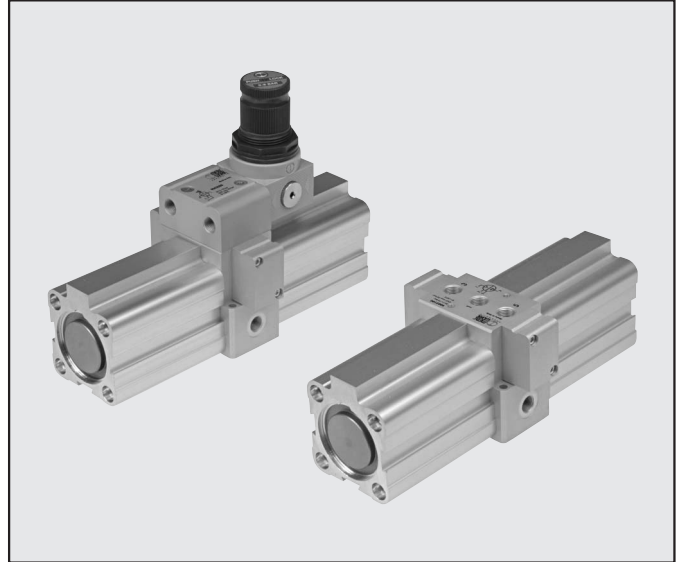


# AIR-AIR PRESSURE MULTIPLIER (BOOSTER)

The air-air pressure multiplier, or booster, is an automatic device that compresses air to give an outlet pressure that is double the inlet pressure.

It is normally used to locally intensify the input pressure of one or more actuators. As it is entirely pneumatic it can be used when electric devices are not recommended. The booster can be supplied with or without a pressure regulator.

It is fitted with check valves that maintain the outlet pressure even when the supply of compressed air is switched off. This means it is necessary to interrupt the supply and relieve the circuit before intervening on the device in any way. It is advisable to install a tank before the booster to prevent fluctuations in outlet pressure.



TECHNICAL DATA		BOOSTER Ø40	BOOSTER Ø40 WITH REGULATOR
Bore		ø 40	
Fluid		Filtered unlubricated compressed air Lubrication, if used, must be continuous.	
Threaded port		G 1/8	
Inlet pressure	MPa	0,2 ÷ 1	
	bar	2 ÷ 10	
	psi	29 ÷ 145	
Outlet pressure	MPa	max 2	max 1.6 (regulated)
	bar	max 20	max 16 (regulated)
	psi	max 290	max 232 (regulated)
Operating temperature	°C	-10° ÷ +60°	-10° ÷ +50°
	°F	14° ÷ 140°	14° ÷ 122°
Weight	gr	1.380	1.600
Mounting		Wall or panel	
Installation		In any position	

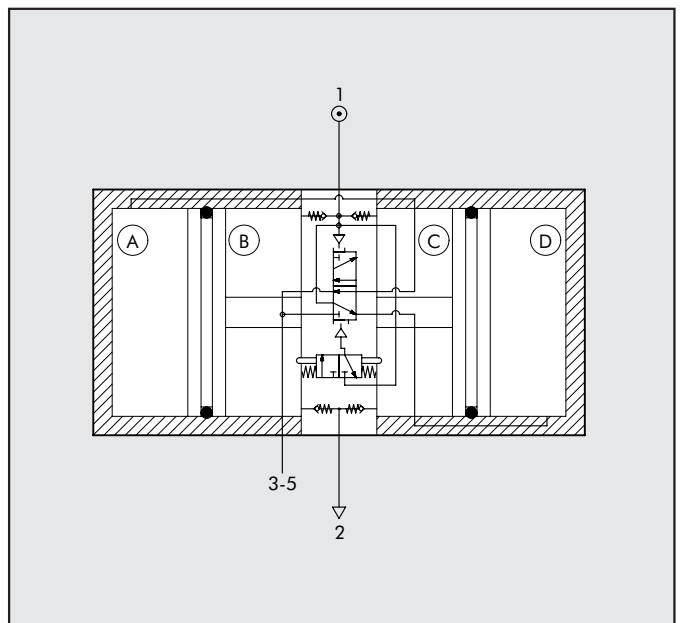
## OPERATING LAYOUT

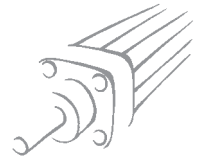
The pressure booster is comprised of a central body (with one 3-2 valve, one 5-2 valve and four check valves), two side liners and a through rod on which two pistons are mounted.

The supply air is compressed alternately by the two pistons in one of the two central chambers (B and C); the other central chamber and one of the two side chambers (A and D) operate the pistons; the external chamber, which is not involved in compression, is relieved.

Air compressed at a ratio of 2:1 passes through a check valve that maintains the output pressure even when compressed air is no longer supplied.

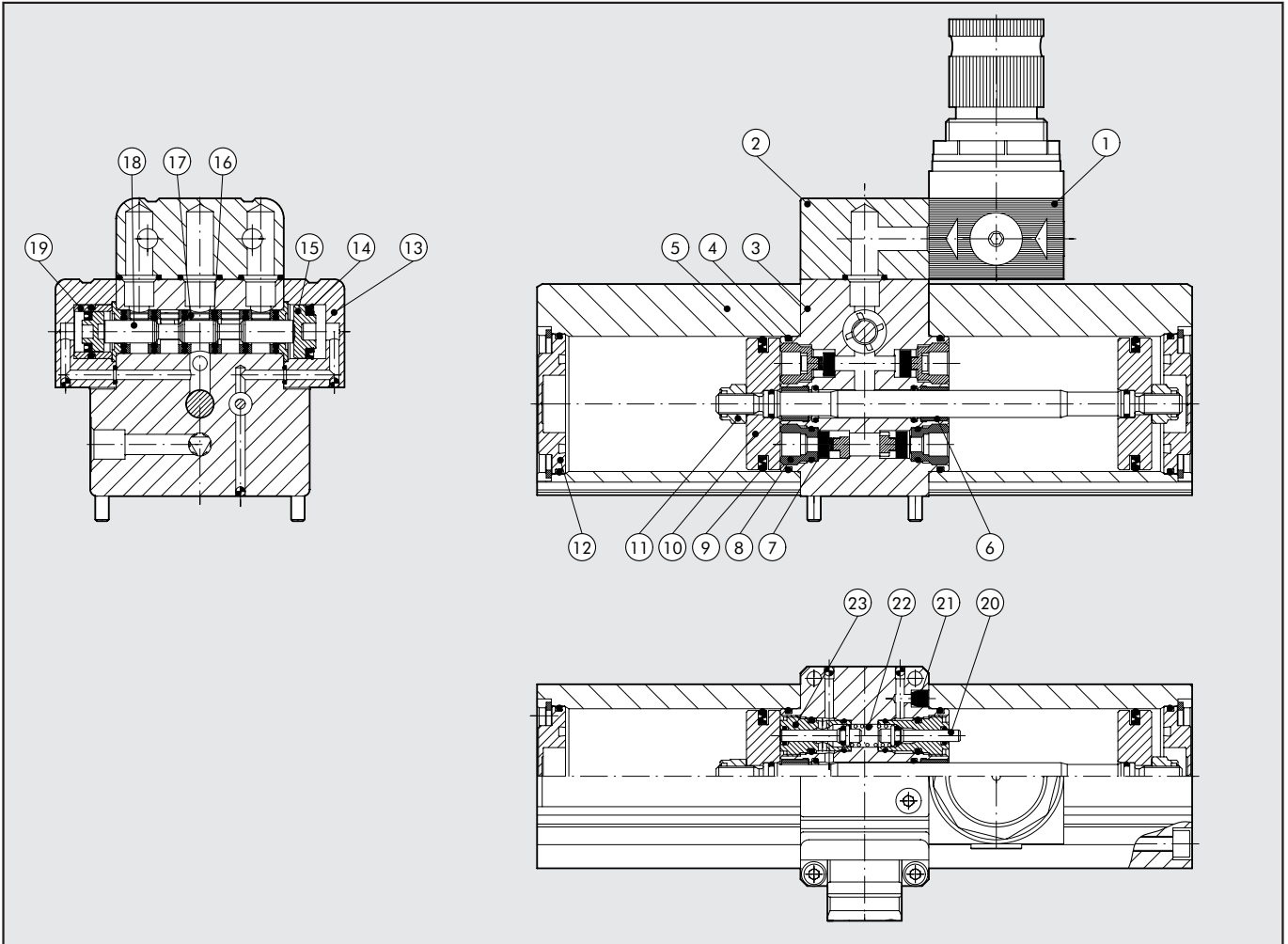
The valves in the central body, which are operated by mechanical pusher pistons, switch the function of the two pairs of chambers (A and D, B and C) at each piston stroke.





## COMPONENTS

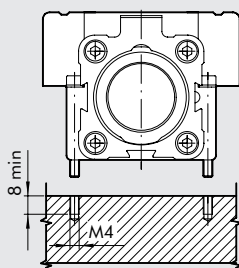
1



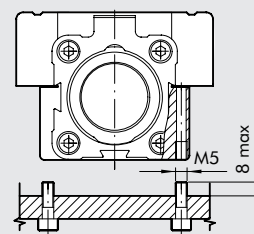
- ① PRESSURE REGULATOR (for 9002200 only)
- ② INTERFACE BLOCK (for 9002200 only): anodized aluminium
- ③ CENTRAL BODY: anodized aluminium
- ④ OR SEAL: NBR rubber
- ⑤ BARREL: anodized aluminium alloy section
- ⑥ GUIDE BUSHING: steel strip with bronze and PTFE insert
- ⑦ POPPET: NBR rubber
- ⑧ CHECK VALVE: brass
- ⑨ PISTON GASKET: NBR rubber
- ⑩ PISTON: aluminium
- ⑪ SELF-LOCKING NUT: stainless steel

- ⑫ CYLINDER BASE: anodized aluminium
- ⑬ VALVE CONTROL: anodized aluminium
- ⑭ VALVE CONTROL GASKET: NBR rubber
- ⑮ VALVE PISTON: technopolymer
- ⑯ GASKET: NBR rubber
- ⑰ SPACER: technopolymer
- ⑱ SPOOL: nickel-plated aluminium
- ⑲ DIFFERENTIAL BUSHING: brass
- ⑳ PUSHER: stainless steel
- ㉑ SILENCER: technopolymer
- ㉒ SPRING: stainless steel
- ㉓ GUIDE BUSHING: brass

## MOUNTING



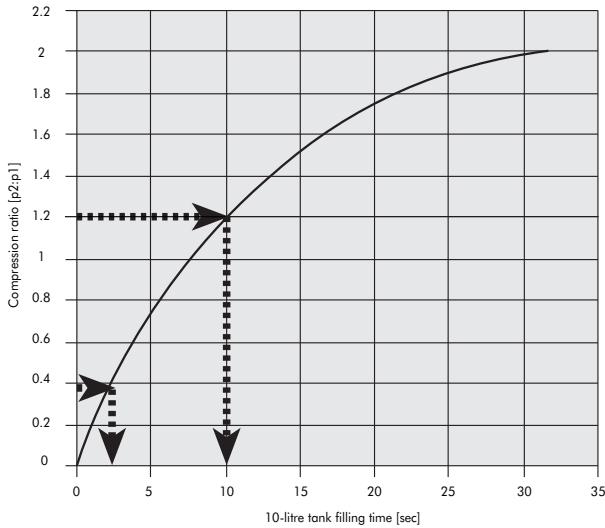
On a wall using the M4x40 screws provided with the Booster



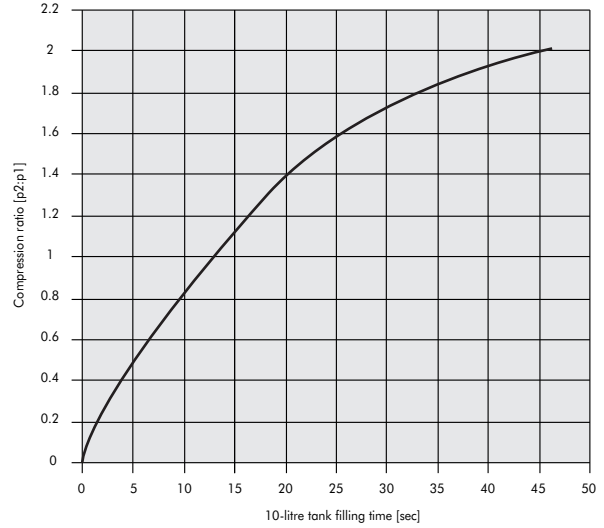
On a panel using M5 screws

## TANK FILLING CURVES

without regulator



with regulator



The graphs refer to the filling of a 10-litre tank using 8 mm pipes and show the ratio of outlet to inlet pressure (=  $p_2:p_1$ ) as a function of time (sec).

The graphs are valid for any inlet pressure between 2 and 10 bar.

The following formula can be used to calculate the time  $t$  (sec) required to switch from pressure ratio 1 to pressure ratio 2 in a tank of volume  $V$  (litres):

$$t = \frac{V(t_2 - t_1)}{10}$$

where  $t_1$  and  $t_2$  are the times shown on the x-axis, corresponding to ratios 1 and 2.

E.g.

1 = 0.4 =>  $t_1 = 2.5$  sec

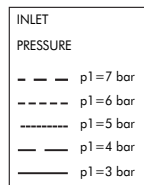
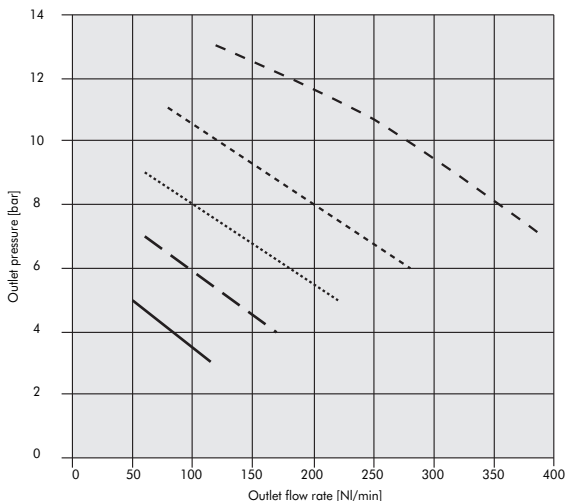
2 = 1.2 =>  $t_2 = 10$  sec

The time required to switch from 1 to 2 with a 25-litre tank is:

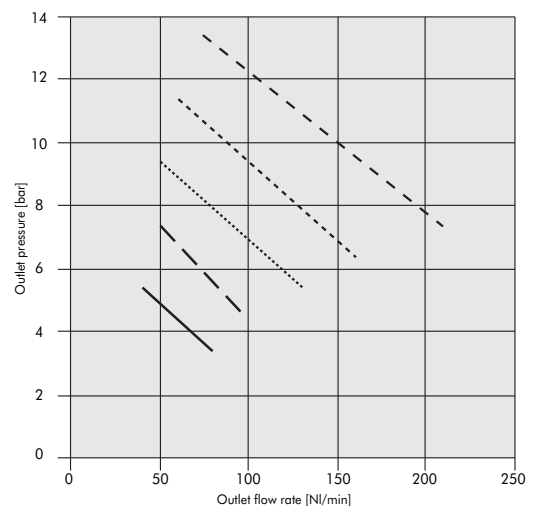
$$t = \frac{25(10 - 2.5)}{10} \text{ sec} = 18.75 \text{ sec}$$

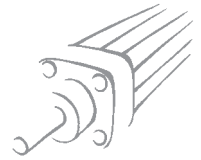
## FLOW CHARTS

without regulator



with regulator

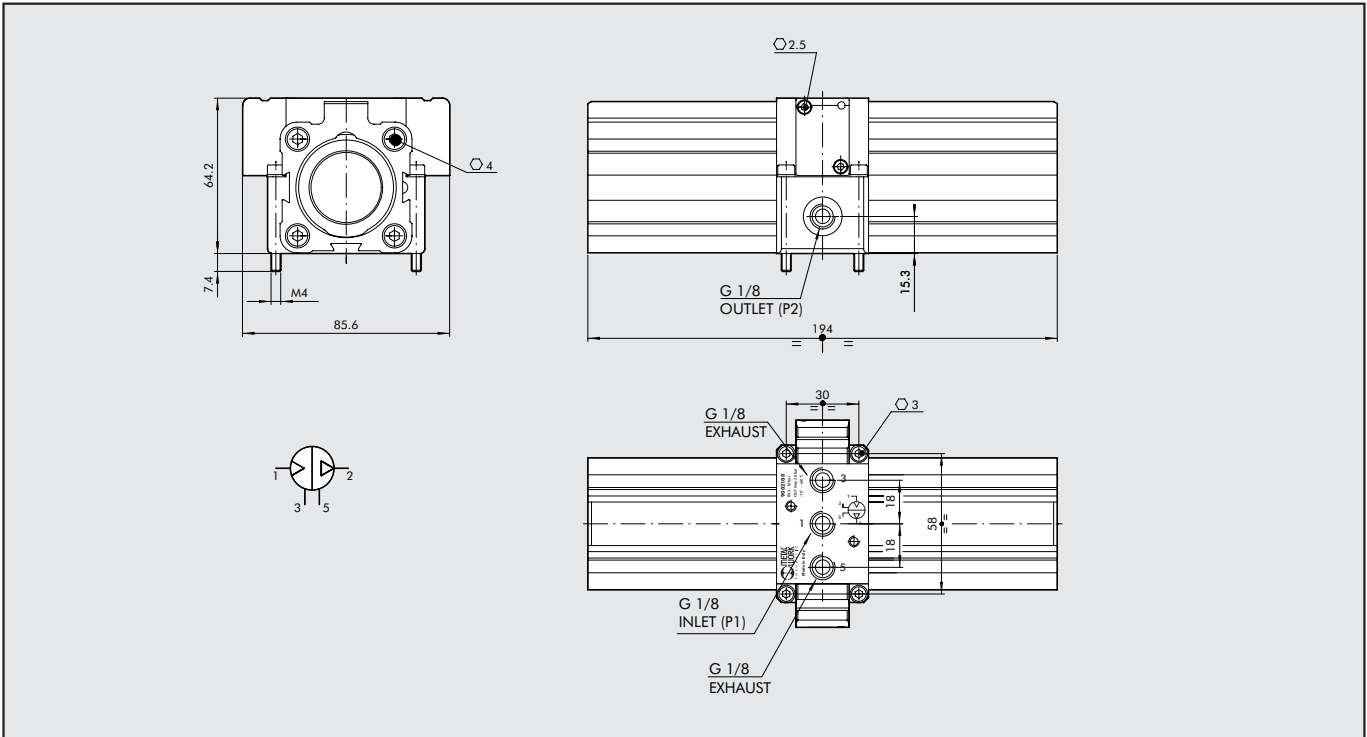




# DIMENSIONS

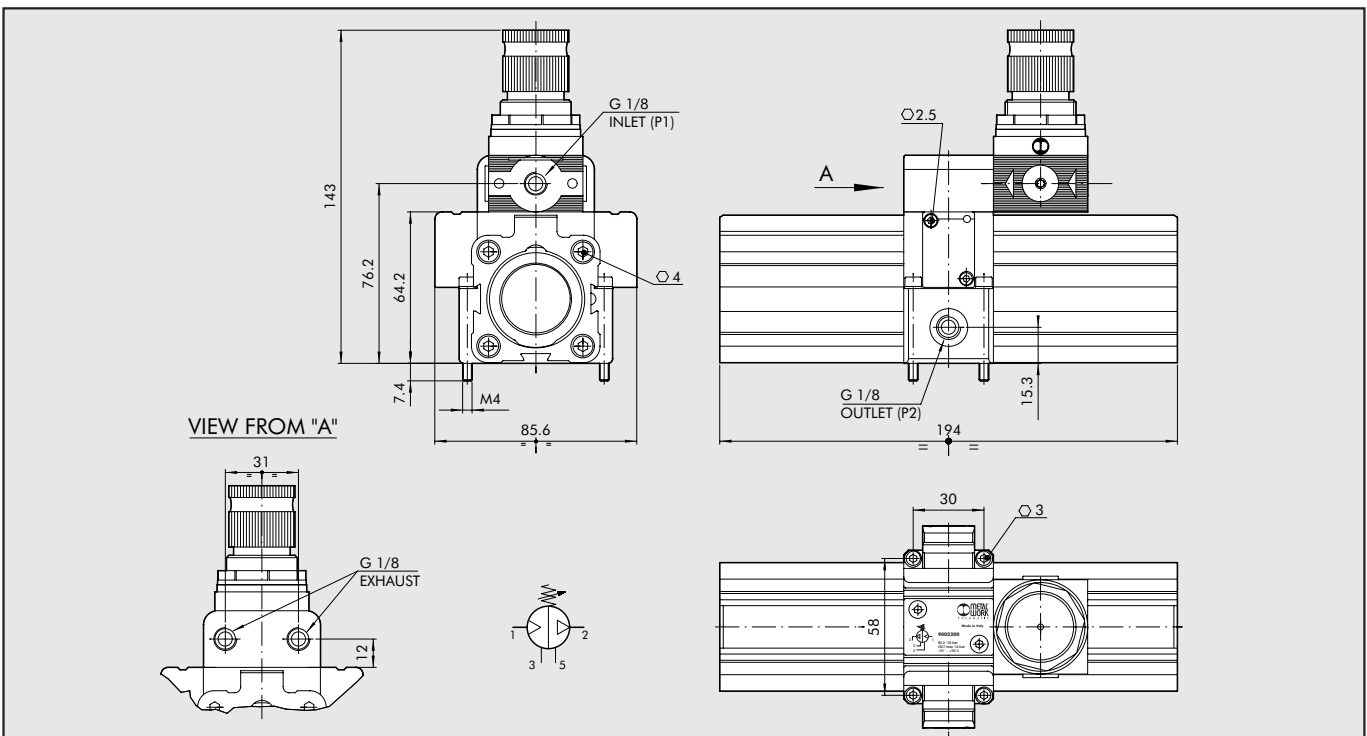
## Ø 40 PRESSURE MULTIPLIER (Booster)

1



Code	Description
9002100	Ø 40 BOOSTER

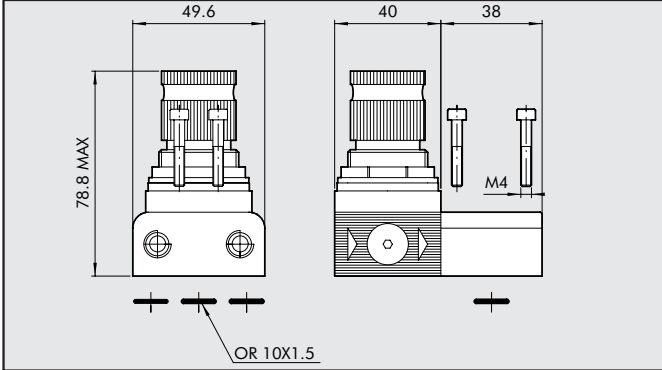
## Ø 40 PRESSURE MULTIPLIER (Booster with regulator)



Code	Description
9002200	Ø 40 BOOSTER WITH REGULATOR

# ACCESSORIES

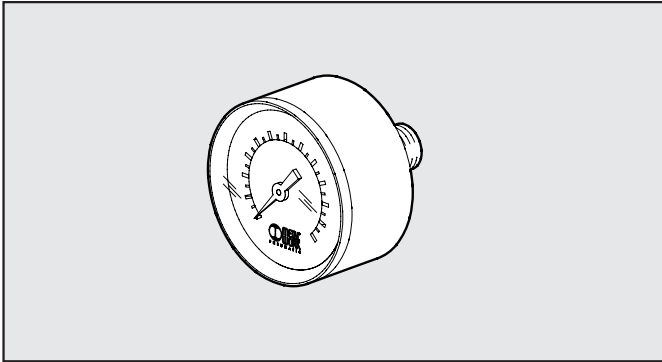
## REGULATOR UNIT



Code	Description
9002180	Regulator unit

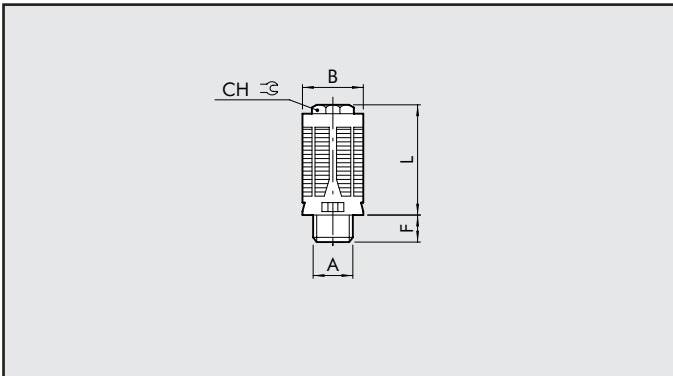
Note: Supplied with 2 screws, 3 O-ring

## PRESSURE GAUGE



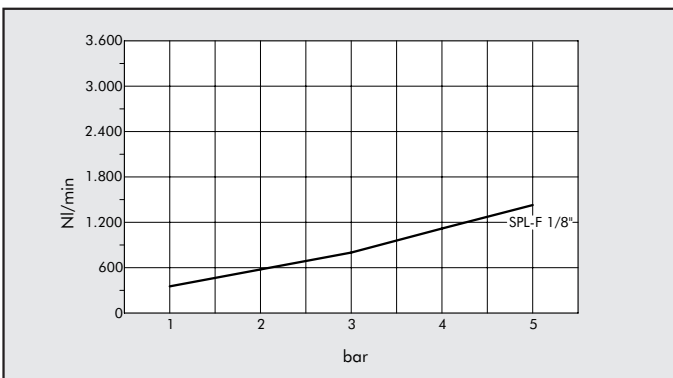
Code	Description
9700101	ACC. M 40 1/8 12

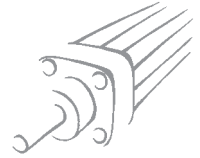
## MW SPL-F SILENCER



	A	B <sub>+0.2</sub>	F <sub>+0.5</sub>	L <sub>+3%</sub>	CH	Code
Materials:	G1/8	16.3	5.5	29	10	W0970530072
Black acetal resin						
Felt						
Features:						
Pmax: 12 bar						
Temp.: -10°C ÷ +60°C						

## SILENCER FLOW GRAPH

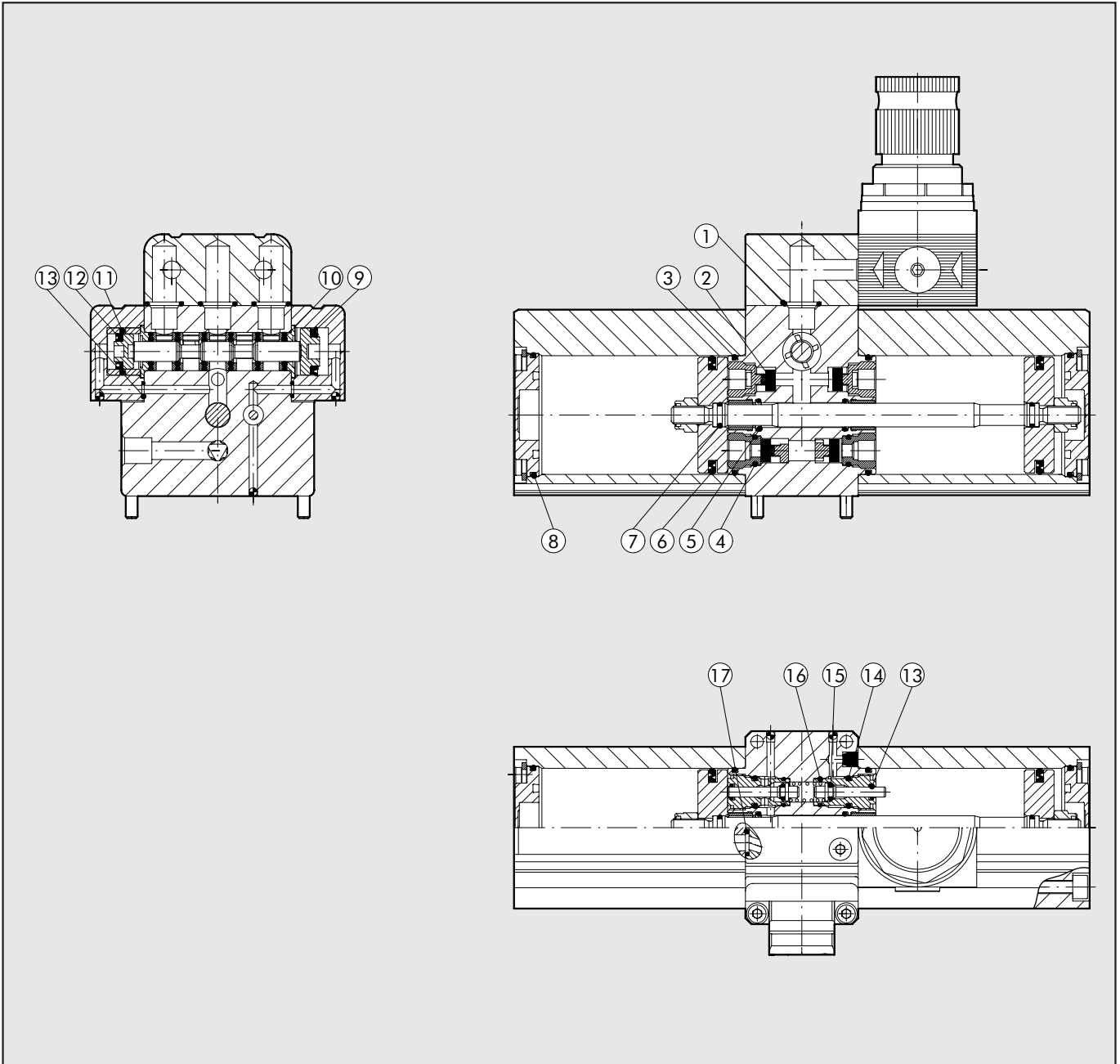




# SPARES

## SET OF GASKETS

1



Code	Description
9002190	Set of gaskets for Ø40 Booster

NB: includes all gaskets numbered 1 to 17

METAL WORK S.p.A

Head office: Via Segni, 5-7-9 25062 - Concesio (Brescia) Italy - Tel. 030 21 87 11 - Fax 030 21 80 569  
www.metalwork.it - metalwork@metalwork.it

The dimensions shown in this catalogue are subject to variations at any time without prior notice