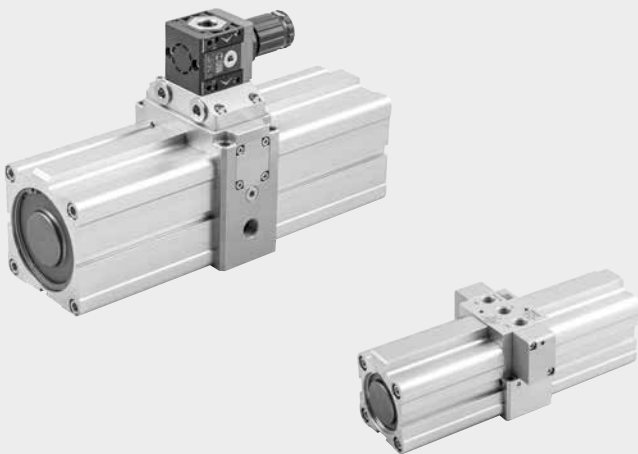


# AIR-AIR PRESSURE MULTIPLIER (BOOSTER)

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 after the booster to prevent fluctuations in outlet pressure.



TECHNICAL DATA		BOOSTER Ø40		BOOSTER Ø63		BOOSTER Ø100	
		without regulator	with regulator	without regulator	with regulator	without regulator	with regulator
Fluid		Filtered unlubricated compressed air, Lubrication, if used, must be continuous.					
Threaded port		1/8"		3/8"		1/2"	
Inlet pressure	MPa	0.2 - 1					
	bar	2 - 10					
	psi	29 - 145					
Outlet pressure	MPa	max 2	max 1.6 (regulated)	max 2	max 1.6 (regulated)	max 2	max 1.6 (regulated)
	bar	max 20	max 16 (regulated)	max 20	max 16 (regulated)	max 20	max 16 (regulated)
	psi	max 290	max 232 (regulated)	max 290	max 232 (regulated)	max 290	max 232 (regulated)
Operating temperature	°C	-10 to +60	-10 to +50	-10 to +60	-10 to +50	-10 to +60	-10 to +50
	°F	14 to 140	14 to 122	14 to 140	14 to 122	14 to 140	14 to 122
Weight	g	1.380	1.600	4.240	5.350	13.100	14.050
Mounting		Wall or panel				Wall	
Installation		In any position					

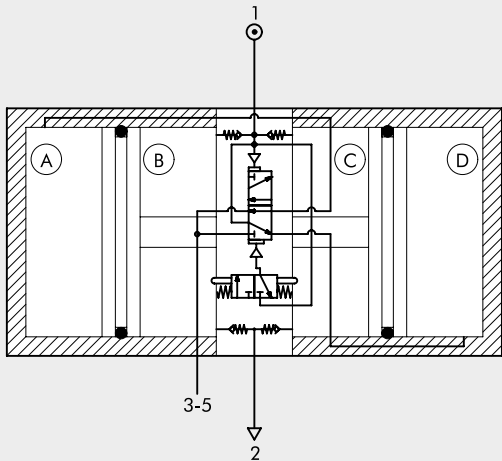
## OPERATING LAYOUT

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.

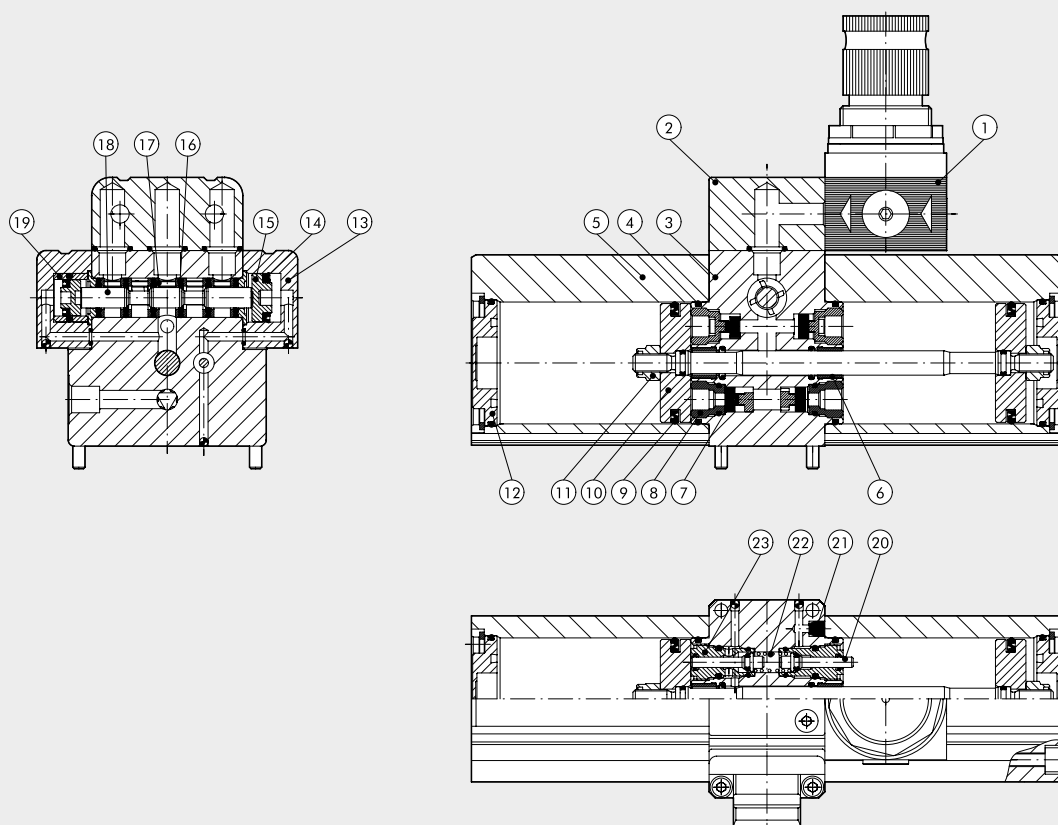
The supply air is compressed alternately by the two pistons in one of the two central chambers (B and C); the other central chamber and one of the two side chambers (A and D) operate the pistons; the external chamber, which is not involved in compression, is relieved.

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

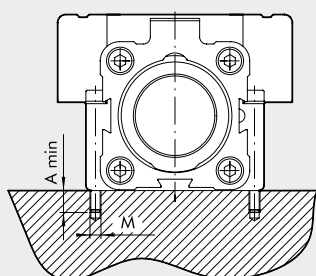


- ① PRESSURE REGULATOR (only for version with regulator)
- ② INTERFACE BLOCK (only for version with regulator):  
anodized aluminium
- ③ CENTRAL BODY: anodized aluminium
- ④ OR SEAL: NBR rubber
- ⑤ BARREL: anodized aluminium alloy section
- ⑥ GUIDE BUSHING: steel strip with bronze and PTFE insert
- ⑦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

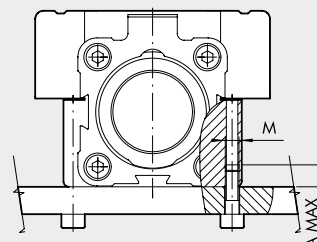
- ⑫ CYLINDER BASE: anodized aluminium
- ⑬ VALVE CONTROL: anodized aluminium
- ⑭ VALVE CONTROL GASKET: NBR rubber
- ⑮ VALVE PISTON: technopolymer
- ⑯ GASKET: NBR rubber
- ⑰ SPACER: technopolymer
- ⑱ SPOOL: nickel-plated aluminium
- ⑲ DIFFERENTIAL BUSHING: brass
- ⑳ PUSHER: stainless steel
- ㉑ SILENCER: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

## MOUNTING

On a wall using the screws provided with the Booster.



On a panel using screws (only for Ø40 and Ø63).

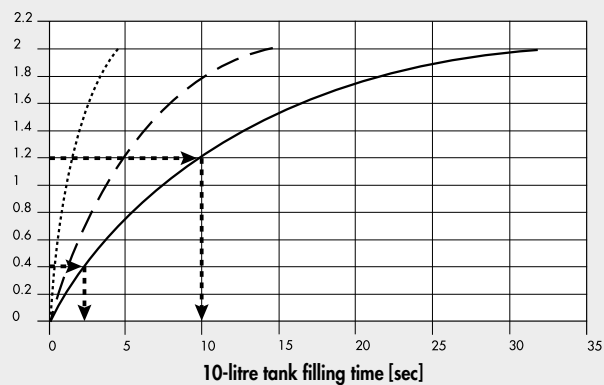


	Ø40	Ø63	Ø100
A	8	12	11.5
M	M4	M6	M10

	Ø40	Ø63
A	8	10
M	M5	M8

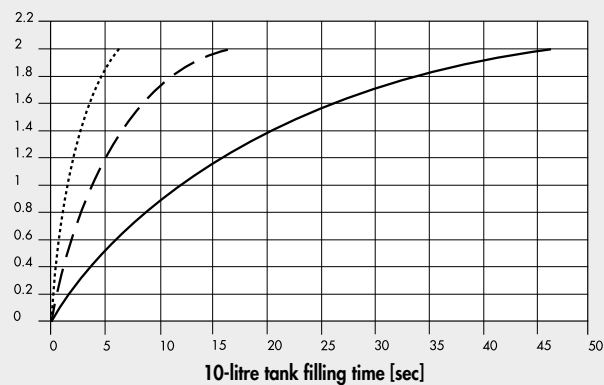
## TANK FILLING CURVES

## WITHOUT REGULATOR

Compression ratio [p<sub>2</sub>/p<sub>1</sub>]

— Ø40  
 - - - Ø63  
 ..... Ø100

## WITH REGULATOR

Compression ratio [p<sub>2</sub>/p<sub>1</sub>]

The graphs refer to the filling of a 10-litre tank and show the ratio of outlet to inlet pressure (= p<sub>2</sub>:p<sub>1</sub>) 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<sub>1</sub> and t<sub>2</sub> are the times shown on the x-axis, corresponding to ratios 1 and 2.

E.g.

$$1 = 0.4 \quad \Rightarrow \quad t_1 = 2.5 \text{ sec}$$

$$2 = 1.2 \quad \Rightarrow \quad t_2 = 10 \text{ sec}$$

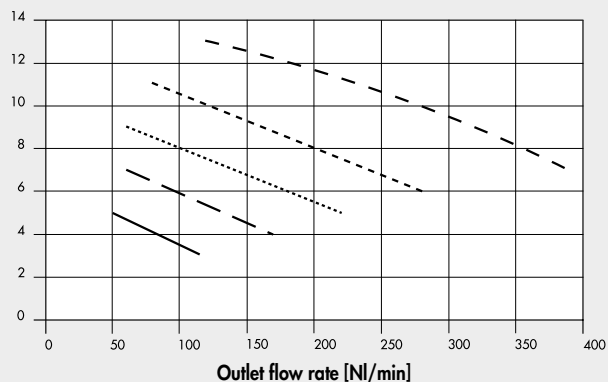
The time required to switch from 1 to 2 with a 25-litre tank is:

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

## FLOW CHARTS

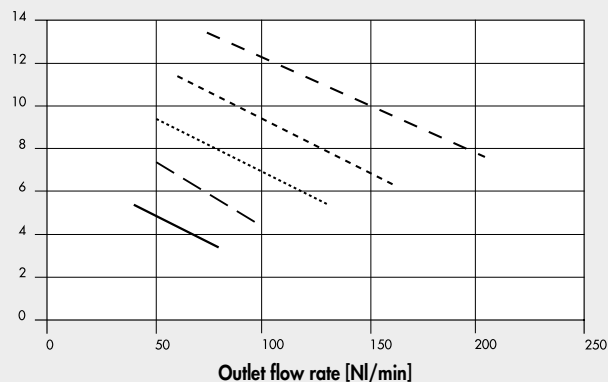
### WITHOUT REGULATOR Ø40

Outlet pressure [bar]



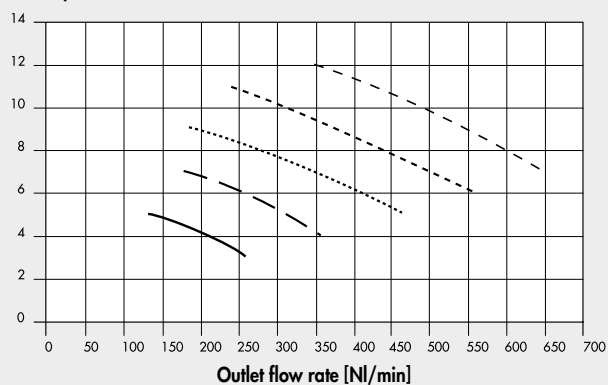
### WITH REGULATOR Ø40

Outlet pressure [bar]



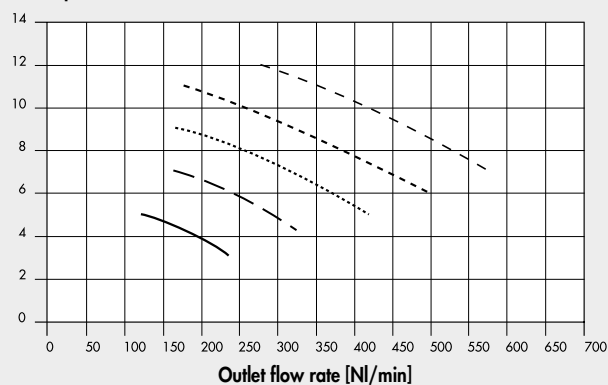
### WITHOUT REGULATOR Ø63

Outlet pressure [bar]



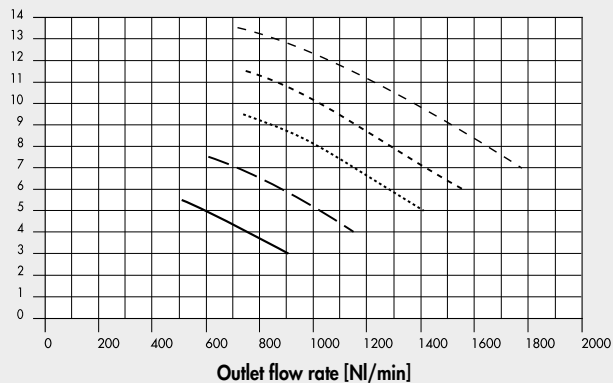
### WITH REGULATOR Ø63

Outlet pressure [bar]



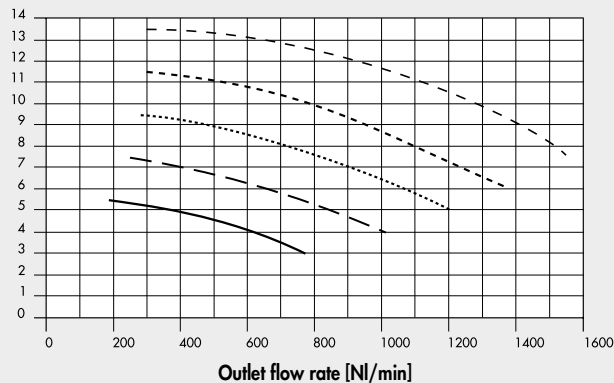
### WITHOUT REGULATOR Ø100

Outlet pressure [bar]



### WITH REGULATOR Ø100

Outlet pressure [bar]



### INLET PRESSURE

--- p1 = 7 bar

----- p1 = 6 bar

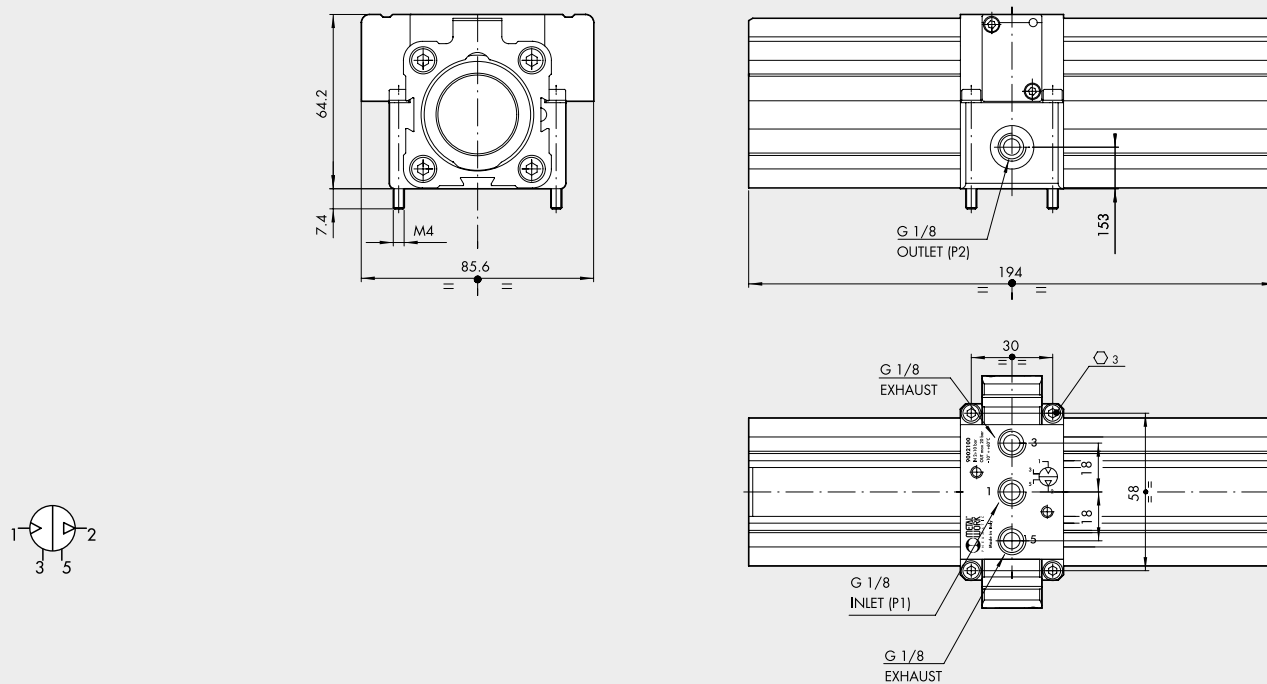
..... p1 = 5 bar

--- p1 = 4 bar

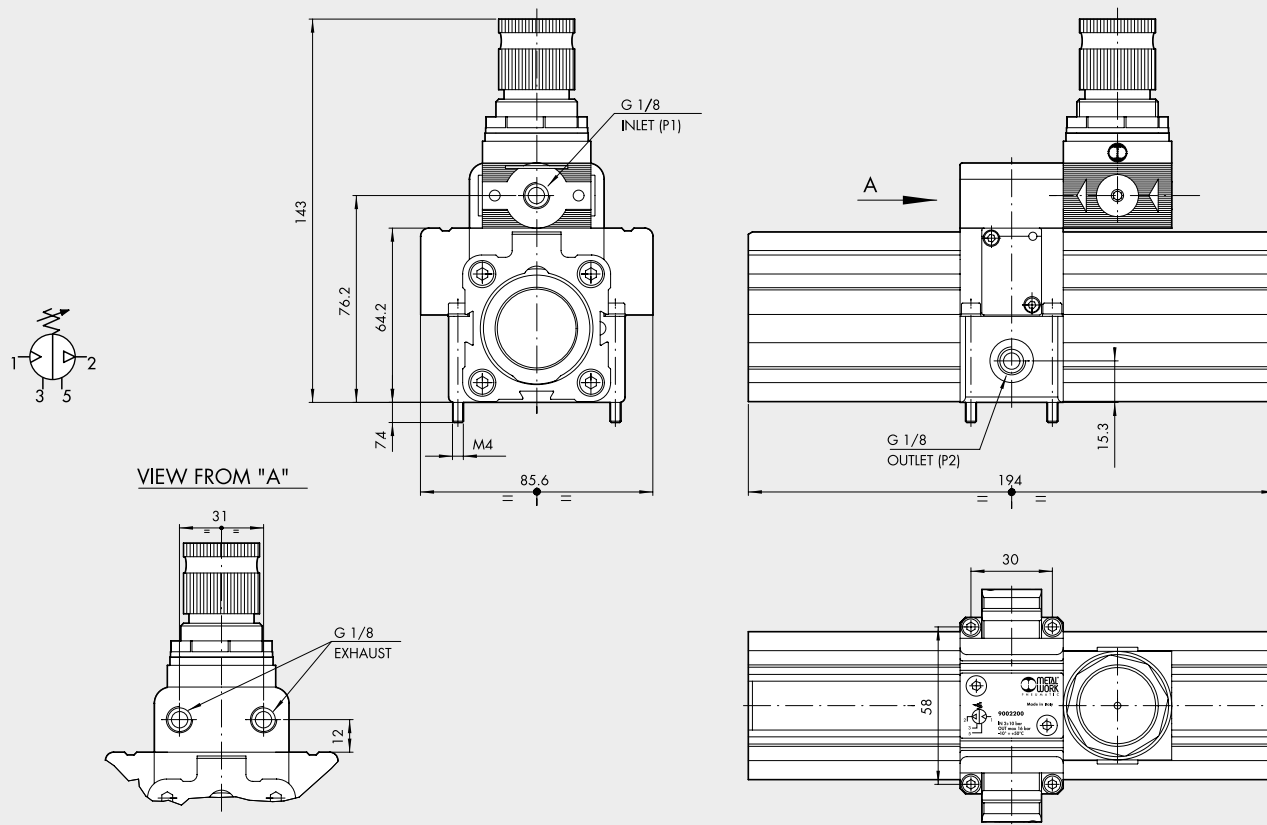
— p1 = 3 bar

# DIMENSIONS PRESSURE MULTIPLIER Ø40 (BOOSTER)

## WITHOUT REGULATOR



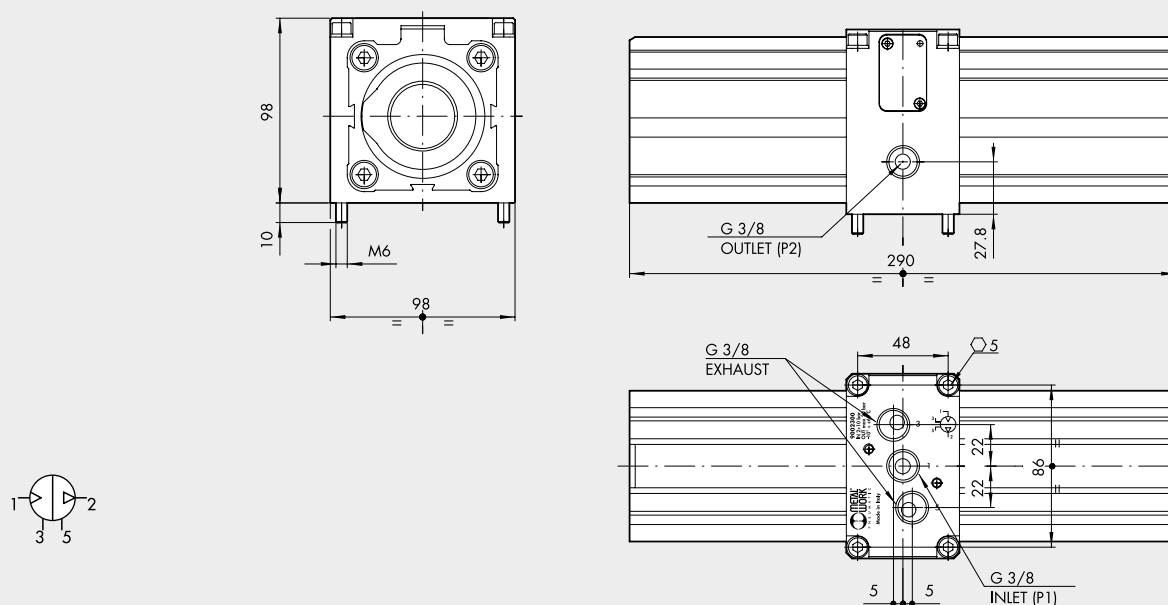
## WITH REGULATOR



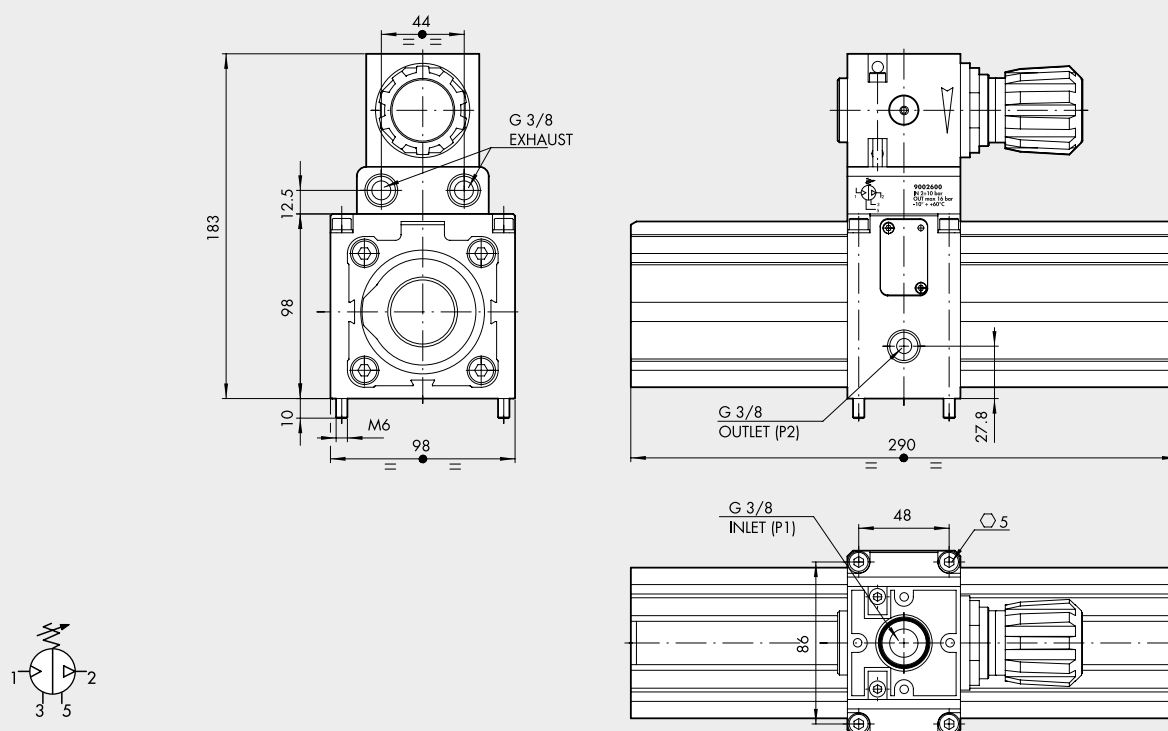
Code	Description
9002100	Booster Ø40
9002200	Booster Ø40 with regulator

# **DIMENSIONS PRESSURE MULTIPLIER Ø63 (BOOSTER)**

## **WITHOUT REGULATOR**



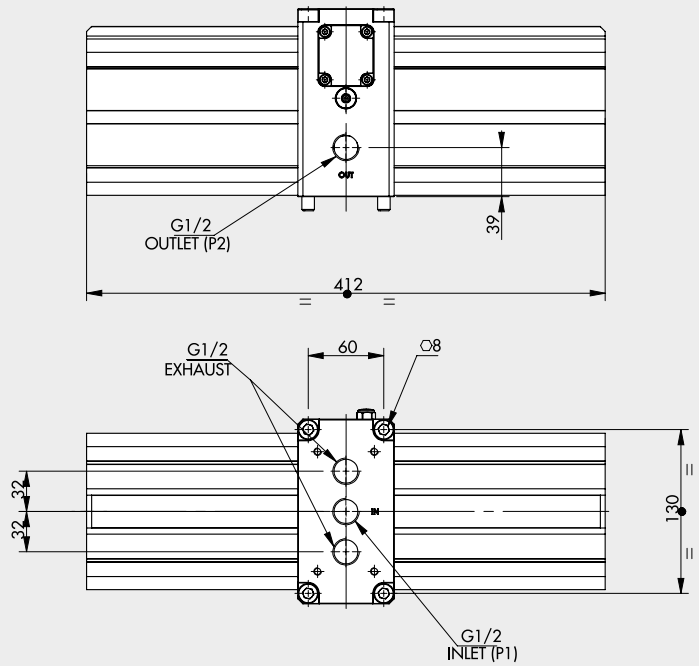
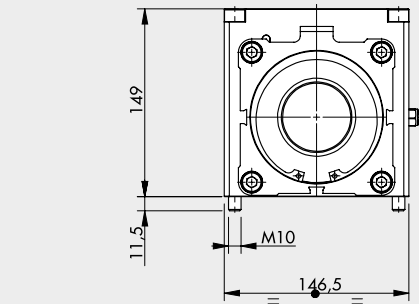
## **WITH REGULATOR**



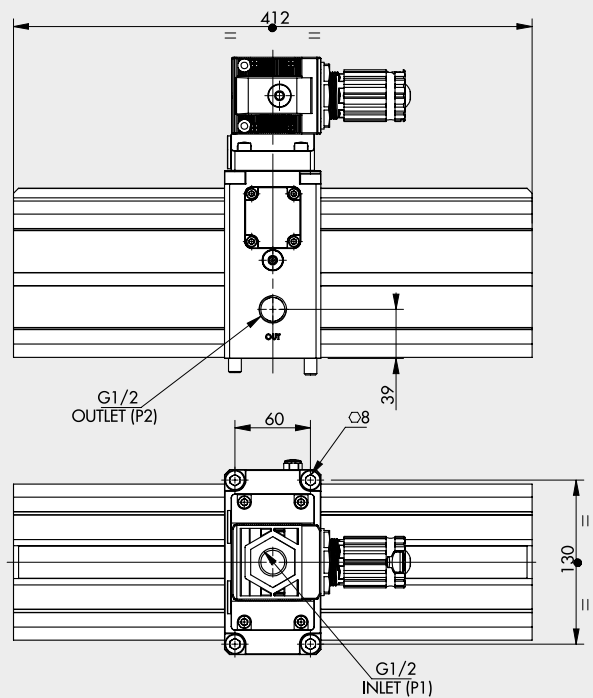
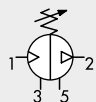
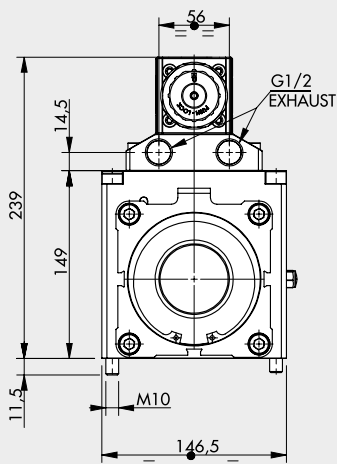
Code	Description
9002300	Booster Ø63
9002600	Booster Ø63 with regulator

## DIMENSIONS PRESSURE MULTIPLIER Ø100 (BOOSTER)

### WITHOUT REGULATOR



### WITH REGULATOR

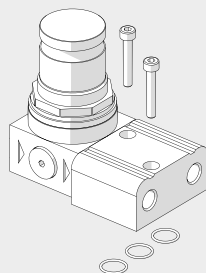


Code	Description
9002700	Booster Ø100
9002800	Booster Ø100 with regulator

## ACCESSORIES

### REGULATOR UNIT

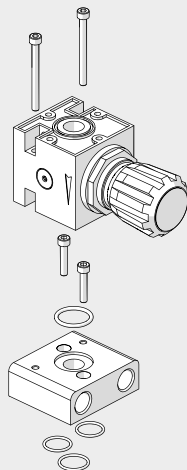
Ø40



Code	Description
9002180	Ø40 regulator unit

Note: Supplied with 2 screws, 3 O-ring

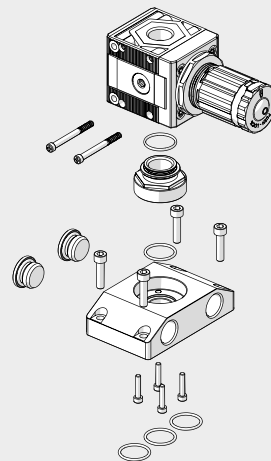
Ø63



Code	Description
9002380	Ø63 regulator unit

Note: Supplied with 4 screws, 4 O-ring

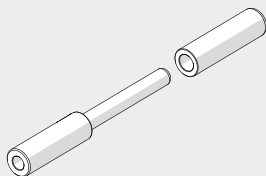
Ø100



Code	Description
9002780	Ø100 regulator unit

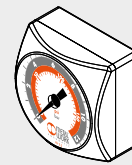
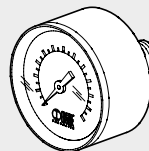
Note: Supplied with 10 screws, 5 O-ring

### ACCESSORY FOR ASSEMBLING Ø100 BOOSTER VALVE GASKETS AND SPACERS



Code	Description
9002791	Accessory for assembling Ø100 Booster valve gaskets

### PRESSURE GAUGE



Code	Description
9700101	M 40 1/8 012
9700110	M 40x40 1/8 012

N.B.: In case of use of the pressure gauge with Booster Ø100 it is necessary to purchase the appropriate adapter cod. 9210005

### SILENCER

Ø40



Ø63



Ø100



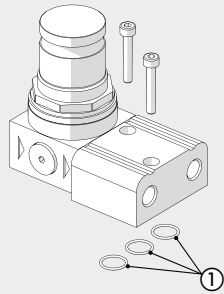
Code	Description
W0970530072	MW SPL-F silencer for Booster Ø40
W0970530014	MW SCQ silencer for Booster Ø63
W0970530055	MW SFE silencer for Booster Ø100

### NOTES

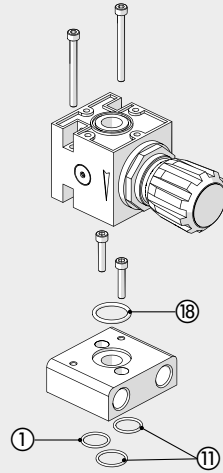
## SPARE PARTS

### SET OF GASKETS

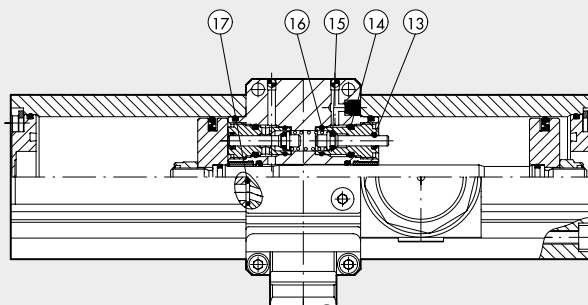
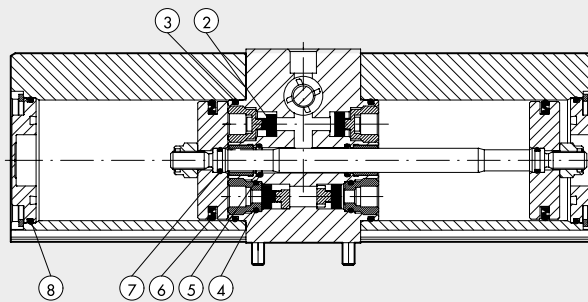
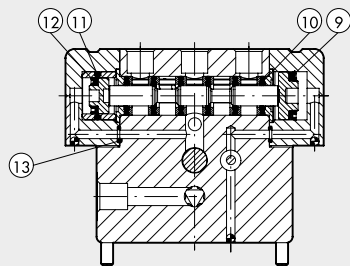
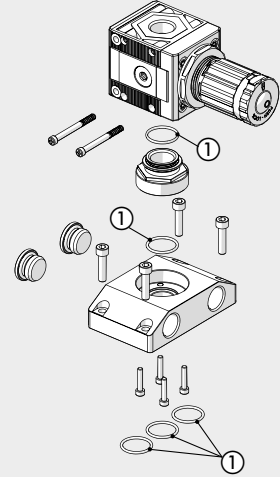
Ø40



Ø63



Ø100



Code	Description
9002190	Set of gaskets for Ø40 Booster (includes all indicated gaskets)
9002390	Set of gaskets for Ø63 Booster (includes all indicated gaskets)
9002790	Set of gaskets for Ø100 Booster (includes all indicated gaskets)