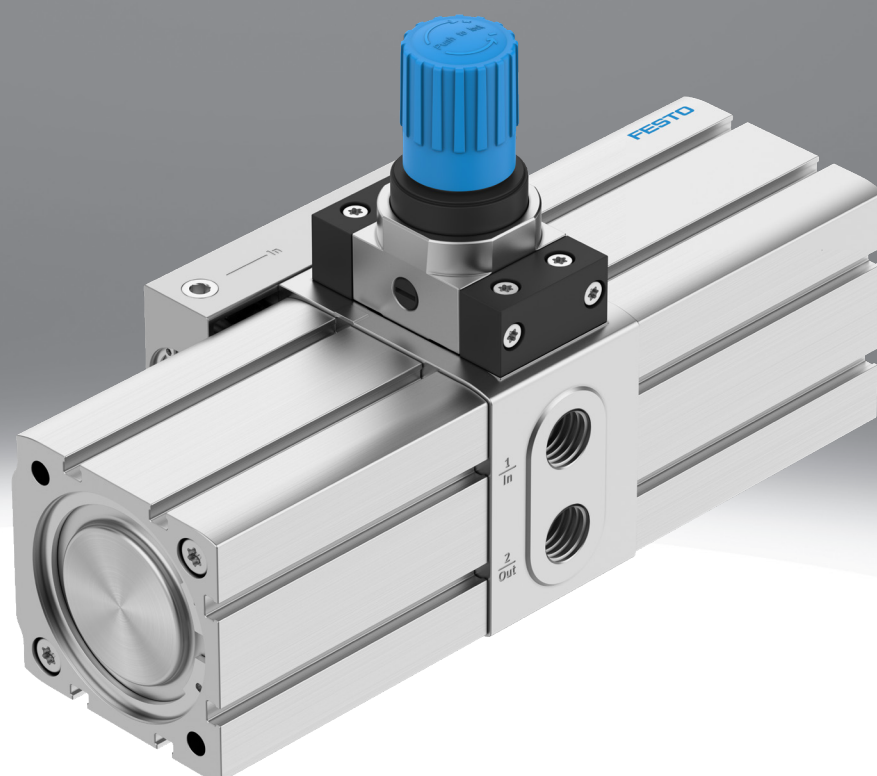


Pressure amplifier PBPA

FESTO



Characteristics

At a glance

The pressure booster is one of the twin-piston pressure intensifiers that can only compress air. When the pressure booster is supplied with compressed air, integrated non-return valves automatically ensure the pressure is built up on the secondary side. The output pressure p_2 can rise to twice the value of the input pressure p_1 . The required output pressure for pressure boosters with regulators can be reduced depending on the setting. The output pressure for pressure boosters without a pressure regulator is always 2 times the input pressure. The two drive pistons are supplied with air by a pneumatic directional control valve, which is switched automatically when the switching positions are reached. If the input pressure is switched on and the required output pressure has not yet been reached, the pressure booster starts automatically. The pressure booster assumes its energy-saving operating mode as soon as the set output pressure is reached; it automatically starts up again when the application operation causes the output pressure to drop.

- Optionally as a pressure intensifier/air reservoir combination
- Long service life
- Compact design
- Available with sensing option

Note: A pressure gauge is strongly recommended for checking the output pressure p_2 , as a desired output pressure p_2 must be set.

Additional documents

[Link](#) [pbpa](#)



The additional document PRESSURE-BOOSTER-ADD contains further instructions for use.

Diagrams

[Link](#) [pbpa](#)



The diagrams shown in this document are also available online. These can be used to display precise values.

Outlet pressure

Available with or without pressure regulator.

Position sensing

[A] For proximity sensor

The individual strokes of the drive piston can be detected using an external sensor (SMT-8M) and an adding counter (CCES).

Type code

001	Series	
PBPA	Pressure amplifier	
002	Size [mm]	
40	40	
63	63	
100	100	

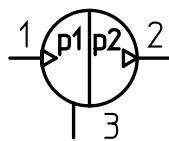
003	Outlet pressure	
10	Max. 10 bar	
16	Max. 16 bar	
D	Double input pressure, without pressure regulator	
004	Position sensing	
A	For proximity sensor	

Datasheet

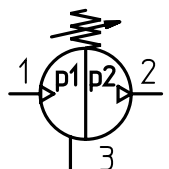
General technical data – Pressure booster PBPA

General technical data - Pressure booster P 1711			
Piston diameter	40 mm	63 mm	100 mm
Pneumatic connection, port 1	G1/4	G3/8	G1/2
Pneumatic connection, port 2	G1/4	G3/8	G1/2
Pneumatic connection, port 3	G1/8	G1/4	G3/8
Design	Twin-piston pressure booster		
Type of mounting	with female thread M4	With female thread	
Mounting position	Any		
Pressure gauge (ANALOG) or Pressure display (DIGITAL)	Prepared for G1/8		

Function – pressure booster without pressure regulator



Function – pressure booster with pressure regulator



Operating and environmental conditions – Pressure booster PBPA

Piston diameter	40 mm			63 mm		
Outlet pressure	Max. 10 bar [10]	Max. 16 bar [16]	Double input pressure, without pressure regulator [D]	Max. 10 bar [10]	Max. 16 bar [16]	Double input pressure, without pressure regulator [D]
Operating pressure	0.2 ... 0.8 MPa	0.2 ... 1 MPa		0.2 ... 0.8 MPa	0.2 ... 1 MPa	
Operating pressure	2 ... 8 bar	2 ... 10 bar		2 ... 8 bar	2 ... 10 bar	
Operating pressure	29 ... 116 psi	29 ... 145 psi		29 ... 116 psi	29 ... 145 psi	
Inlet pressure 1	0.2 ... 0.8 MPa	0.2 ... 1 MPa		0.2 ... 0.8 MPa	0.2 ... 1 MPa	
Inlet pressure 1	2 ... 8 bar	2 ... 10 bar		2 ... 8 bar	2 ... 10 bar	
Inlet pressure 1	29 ... 116 psi	29 ... 145 psi		29 ... 116 psi	29 ... 145 psi	
Output pressure 2	0.4 ... 1 MPa	0.4 ... 1.6 MPa	0.4 ... 2 MPa	0.4 ... 1 MPa	0.4 ... 1.6 MPa	0.4 ... 2 MPa
Output pressure 2	4 ... 10 bar	4 ... 16 bar	4 ... 20 bar	4 ... 10 bar	4 ... 16 bar	4 ... 20 bar
Output pressure 2	58 ... 145 psi	58 ... 232 psi	58 ... 290 psi	58 ... 145 psi	58 ... 232 psi	58 ... 290 psi
Note on pressure regulation range	If the controller spring is tensioned to the maximum, the maximum output pressure can be exceeded by 40%.	–		If the controller spring is tensioned to the maximum, the maximum output pressure can be exceeded by 40%.	–	
Operating medium	Compressed air to ISO 8573-1:2010 [7:3:4]					
Note on operating and pilot medium	Lubricated operation not possible					
Ambient temperature	5 ... 60°C					
Storage temperature	5 ... 60°C					
Corrosion resistance class CRC ¹⁾	1 - Low corrosion stress					

¹⁾ More information www.festo.com/x/topic/crc

Datasheet

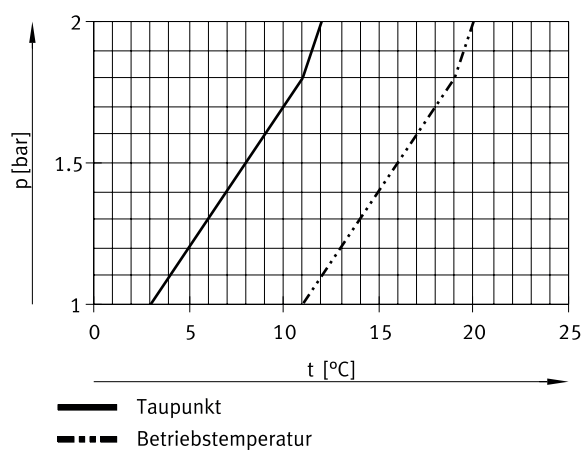
Operating and environmental conditions – Pressure booster PBPA

Piston diameter	100 mm		
Outlet pressure	Max. 10 bar [10]	Max. 16 bar [16]	Double input pressure, without pressure regulator [D]
Operating pressure	0.2 ... 0.8 MPa	0.2 ... 1 MPa	
Operating pressure	2 ... 8 bar	2 ... 10 bar	
Operating pressure	29 ... 116 psi	29 ... 145 psi	
Inlet pressure 1	0.2 ... 0.8 MPa	0.2 ... 1 MPa	
Inlet pressure 1	2 ... 8 bar	2 ... 10 bar	
Inlet pressure 1	29 ... 116 psi	29 ... 145 psi	
Output pressure 2	0.4 ... 1 MPa	0.4 ... 1.6 MPa	0.4 ... 2 MPa
Output pressure 2	4 ... 10 bar	4 ... 16 bar	4 ... 20 bar
Output pressure 2	58 ... 145 psi	58 ... 232 psi	58 ... 290 psi
Note on pressure regulation range	If the controller spring is tensioned to the maximum, the maximum output pressure can be exceeded by 40%.		–
Operating medium	Compressed air to ISO 8573-1:2010 [7:3:4]		
Note on operating and pilot medium	Lubricated operation not possible		
Ambient temperature	5 ... 60°C		
Storage temperature	5 ... 60°C		
Corrosion resistance class CRC ¹⁾	1 - Low corrosion stress		

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

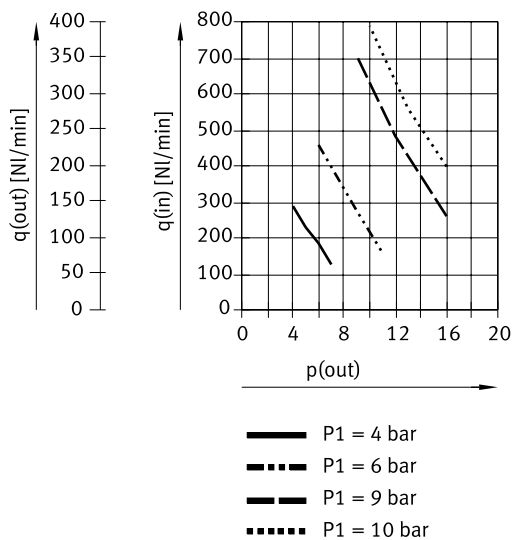
Materials

Note on materials	RoHS compliant
LABS (PWIS) conformity	VDMA24364-B1/B2-L

Minimum permissible operating temperature t as a function of the pressure dew point and pressure amplification p 

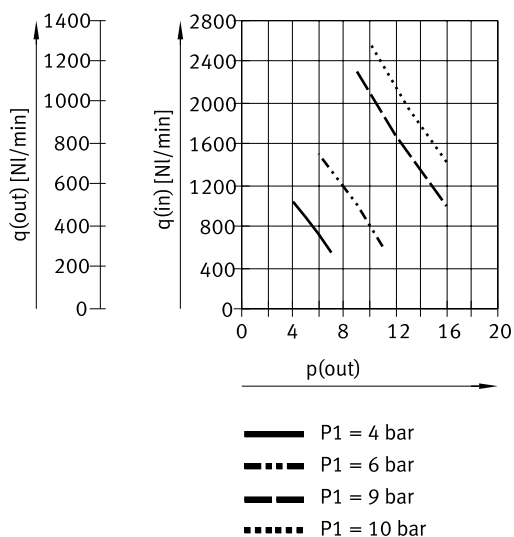
Datasheet

Flow rate at input $q(\text{in})$ and flow rate at output $q(\text{out})$ as a function of output pressure $p(\text{out})$ – PBPA-40 ($p_2=20$ bar)



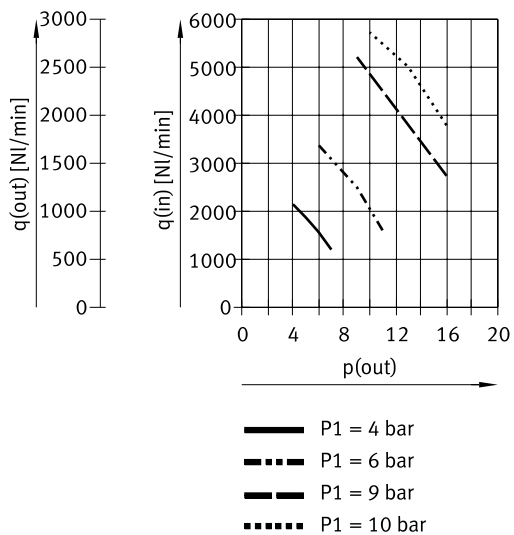
Note: Theoretical values without switching losses and friction.

Flow rate at input $q(\text{in})$ and flow rate at output $q(\text{out})$ as a function of output pressure $p(\text{out})$ – PBPA-63 ($p_2=20$ bar)



Note: Theoretical values without switching losses and friction.

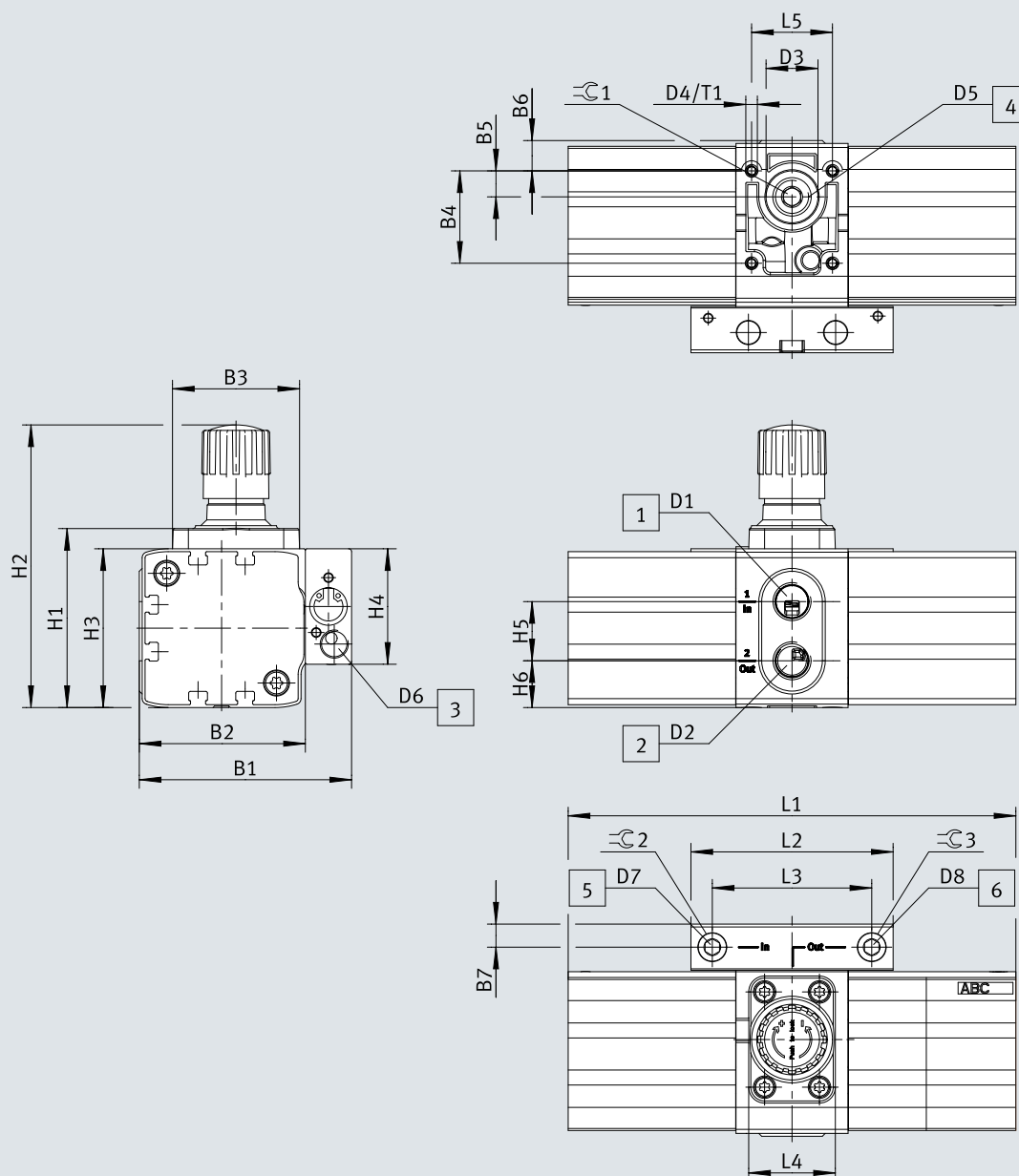
Flow rate at input $q(\text{in})$ and flow rate at output $q(\text{out})$ as a function of output pressure $p(\text{out})$ – PBPA-100 ($p_2=20$ bar)



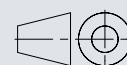
Note: Theoretical values without switching losses and friction.

Dimensions

Dimensions – PBPA-40/63-10/16-A

Download CAD data www.festo.com

- [1] Inlet connection 1
- [2] Outlet connection 2
- [3] Exhaust air port 3
- [4] Connection for inlet pressure gauge
- [5] Connection for outlet pressure gauge



Dimensions

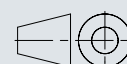
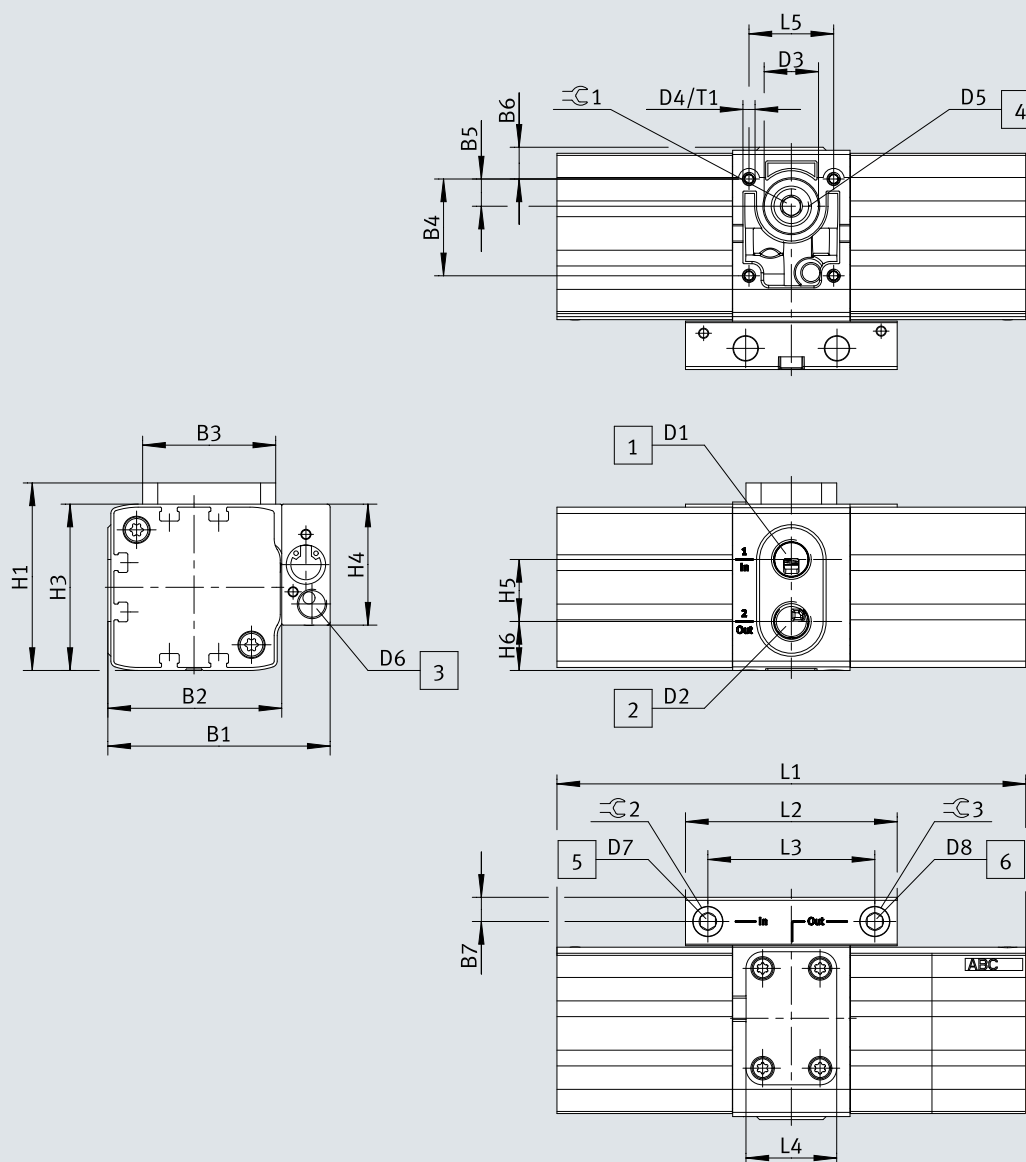
	B1	B2	B3	B4	B5	B6	B7	D1	D2	D3 Ø
PBPA-40-10-A	73,5	57,5	44	32	9	10,5	8	G1/4	G1/4	18
PBPA-40-16-A										
PBPA-63-10-A	105,5	80,5	70	46	26	14	12,5	G3/8	G3/8	22
PBPA-63-16-A										
PBPA-100-10-A	155	120	102	74	37	21,5	17,5	G1/2	G1/2	33,3
PBPA-100-16-A										

	D4	D5	D6	D7	D8	H1	H2	H3	H4	H5
PBPA-40-10-A	M4	G1/4	G1/8	G1/8	G1/8	62	98	55	40	20,5
PBPA-40-16-A										
PBPA-63-10-A	M5	G3/8	G1/4	G1/8	G1/8	96,7	159	77	57	29,5
PBPA-63-16-A										
PBPA-100-10-A	M8	G1/2	G3/8	G1/8	G1/8	–	233	117	77	32
PBPA-100-16-A										

	H6	L1	L2	L3	L4	L5	T1 min.	≈G1	≈G2	≈G3
PBPA-40-10-A	16,2	155	70	5,2	30	28	6	6	5	5
PBPA-40-16-A										
PBPA-63-10-A	22	249	106	88	40	33	9	8	5	5
PBPA-63-16-A										
PBPA-100-10-A	40	333,4	144,7	122,7	55	46	14	10	6	6
PBPA-100-16-A										

Dimensions

Dimensions – PBPA-40/63-D-A

Download CAD data www.festo.com

Dimensions

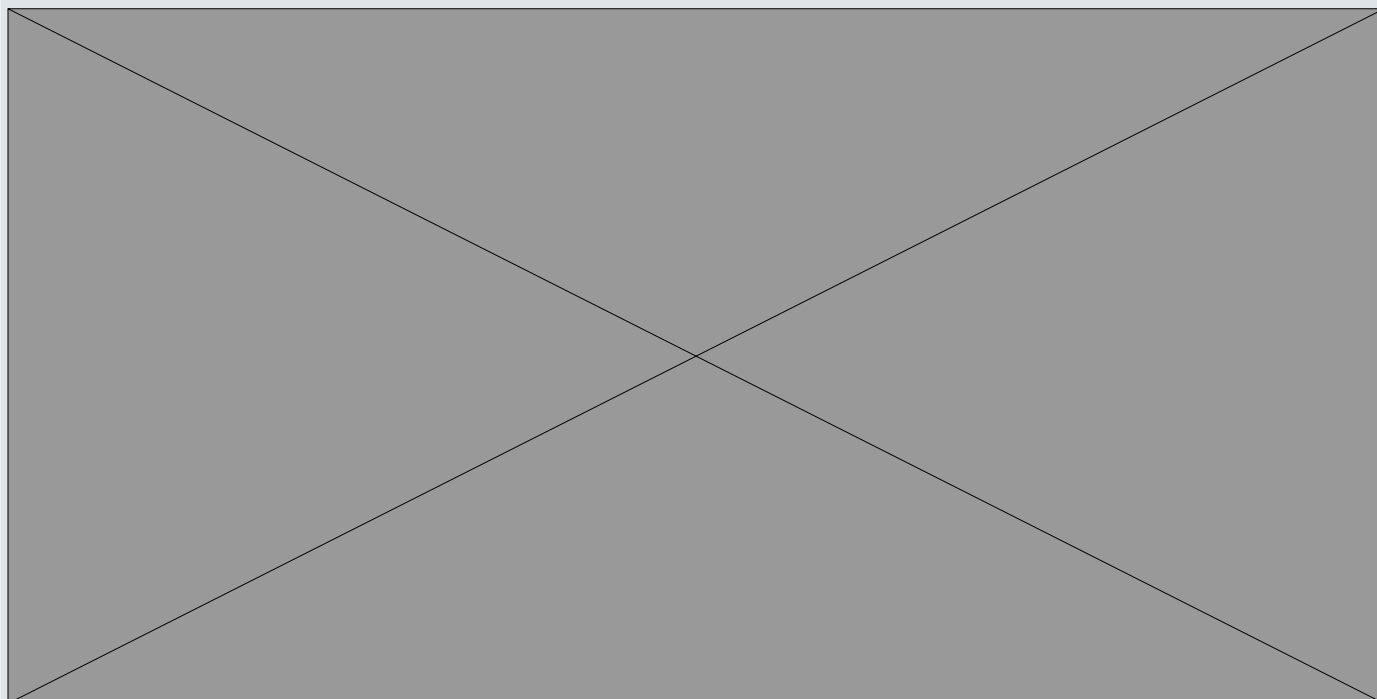
	B1	B2	B3	B4	B5	B6	B7	D1	D2	D3 ø
PBPA-40-D-A	73,5	57,5	44	32	9	10,5	8	G1/4	G1/4	18
PBPA-63-D-A	105,5	80,5	71	46	26	14	12,5	G3/8	G3/8	22
PBPA-100-D-A	155	120	–	74	37	21,5	17,5	G1/2	G1/2	33,3

	D4	D5	D6	D7	D8	H1	H3	H4	H5	H6
PBPA-40-D-A	M4	G1/4	G1/8	G1/8	G1/8	62	55	40	20,5	16,2
PBPA-63-D-A	M5	G3/8	G1/4	G1/8	G1/8	84	77	57	29,5	22
PBPA-100-D-A	M8	G1/2	G3/8	G1/8	G1/8	–	117	77	32	40

	L1	L2	L3	L4	L5	T1 min.	≈G1	≈G2	≈G3
PBPA-40-D-A	155	70	5,2	30	28	6	6	5	5
PBPA-63-D-A	249	106	88	40	33	9	8	5	5
PBPA-100-D-A	333,4	144,7	122,7	–	46	14	10	6	6

Dimensions

Dimensions – PAMA-P1-MB-...

Download CAD data www.festo.com

[1] Socket head screw ISO 14579-M4x8-10.9

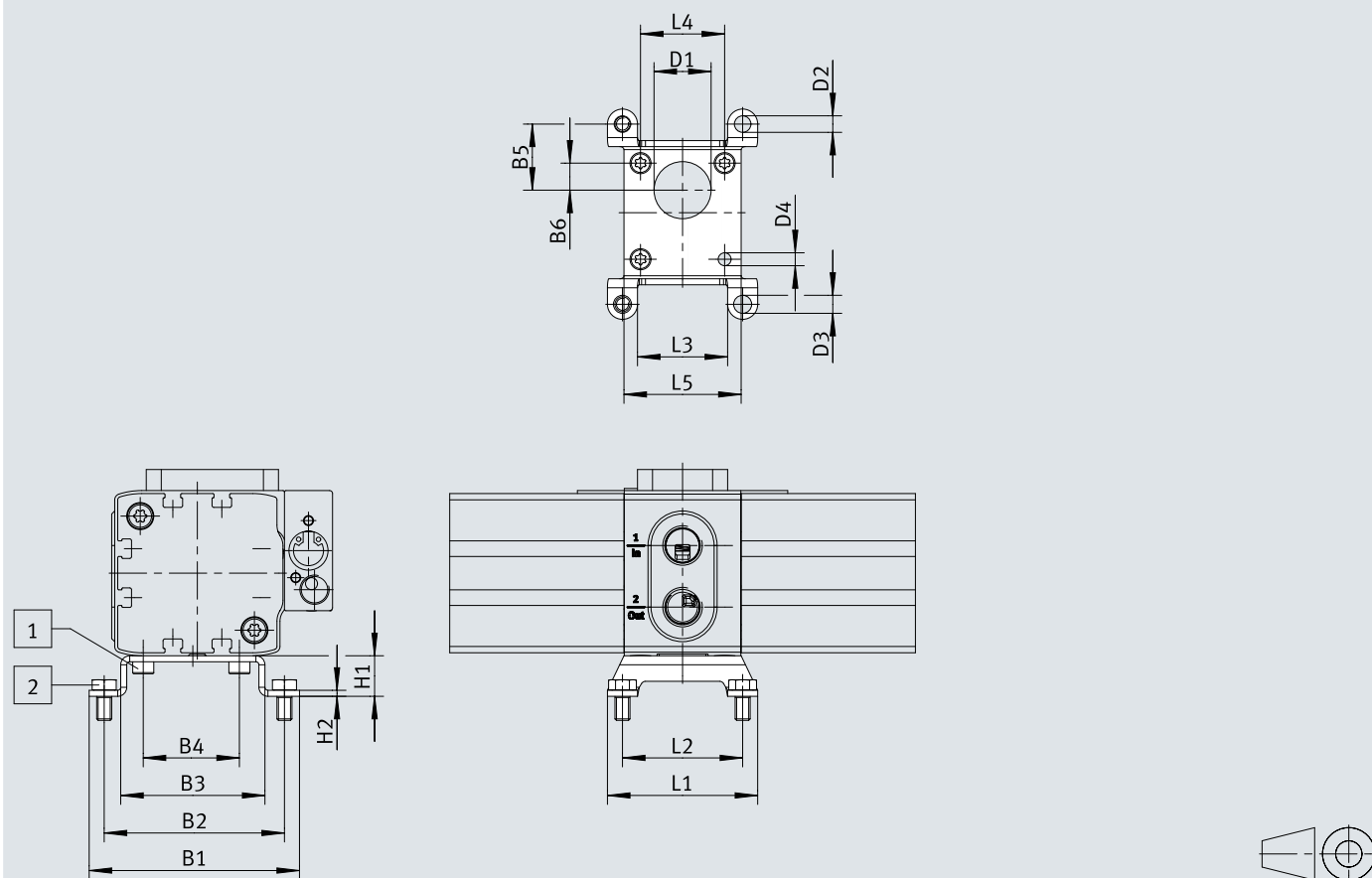
[2] Hex screw ISO 4017-M5X10-A2-70

	B1 ±0,4	B2	B3 ±0,15	B4	B5	B6	D1 ∅	D2 ∅ ±0,1	D3 ∅
PAMA-P1-MB-40	70	60	48	32	22	9	19 ±0,25	5,5	6 ±0,2
PAMA-P1-MB-63	116	98	74	46	49	26	25 ±0,15	11	11 ±0,1
PAMA-P1-MB-100	153,6	130	106,4	74	65	37	34,2 ±0,15	11,5	11,5 ±0,1

	D4 ∅ ±0,1	H1	H2 ±0,15	L1 ±0,4	L2	L3 ±0,4	L4	L5 ±0,4
PAMA-P1-MB-40	4,3	13,5	2	50	40	30	28	39
PAMA-P1-MB-63	5,5	18	3,5	71	53	35	33	56,4
PAMA-P1-MB-100	8,6	18,5	3,5	119,6	96	72,4	46	89,6

Dimensions

Dimensions – PAMA-P1-MB-... (with PBPA-...)

Download CAD data www.festo.com

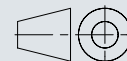
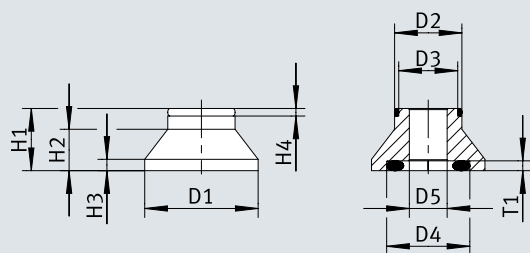
- [1] Socket head screw ISO 14579-M4x8-10.9
 [2] Hex screw ISO 4017-M5X10-A2-70

	B1	B2	B3	B4	B5	B6	D1 ø	D2 ø	D3 ø
	±0,4		±0,15					±0,1	
PAMA-P1-MB-40	70	60	48	32	22	9	19 ±0,25	5,5	6 ±0,2
PAMA-P1-MB-63	116	98	74	46	49	26	25 ±0,15	11	11 ±0,1
PAMA-P1-MB-100	153,6	130	106,4	74	65	37	34,2 ±0,15	11,5	11,5 ±0,1

	D4 ø	H1	H2	L1	L2	L3	L4	L5
	±0,1		±0,15	±0,4		±0,4		±0,4
PAMA-P1-MB-40	4,3	13,5	2	50	40	30	28	39
PAMA-P1-MB-63	5,5	18	3,5	71	53	35	33	56,4
PAMA-P1-MB-100	8,6	18,5	3,5	119,6	96	72,4	46	89,6

Dimensions

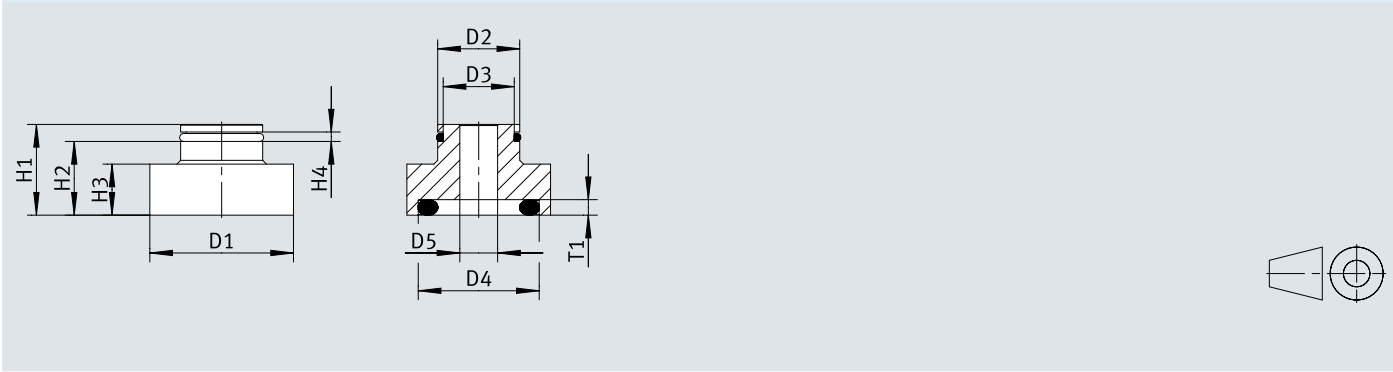
Dimensions – PAMA-P1-CK-40

Download CAD data www.festo.com

	D1 Ø ±0,1	D2 Ø ±0,05	D3 Ø ±0,05	D4 Ø ±0,1	D5 Ø ±0,1	H1 ±0,05	H2	H3 ±0,1	H4 ±0,1	T1
PAMA-P1-CK-40	30	17,8	15,6	22	10	16,5	11	3	2	2,6

Dimensions

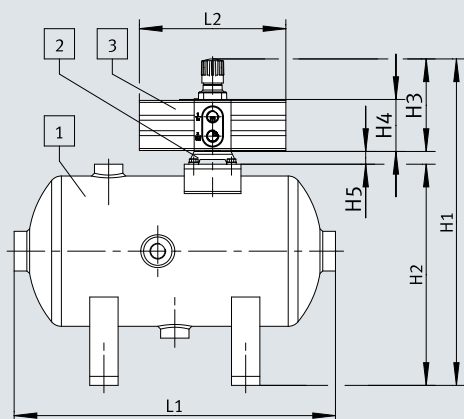
Dimensions – PAMA-P1-CK-63/100 [Download CAD data](#) www.festo.com



	D1 ∅ ±0,1	D2 ∅	D3 ∅ ±0,05	D4 ∅ ±0,1	D5 ∅ ±0,1	H1 ±0,05	H2 ±0,1	H3 ±0,1	H4 ±0,1	T1
PAMA-P1-CK-63	38	21,7 ±0,1	18,8	32	10	24	19,5	13,5	2,5	4,1 ±0,1
PAMA-P1-CK-100	38	33 ±0,05	30	32	18,6	24,5	20	14	2,5	4

Dimensions

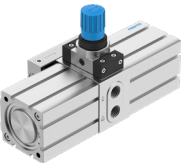
Dimensions – PBPA with air reservoir ARVA-...-P1

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- [1] Air reservoir ARVA
- [2] Bracket PAMA
- [3] Pressure amplifier PBPA

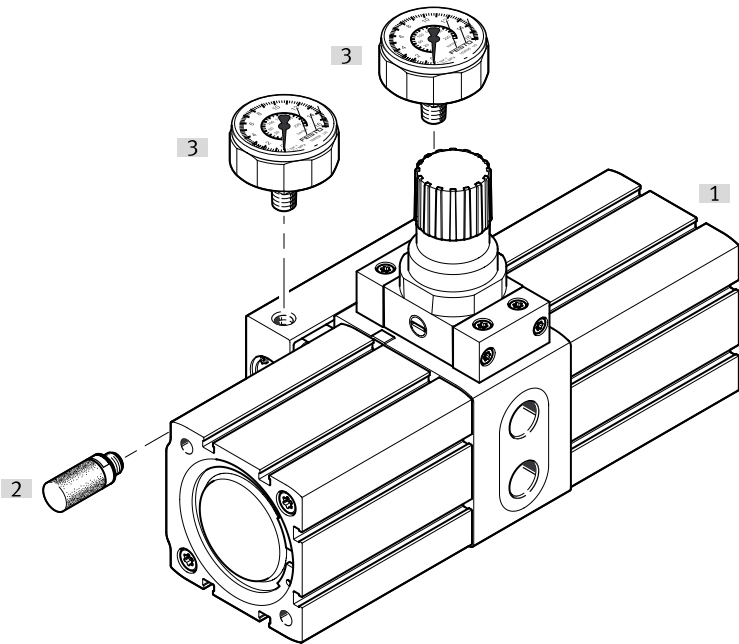
			H1	H2 ±3	H3	H4	H5	L1 ±3	L2
ARVA- 5-P1	PAMA-P1-MB-40	PBPA-40-...-A	345,5	234	98	55	13,5	340	155
ARVA-10-P1	PAMA-P1-MB-63	PBPA-63-...-A	411	234	159	77	18	616	249
ARVA-20-P1	PAMA-P1-MB-100	PBPA-100-...-A	525,5	274	233	117	18,5	726	333,4

Ordering data

Ordering data – Pressure booster PBPA						
	Piston diameter	Output pressure 2	Position sensing	Product weight	Part no.	Type
	40 mm	4 ... 10 bar	For proximity sensor	1,000 g	8210527	PBPA-40-10-A
		4 ... 16 bar			8210528	PBPA-40-16-A
		4 ... 20 bar		980 g	8210529	PBPA-40-D-A
	63 mm	4 ... 10 bar		3,150 g	8210530	PBPA-63-10-A
		4 ... 16 bar			8210531	PBPA-63-16-A
		4 ... 20 bar		3,050 g	8210532	PBPA-63-D-A
	100 mm	4 ... 10 bar		9,800 g	8210533	PBPA-100-10-A
		4 ... 16 bar			8210534	PBPA-100-16-A
		4 ... 20 bar		9,660 g	8210535	PBPA-100-D-A

Peripherals

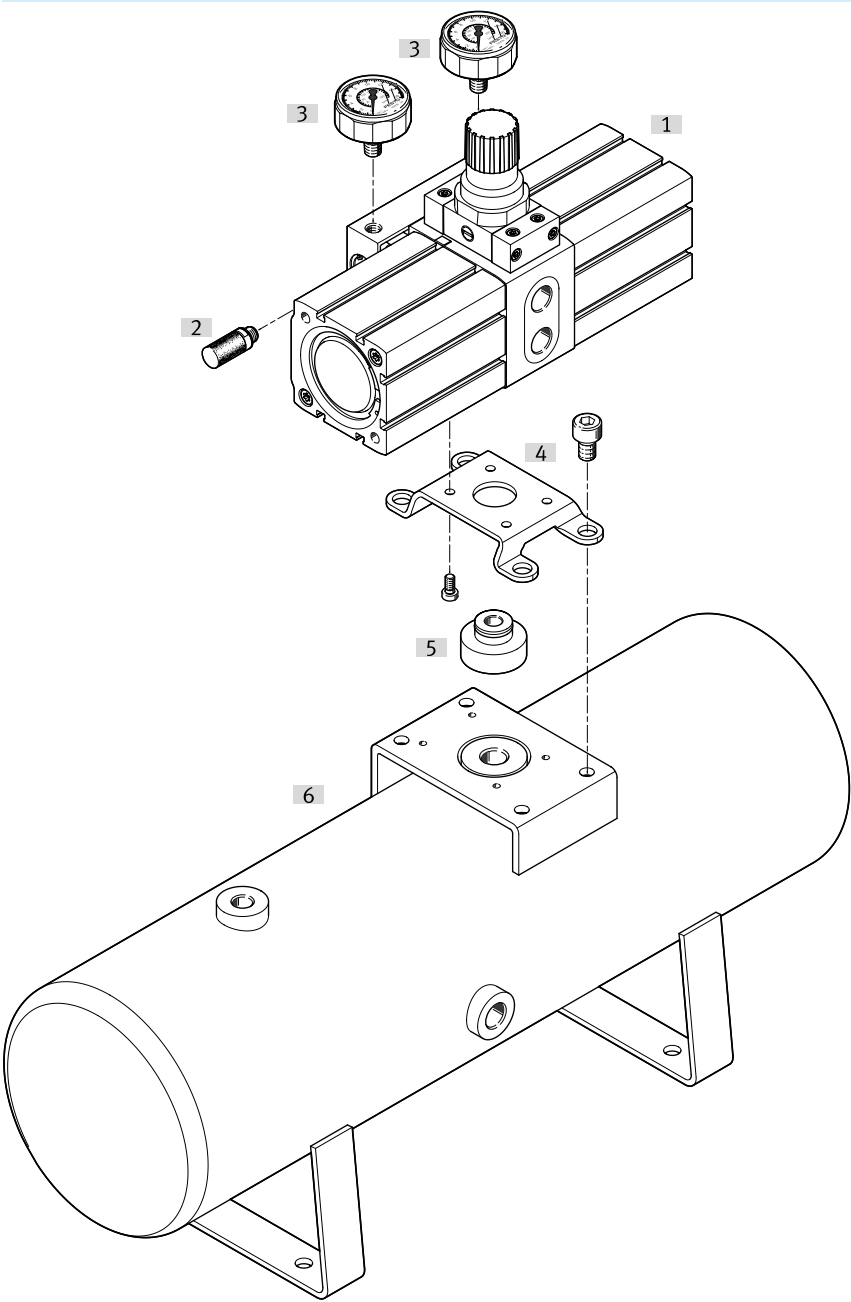
Peripherals overview PBPA



Accessories		→ Link
Type/order code	Description	
[1] Pressure booster PBPA		pbpa
[2] Silencer UC	For noise reduction at the valve exhaust port	19
[3] Pressure gauge MA/PAGN		19
[4] Adding counter CCES	Not shown	cces
[5] Proximity switch SMT (for adding counter CCES)	Not shown	smt-8m-a

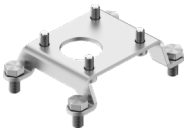
Peripherals

Peripherals overview PBPA (with compressed air reservoir ARVA)



Accessories		→ Link
Type/order code	Description	
[1] Pressure booster PBPA		pbpa
[2] Silencer UC	For noise reduction at the valve exhaust port	19
[3] Pressure gauge MA/PAGN		19
[4] Mounting kit PAMA-...-MB		19
[5] Connection kit PAMA-...-CK		19
[6] Compressed air reservoir ARVA		20
[7] Adding counter CCES	Not shown	cces
[8] Proximity switch SMT (for adding counter CCES)	Not shown	smt-8m-a

Accessories

Mounting kit PAMA-...-MB						
	Size	Material mounting bracket	Corrosion resistance class CRC ¹⁾	Product weight	Part no.	Type
	40	Galvanised steel	1 - Low corrosion stress	59 g	8215793	PAMA-P1-MB-40
	63			246 g	8215794	PAMA-P1-MB-63
	100			450 g	8215795	PAMA-P1-MB-100

¹⁾ More information www.festo.com/x/topic/crc

Connection kit PAMA-...-CK						
	Size	Material module connector	Corrosion resistance class CRC ¹⁾	Product weight	Part no.	Type
	40	Wrought aluminium alloy	2 - Moderate corrosion stress	15 g	8215796	PAMA-P1-CK-40
	63			41 g	8215797	PAMA-P1-CK-63
	100			45 g	8215798	PAMA-P1-CK-100

¹⁾ More information www.festo.com/x/topic/crc

Pressure gauge MA/PAGN					
	Pneumatic connection	Scale	Product weight	Part no.	Type
	G1/8	Double scale, Bar (external), psi (inner scale)	60 g	526167	MA-40-25-1/8-EN
	R1/8	Double scale, MPa (outer scale), bar (inner scale)		2849916	PAGN-40-1M-R18-1.6
				8037012	PAGN-40-1.6M-R18-1.6

Silencer UC						
	Pneumatic connection	Flow rate to atmosphere	Sound pressure level	Product weight	Part no.	Type
	M7	800 l/min	58 dB(A)	1.2 g	161418	UC-M7
	G1/8	1,700 l/min	59 dB(A)	2.6 g	161419	UC-1/8
	G1/4	3,200 l/min	60 dB(A)	5.2 g	165004	UC-1/4
	G3/8	5,000 l/min		10.5 g	1707427	UC-3/8

Adding counter CCES					
	Display	Power supply ¹⁾	Product weight	Part no.	Type
	8 characters	Lithium battery	30 g	549403	CCES-P-C8-E

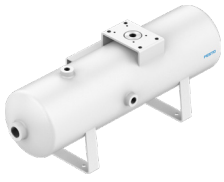
¹⁾ Value retention nominal 7 years

Accessories

Proximity switch SMT (for adding counter CCES)

	Switching element function	Switching output	Cable length	Product weight	Part no.	Type
	N/C contact	PNP	7.5 m	85.1 g	574340	SMT-8M-A-PO-24V-E-7,5-OE

Compressed air reservoir ARVA

	Volume	Material air reservoir	Corrosion resistance class CRC ¹⁾	Product weight	Part no.	Type
	5 l	Powder-coated steel	3 - high corrosion stress	5,980 g	8240348	ARVA-5
				6,100 g	8240345	ARVA-5-P1
	10 l			7,960 g	8240349	ARVA-10
				9,400 g	8240346	ARVA-10-P1
	20 l			11,720 g	8240350	ARVA-20
				14,350 g	8240347	ARVA-20-P1

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

Plastic tubing PAN (for input pressure)

	Pneumatic connection	Shore hardness	Colour	Product weight according to length	Part no.	Type
	For push-in connector O.D. 10 mm	D 55 +/-3	Blue	0.042 kg/m	553909	PAN-10X1,5-BL
	For push-in connector O.D. 16 mm			0.092 kg/m	553911	PAN-16X2-BL

Plastic tubing PAN-R (for output pressure)

	Pneumatic connection	Shore hardness	Colour	Product weight according to length	Part no.	Type
	For push-in connector O.D. 8 mm	D 62 +/-3	Silver	0.032 kg/m	541676	PAN-R-8X1,5-SI
	For push-in connector O.D. 16 mm			0.126 kg/m	541679	PAN-R-16X3-SI