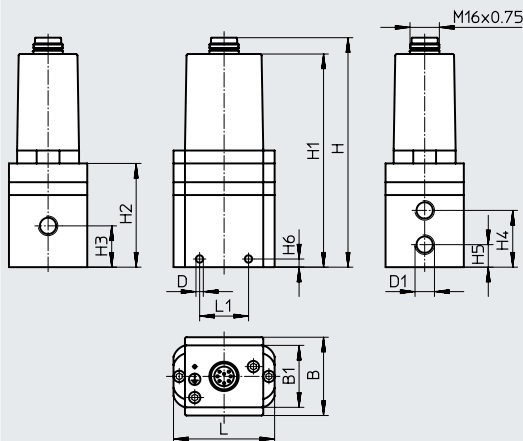
Switching times – Special adaptation type		0 ... 10
Pressure regulation range	[bar]	0 ... 10
Switching time on	G1/8 [ms]	140
	G1/4 [ms]	160
	G1/2 [ms]	170
Switching time off	G1/8 [ms]	220
	G1/4 [ms]	280
	G1/2 [ms]	535



## Data sheet

Information on materials		
Housing		Wrought aluminium alloy
Diaphragm		NBR
Note on materials	Basic type	RoHS-compliant

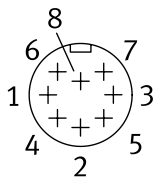
## Dimensions

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


Connection D1	B	B1	∅D	H	H1	H2	H3	H4	H5	H6	L	L1
G1/8	38	-	4.5	129.1	100	60.2	18.8	26.8	9.3	4	62	34
G1/4	48	38	4.5	170.2	140.7	63.6	25.3	34.8	13.8	5	62	30
G1/2	76	38	7	227.1	194.6	117.5	53	74	32	18	86	50

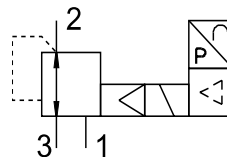
## Connections

## Terminal allocation



- 1  $X_{ext,in}$
- 2 GND
- 3 GND
- 4  $W_{in}$  (setpoint input)
- 5  $10 V_{OUT}$
- 6  $X_{out}$  (actual value output)
- 7 24 V DC (supply voltage)
- 8 GND

## Switching function



## Data sheet

Ordering data					
Pneumatic connection 1, 2, 3	Pressure regulation range [bar]	Voltage type 0 ... 10 V		Current type 4 ... 20 mA	
		Part no.	Type	Part no.	Type
<b>Basic type</b>					
G1/8	0 ... 1	161160	MPPE-3-1/8-1-010-B	161163	MPPE-3-1/8-1-420-B
	0 ... 2.5	164315	MPPE-3-1/8-2.5-010-B	164316	MPPE-3-1/8-2.5-420-B
	0 ... 6	161161	MPPE-3-1/8-6-010-B	161164	MPPE-3-1/8-6-420-B
	0 ... 10	161162	MPPE-3-1/8-10-010-B	161165	MPPE-3-1/8-10-420-B
G1/4	0 ... 1	161166	MPPE-3-1/4-1-010-B	161169	MPPE-3-1/4-1-420-B
	0 ... 2.5	164317	MPPE-3-1/4-2.5-010-B	164318	MPPE-3-1/4-2.5-420-B
	0 ... 6	161167	MPPE-3-1/4-6-010-B	161170	MPPE-3-1/4-6-420-B
	0 ... 10	161168	MPPE-3-1/4-10-010-B	161171	MPPE-3-1/4-10-420-B
G1/2	0 ... 1	161172	MPPE-3-1/2-1-010-B	161175	MPPE-3-1/2-1-420-B
	0 ... 2.5	164319	MPPE-3-1/2-2.5-010-B	164320	MPPE-3-1/2-2.5-420-B
	0 ... 6	161173	MPPE-3-1/2-6-010-B	161176	MPPE-3-1/2-6-420-B
	0 ... 10	161174	MPPE-3-1/2-10-010-B	161177	MPPE-3-1/2-10-420-B
<b>Special adaptation type<sup>1)</sup></b>					
G1/8	0 ... 10	164330	MPPE-3-1/8- -B <sup>1)</sup>	164330	MPPE-3-1/8- -B <sup>1)</sup>
G1/4	0 ... 10	164331	MPPE-3-1/4- -B <sup>1)</sup>	164331	MPPE-3-1/4- -B <sup>1)</sup>
G1/2	0 ... 10	164332	MPPE-3-1/2- -B <sup>1)</sup>	164332	MPPE-3-1/2- -B <sup>1)</sup>


1) The special adaptation type allows a lower pressure PU to be assigned to the setpoint value 0 V or 4 mA and an upper pressure PO to be assigned to the setpoint value 10 V or 20 mA.


## Type codes


001		Series
MPPES	Proportional pressure regulator with proportional solenoid	
002		Valve function
1	3/2-way valve, normally closed	
003		Pneumatic connection
G18	G1/8	
G14	G1/4	
G12	G1/2	

004		Upper pressure value of control range
2H	2 bar	
10H	10 bar	
6H	6 bar	
005		Setpoint input for individual valves
A4	4 ... 20 mA	
V1	0 ... 10 V	

Data sheet

-  Flow rate  
230 ... 8500 l/min

-  Voltage  
18 ... 30 VDC

-  Pressure regulation ranges  
0 ... 2 bar  
0 ... 6 bar  
0 ... 10 bar

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

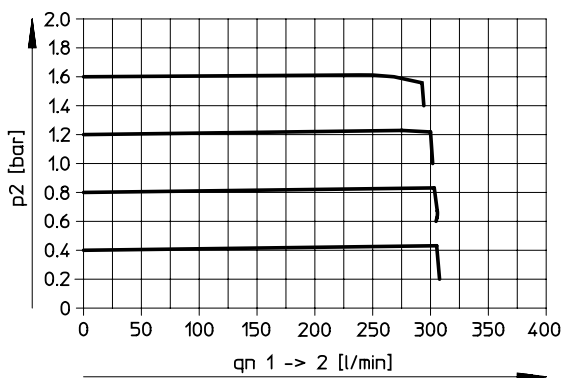


General technical data			G1/8	G1/4	G1/2
Pneumatic connection			G1/8	G1/4	G1/2
Design			Directly actuated piston regulator	Pilot-actuated piston regulator	
Valve function			3-way proportional-pressure regulator, closed		
Pneumatic connection 1, 2, 3			G1/8	G1/4	G1/2
Sealing principle			Soft		
Actuation type			Electrical		
Type of mounting			With through-hole		
Mounting position			Any		
Nominal width	Pressurisation	[mm]	3	7	11
	Exhaust	[mm]	2	7	12
Standard nominal flow rate		[l/min]	→ Graphs		
Product weight		[g]	915	1310	2670

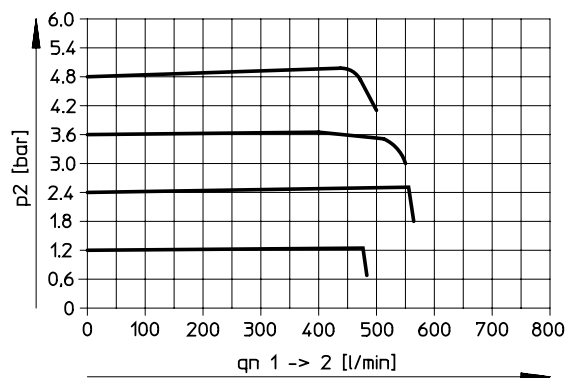
Flow rate  $q_n$  as a function of output pressure  $p_2$

Pneumatic connection G1/8

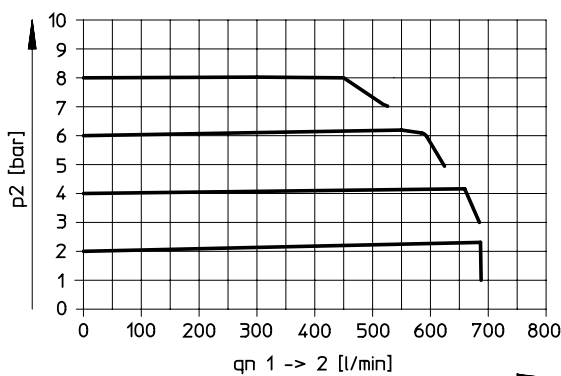
Pressure regulation range 0 ... 2 bar



Pressure regulation range 0 ... 6 bar



Pressure regulation range 0 ... 10 bar

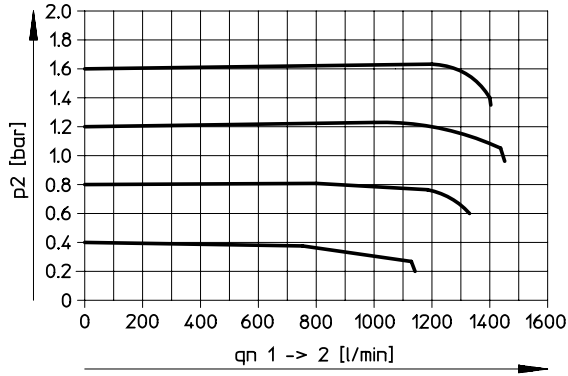


Data sheet

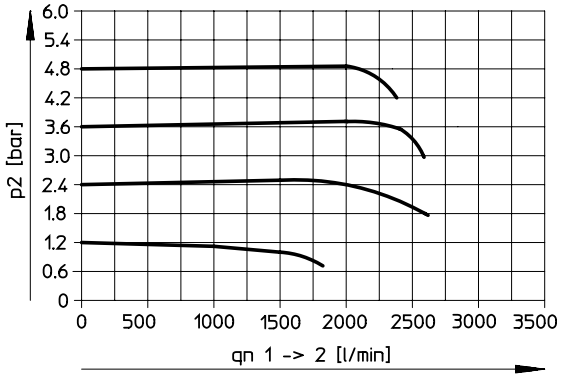
Flow rate  $q_n$  as a function of output pressure  $p_2$

Pneumatic connection G1/4

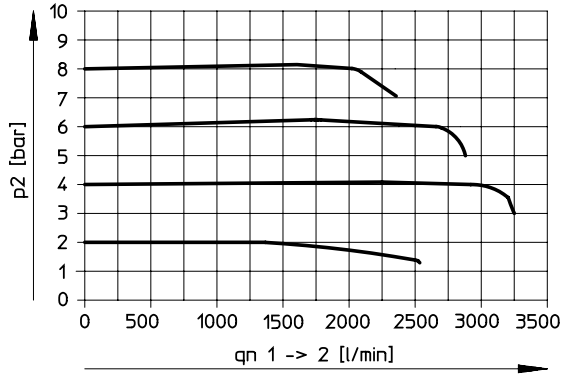
Pressure regulation range 0 ... 2 bar



Pressure regulation range 0 ... 6 bar



Pressure regulation range 0 ... 10 bar

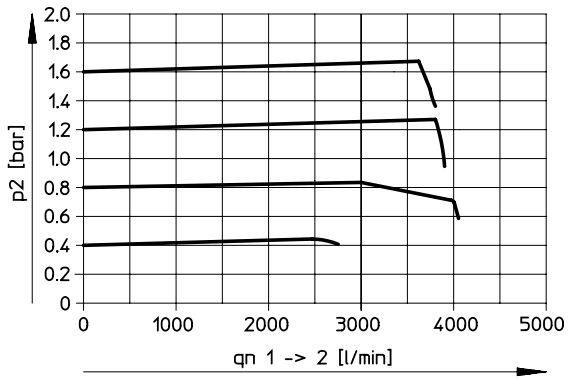


Data sheet

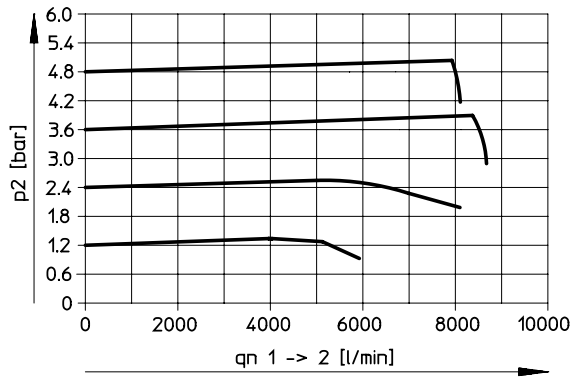
Flow rate  $q_n$  as a function of output pressure  $p_2$

Pneumatic connection G1/2

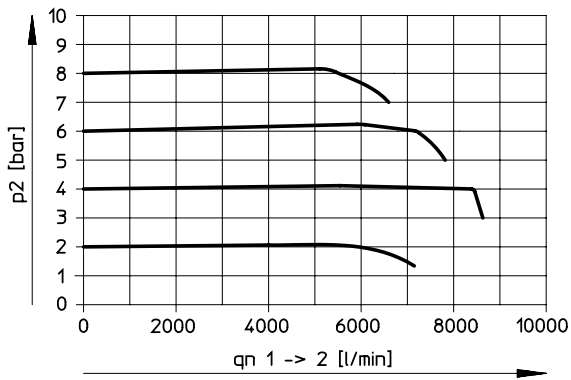
Pressure regulation range 0 ... 2 bar



Pressure regulation range 0 ... 6 bar



Pressure regulation range 0 ... 10 bar



## Data sheet

Operating and environmental conditions				
Pressure regulation range	[bar]	0 ... 2	0 ... 6	0 ... 10
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4] Inert gases		
Note on the operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)		
Input pressure 1	[bar]	3 ... 4	7 ... 8	11 ... 12
Max. pressure hysteresis	1/8"	[mbar]	10	
	1/4"	[mbar]	50	
	1/2"	[mbar]	50	
Ambient temperature	[°C]	0 ... 50		
Temperature of medium	[°C]	0 ... 60		
Corrosion resistance CRC <sup>1)</sup>		2 <sup>1)</sup>		
Certification		RCM		
CE marking (see declaration of conformity)		In accordance with EU EMC Directive <sup>2)</sup>		
KC mark		KC EMC		

1) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

2) For information about the area of use, see the EC declaration of conformity at: [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

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.

Electrical data				
Pressure regulation range	[bar]	0 ... 2	0 ... 6	0 ... 10
Electrical connection		Plug, round design to DIN 45326, M16 x 0.75, 8-pin		
Operating voltage range	U <sub>B</sub>	[V DC]	18 ... 30	
Residual ripple			10 %	
Setpoint input signal	Voltage	U <sub>w</sub>	[V DC]	0 ... 10
	Current	I <sub>w</sub>	[mA]	4 ... 20
Actual value output signal	Voltage	U <sub>x</sub>	[V DC]	0 ... 10
	Current	I <sub>x</sub>	[mA]	4 ... 20
Degree of protection		IP65		
Safety instructions		Safety position MPPES-B: If the setpoint cable (voltage and current variant) and the supply voltage cable break, the output pressure changes to 0 bar.		
Reverse polarity protection		For all electrical connections		
Short circuit current rating		For all electrical connections		

Pressure range				
Pressure regulation range	[bar]	0 ... 2	0 ... 6	0 ... 10
Operating pressure		≤ 4	≤ 8	≤ 12 bar
Input pressure 1	[bar]	3 ... 4	7 ... 8	11 ... 12
Max. pressure hysteresis	Basic type	[bar]	0.01 ... 0.05	0.01 ... 0.05
	Special adaptation type	[bar]	-	0.01

Switching times – Basic type					
Pressure regulation range	[bar]	0 ... 2	0 ... 6	0 ... 10	
Switching time on	G1/8	[ms]	220	210	200
	G1/4	[ms]	200	200	200
	G1/2	[ms]	220	230	230
Switching time off	G1/8	[ms]	410	280	220
	G1/4	[ms]	890	640	360
	G1/2	[ms]	1000	660	450

Switching times – Special adaptation type				
Pressure regulation range	[bar]	0 ... 10		
Switching time on	G1/8	[ms]	220	
	G1/4	[ms]	200	
	G1/2	[ms]	230	
Switching time off	G1/8	[ms]	410	
	G1/4	[ms]	890	
	G1/2	[ms]	1000	

Data sheet

Information on materials	
Housing	Wrought aluminium alloy
Diaphragm	NBR
Note on materials	RoHS-compliant

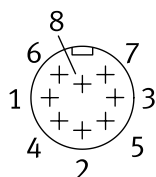
**Dimensions** Download CAD data → [www.festo.com](http://www.festo.com)

MPPES-3-1/8-...      MPPES-3-1/4-...      MPPES-3-1/4-...      MPPES-3-1/8-...  
 MPPES-3-1/2-...      MPPES-3-1/2-...

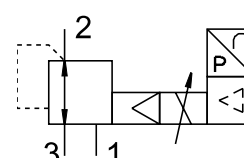
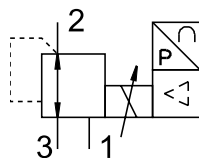
Connection D1	B	B1	∅D	H	H1	H2	H3	H4	H5	H6	L	L1
G1/8	77.1	67.1	4.4	116.5	100	55	34	45	23	4	62	34
G1/4	82.1	72.1	4.5	170.2	153.7	63.7	25.3	34.8	13.8	5	62	30
G1/2	96.1	86.1	7	227.1	210.6	120.6	53	74	32	18	86	50

**Connections**  
Terminal allocation

**Switching function**  
MPPES-3-1/8-...      MPPES-3-1/4-.../MPPES-3-1/2-...



- 1 n. c.
- 2 GND
- 3 GND
- 4  $W_{in}$  (setpoint input)
- 5 n. c.
- 6  $X_{out}$  (actual value output)
- 7 24 V DC (supply voltage)
- 8 GND



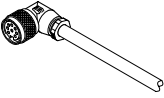

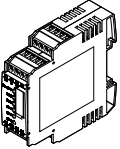


## Data sheet

<b>Ordering data</b>					
Pneumatic connection 1, 2, 3	Pressure regulation range [bar]	Voltage type 0 ... 10 V		Current type 4 ... 20 mA	
		Part no.	Type	Part no.	Type
<b>Basic type</b>					
G1/8	0 ... 2	187350	MPPES-3-1/8-2-010	187351	MPPES-3-1/8-2-420
	0 ... 6	187352	MPPES-3-1/8-6-010	187353	MPPES-3-1/8-6-420
	0 ... 10	187348	MPPES-3-1/8-10-010	187349	MPPES-3-1/8-10-420
G1/4	0 ... 2	187335	MPPES-3-1/4-2-010	187336	MPPES-3-1/4-2-420
	0 ... 6	187337	MPPES-3-1/4-6-010	187338	MPPES-3-1/4-6-420
	0 ... 10	187333	MPPES-3-1/4-10-010	187334	MPPES-3-1/4-10-420
G1/2	0 ... 2	187328	MPPES-3-1/2-2-010	187329	MPPES-3-1/2-2-420
	0 ... 6	187330	MPPES-3-1/2-6-010	187331	MPPES-3-1/2-6-420
	0 ... 10	187326	MPPES-3-1/2-10-010	187327	MPPES-3-1/2-10-420
<b>Special adaptation type<sup>1)</sup></b>					
G1/8	0 ... 10	187347	MPPES-3-1/8-PU-PO-010	187762	MPPES-3-1/8-PU-PO-420
G1/4	0 ... 10	187339	MPPES-3-1/4-PU-PO-010	187744	MPPES-3-1/4-PU-PO-420
G1/2	0 ... 10	187332	MPPES-3-1/2-PU-PO-010	187735	MPPES-3-1/2-PU-PO-420

1) The special adaptation type allows a lower pressure PU to be assigned to the setpoint value 0 V or 4 mA and an upper pressure PO to be assigned to the setpoint value 10 V or 20 mA.

## Accessories

Ordering data	Description	Cable length [m]	Part no.	Type
Plug socket with cable		Data sheets → Internet: kmppe-b		
	<ul style="list-style-type: none"> <li>• Angled socket, M16x0.75, 8-pin</li> <li>• Open end, 8-wire</li> </ul>	2.5	<b>161879</b>	<b>KMPPE-B-2.5</b>
		5	<b>161878</b>	<b>KMPPE-B-5</b>
Angled plug socket		Data sheets → Internet: mppe		
	<ul style="list-style-type: none"> <li>• Angled socket, M16x0.75, 8-pin</li> <li>• Soldered connection, 8-pin</li> </ul>	–	<b>161839</b>	<b>MPPE-3-B</b>
Setpoint module		Data sheets → Internet: mpz		
	Setpoint module for generating 6 + 1 analogue voltage signals	–	<b>546224</b>	<b>MPZ-1-24DC-SGH-6-SW</b>