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AZ Pneumatica

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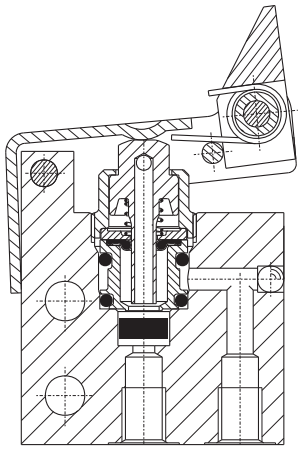
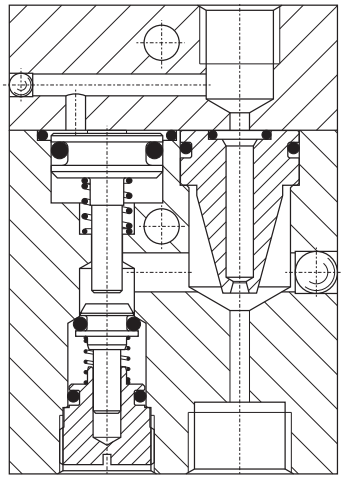
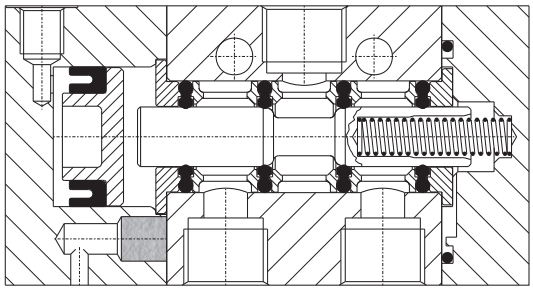
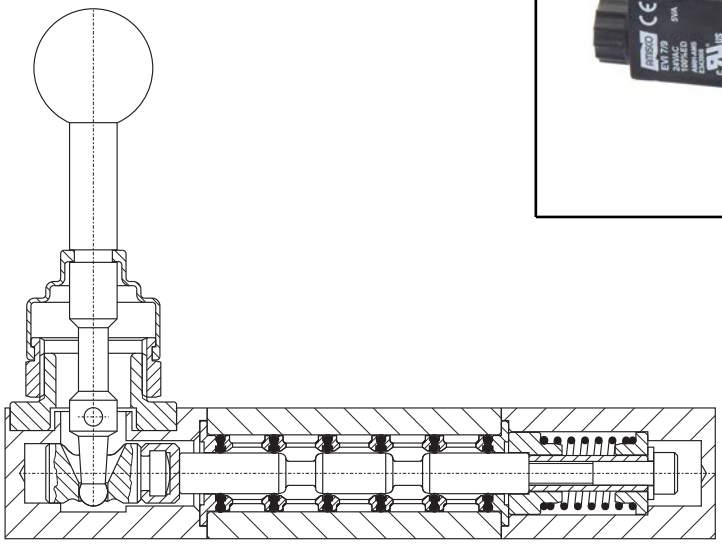
Technical information









- In-line or manifold mounted pneumatic valves (1/8" NPT, 1/4" NPT, 1/2" NPT)
- ISO 5599/1 size 1, 2, 3; VDMA and Namur specifications
- Integrated elements with control and regulation functions (1/8" NPT and 1/4" NPT)
- Special valves and custom built products are available on request

Technical notes

- Materials: aluminium 11S, stainless steel, brass OT58, technopolymers; seals in NBR or viton
- Surface treatment: anodize and nickel plating
- Operating system: balanced spool or poppet
- Life expectation in standard conditions: 20 millions cycles
- Nominal flow rates: 30 to 4500 Nl/min (0.03 to 4.76 Cv)
- Pneumatic functions: 2/2, 3/2 NC-NO; 5/2; 5/3 closed, open or pressurized centre position
- Actuation: mechanical, manual, pneumatic, solenoid
- Power consumption: 3W / 5VA with 10 mm, 15 mm, 22 mm, 30 mm coils
- Fluid: compressed air with or without lubrication - vacuum
- Threaded ports: M5, 1/8" NPT, 1/4" NPT, 3/8" NPT, 1/2 NPT", all the products are avaiable also in BSP version on request
- Push-in fittings: for ø4 mm, ø6 mm, ø8 mm tube

General index

page

Chapter I - microvalves, spool valves

page

Microvalves

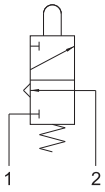
- NC and NO poppet microvalves
- Installation in any position
- Threaded ports or push-in fittings for 5/32'' or ø4 mm tube
- Low actuating force
- Version with adaptor for panel mounting (with ø22 mm hole)
- Special versions on request

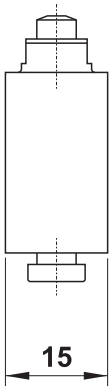
Materials
Body: aluminium 11S
Spring: stainless steel
Seals: NBR
Cartridge: nickeled brass
Internal parts: brass OT58

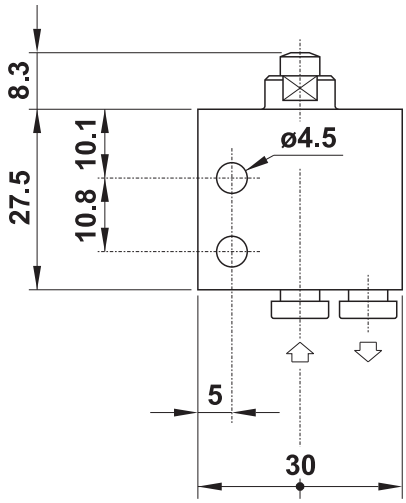
Nominal diameter	2.5 mm (0.1 in)
Nominal flow rate at 6 bar	100 Nl/min (0.1 Cv)
Temperature range	max +60°C (140°F)
Operating pressure	2 ... 10 bar (30 ... 145 PSI) 0.2 ... 1 MPa
Actuating force	6 N
Fluid	50μ filtered, lubricated or non lubricated air

304 MA

3/2 N/C push-in fittings for 5/32'' or ø4 mm tube (ports on the bottom), tappet

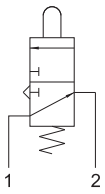






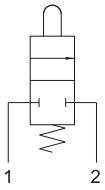
314 MA

3/2 N/O push-in fittings for 5/32'' or ø4 mm tube (ports on the bottom), tappet



204 MA

2/2 N/C push-in fittings for 5/32'' or ø4 mm tube (ports on the bottom), tappet



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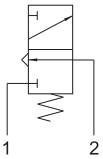
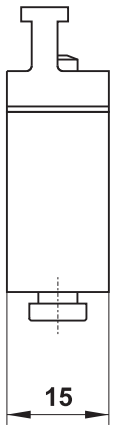
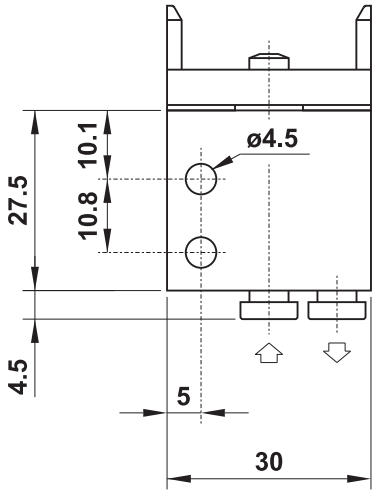
3/2 N/C push-in fittings for 5/32'' or ø4 mm tube (ports on the bottom), actuator adaptor for panel mounting







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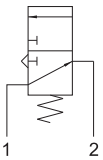
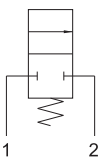
3/2 N/O push-in fittings for 5/32'' or ø4 mm tube (ports on the bottom), actuator adaptor for panel mounting



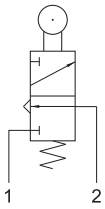
204 MB

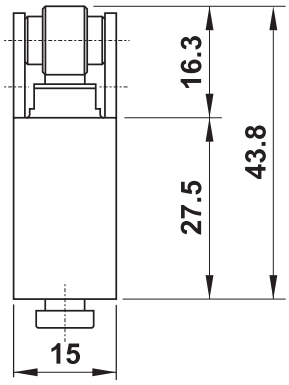
2/2 N/C push-in fittings for 5/32'' or ø4 mm tube (ports on the bottom), actuator adaptor for panel mounting



304 MR

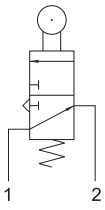
3/2 N/C push-in fittings for 5/32'' or ø4 mm tube (ports on the bottom), roller lever

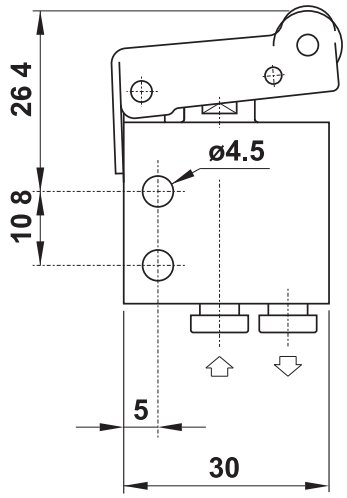




314 MR

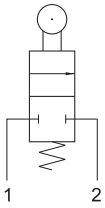
3/2 N/O push-in fittings for 5/32'' or ø4 mm tube (ports on the bottom), roller lever





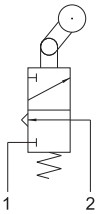
204 MR

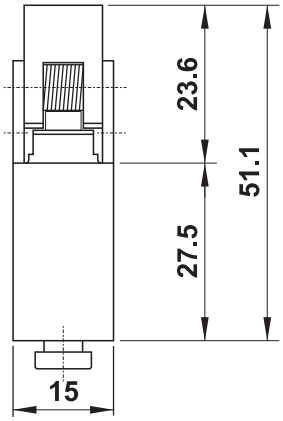
2/2 N/C push-in fittings for 5/32'' or ø4 mm tube (ports on the bottom), roller lever



304 MS

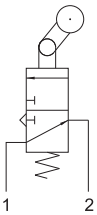
3/2 N/C push-in fittings for 5/32'' or ø4 mm tube (ports on the bottom), uni-directional lever

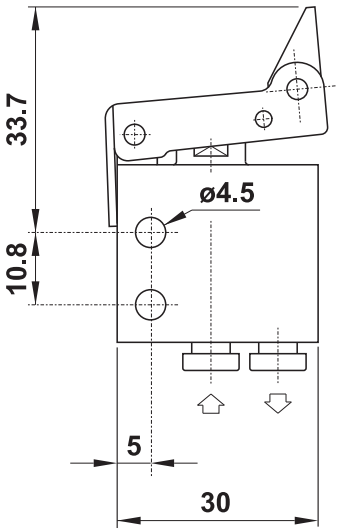




314 MS

3/2 N/O push-in fittings for 5/32'' or ø4 mm tube (ports on the bottom), uni-directional lever





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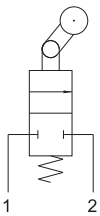
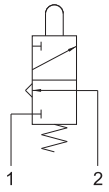
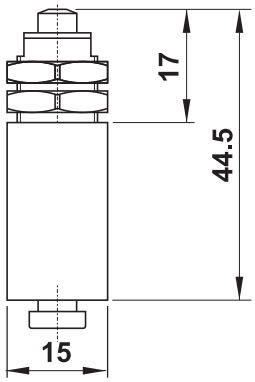
2/2 N/C push-in fittings for 5/32'' or ø4 mm tube (ports on the bottom), uni-directional lever



304 MV

3/2 N/C push-in fittings for 5/32'' or ø4 mm tube
(ports on the bottom), panel mount tappet





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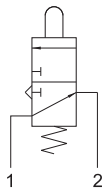
3/2 N/O push-in fittings for 5/32'' or ø4 mm tube
(ports on the bottom), panel mount tappet



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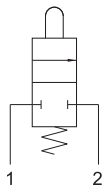

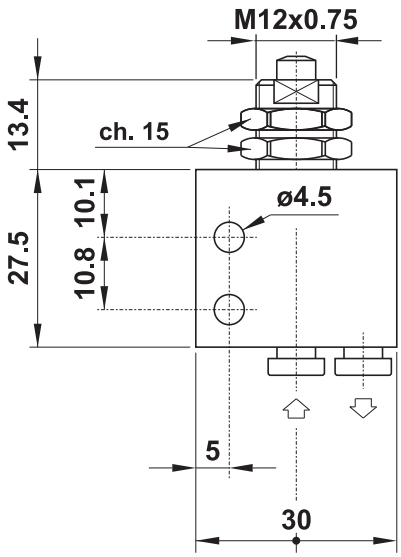

304 MA UL

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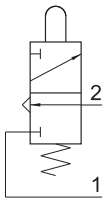

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3/2 N/O push-in fittings for 5/32'' or ø4 mm tube
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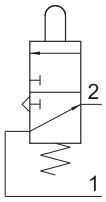

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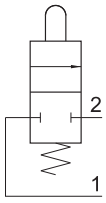
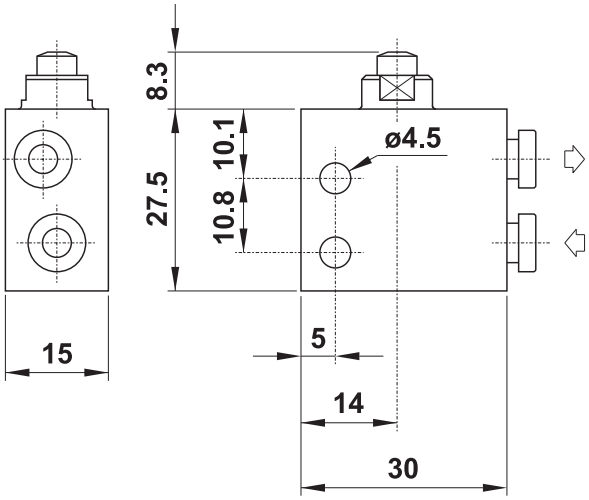
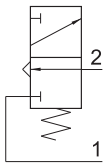
2/2 N/C push-in fittings for 5/32'' or ø4 mm tube
(ports on the side), tappet





304 MB UL

3/2 N/C push-in fittings for 5/32'' or ø4 mm tube
(ports on the side), actuator adaptor for panel mounting



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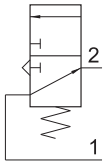
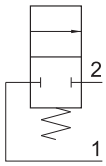
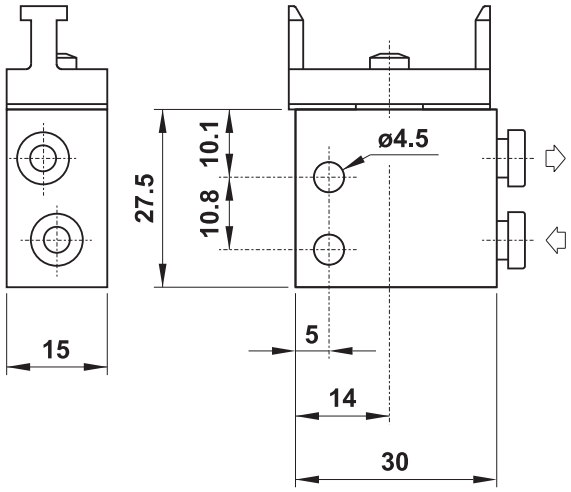
3/2 N/O push-in fittings for 5/32'' or ø4 mm tube
(ports on the side), actuator adaptor for panel mounting



204 MB UL

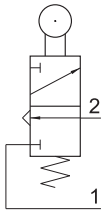
2/2 N/C push-in fittings for 5/32'' or ø4 mm tube
(ports on the side), actuator adaptor for panel mounting





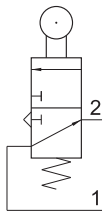
304 MR UL

3/2 N/C push-in fittings for 5/32'' or ø4 mm tube
(ports on the side), roller lever



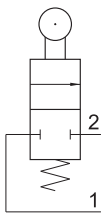
314 MR UL

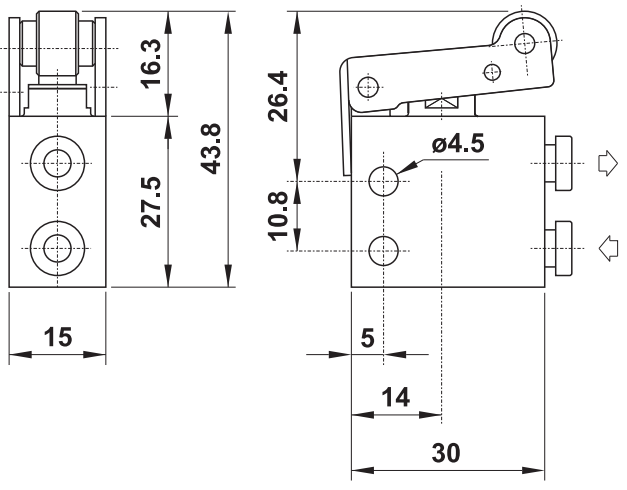
3/2 N/O push-in fittings for 5/32'' or ø4 mm tube
(ports on the side), roller lever



204 MR UL

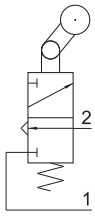
2/2 N/C push-in fittings for 5/32'' or ø4 mm tube
(ports on the side), roller lever

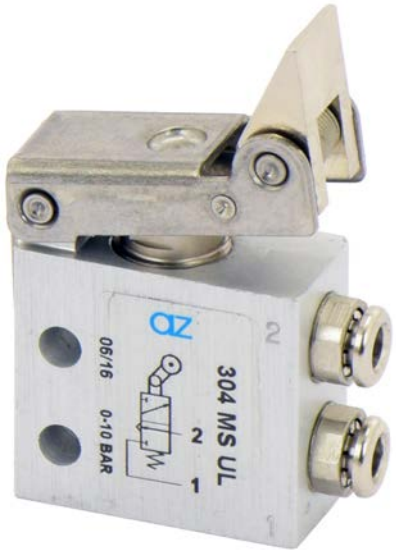




304 MS UL

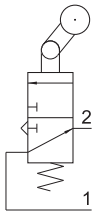
3/2 N/C push-in fittings for 5/32'' or ø4 mm tube (ports on the side), uni-directional lever





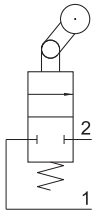
314 MS UL

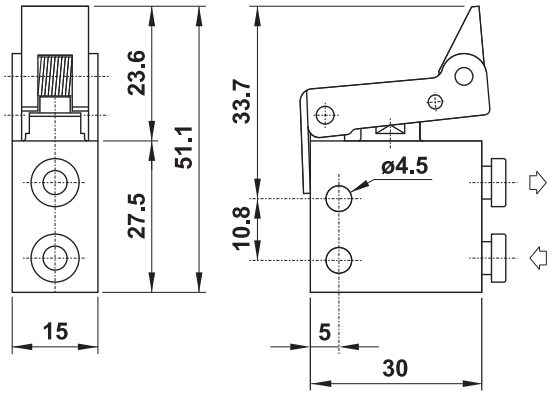
3/2 N/O push-in fittings for 5/32'' or ø4 mm tube (ports on the side), uni-directional lever



204 MS UL

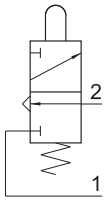
2/2 N/C push-in fittings for 5/32'' or ø4 mm tube (ports on the side), uni-directional lever





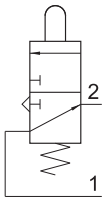
304 MV UL

3/2 N/C push-in fittings for 5/32'' or ø4 mm tube (ports on the side), panel mount tappet



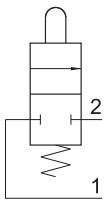
314 MV UL

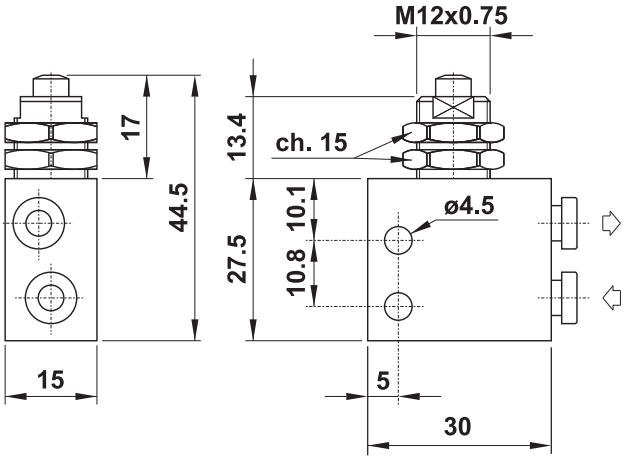
3/2 N/O push-in fittings for 5/32'' or ø4 mm tube (ports on the side), panel mount tappet



204 MV UL

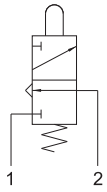
2/2 N/C push-in fittings for 5/32'' or ø4 mm tube (ports on the side), panel mount tappet





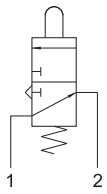
305 MA

3/2 N/C M5 threaded ports (on the bottom), tappet



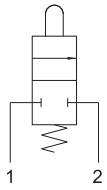
315 MA

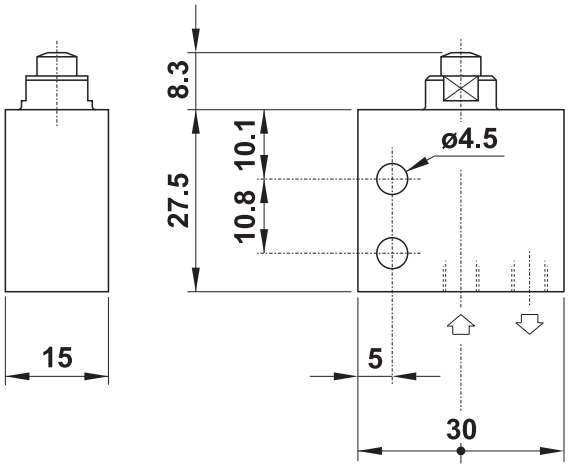
3/2 N/O M5 threaded ports (on the bottom), tappet



205 MA

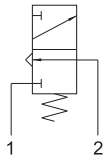
2/2 N/C M5 threaded ports (on the bottom), tappet





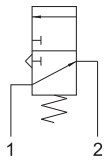
305 MB

3/2 N/C M5 threaded ports (on the bottom), actuator adaptor for panel mounting



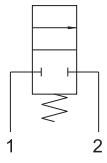
315 MB

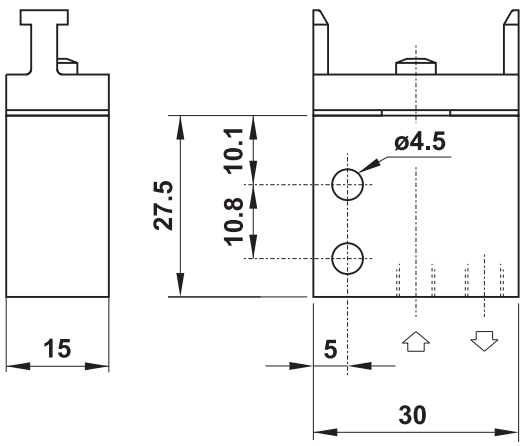
3/2 N/O M5 threaded ports (on the bottom), actuator adaptor for panel mounting



205 MB

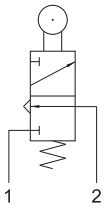
2/2 N/C M5 threaded ports (on the bottom), actuator adaptor for panel mounting





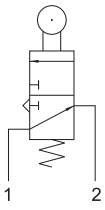
305 MR

3/2 N/C M5 threaded ports (on the bottom), roller lever



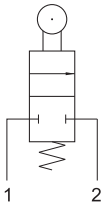
315 MR

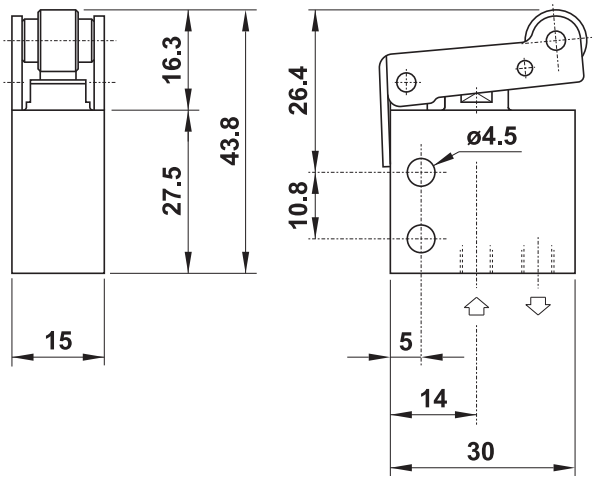
3/2 N/O M5 threaded ports (on the bottom), roller lever



205 MR

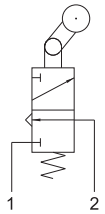
2/2 N/C M5 threaded ports (on the bottom), roller lever





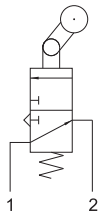
305 MS

3/2 N/C M5 threaded ports (on the bottom), uni-directional lever



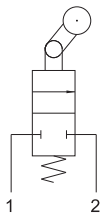
315 MS

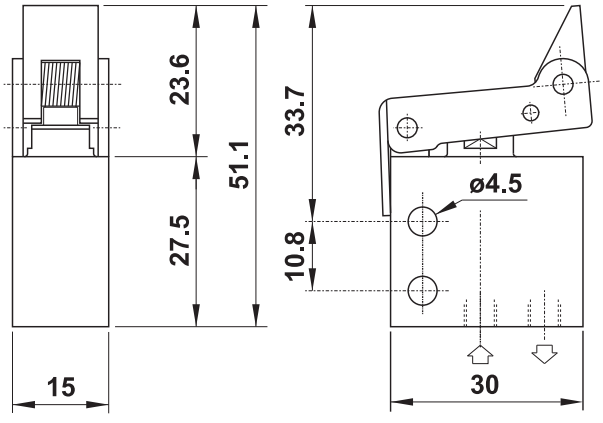
3/2 N/O M5 threaded ports (on the bottom), uni-directional lever



205 MS

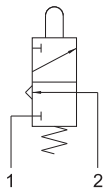
2/2 N/C M5 threaded ports (on the bottom), uni-directional lever





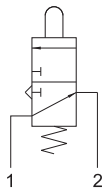
305 MV

3/2 N/C M5 threaded ports (on the bottom), panel mount tappet



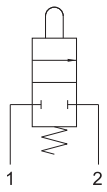
315 MV

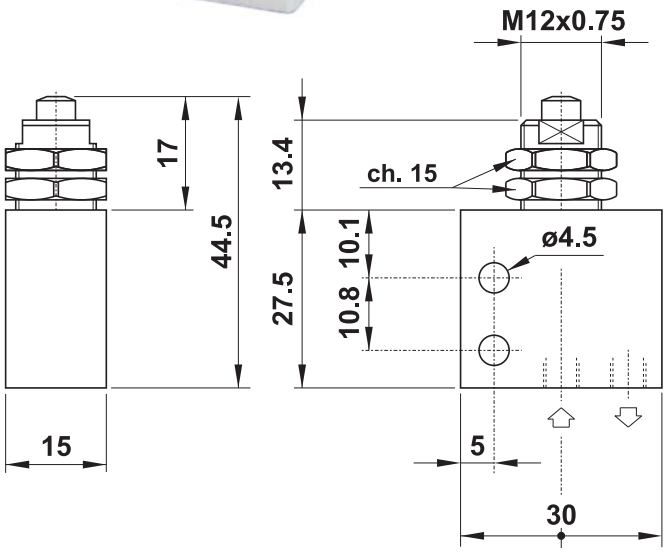
3/2 N/O M5 threaded ports (on the bottom), panel mount tappet



205 MV

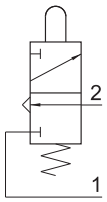
2/2 N/C M5 threaded ports (on the bottom), panel mount tappet





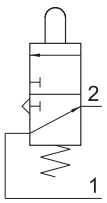
305 MA UL

3/2 N/C M5 threaded ports (on the side), tappet



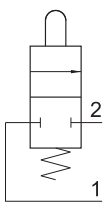
315 MA UL

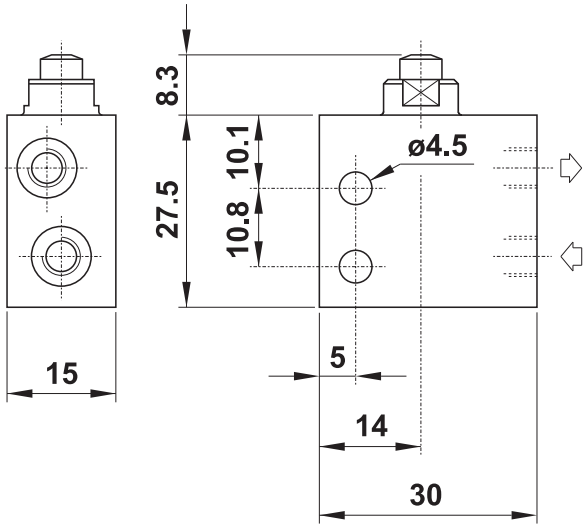
3/2 N/O M5 threaded ports (on the side), tappet



205 MA UL

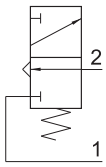
2/2 N/C M5 threaded ports (on the side), tappet





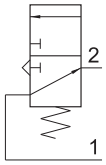
305 MB UL

3/2 N/C M5 threaded ports (on the side), actuator adaptor for panel mounting



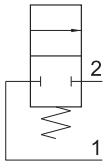
315 MB UL

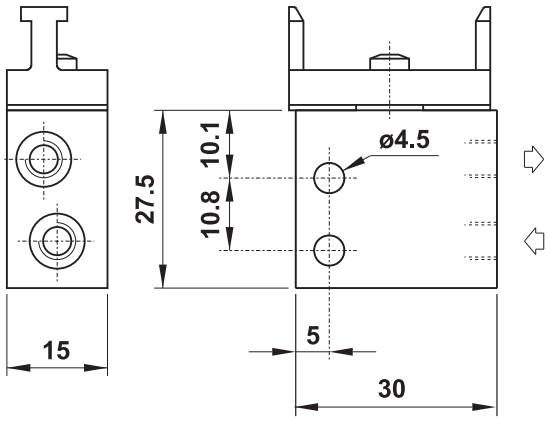
3/2 N/O M5 threaded ports (on the side), actuator adaptor for panel mounting



205 MB UL

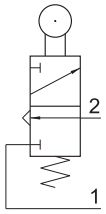
2/2 N/C M5 threaded ports (on the side), actuator adaptor for panel mounting





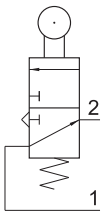
305 MR UL

3/2 N/C M5 threaded ports (on the side), roller lever



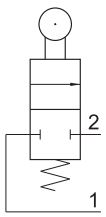
315 MR UL

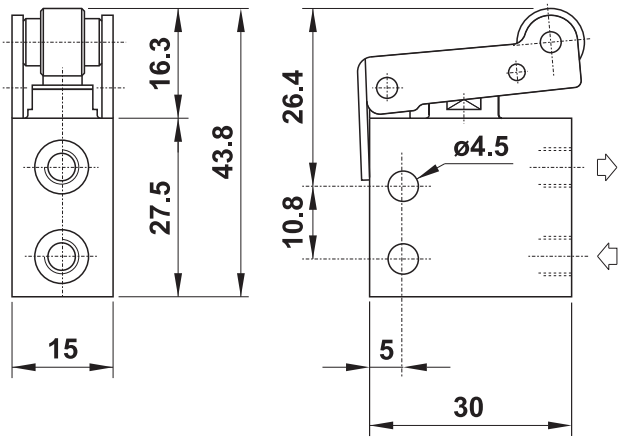
3/2 N/O M5 threaded ports (on the side), roller lever



205 MR UL

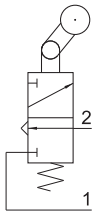
2/2 N/C M5 threaded ports (on the side), roller lever





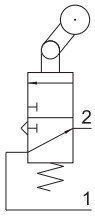
305 MS UL

3/2 N/C M5 threaded ports (on the side), uni-directional lever



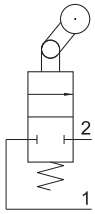
315 MS UL

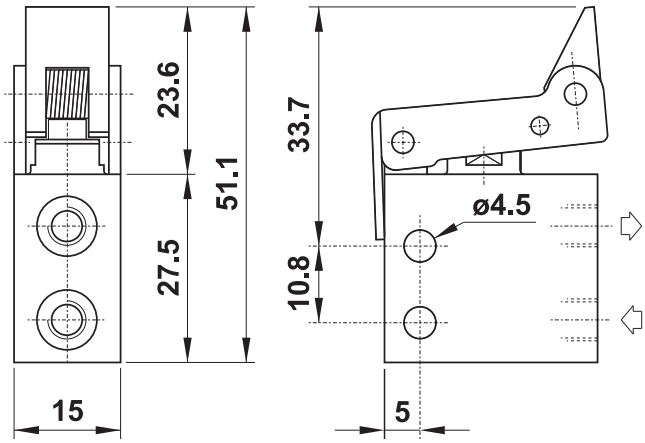
3/2 N/O M5 threaded ports (on the side), uni-directional lever



205 MS UL

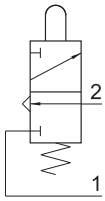
2/2 N/C M5 threaded ports (on the side), uni-directional lever





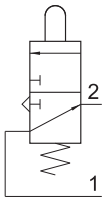
305 MV UL

3/2 N/C M5 threaded ports (on the side), panel mount tappet



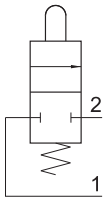
315 MV UL

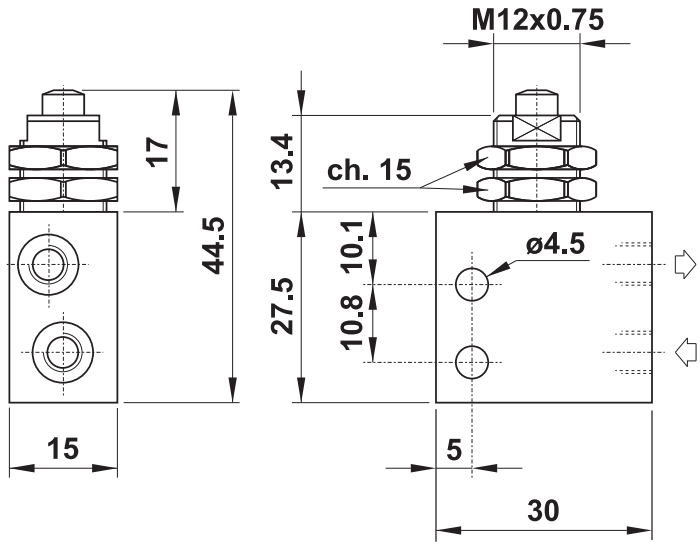
3/2 N/O M5 threaded ports (on the side), panel mount tappet



205 MV UL

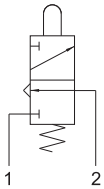
2/2 N/C M5 threaded ports (on the side), panel mount tappet





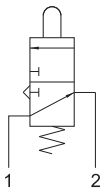
304 MGx

3/2 N/C push-in fittings for 5/32" or ø4 mm tube (ports on the bottom), push lever (4 colours - see explanation)



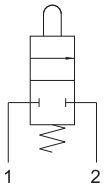
314 MGx

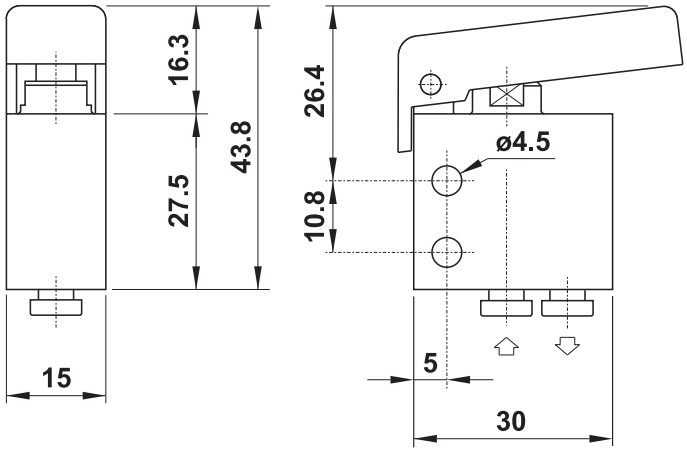
3/2 N/O push-in fittings for 5/32" or ø4 mm tube (ports on the bottom), push lever (4 colours - see explanation)



204 MGx

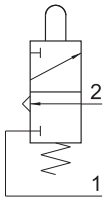
2/2 N/C push-in fittings for 5/32" or ø4 mm tube (ports on the bottom), push lever (4 colours - see explanation)





304 MGx UL

3/2 N/C push-in fittings for 5/32" or ø4 mm tube (ports on the side), push lever (4 colours - see explanation)

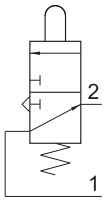


In the part number replace the letter "x" with the colour reference of the push lever.

RED	R
YELLOW	G
GREEN	V
BLACK	N

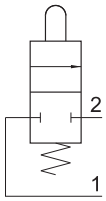
314 MGx UL

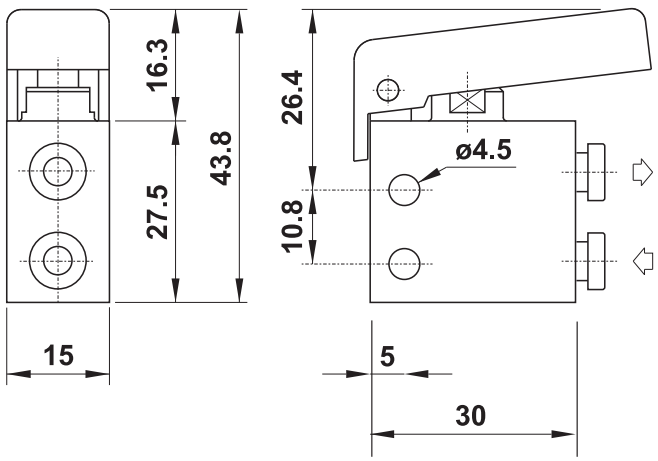
3/2 N/O push-in fittings for 5/32" or ø4 mm tube (ports on the side), push lever (4 colours - see explanation)



204 MGx UL

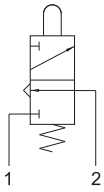
2/2 N/C push-in fittings for 5/32" or ø4 mm tube (ports on the side), push lever (4 colours - see explanation)





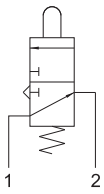
305 MGx

3/2 N/C M5 threaded ports (on the bottom), push lever (4 colours - see explanation)



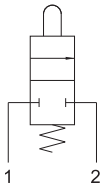
315 MGx

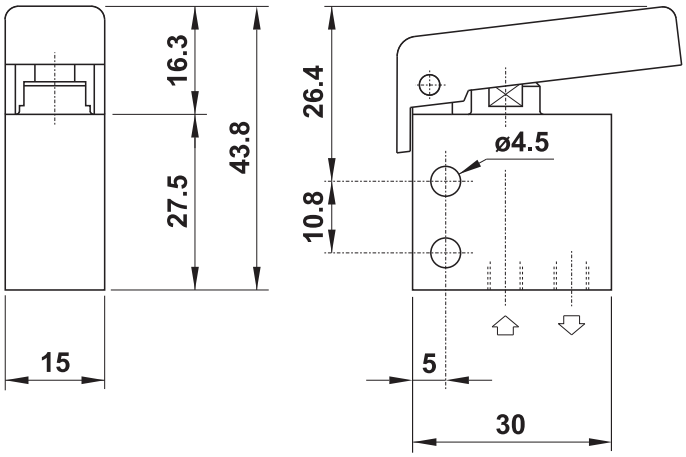
3/2 N/O M5 threaded ports (on the bottom), push lever (4 colours - see explanation)



205 MGx

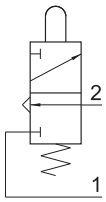
2/2 N/C M5 threaded ports (on the bottom), push lever (4 colours - see explanation)





305 MGx UL

3/2 N/C M5 threaded ports (on the side), push lever (4 colours - see explanation)

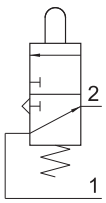


In the part number replace the letter "x" with the colour reference of the push lever.

RED	R
YELLOW	G
GREEN	V
BLACK	N

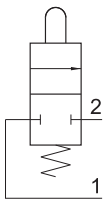
315 MGx UL

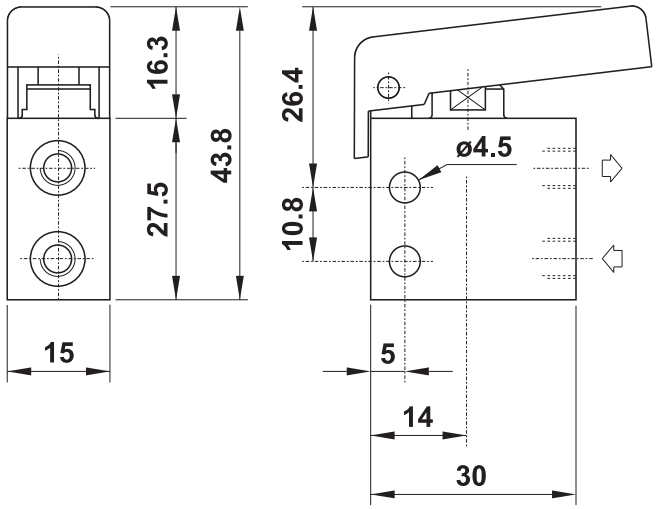
3/2 N/O M5 threaded ports (on the side), push lever (4 colours - see explanation)



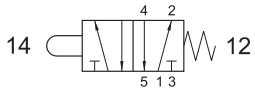
205 MGx UL

2/2 N/C M5 threaded ports (on the side), push lever (4 colours - see explanation)



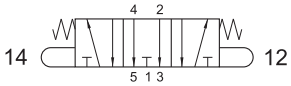


504 MB



5/2 push-in fittings for 5/32'' or ø4 mm tube (ports on the bottom), actuator adaptor for panel mounting

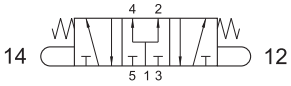
2.304 MB



5/3 open centers

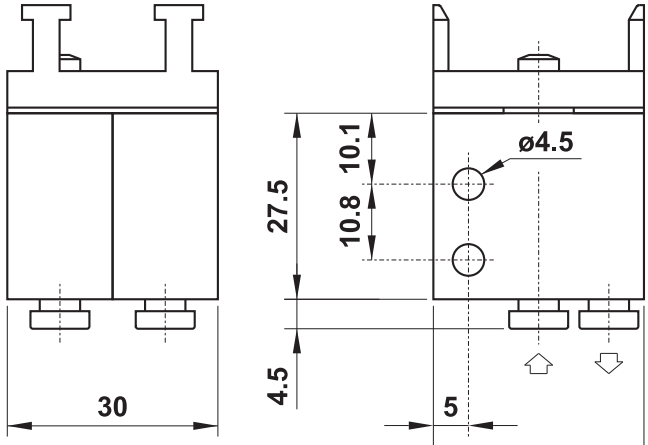
push-in fittings for 5/32'' or ø4 mm tube (ports on the bottom), actuator adaptor for panel mounting

2.314 MB

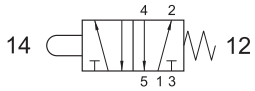


5/3 pressurized centers

push-in fittings for 5/32'' or ø4 mm tube (ports on the bottom), actuator adaptor for panel mounting

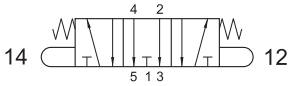


505 MB



5/2 M5 threaded ports (on the bottom), actuator adaptor for panel mounting

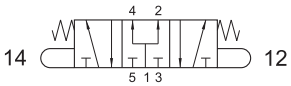
2.305 MB



5/3 open centers

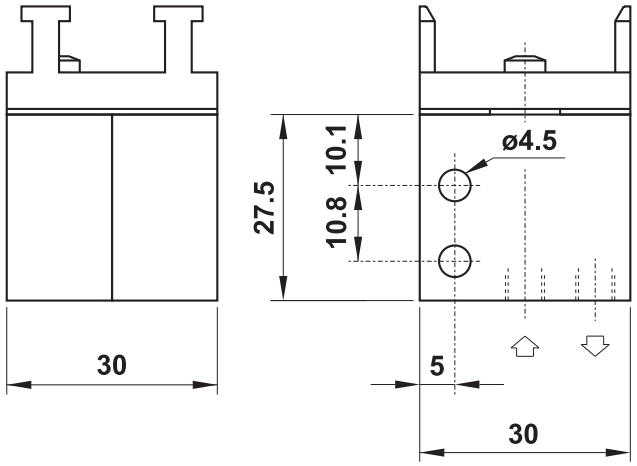
M5 threaded ports (on the bottom), actuator adaptor for panel mounting

2.315 MB

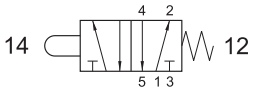


5/3 pressurized centers

M5 threaded ports (on the bottom), actuator adaptor for panel mounting

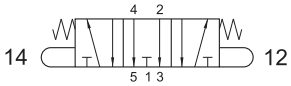


504 MB UL



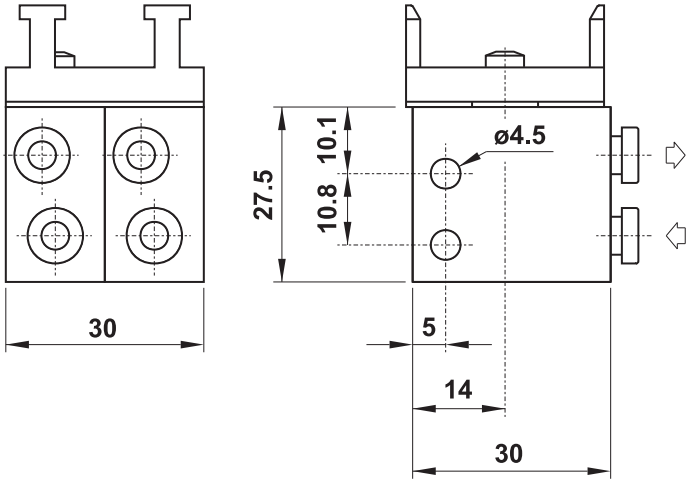
5/2 push-in fittings for 5/32'' or ø4 mm tube (ports on the side), actuator adaptor for panel mounting

2.304 MB UL

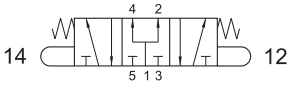


5/3 open centers

push-in fittings for 5/32'' or ø4 mm tube (ports on the side), actuator adaptor for panel mounting



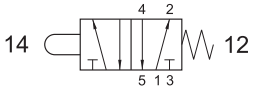
2.314 MB UL



5/3 pressurized centers

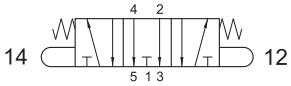
push-in fittings for 5/32'' or ø4 mm tube (ports on the side), actuator adaptor for panel mounting

505 MB UL



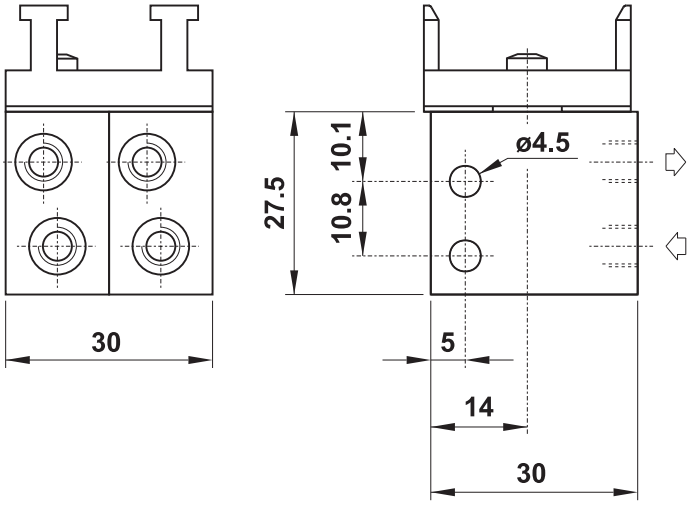
5/2 threaded ports (on the side), actuator adaptor for panel mounting

2.305 MB UL

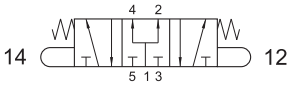


5/3 open centers

M5 threaded ports (on the side), actuator adaptor for panel mounting



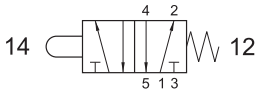
2.315 MB UL



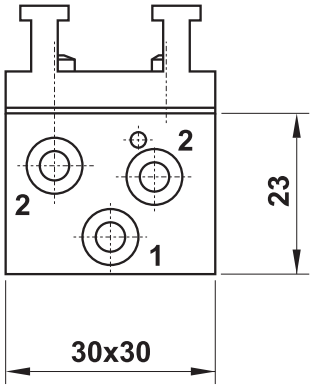
5/3 pressurized centers

M5 threaded ports (on the side), actuator adaptor for panel mounting

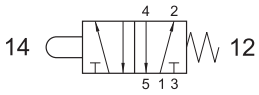
504 MB CU



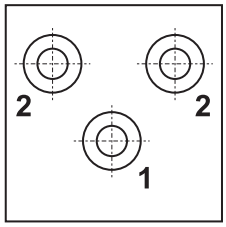
5/2 single valve body
push-in fittings for 5/32'' or ø4 mm tube (ports on the side),
actuator adaptor for panel mounting

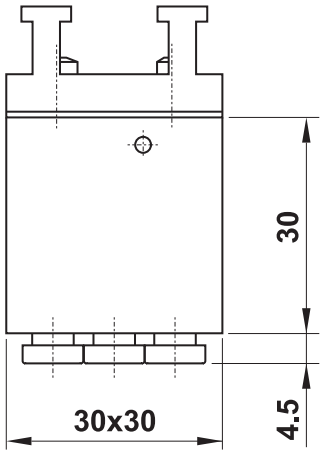


504 MB CU US

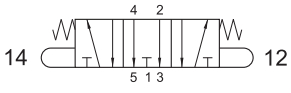


5/2 single valve body
push-in fittings for 5/32'' or ø4 mm tube (ports on the bottom),
actuator adaptor for panel mounting

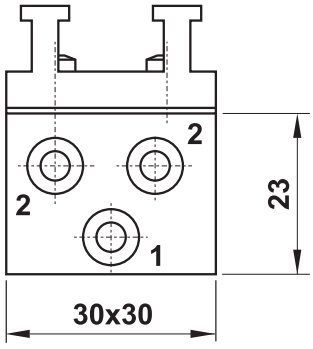




2.304 MB CU

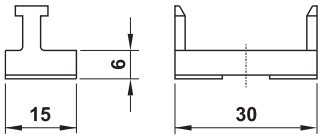


5/3 open centers, single valve body
push-in fittings for 5/32'' or ø4 mm tube (ports on the side),
actuator adaptor for panel mounting



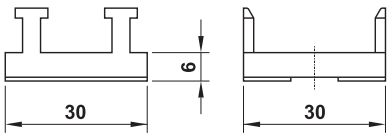
08.017.2

single adaptor for panel mounting actuator,
complete with fixing screws



08.015.2

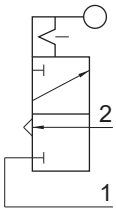
double adaptor for panel mounting actuator,
complete with fixing screws

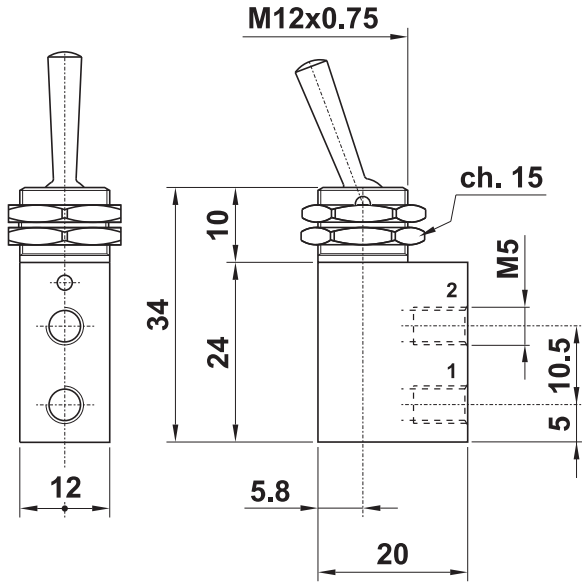


305 LL - 03.011.4

3/2 NC M5 threaded ports
bi-stable lever
exhaust port without thread
body material: nickel plated brass

Operating pressure: 0 ... 10 bar (0 ... 145 PSI)

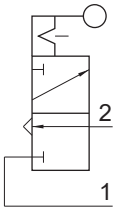


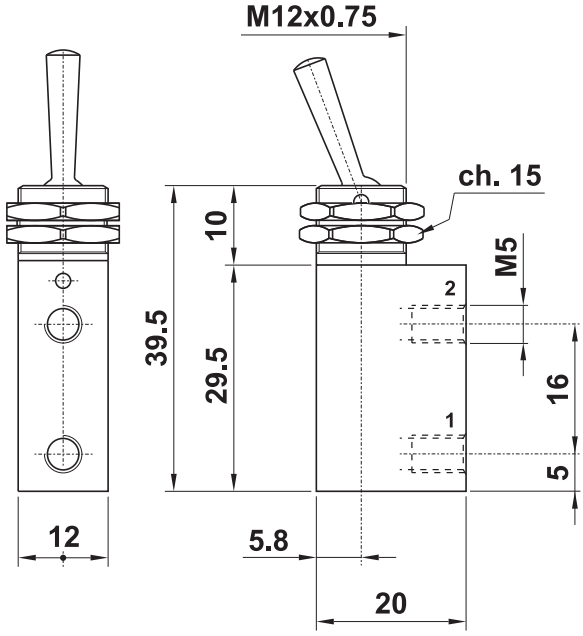


03.024.4

3/2 NC M5 threaded ports, longer valve body
bi-stable lever
exhaust port without thread
body material: nickel plated brass

Operating pressure: 0 ... 10 bar (0 ... 145 PSI)

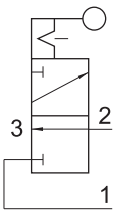


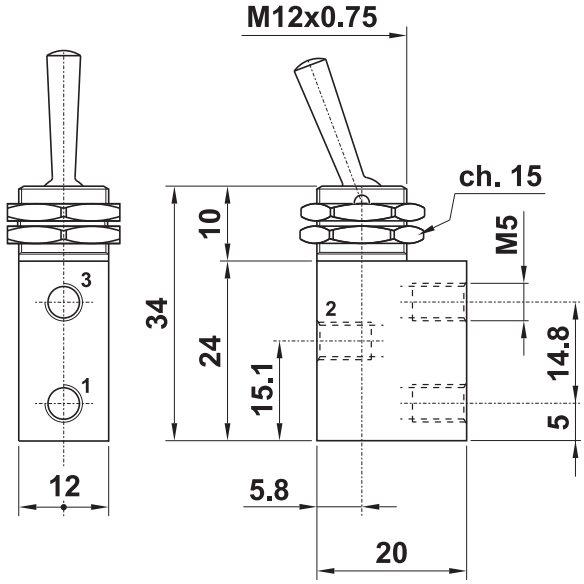


03.044.4

3/2 NC M5 threaded ports
bi-stable lever
exhaust port with thread M5
body material: nickel plated brass

Operating pressure: 0 ... 10 bar (0 ... 145 PSI)

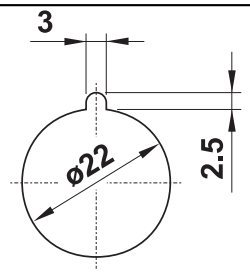




Protected push button

code	standard colours
PR1/NRB	RED, BLACK and WHITE (supplied in kit)

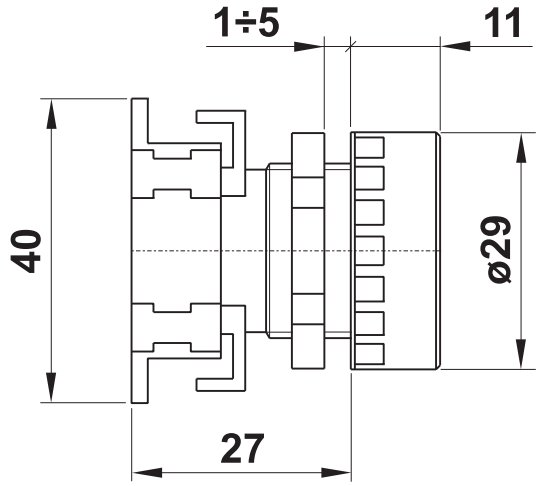
Panel mounting hole with antirotation feature



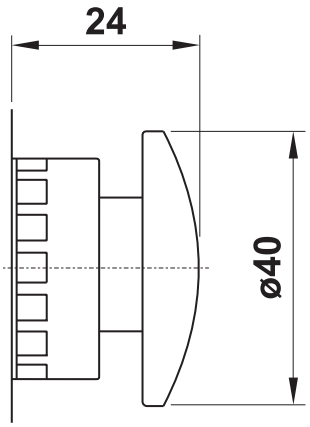
- The following colours can be ordered separately

code	colour
DCV1	GREEN
DCG1	YELLOW
DCA1	LIGHT BLUE
DCB1	WHITE

code	colour
DCN1	BLACK
DCR1	RED

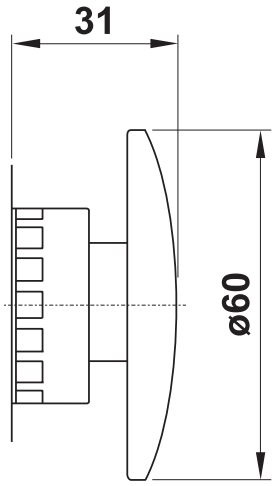


ø40 mushroom



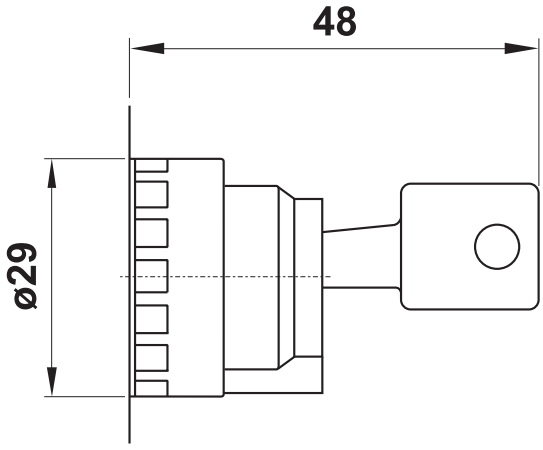
code	description	colour
PF2/40	axial mono-stable	RED
PF1/40	axial mono-stable	BLACK
PFB2/40	turn to unlock	RED

ø60 palm



code	description	colour
PFBA2	multi-directional	RED
PFB2/60	turn to unlock	RED

Key selector

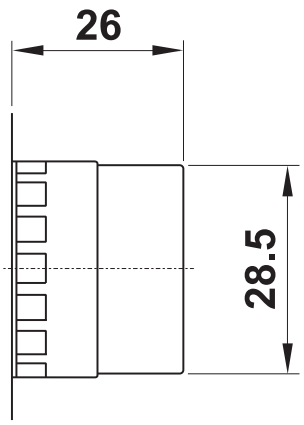


code	function	position to pull the key out
SSC/CD-V	0 1	only in central position
SSC/CD-Z	0 1	both positions
SSC/E-V	2 0 1	only in central position

Actuators for panel mounting

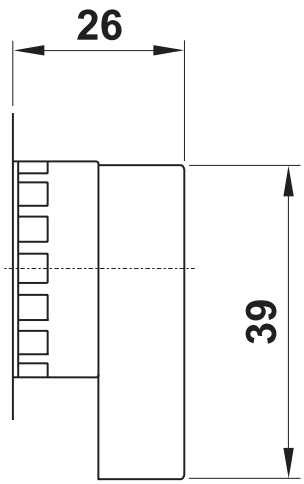
Short lever selector

code	colour	function
SS1/CD	BLACK	0 1
SS1/CD-R	BLACK	0 ← 1
SS1/E	BLACK	2 0 1
SS1/E-RC	BLACK	2 → 0 ← 1



Long lever selector

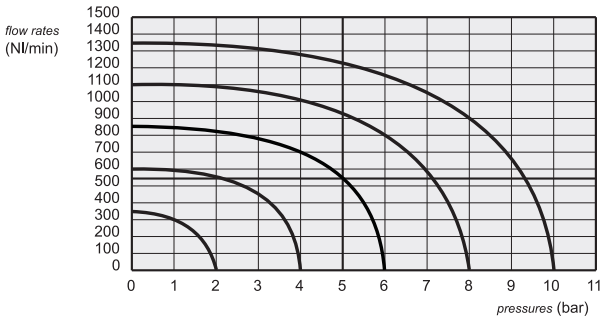
code	colour	function
SSP1/CD	BLACK	0 1
SSP1/CD/R	BLACK	0 ← 1
SSP1/E	BLACK	2 0 1
SSP1/E-RC	BLACK	2 → 0 ← 1



Material	High performance plastic material
Protection degree	IP 55
According to norms	EN 60947-5-1 VDE 0660 IEC 947-5
Temperature range	max +55°C (131°F)
Mechanical life time	500000 actuations

Mechanically actuated valves

- 3/2-5/2 spool valves with 1/8" - 1/4" NPT threaded ports
  BSP version avaiable on request
- Installation in any position
- Comprehensive range of actuations, direct or servo-piloted
- Special versions on request



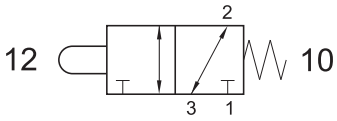
Materials
Body: aluminium 11S
End cups: aluminium 11S
Springs: stainless steel
Seals: NBR
Spool: nickel plated aluminium
Internal parts: brass OT58

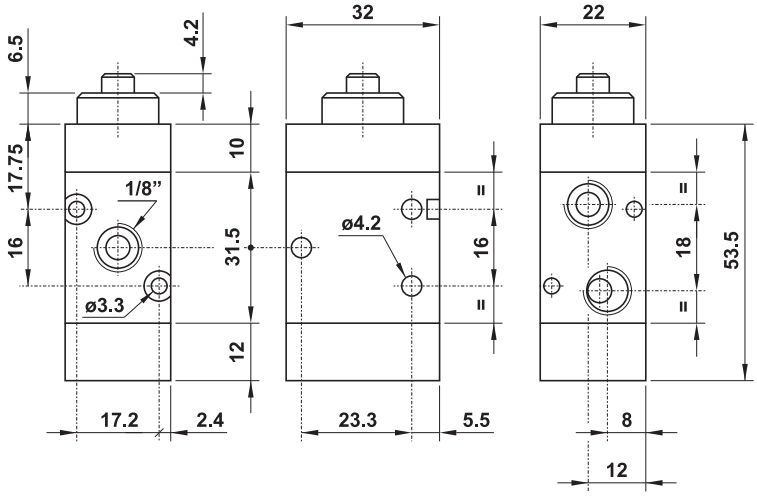
ATEX valves on request

Nominal diameter	5 mm (0.2 in)	
Temperature range	max +60°C (140°F)	
Operating pressure	direct actuation	servo-piloted actuation
	-0.9 ... 10 bar (Vacuum ... 145 PSI) -0.09 ... 1 MPa	2.5 ... 10 bar (36 ... 145 PSI) 0.25 ... 1 MPa
Actuating force (where not otherwise stated)	direct actuation	servo-piloted actuation
	~ 40 N	~ 4 N
Fluid	50μ filtered, lubricated or non lubricated air	

US321 MP

3/2 1/8" NPT tappet - spring return

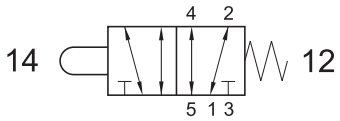


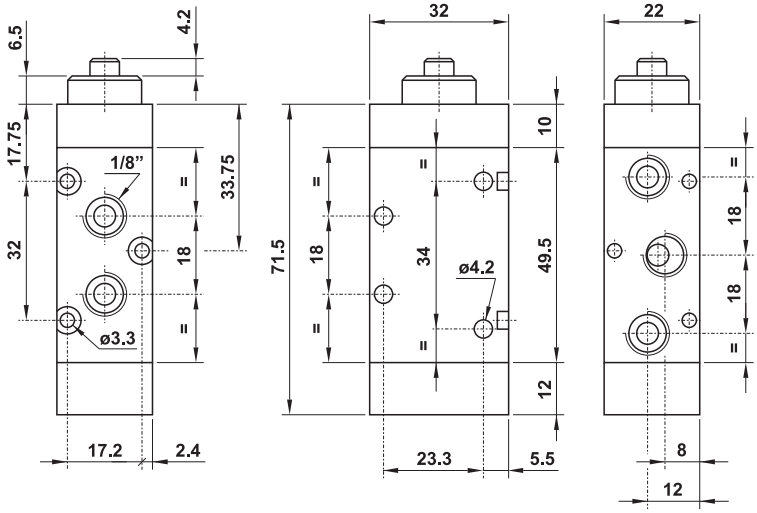


Actuating force: 32.36 N

US521 MP

5/2 1/8" NPT tappet - spring return

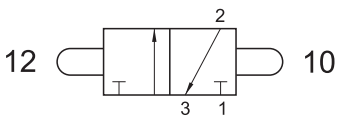


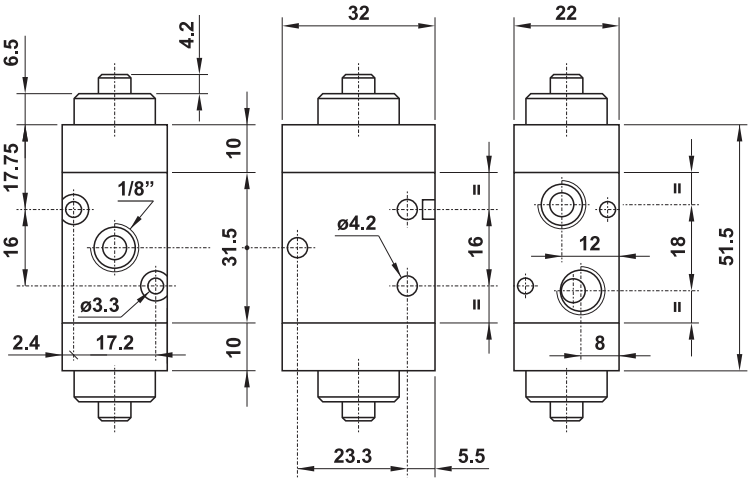


Actuating force: 32.36 N

US321 2P

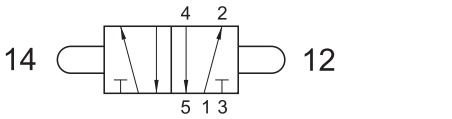
3/2 1/8" NPT double tappet

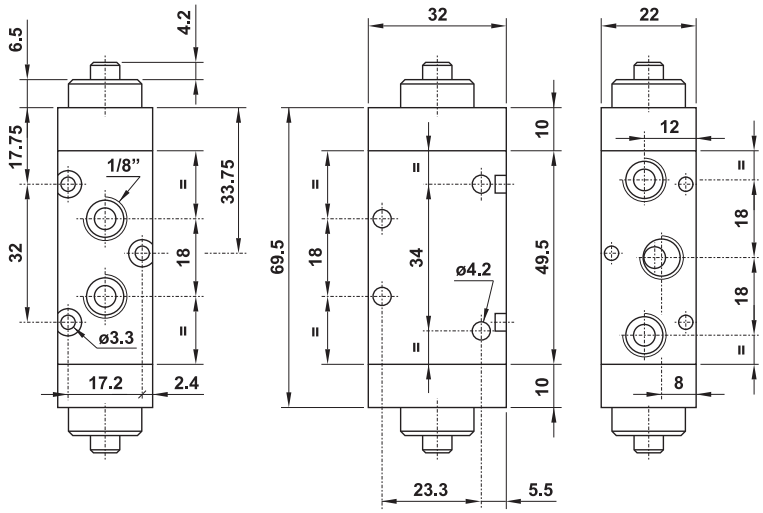




US521 2P

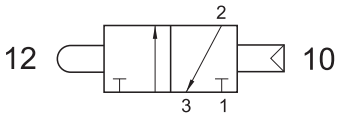
5/2 1/8" NPT double tappet

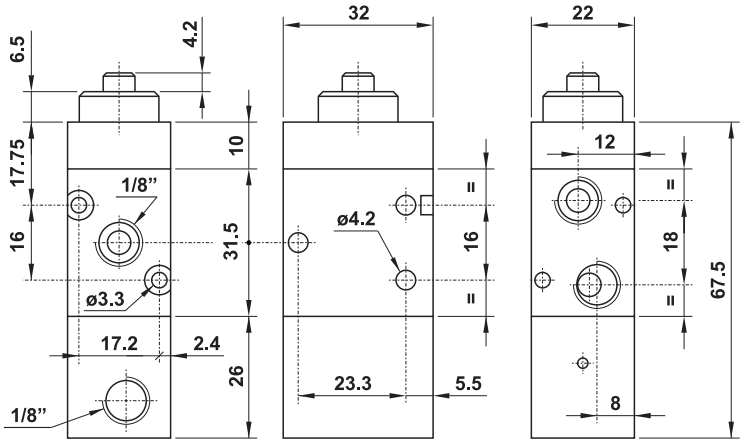




US321 CP

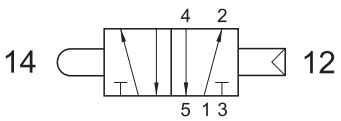
3/2 1/8" NPT tappet - separate pneumatically piloted return

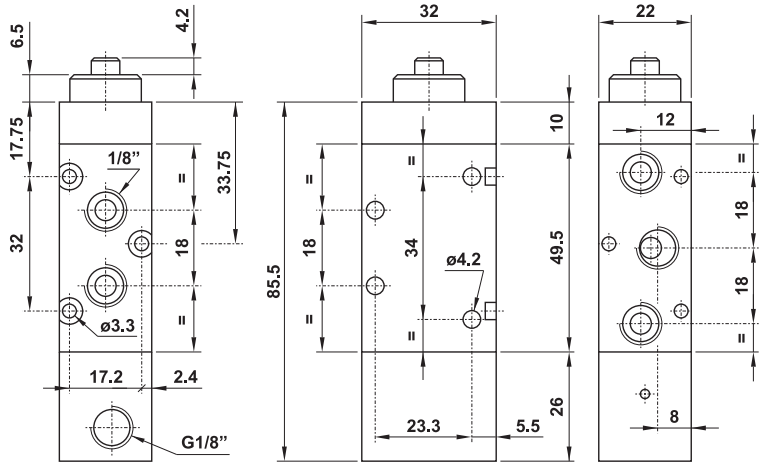




US521 CP

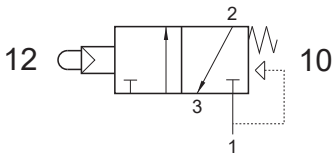
5/2 1/8" NPT tappet - separate pneumatically piloted return





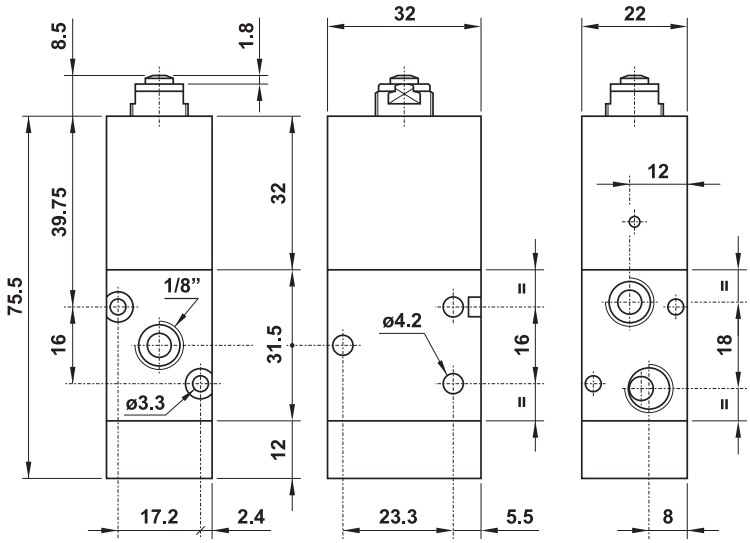
US321 MPS

3/2 1/8" NPT N/C servo-piloted tappet - air and spring return



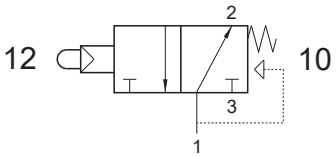
Actuating force related to inlet pressure

P_1: 2.5 bar (36 PSI) **P_1**: 10 bar (145 PSI)
F: 4.5 N **F**: 14.2 N



US321 MPSA

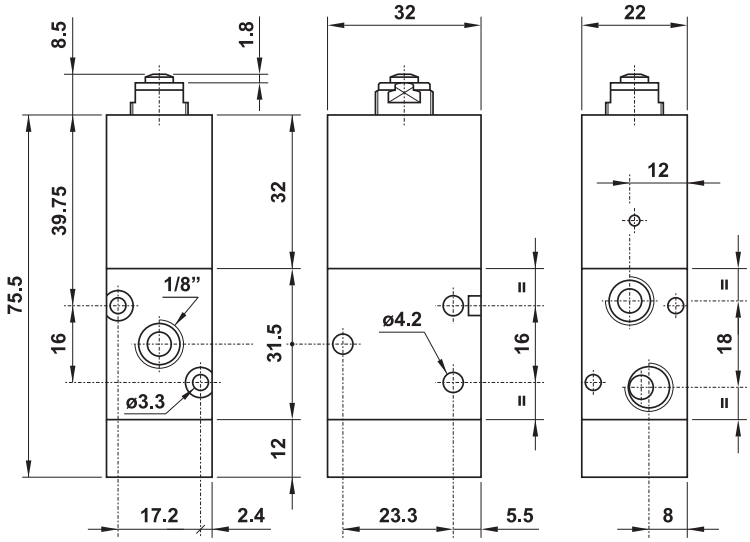
3/2 1/8" NPT N/O servo-piloted tappet - air and spring return



Actuating force related to inlet pressure

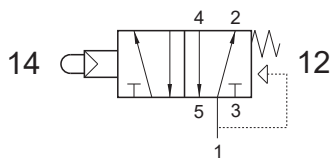
P_1: 2.5 bar (36 PSI) **P_1**: 10 bar (145 PSI)
F: 4.5 N **F**: 14.2 N

ONLY ALUMINIUM VERSION



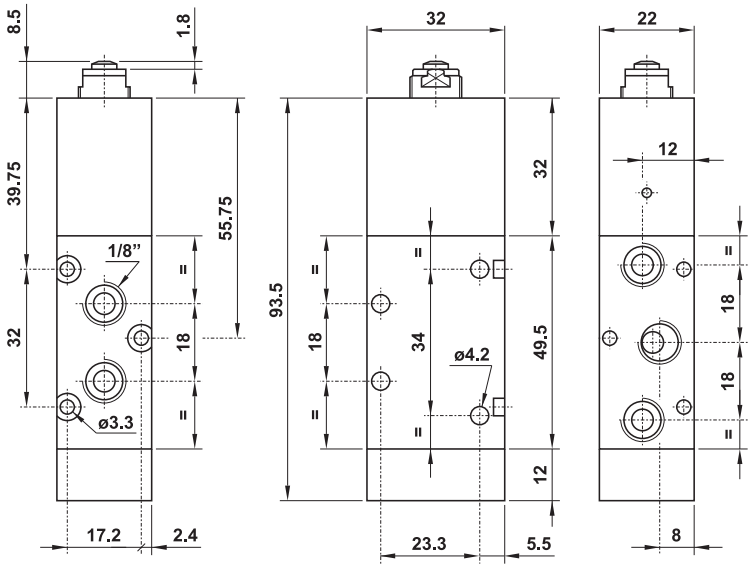
US521 MPS

5/2 1/8" NPT servo-piloted tappet - air and spring return



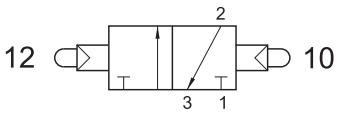
Actuating force related to inlet pressure

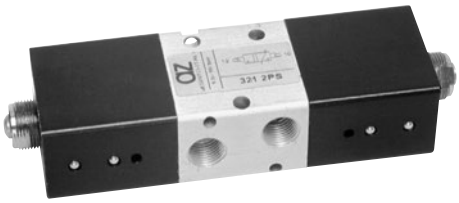
P_1: 2.5 bar (36 PSI) **P_1**: 10 bar (145 PSI)
F: 4.5 N **F**: 14.2 N

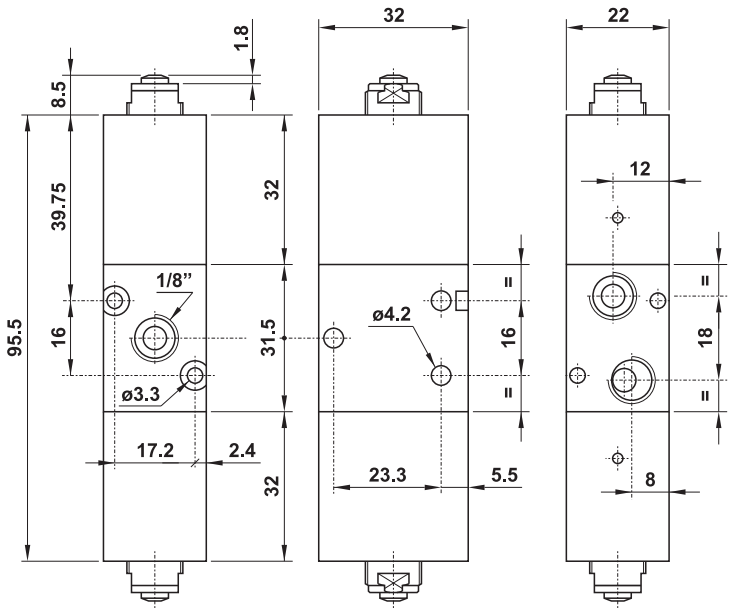


US321 2PS

3/2 1/8" NPT double servo-piloted tappet

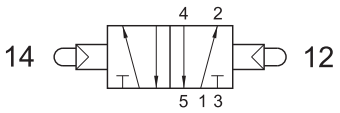


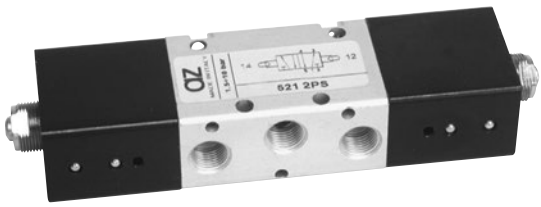


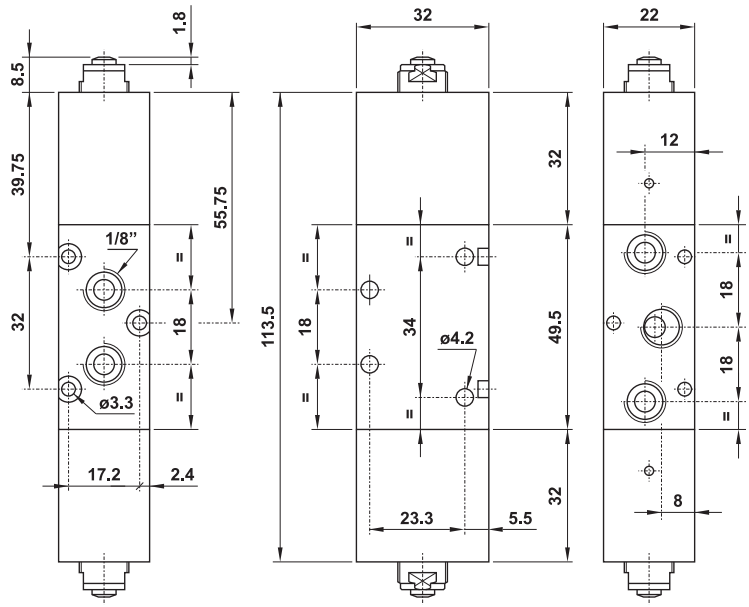


US521 2PS

5/2 1/8" NPT double servo-piloted tappet

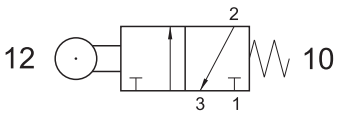




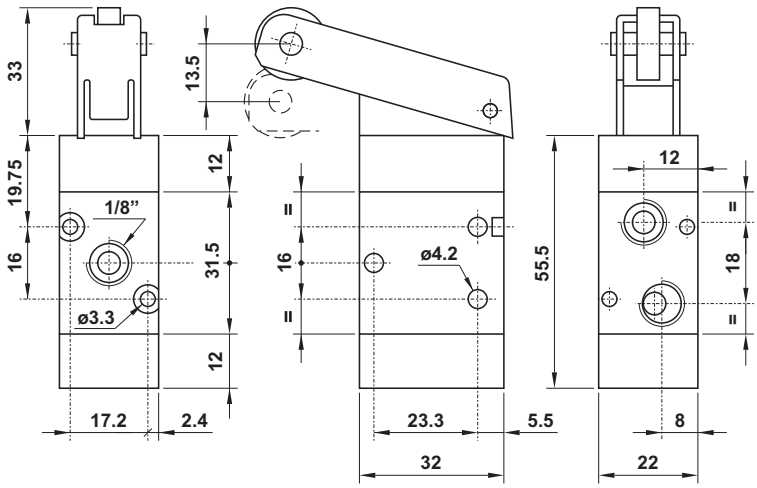


US321 MR

3/2 1/8" NPT roller lever - spring return

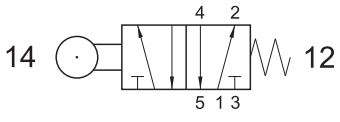


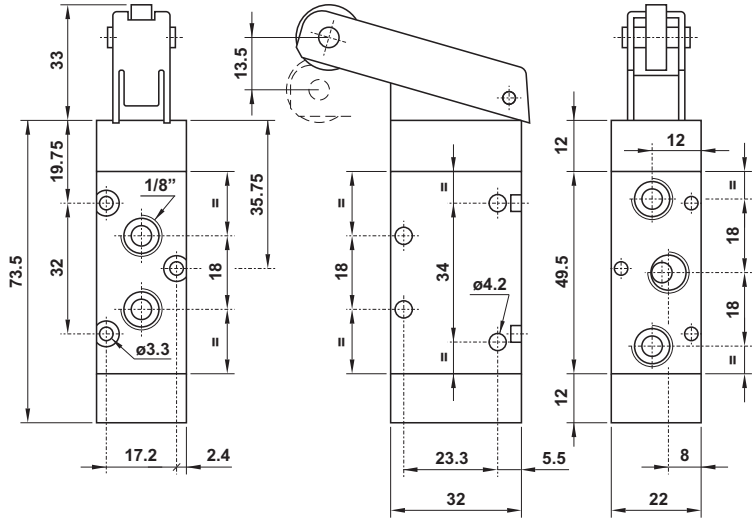
Actuating force: 9.81 N



US521 MR

5/2 1/8" NPT roller lever - spring return

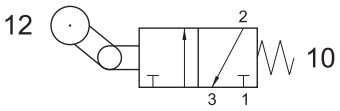


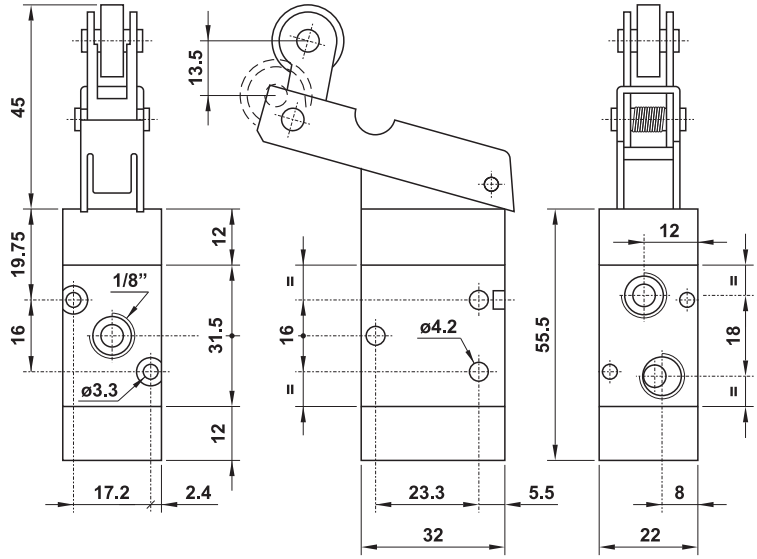


Actuating force: 9.81 N

US321 MRU

3/2 1/8" NPT uni-directional lever - spring return

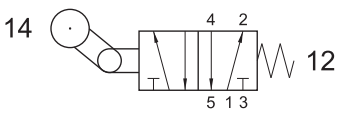


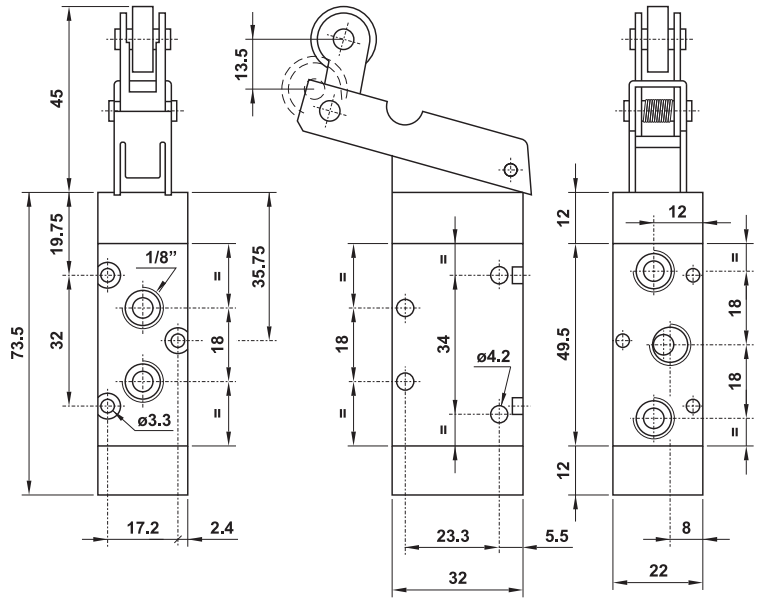


Actuating force: 9.81 N

US521 MRU

5/2 1/8" NPT uni-directional lever - spring return

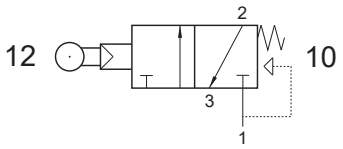




Actuating force: 9.81 N

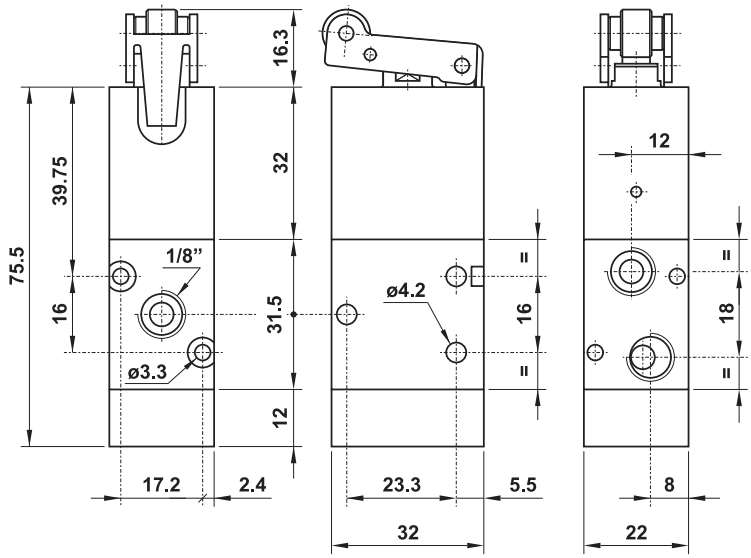
US321 MRS

3/2 1/8" NPT N/C servo-piloted roller lever - air and spring return



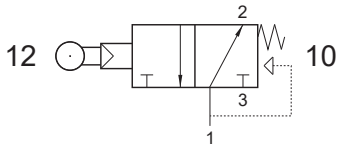
Actuating force related to inlet pressure

P_1: 2.5 bar (36 PSI) **P_1**: 10 bar (145 PSI)
F: 3.6 N **F**: 11.4 N



US321 MRSA

3/2 1/8" NPT N/O servo-piloted roller lever - air and spring return



Actuating force related to inlet pressure

P_1: 2.5 bar (36 psi) **P_1**: 10 bar (145 psi)
F: 3.6 N **F**: 11.4 N

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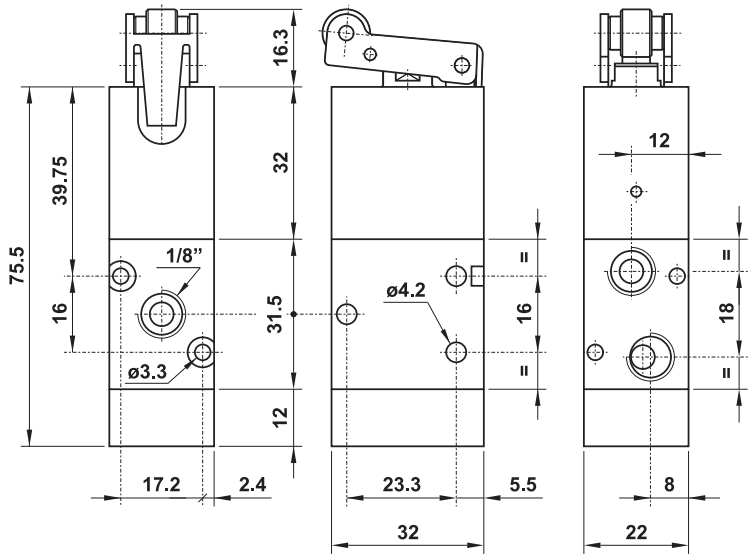
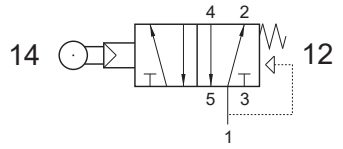


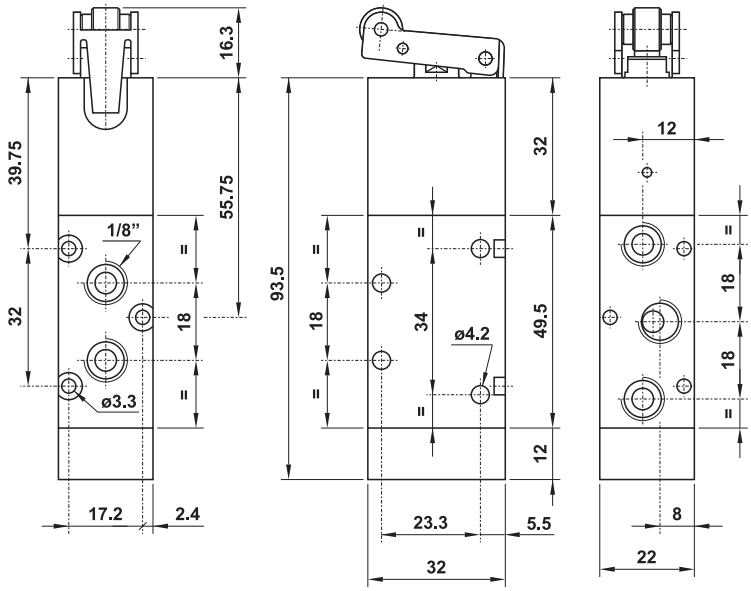
US521 MRS

5/2 1/8" NPT servo-piloted roller lever - air and spring return



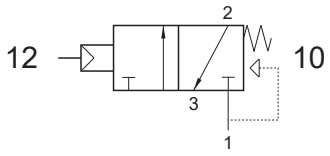
Actuating force related to inlet pressure

P_1: 2.5 bar (36 PSI) **P_1**: 10 bar (145 PSI)
F: 3.6 N **F**: 11.4 N



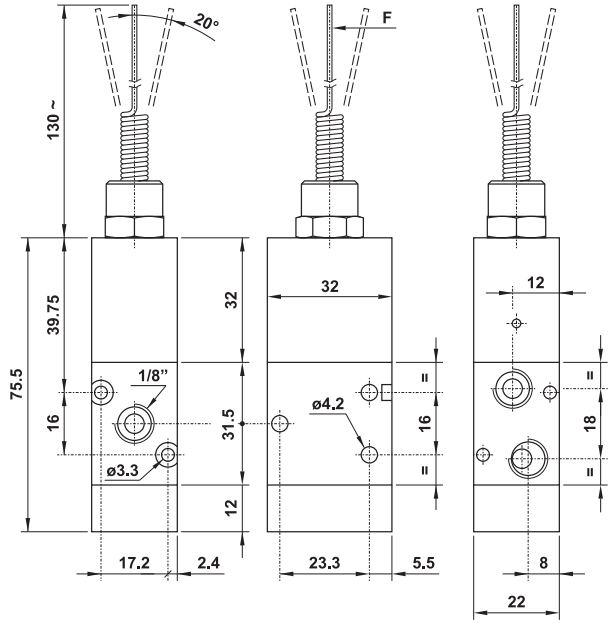
US321 MN

3/2 1/8" NPT N/C servo-piloted whisker - air and spring return



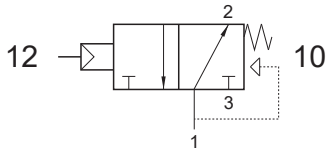
Actuating force related to inlet pressure

P_1: 2.5 bar (36 psi) **P_1**: 10 bar (145 psi)
F: 0.3 N **F**: 0.8 N



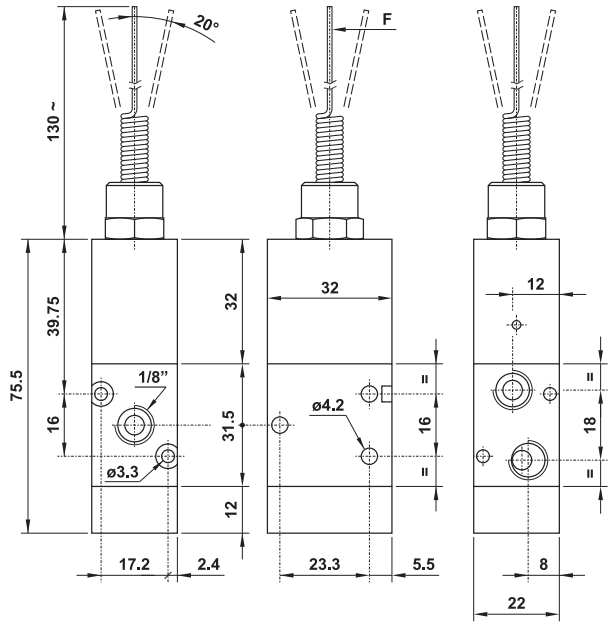
US321 MNA

3/2 1/8" NPT N/O servo-piloted whisker - air and spring return



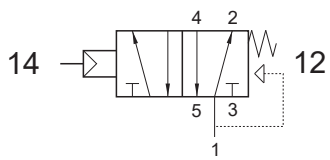
Actuating force related to inlet pressure

P_1: 2.5 bar (36 psi) **P_1**: 10 bar (145 psi)
F: 0.3 N **F**: 0.8 N



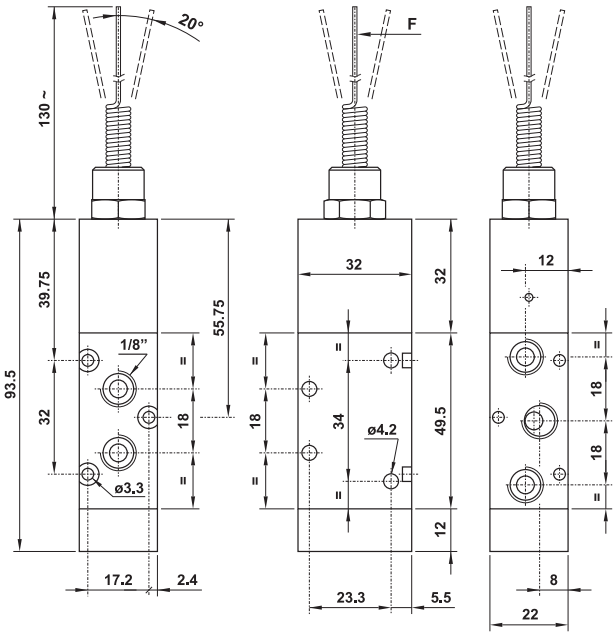
US521 MN

5/2 1/8" NPT servo-piloted whisker - air and spring return



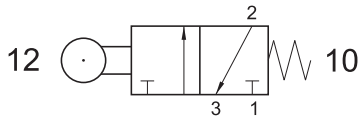
Actuating force related to inlet pressure

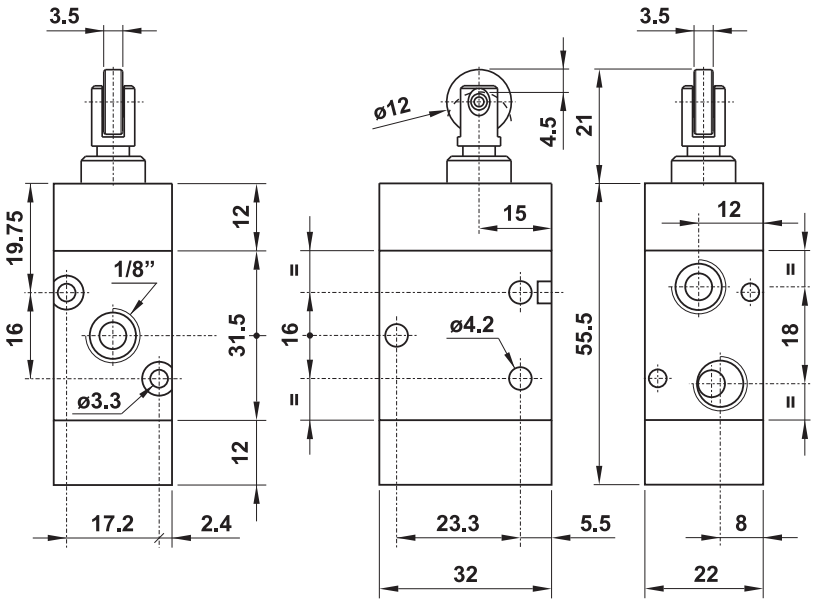
P_1: 2.5 bar (36 psi) **P_1**: 10 bar (145 psi)
F: 0.3 N **F**: 0.8 N



US321 MYR12

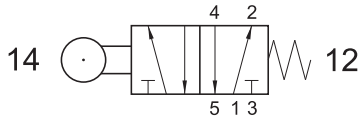
3/2 1/8" NPT tappet with ball bearing - spring return

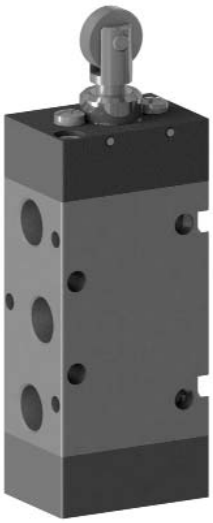


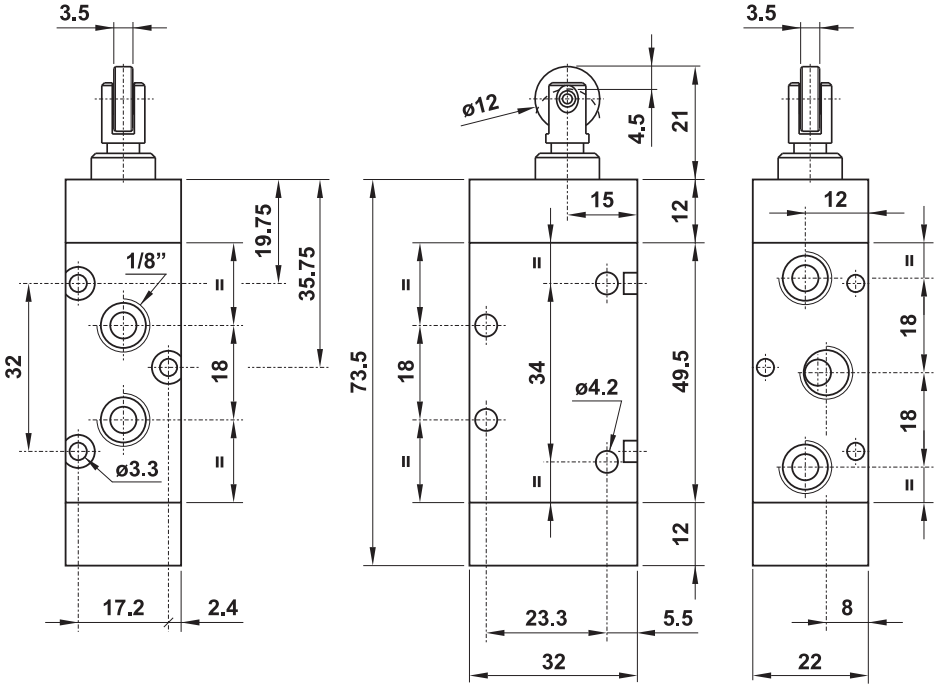


US521 MYR12

5/2 1/8" NPT tappet with ball bearing - spring return

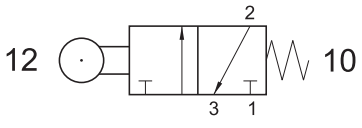


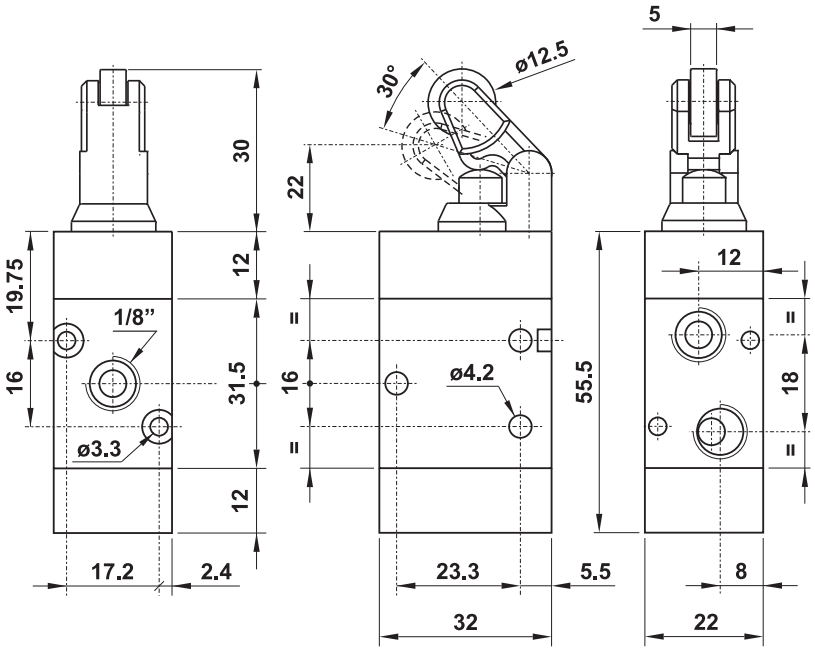




US321 MYR31

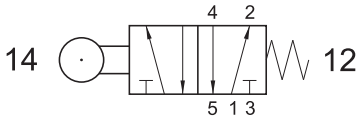
3/2 1/8" NPT roller lever - spring return

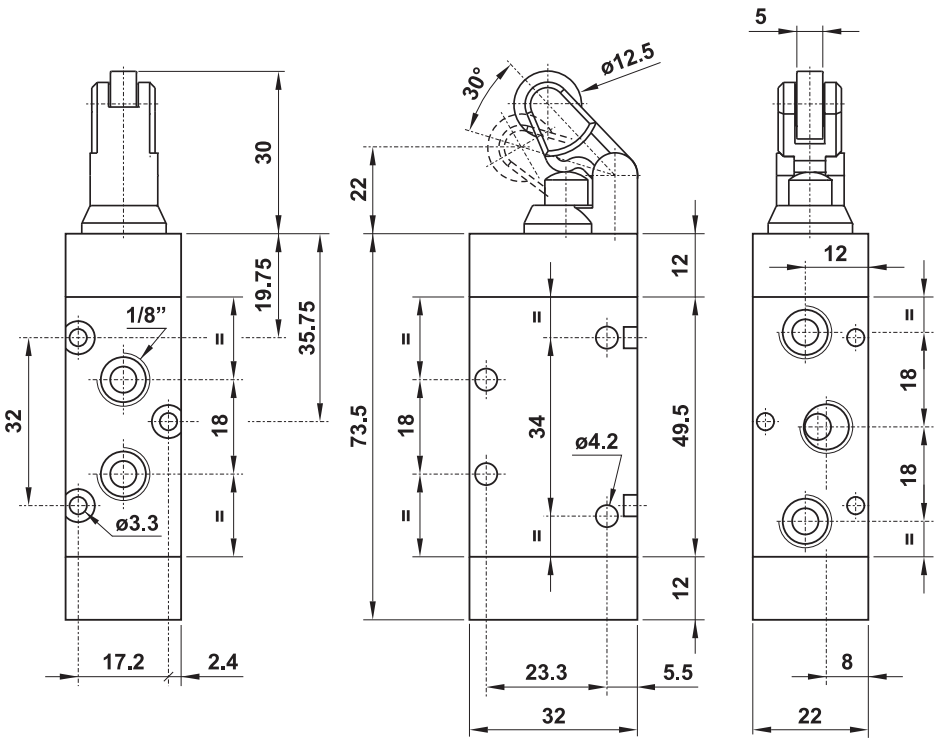




US521 MYR31

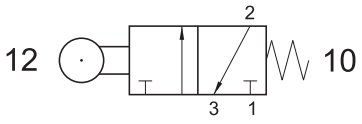
5/2 1/8" NPT roller lever - spring return

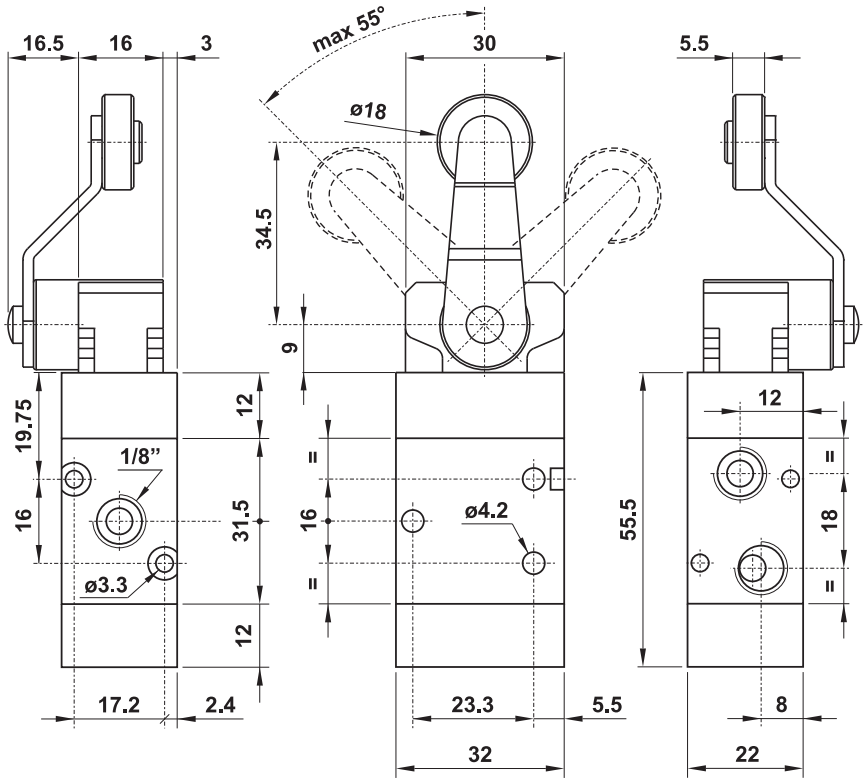




US321 MYR46

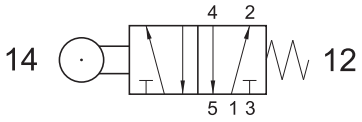
3/2 1/8" NPT roller lever on the side - spring return

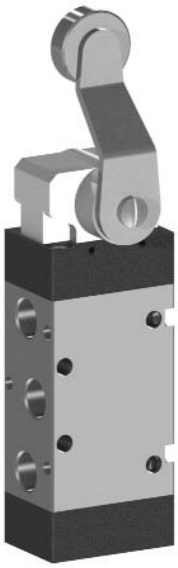


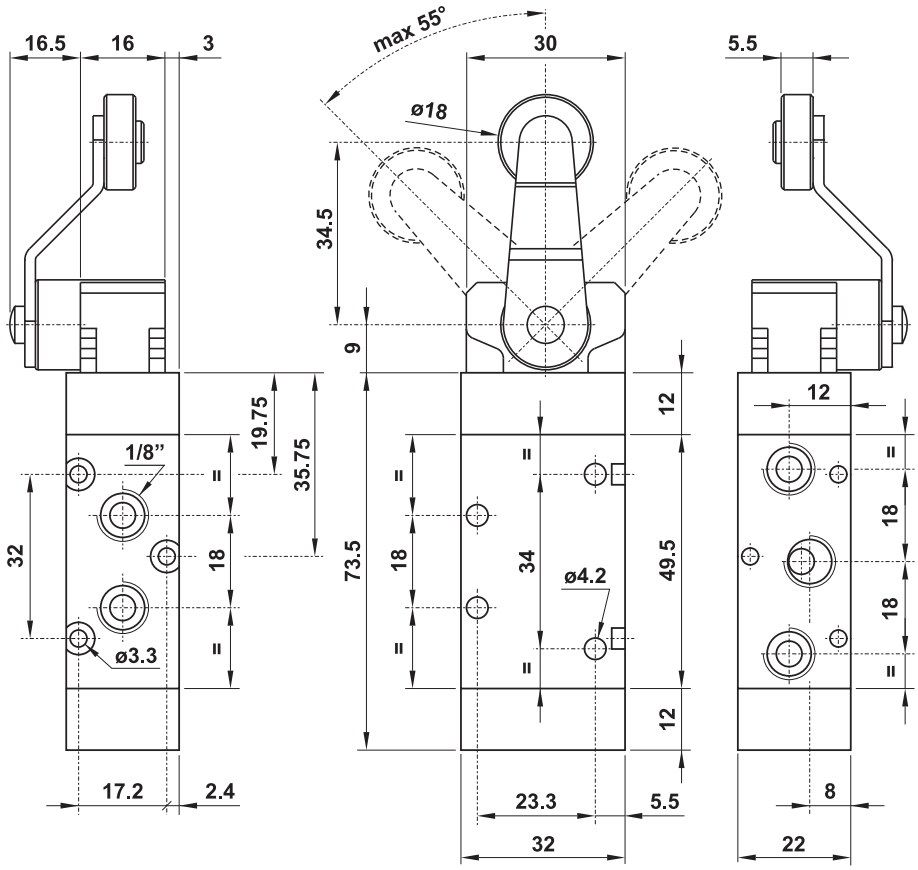


US521 MYR46

5/2 1/8" NPT roller lever on the side - spring return

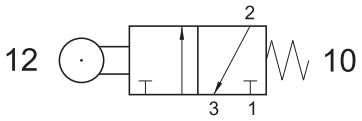




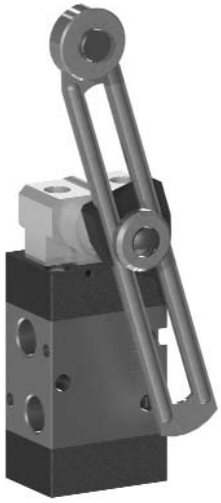


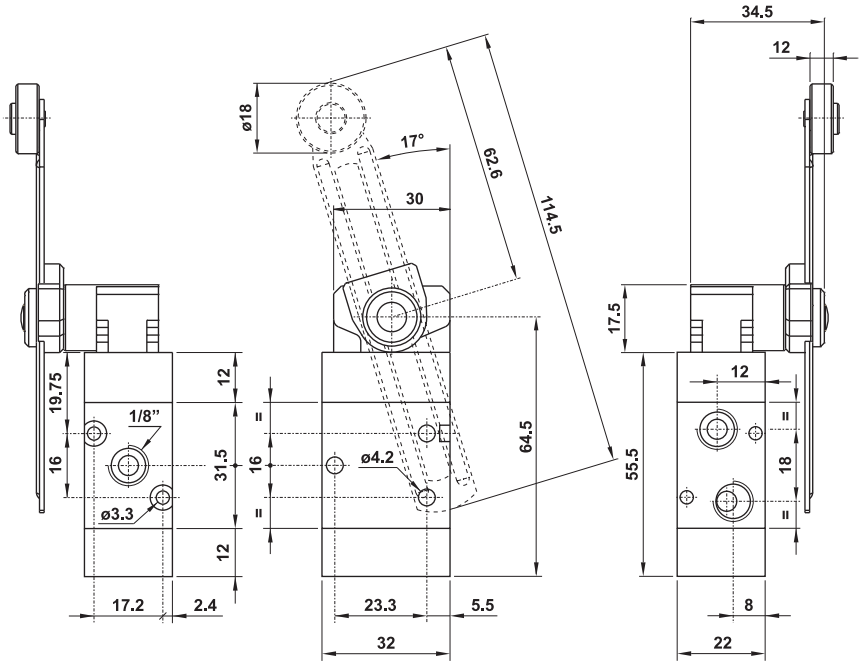
US321 MYR53

3/2 1/8" NPT roller lever with adjustable shaft - spring return



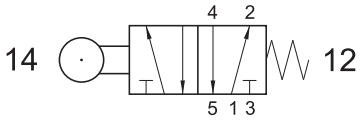
The position and the length of the shaft can be manually adjusted



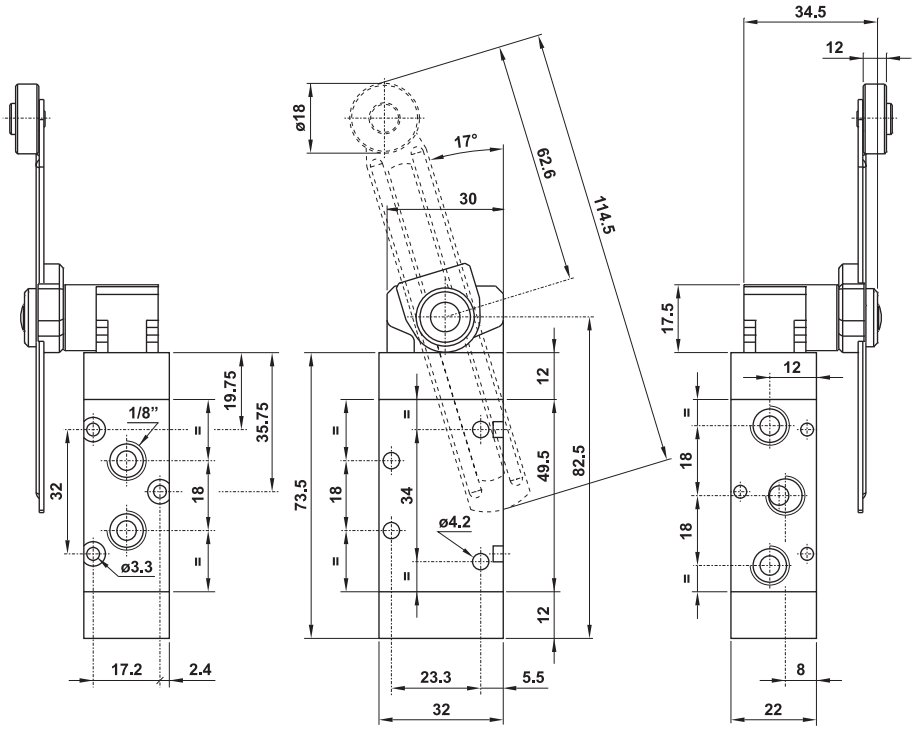


US521 MYR53

5/2 1/8"NPT roller lever with adjustable shaft - spring return

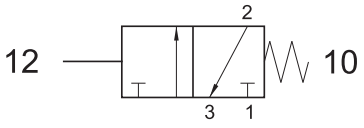


The position and the length of the shaft can be manually adjusted

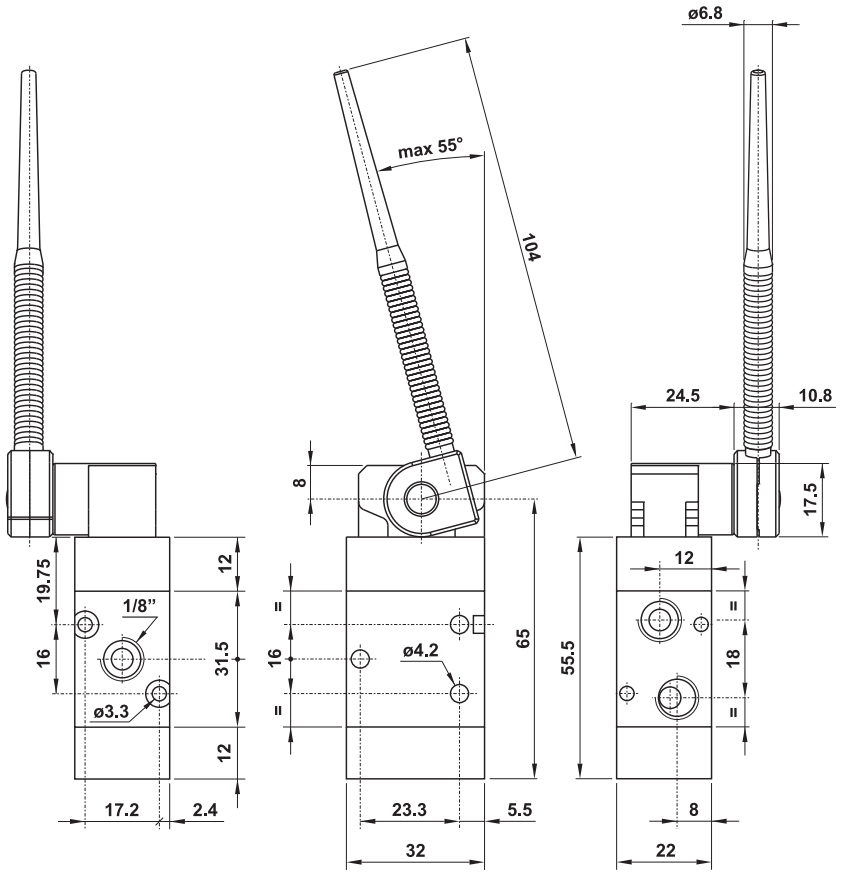


US321 MYN61

3/2 1/8"NPT adjustable shaft antenna - spring return

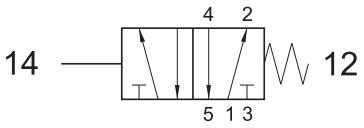


The position and the angle of the shaft can be manually adjusted

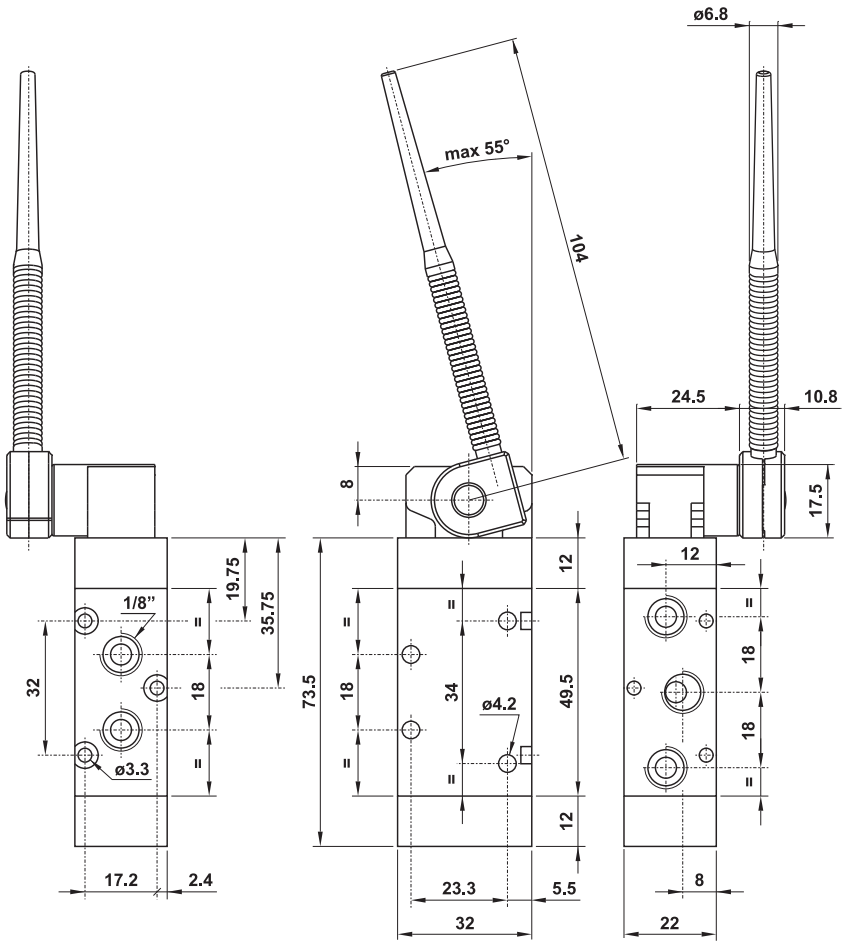


US521 MYN61

5/2 1/8"NPT adjustable shaft antenna - spring return

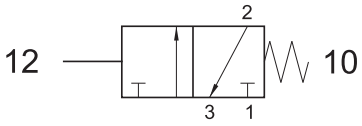


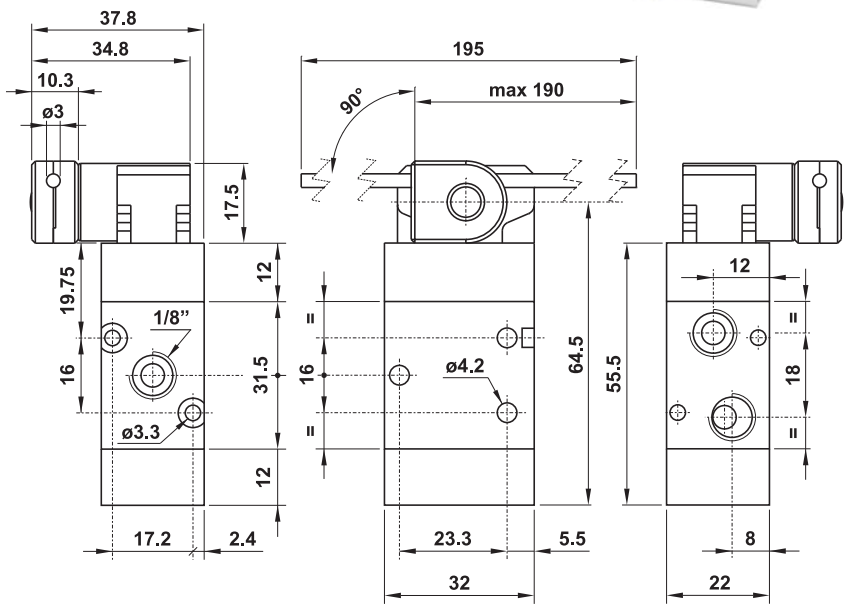
The position and the angle of the shaft can be manually adjusted



US321 MYN71

3/2 1/8"NPT adjustable ø3 shaft - spring return



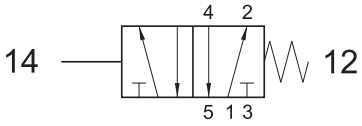


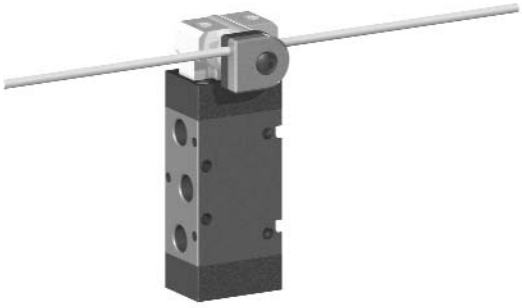
Material of the shaft: stainless steel

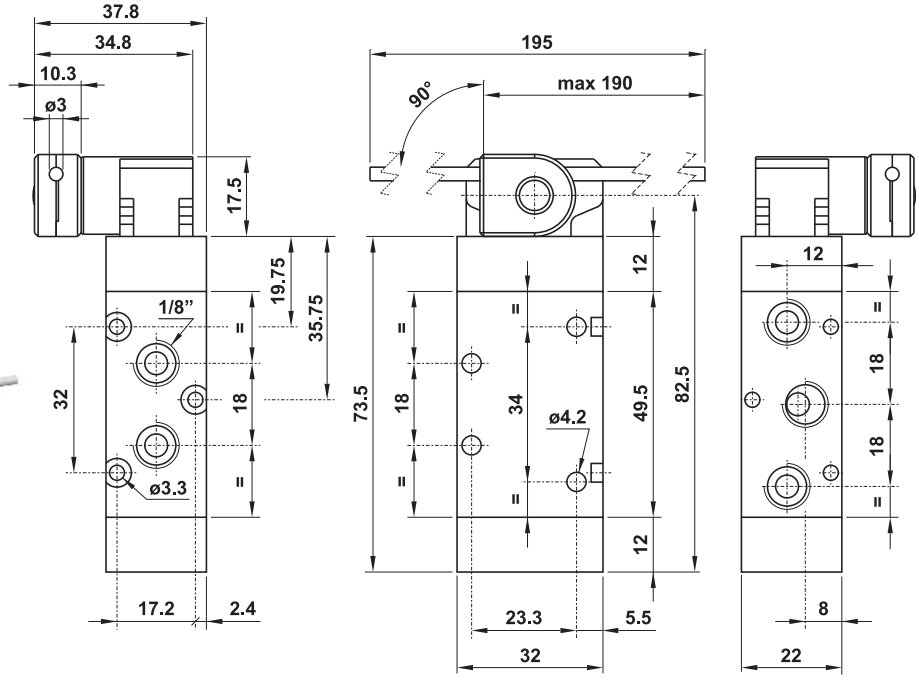
The position of the shaft can be manually adjusted

US521 MYN71

5/2 1/8"NPT rotary adjustable ø3 shaft - spring return







Material of the shaft: stainless steel

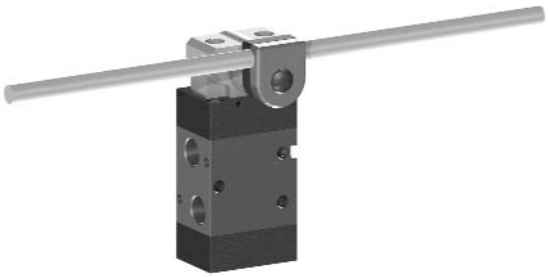
The position of the shaft can be manually adjusted

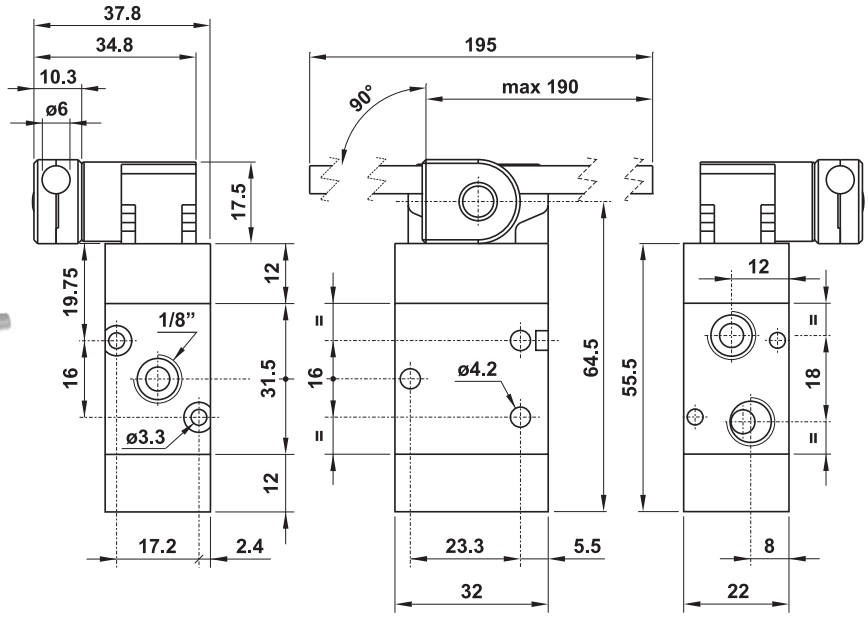
US321 MYN74

3/2 1/8"NPT adjustable ø6 shaft - spring return

Material of the shaft: glass fiber

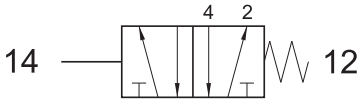
The position of the shaft can be manually adjusted





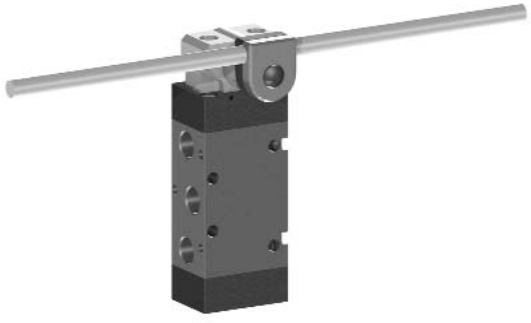
US521 MYN74

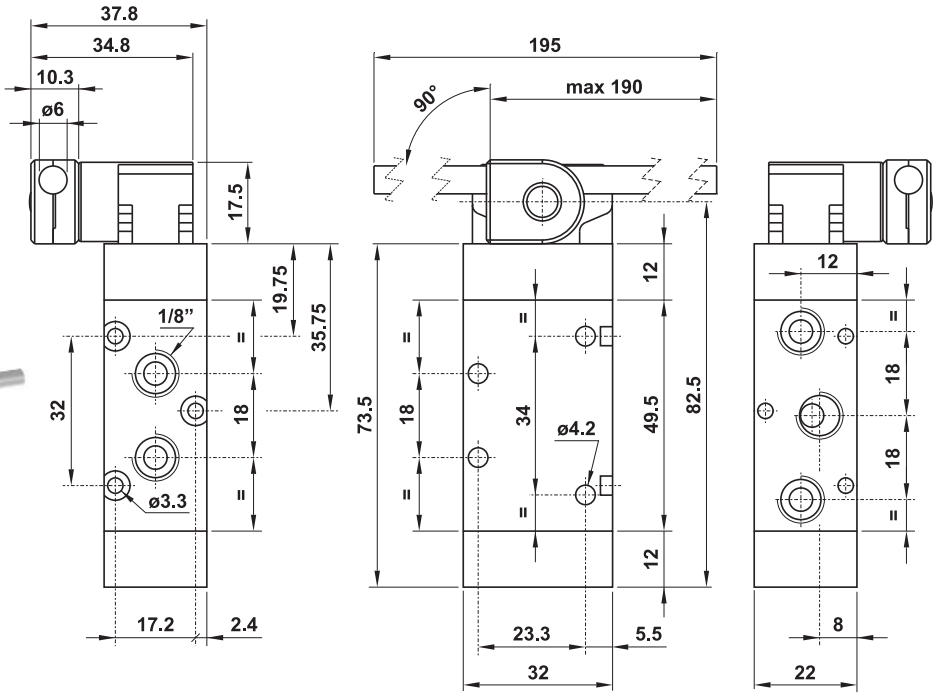
5/2 1/8"NPT adjustable ø6 shaft - spring return



Material of the shaft: glass fiber

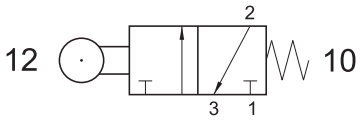
The position of the shaft can be manually adjusted

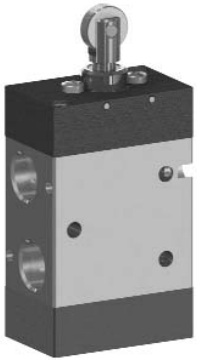


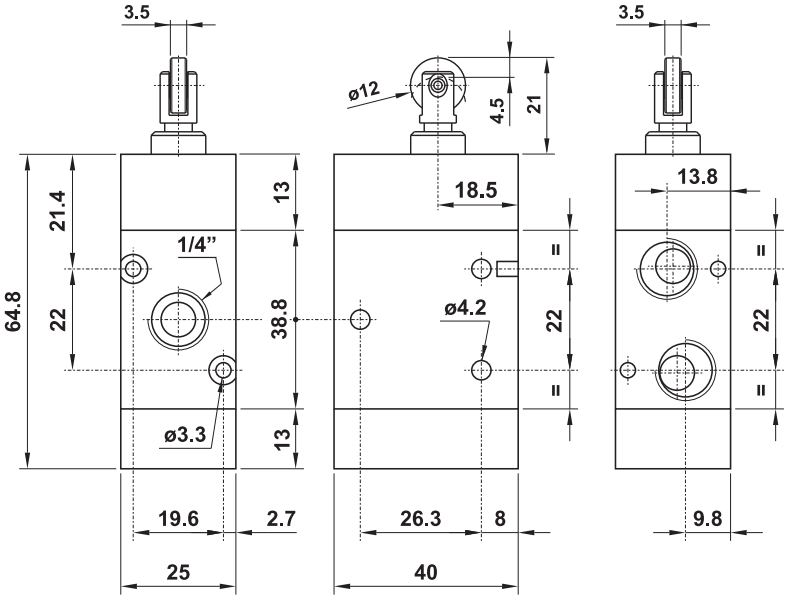


US322 MYR12

3/2 1/4"NPT tappet with ball bearing - spring return

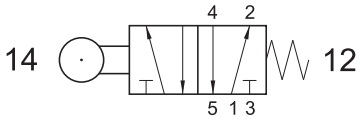


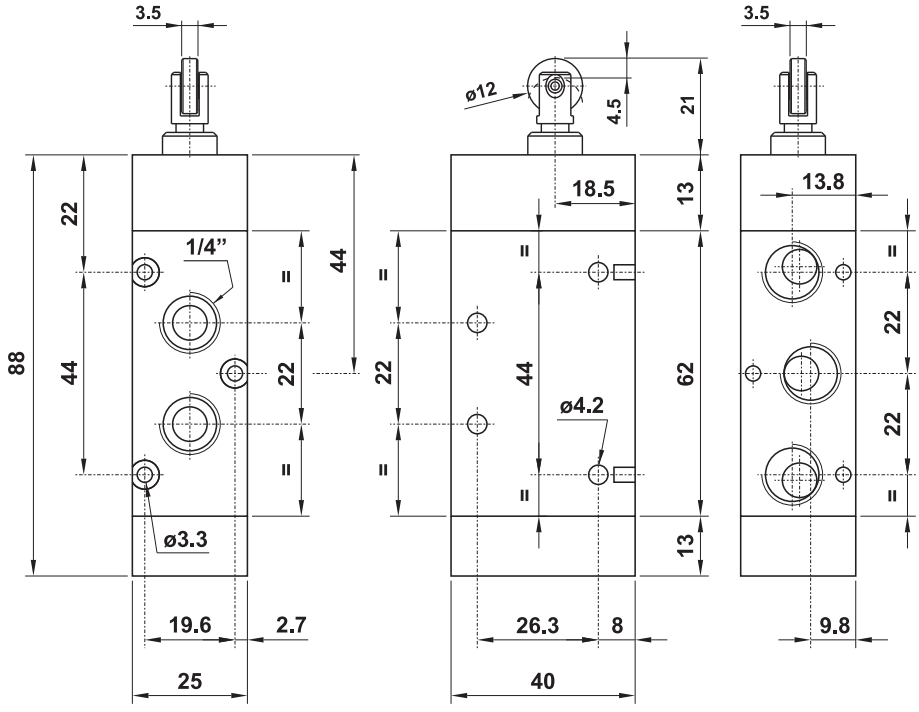




US522 MYR12

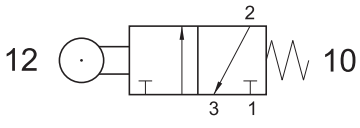
5/2 1/4"NPT tappet with ball bearing - spring return

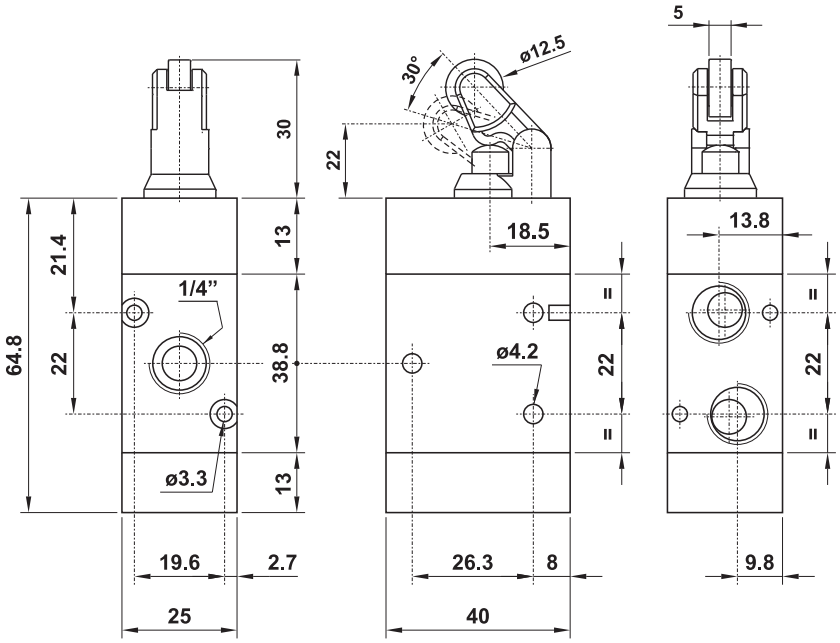




US322 MYR31

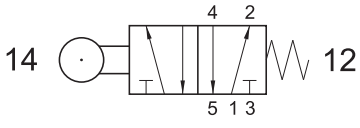
3/2 1/4" roller lever - spring return

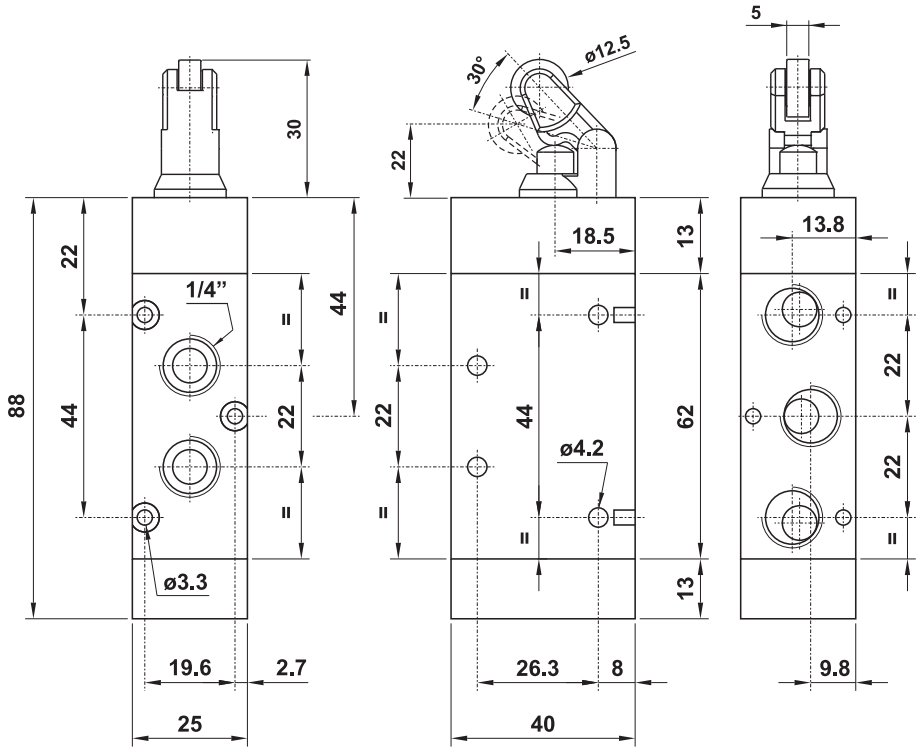




US522 MYR31

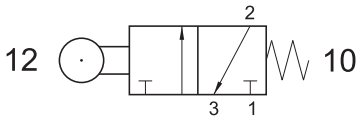
5/2 1/4"NPT roller lever - spring return

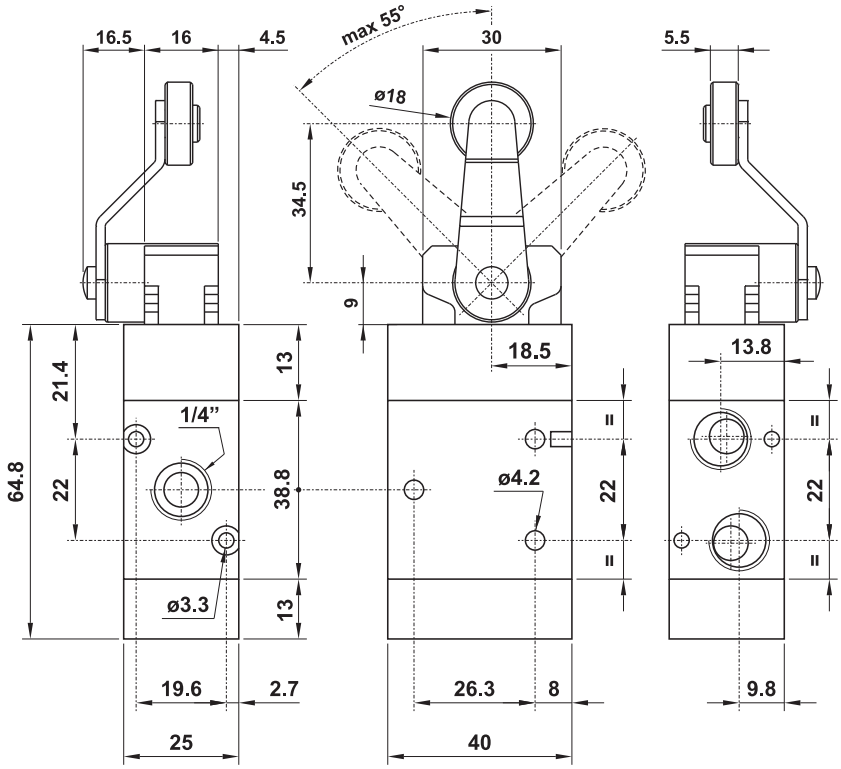




US322 MYR46

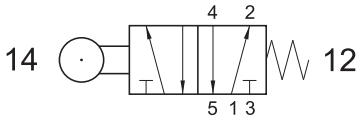
3/2 1/4"NPT roller lever on the side - spring return

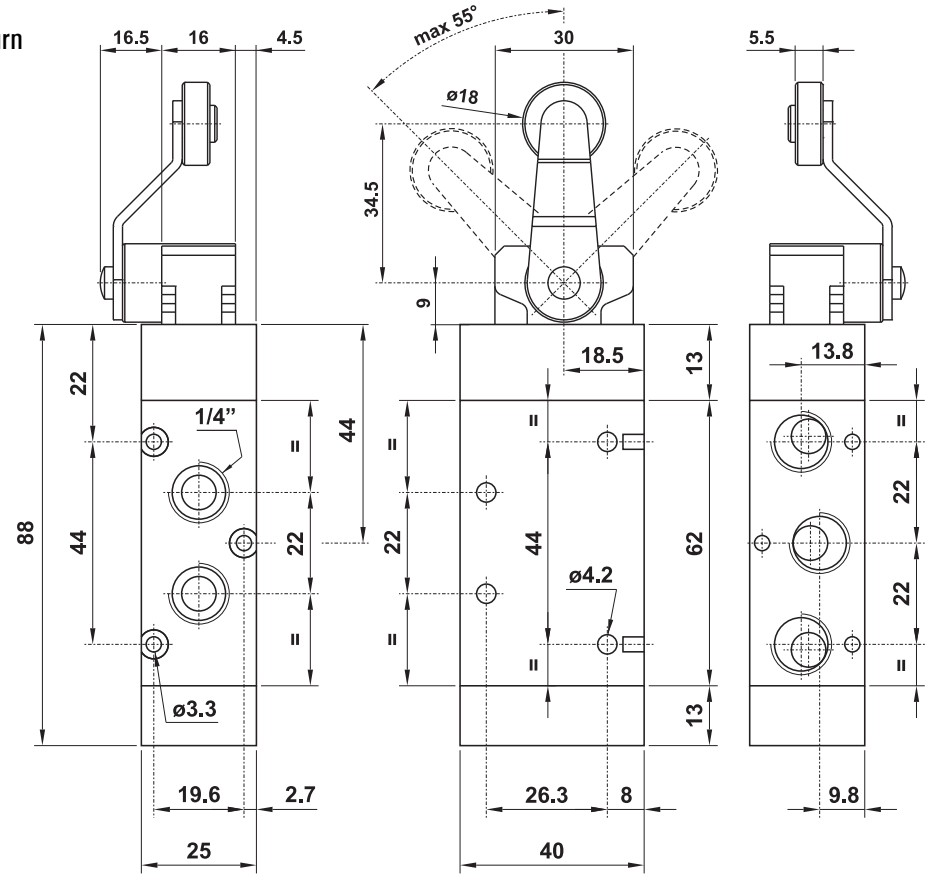




US522 MYR46

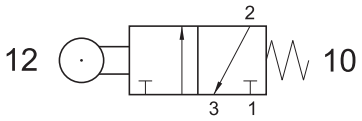
5/2 1/4"NPT roller lever on the side - spring return



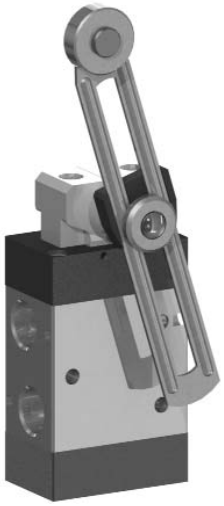


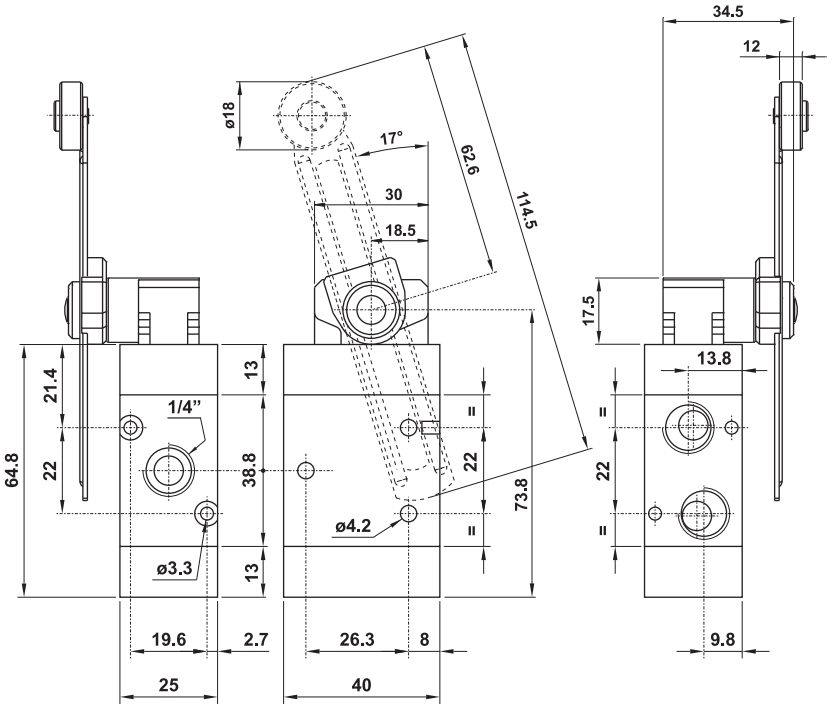
US322 MYR53

3/2 1/4"NPT roller lever with adjustable shaft - spring return



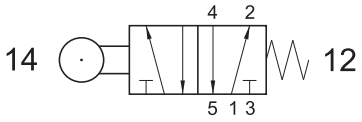
The position and the length of the shaft can be manually adjusted



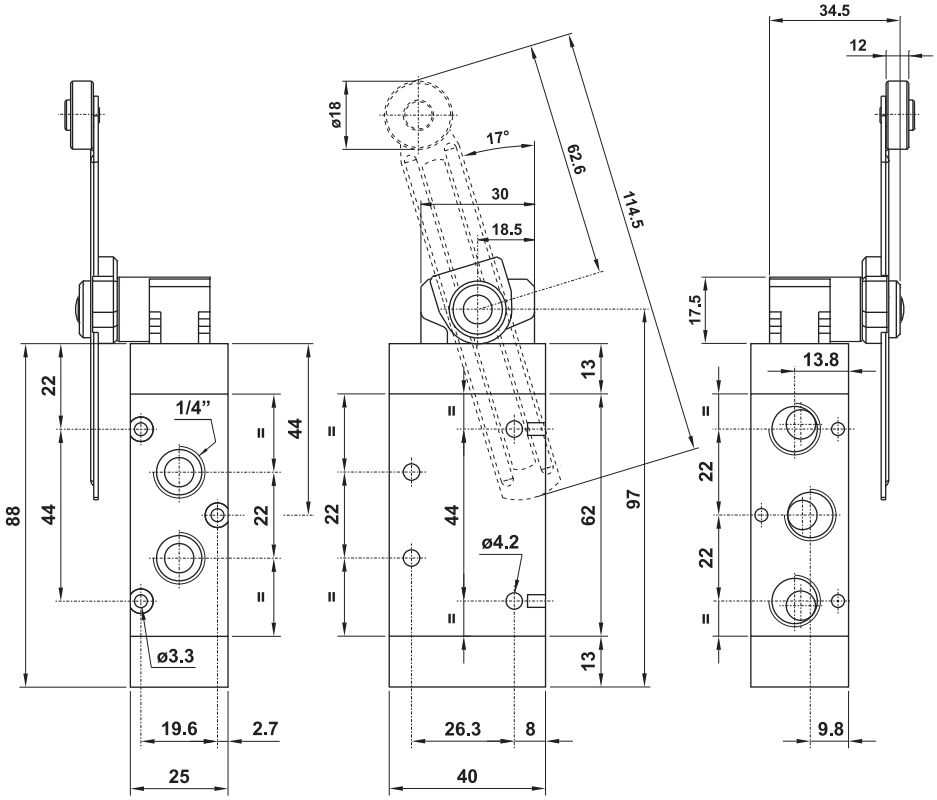


US522 MYR53

5/2 1/4"NPT roller lever with adjustable shaft - spring return



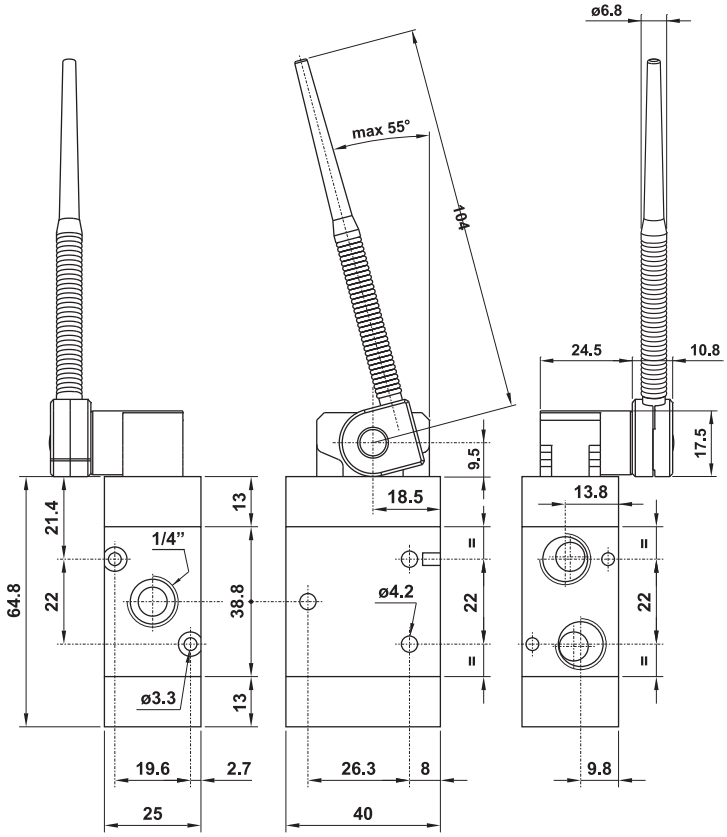
The position and the length of the shaft can be manually adjusted



US322 MYN61

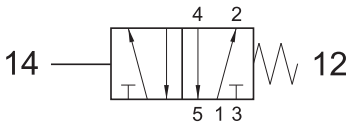
3/2 1/4"NPT adjustable shaft antenna - spring return

The position and the angle of the shaft can be manually adjusted

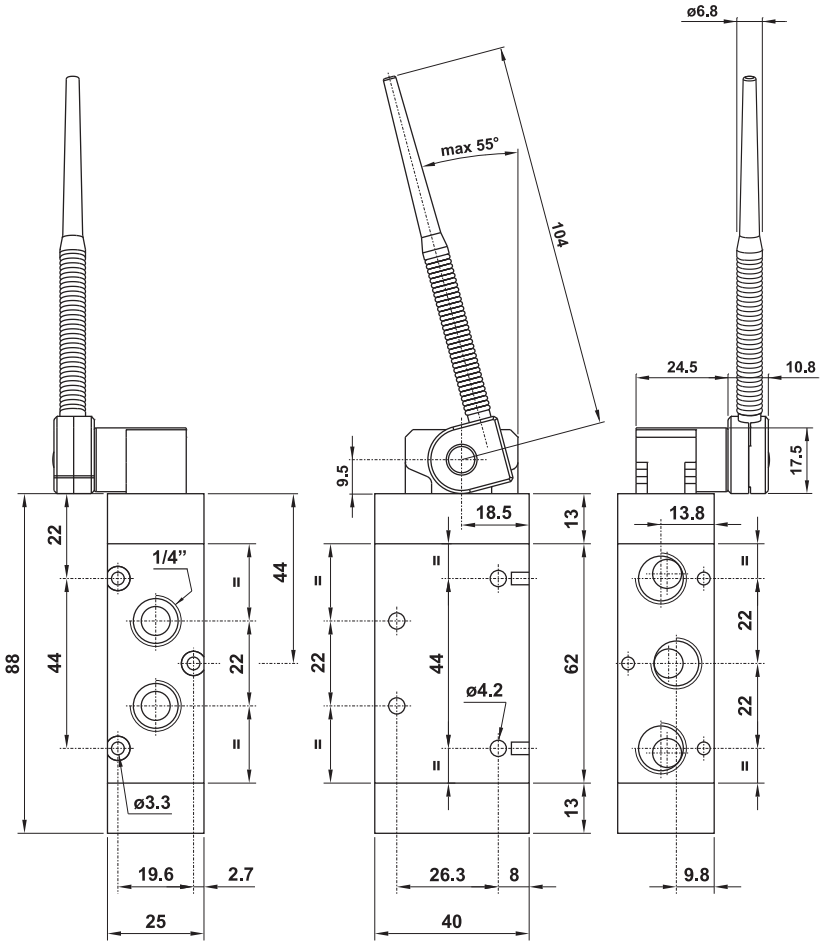


US522 MYN61

5/2 1/4"NPT adjustable shaft antenna - spring return

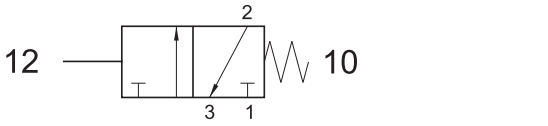


The position and the angle of the shaft can be manually adjusted



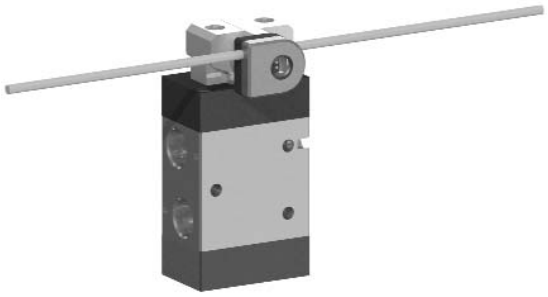
US322 MYN71

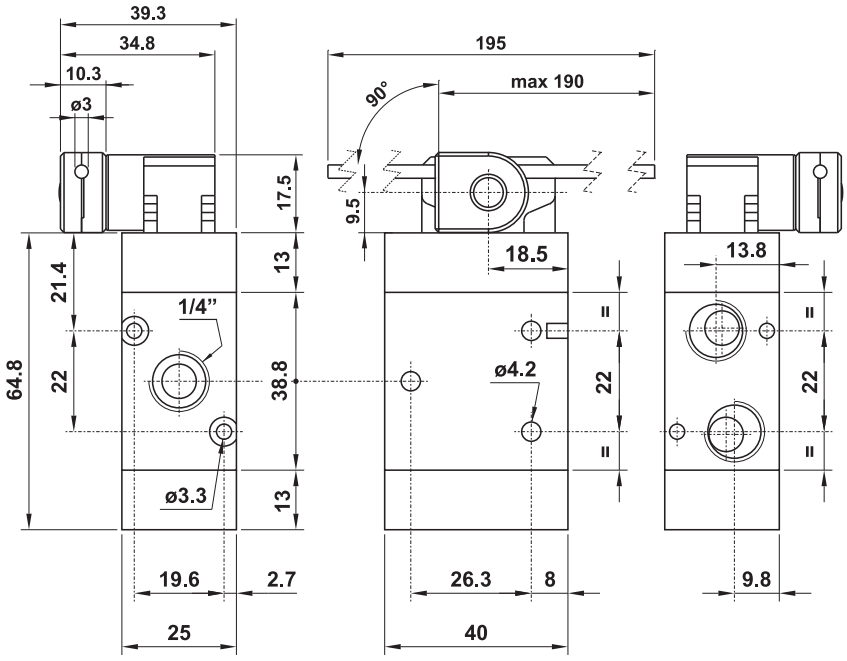
3/2 1/4"NPT adjustable ø3 shaft - spring return



Material of the shaft: stainless steel

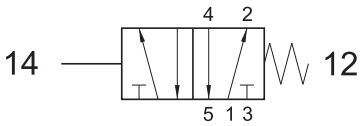
The position of the shaft can be manually adjusted





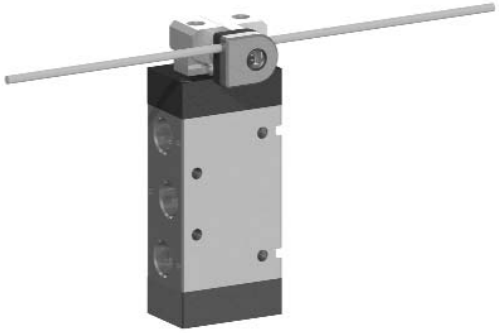
US522 MYN71

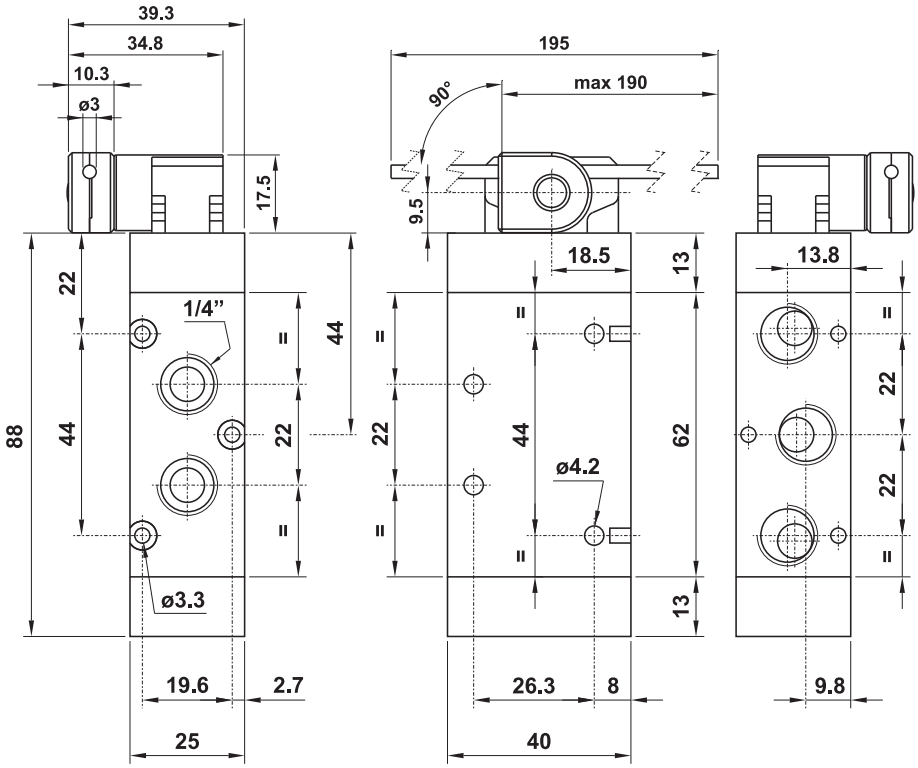
5/2 1/4"NPT adjustable ø3 shaft - spring return



Material of the shaft: stainless steel

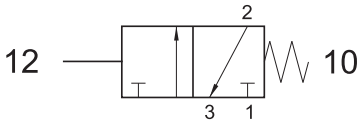
The position of the shaft can be manually adjusted





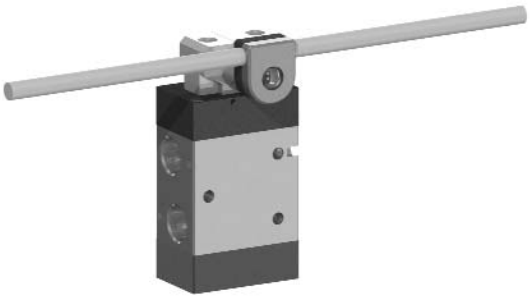
US322 MYN74

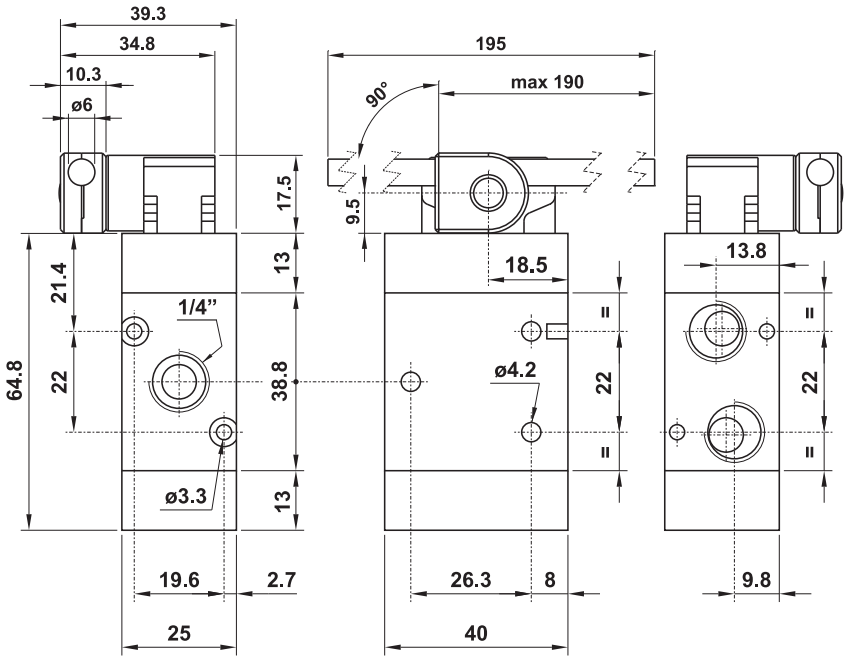
3/2 1/4"NPT adjustable ø6 shaft - spring return



Material of the shaft: glass fiber

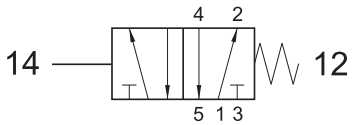
The position of the shaft can be manually adjusted





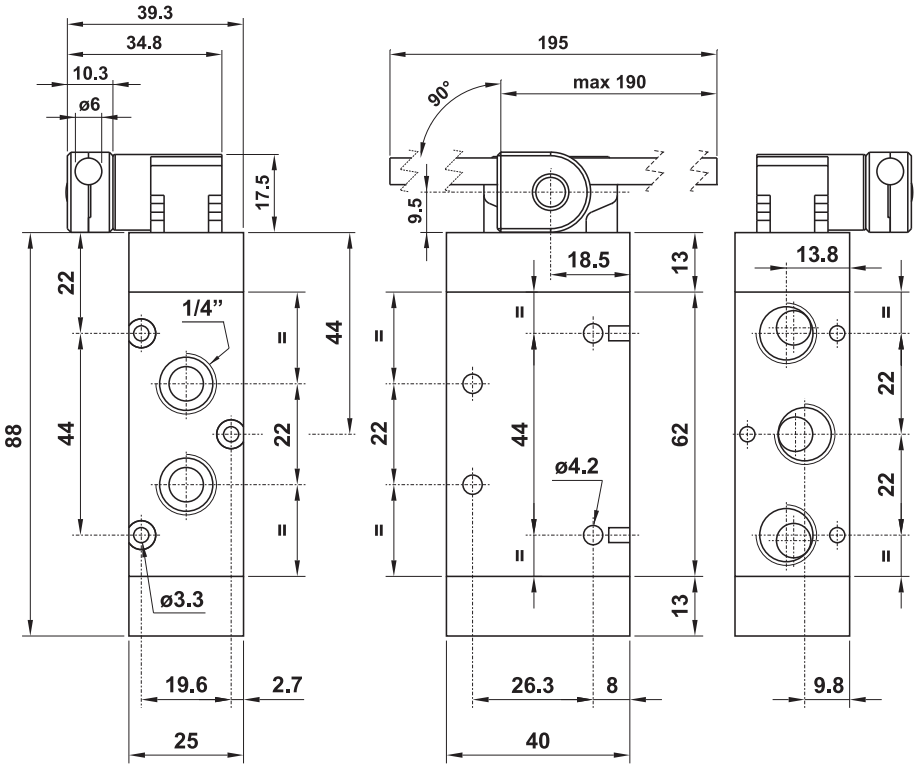
US522 MYN74

5/2 1/4"NPT adjustable ø6 shaft - spring return



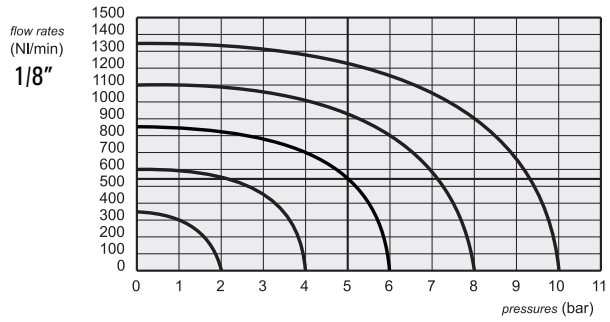
Material of the shaft: glass fiber

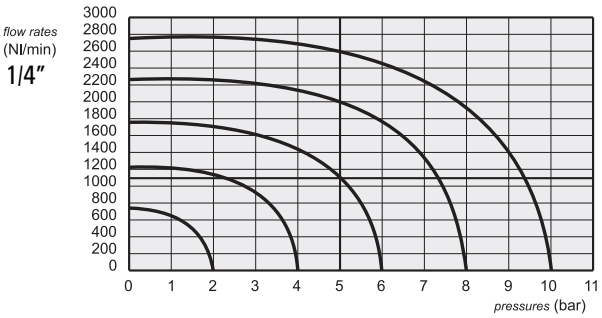
The position of the shaft can be manually adjusted



Manually actuated valves

- 3/2-5/2-5/3 spool valves with 1/8" - 1/4" - 1/2" NPT threaded ports, BSP version avaiable on request
- Installation in any position
- Comprehensive range of actuations
- Push/pull and lever valves: thread for panel mounting M18x1.5
- Version for actuator for panel mounting (with ø22 hole)
- Special versions on request

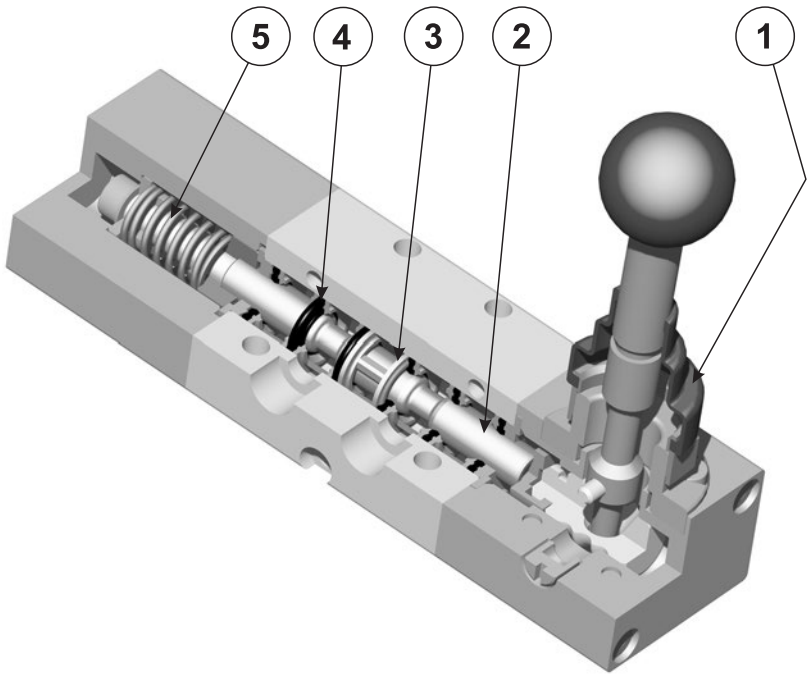


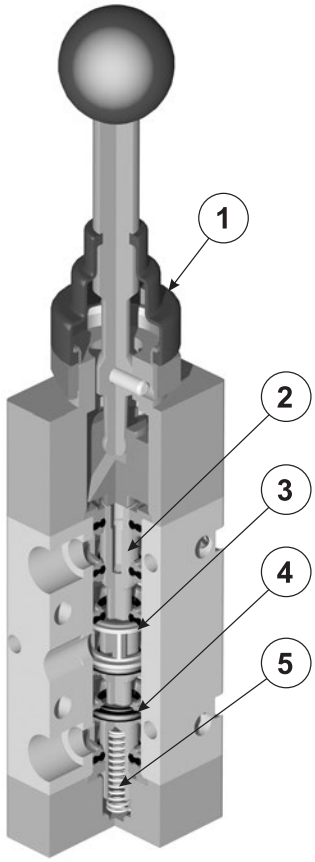


Materials
Body: aluminium 11S
End cups: aluminium 11S
Springs: stainless steel
Seals: NBR
Spool: nickel plated aluminium
Internal parts: brass OT58

Nominal diameter	1/8" NPT: 5 mm 1/4" NPT: 7.5 mm			
Temperature range	max +60°C (140°F)			
Operating pressure	direct actuation -0.9 ... 10 bar (Vacuum ... 145 PSI) -0.09 ... 1 MPa		servo-piloted actuation 2.5 ... 10 bar (36 ... 145 PSI) 0.025 ... 1 MPa	
Actuating force	1/8" NPT mono-stable	1/4" NPT mono-stable	1/8" NPT bi-stable	1/4" NPT bi-stable
	15 N	20 N	10 N	15 N
Fluid	50μ filtered, lubricated or non lubricated air			

Spare parts for manually actuated spool valves





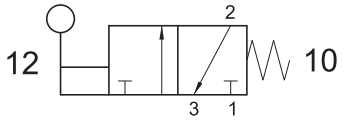
1. Cover for dust protection
2. Spool: aluminium 11S, nickeled
3. Spacer: brass
4. Seal for spool: NBR
5. Spring: steel

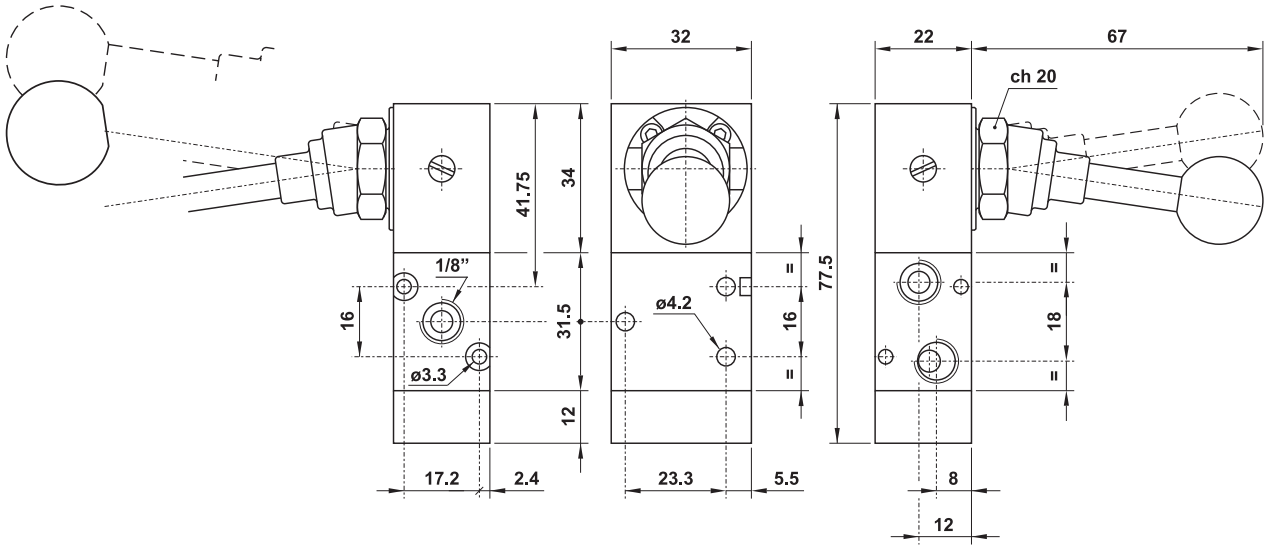
code of kit	suitable for		
00.099.2	US321 LL	US321 LL90	US321 ML90
	US321 TT	US321 MT	
00.106.2	US521 LL	US521 LL90	US521 ML90
	US5213C LL90	US5213A LL90	US5213P LL90
	US5213C ML90	US5213A ML90	US5213P ML90
	US521 TT	US521 MT	
01.041.2	US322 LL	US322 LL90	US322 ML90
	US322 TT	US322 MT	
01.054.2	US522 LL	US522 LL90	US522 ML90
	US5223C LL90	US5223A LL90	US5223P LL90
	US5223C ML90	US5223A ML90	US5223P ML90
	US522 TT	US522 MT	

The kit contains the seals listed here and the necessary O-Rings for the functioning of the valve.

US321 ML90

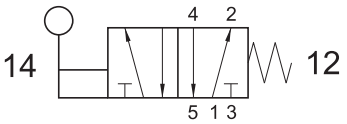
3/2 1/8" NPT 90° lever - spring return

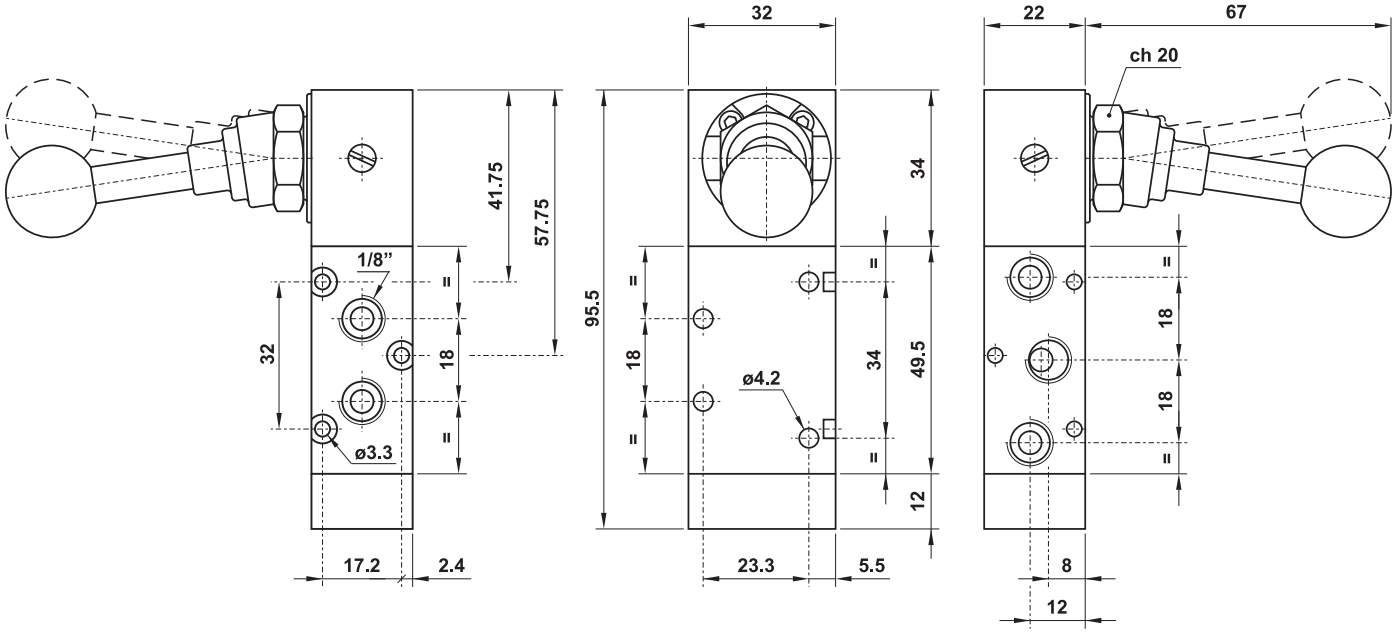




US521 ML90

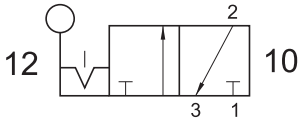
5/2 1/8" NPT 90° lever - spring return

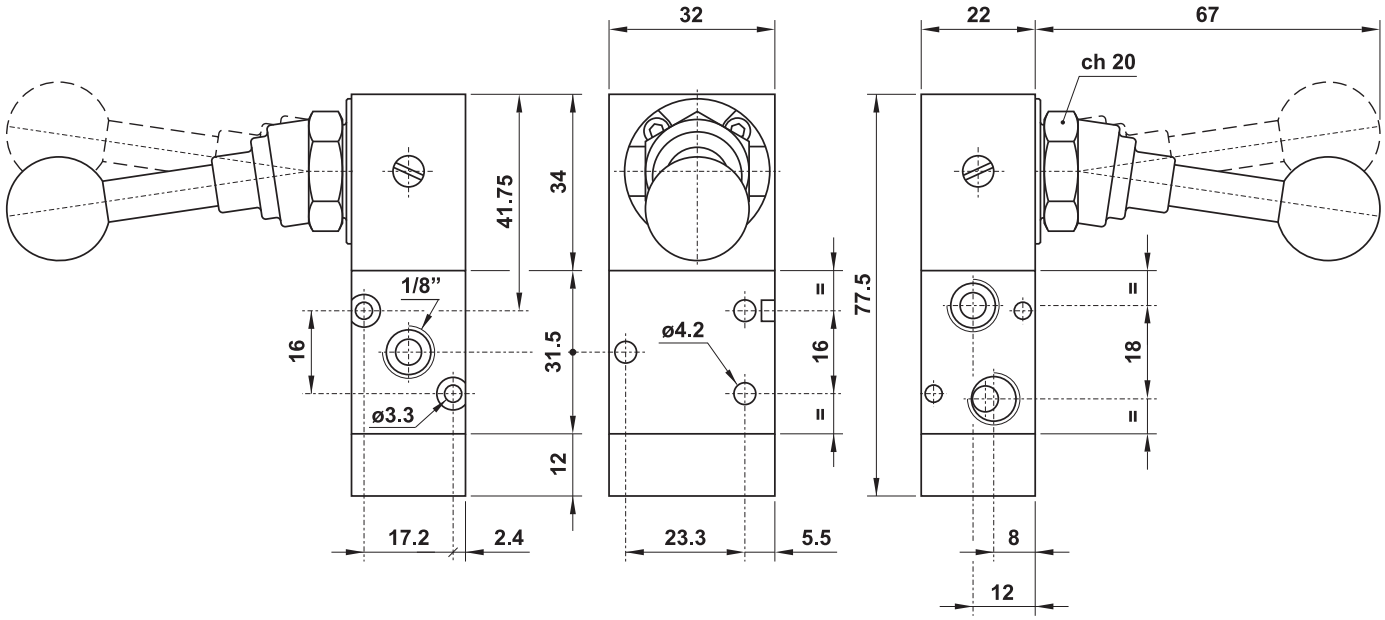




US321 LL90

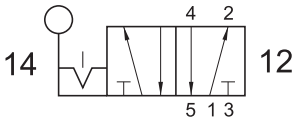
3/2 1/8" NPT 90° bi-stable lever

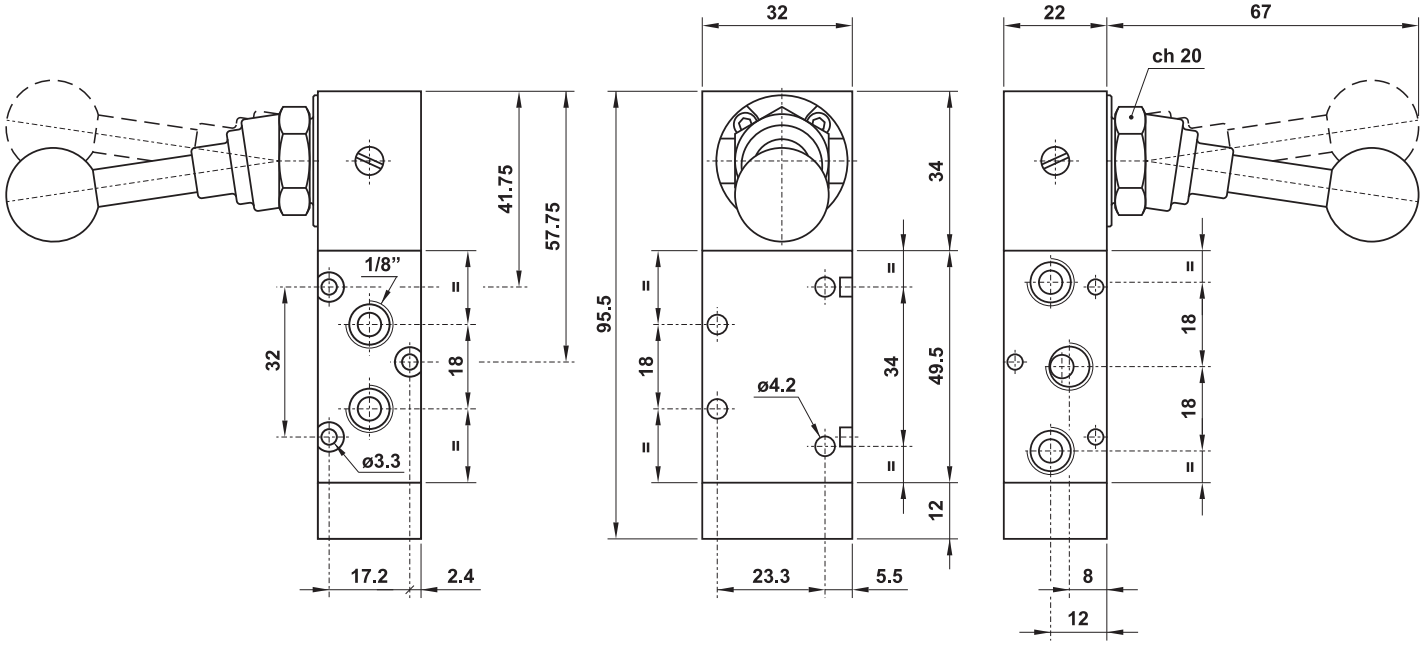




US521 LL90

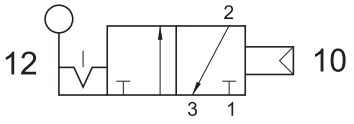
5/2 1/8" NPT 90° bi-stable lever

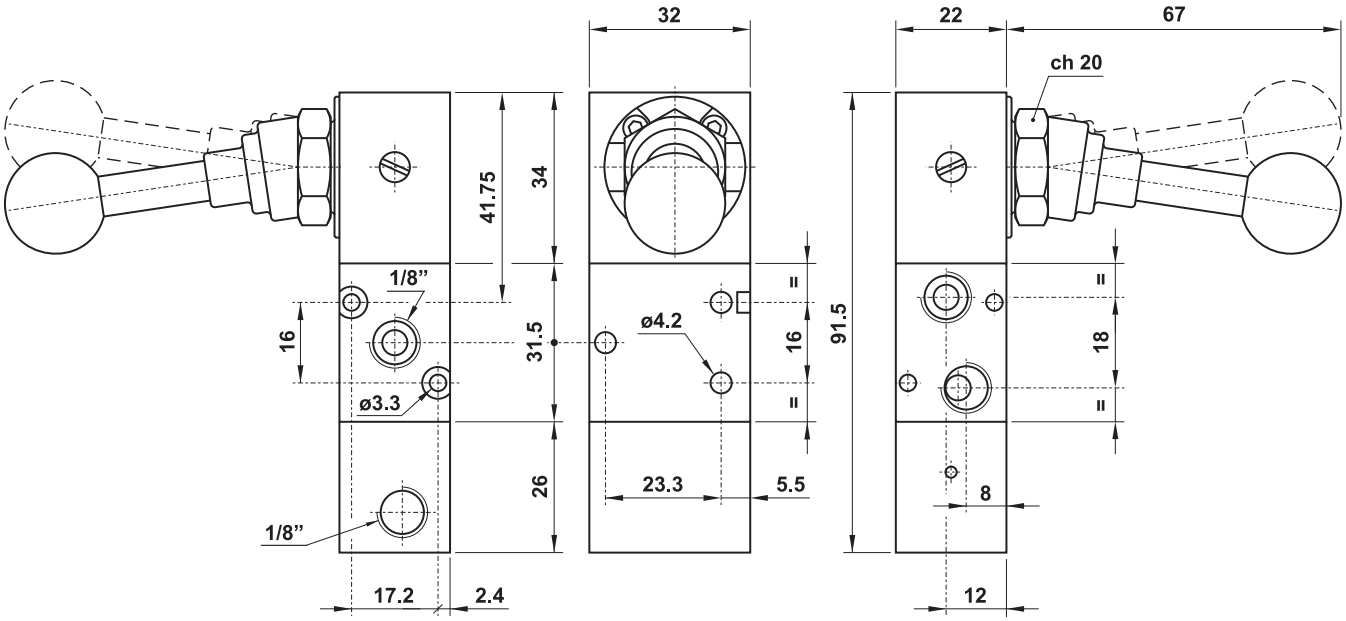




US321 CL90

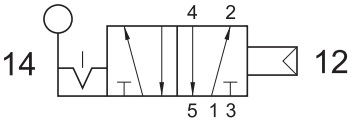
3/2 1/8″ NPT 90° lever - separate pneumatically piloted return

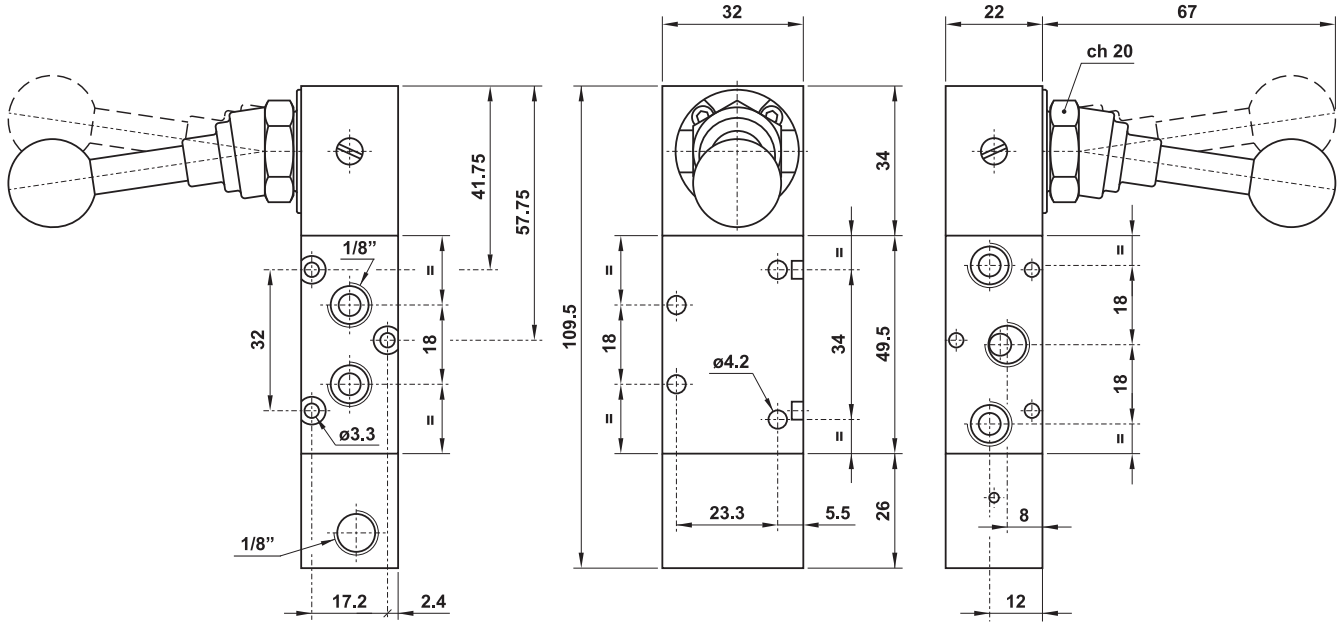




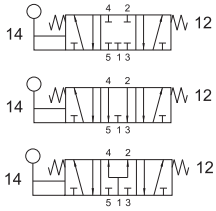
US521 CL90

5/2 1/8″ NPT 90° lever - separate pneumatically piloted return

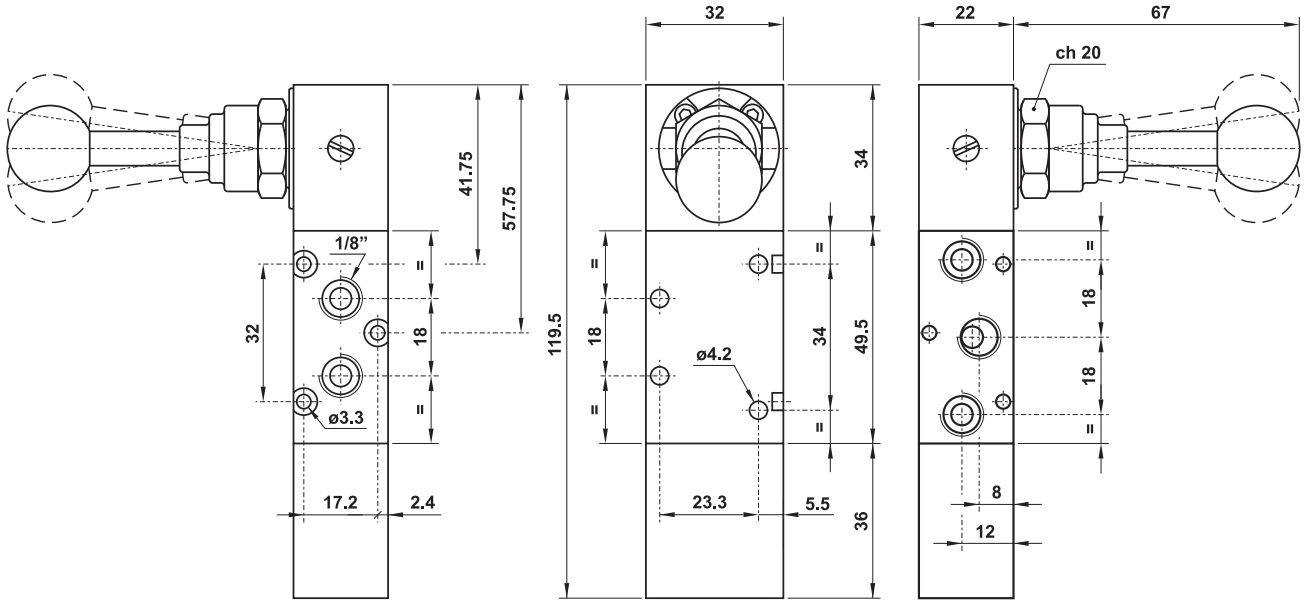




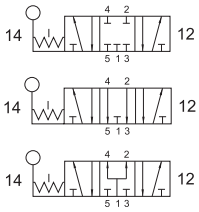
US5213C ML90 closed centers
US5213A ML90 open centers
US5213P ML90 pressurized centers



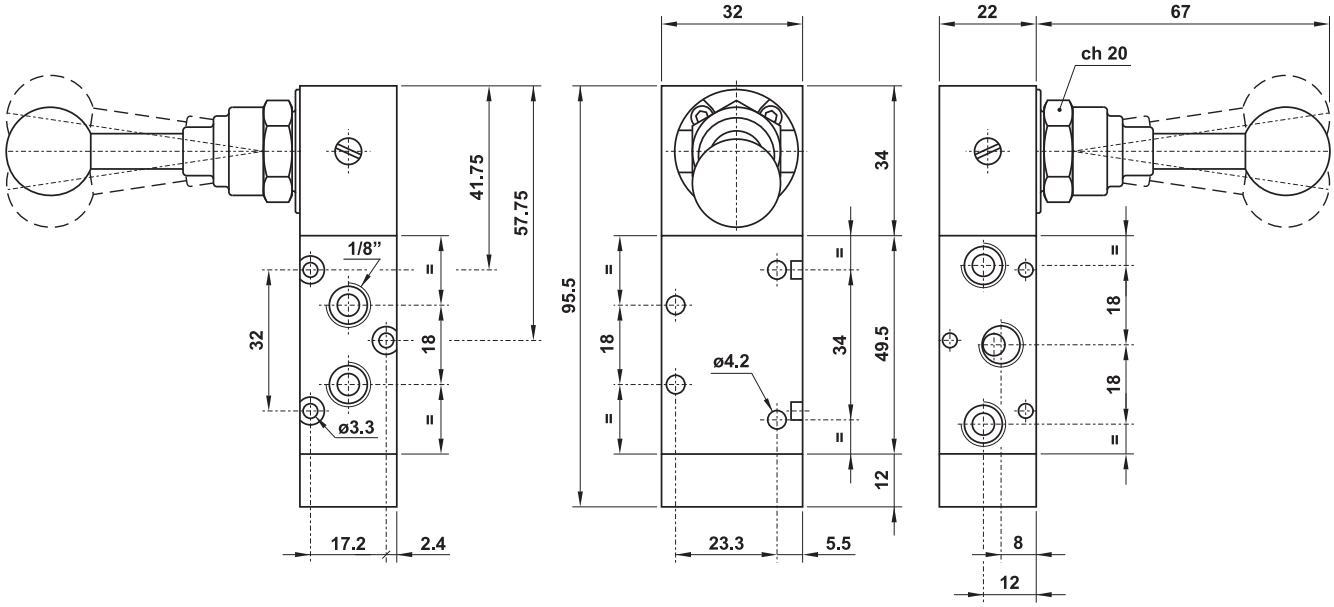
5/3 1/8" NPT 90° lever - spring return to center



US5213C LL90 closed centers
US5213A LL90 open centers
US5213P LL90 pressurized centers

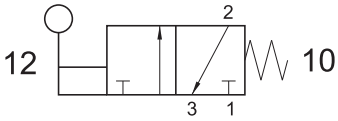


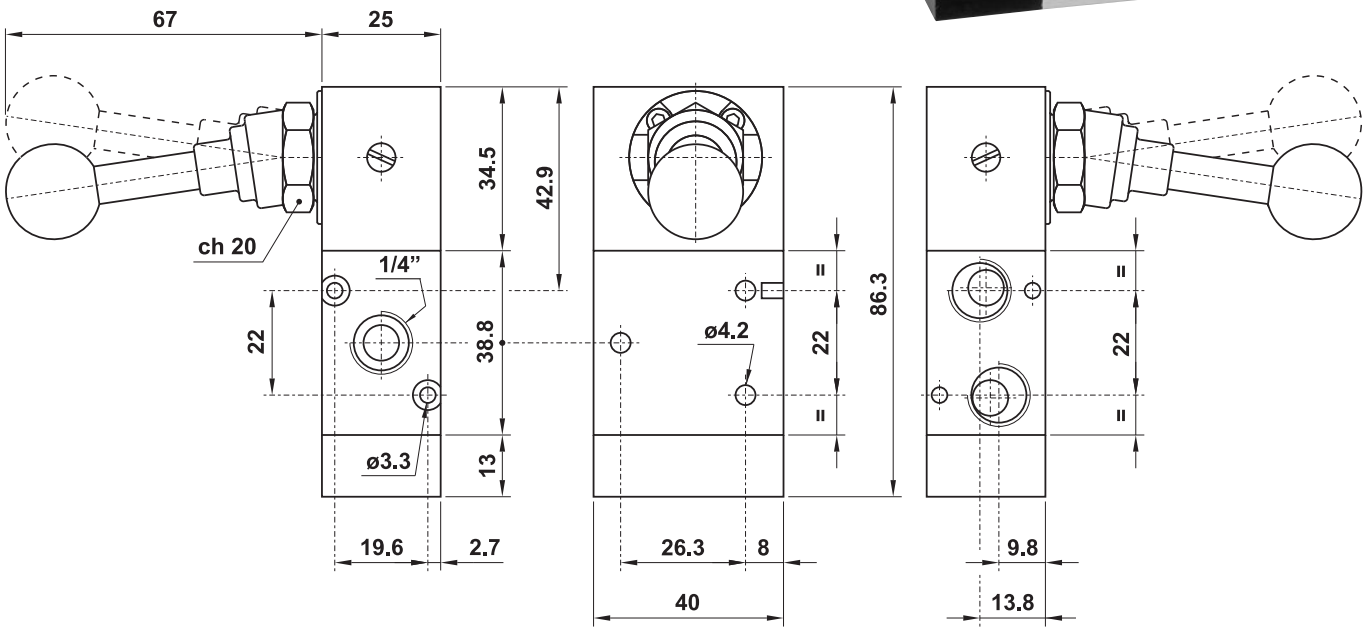
5/3 1/8" NPT 90° lever - three detented positions



US322 ML90

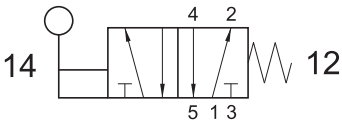
3/2 1/4" NPT 90° lever - spring return

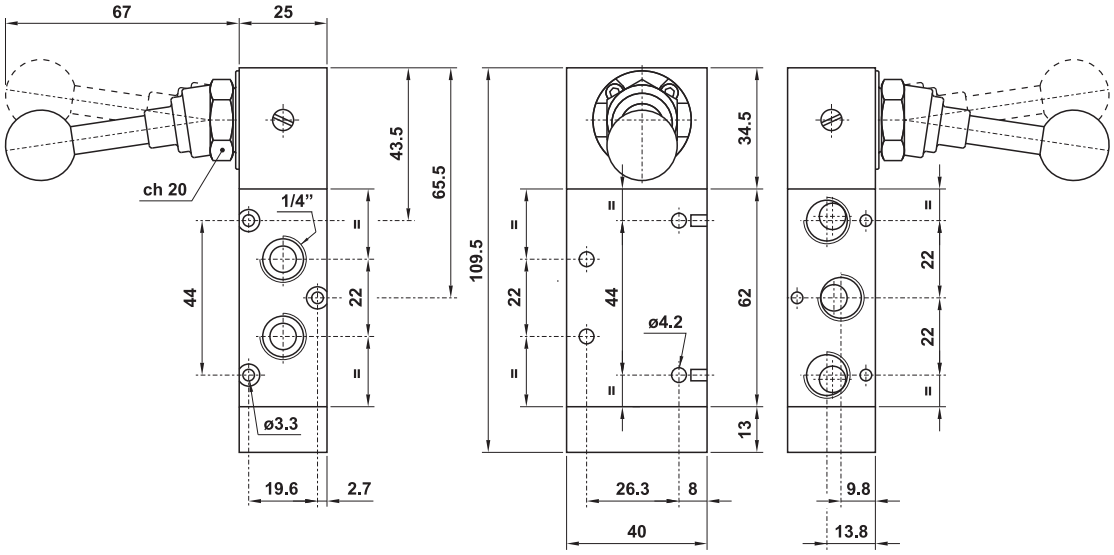




US522 ML90

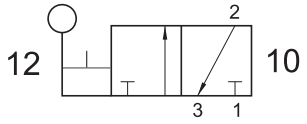
5/2 1/4" NPT 90° lever - spring return

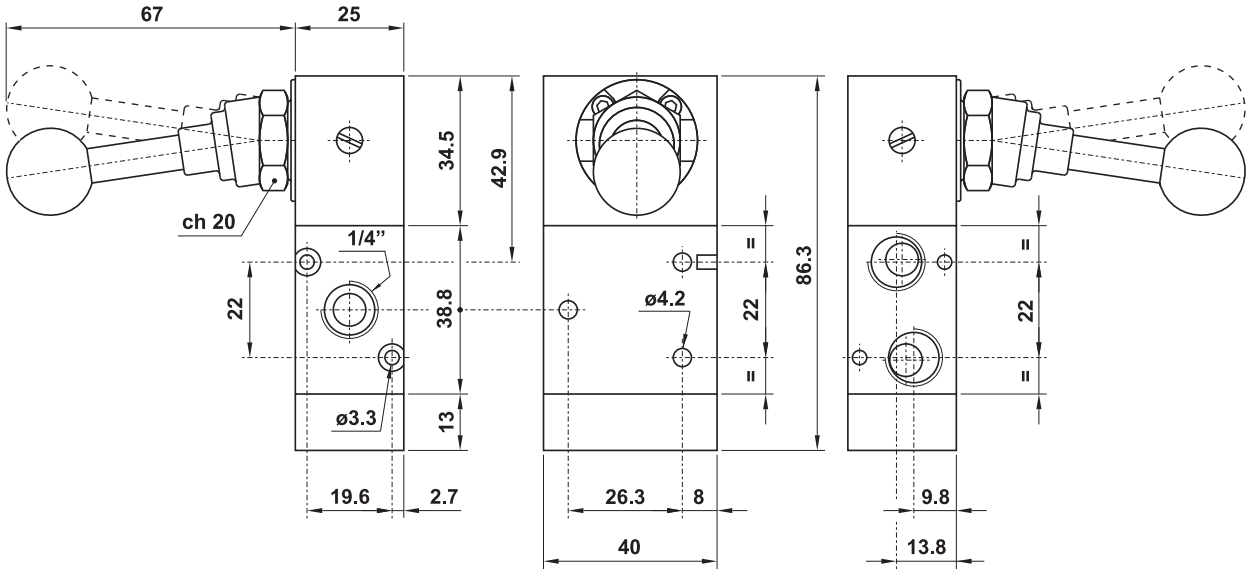




US322 LL90

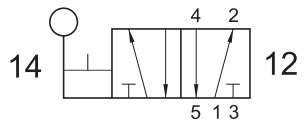
3/2 1/4" NPT 90° bi-stable lever

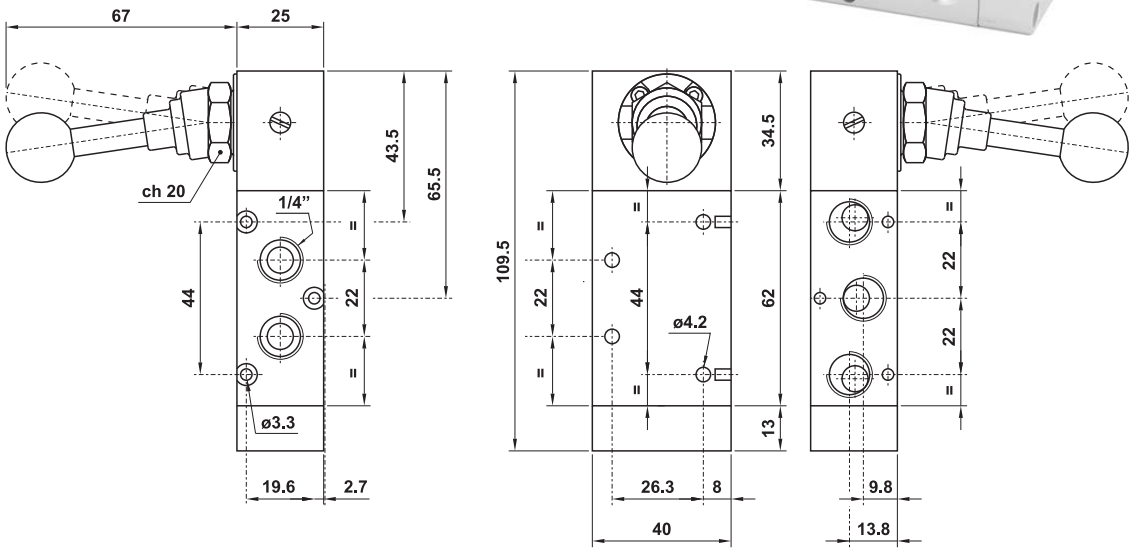




US522 LL90

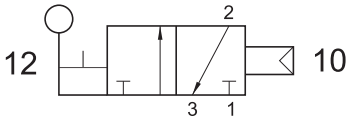
5/2 1/4" NPT 90° bi-stable lever

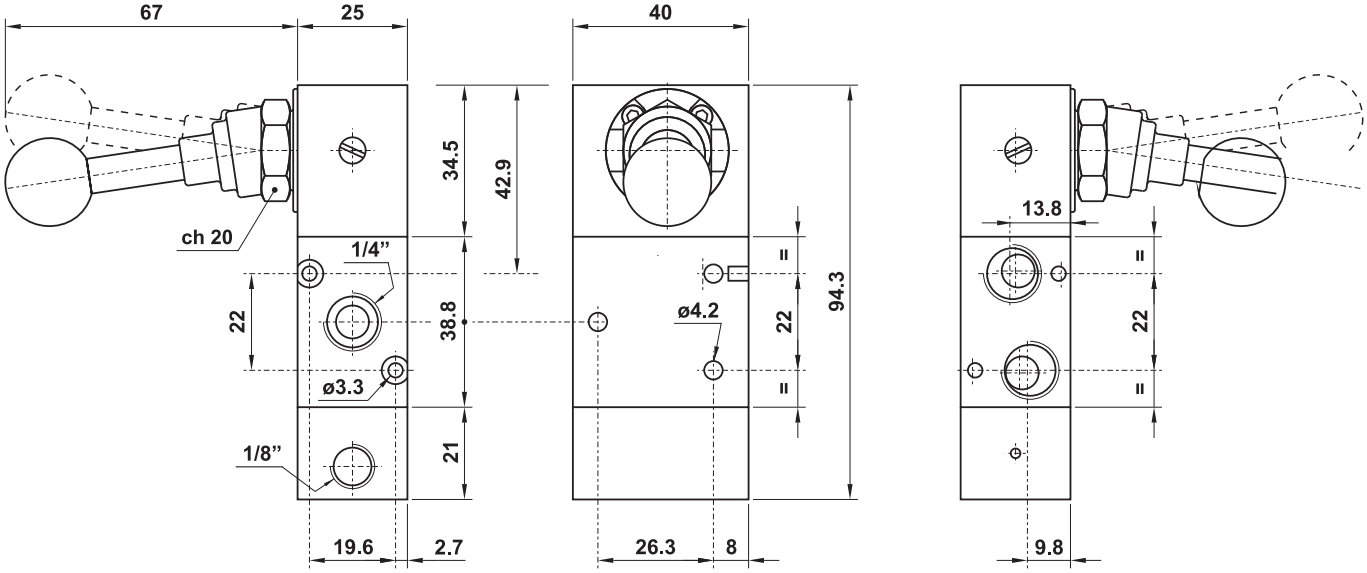




US322 CL90

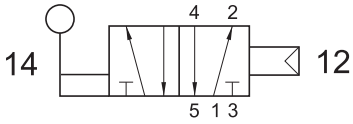
3/2 1/4" NPT 90° lever - separate pneumatically piloted return

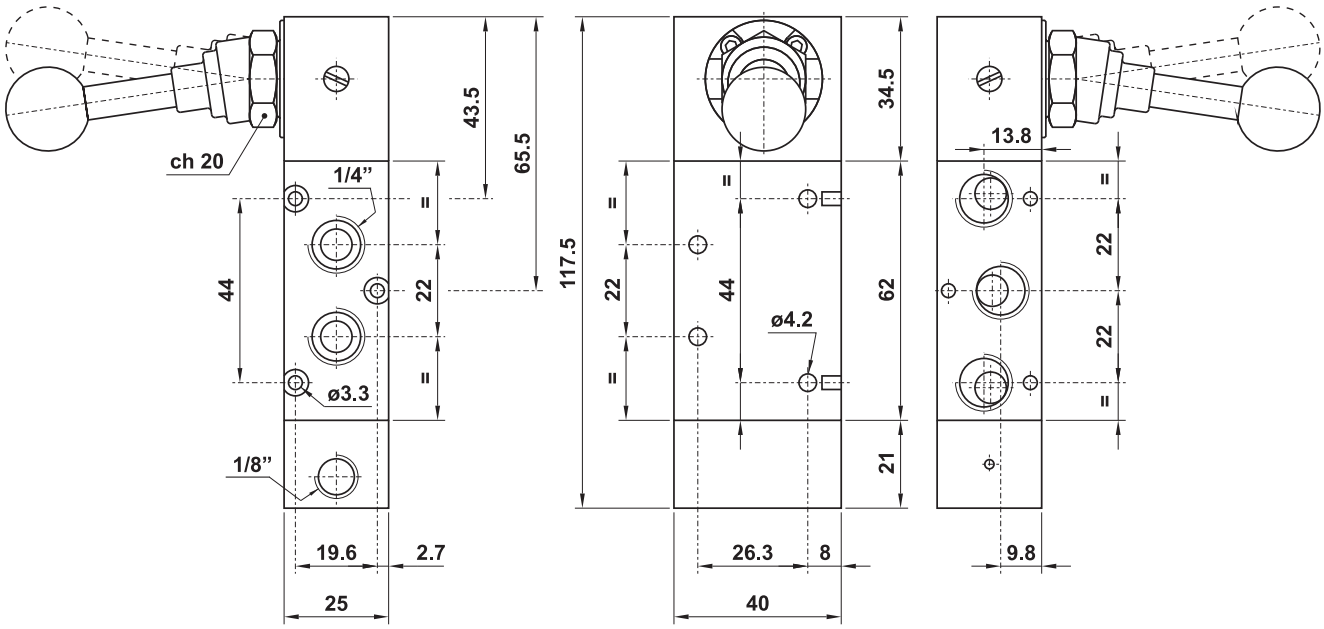




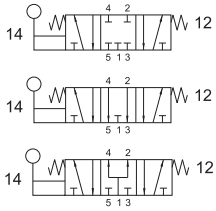
US522 CL90

5/2 1/4" NPT 90° lever - separate pneumatically piloted return

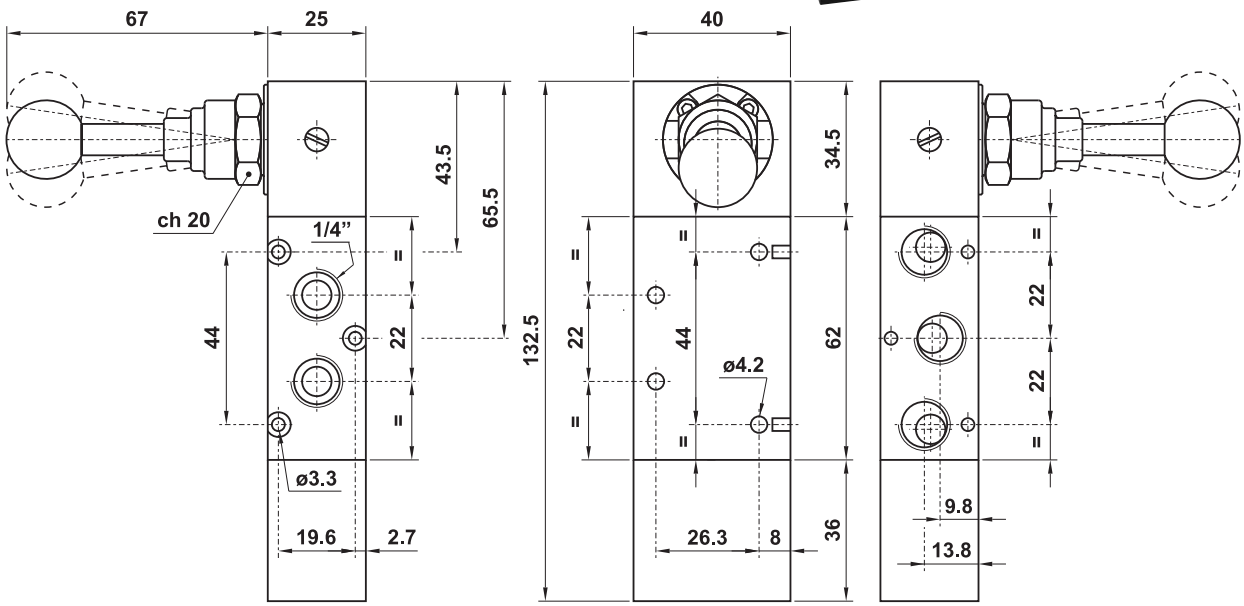




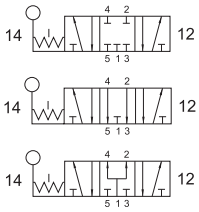
US5223C ML90 closed centers
US5223A ML90 open centers
US5223P ML90 pressurized centers



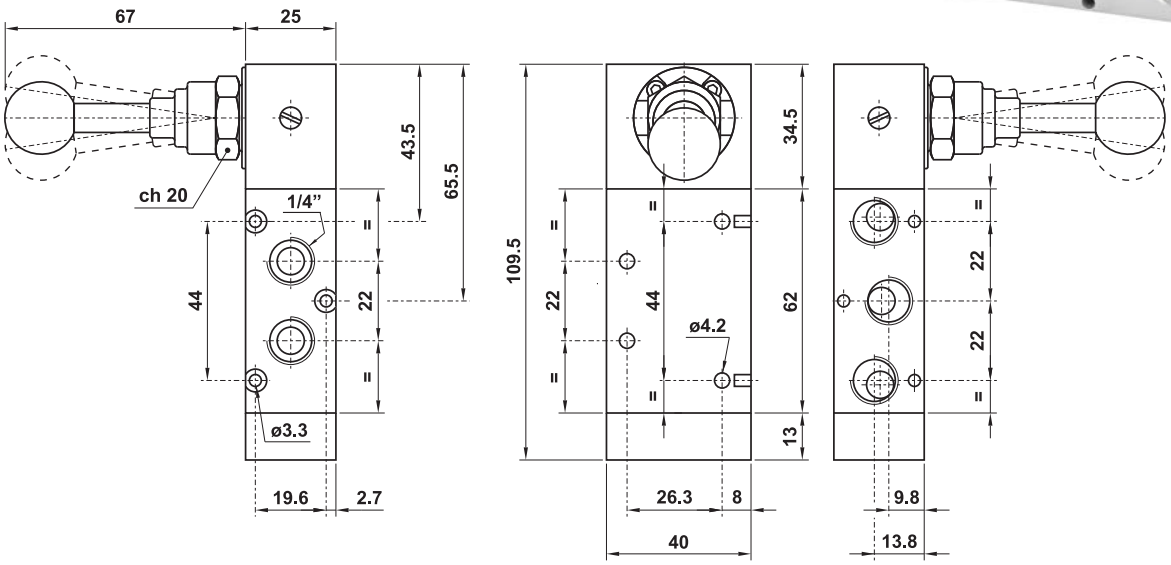
5/3 1/4" NPT 90° lever - spring return to center



US5223C LL90 closed centers
US5223A LL90 open centers
US5223P LL90 pressurized centers

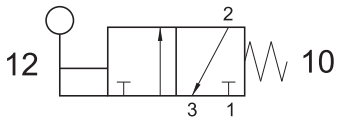


5/3 1/4" NPT 90° lever - three stable positions



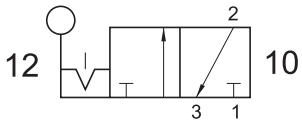
US324 ML90

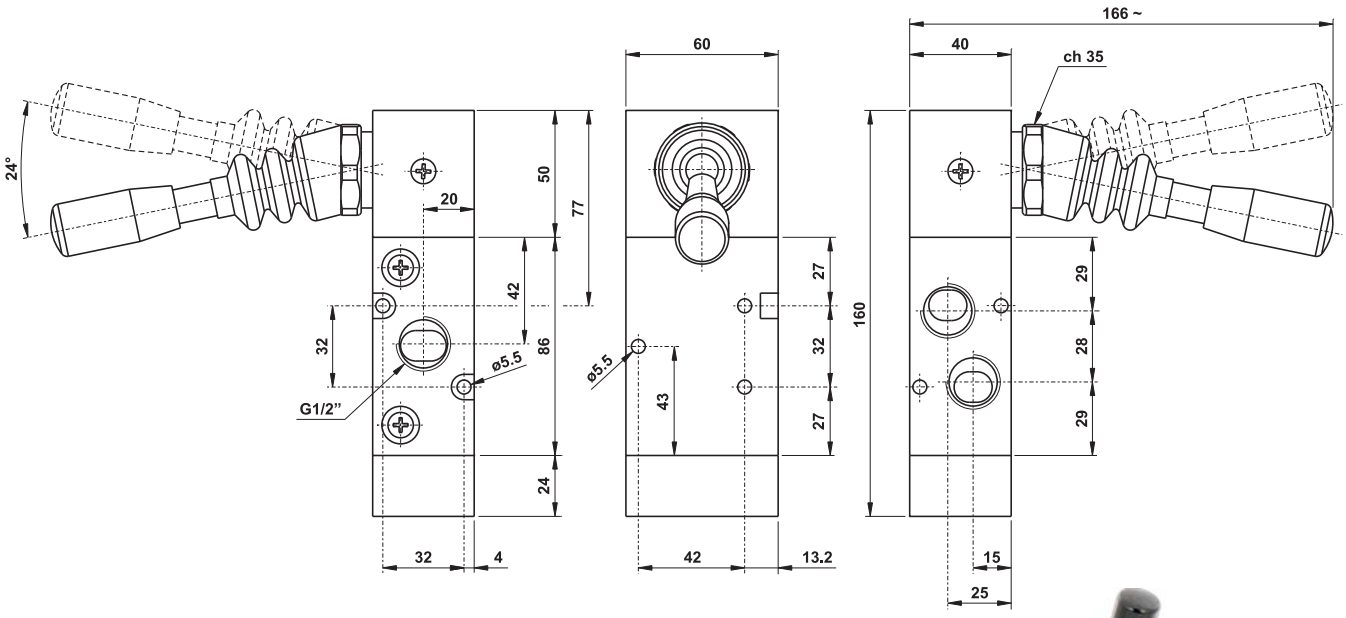
3/2 1/2" double solenoid pilot



US324 LL90

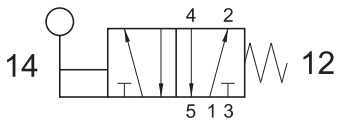
3/2 1/2" 90° bi-stable lever





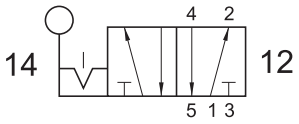
US524 ML90

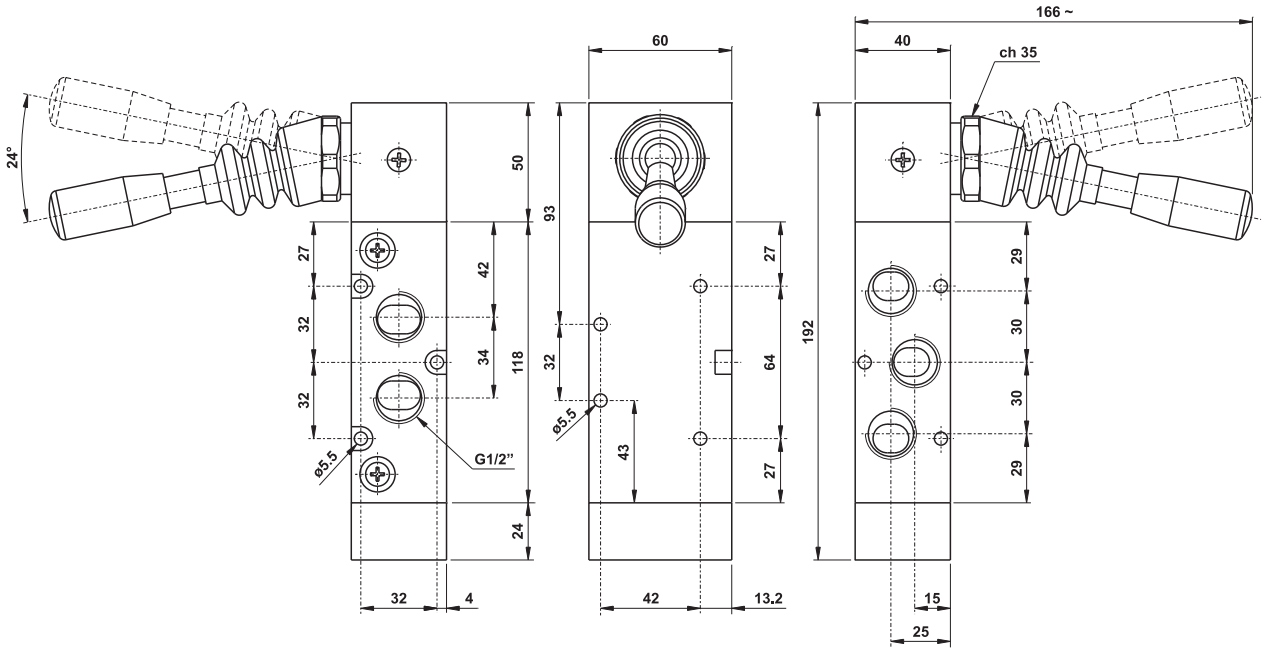
5/2 1/2" double solenoid pilot



US524 LL90

5/2 1/2" 90° bi-stable lever

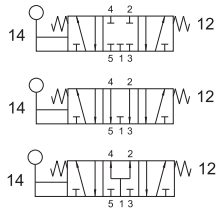




US5243C ML90 *closed centres*

US5243A ML90 *open centres*

US5243P ML90 *pressurized centres*

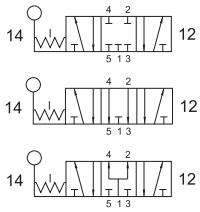


5/3 1/2" 90° lever - spring return to centre

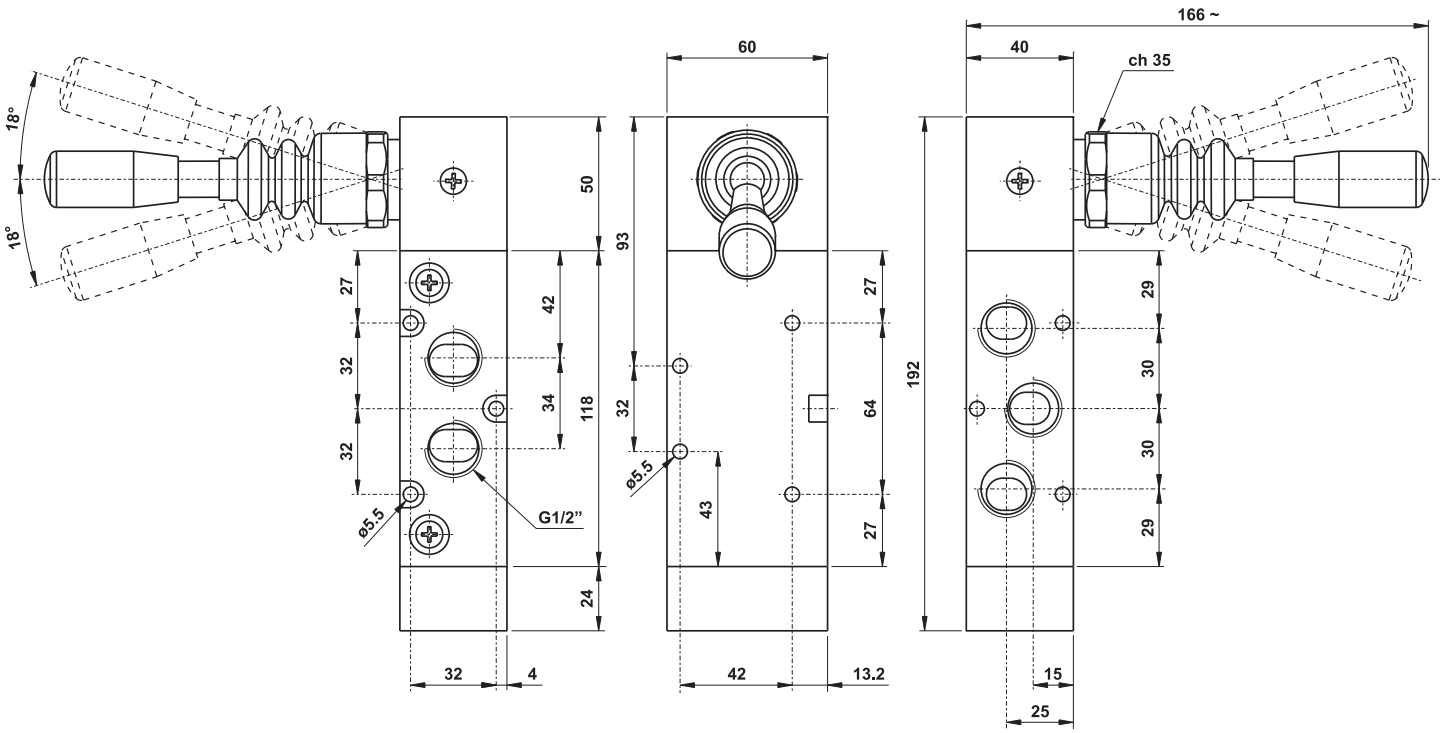
US5243C LL90 *closed centres*

US5243A LL90 *open centres*

US5243P LL90 *pressurized centres*

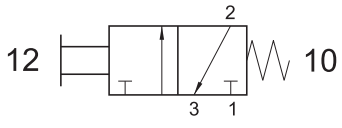


5/3 1/2" 90° lever - three detented positions

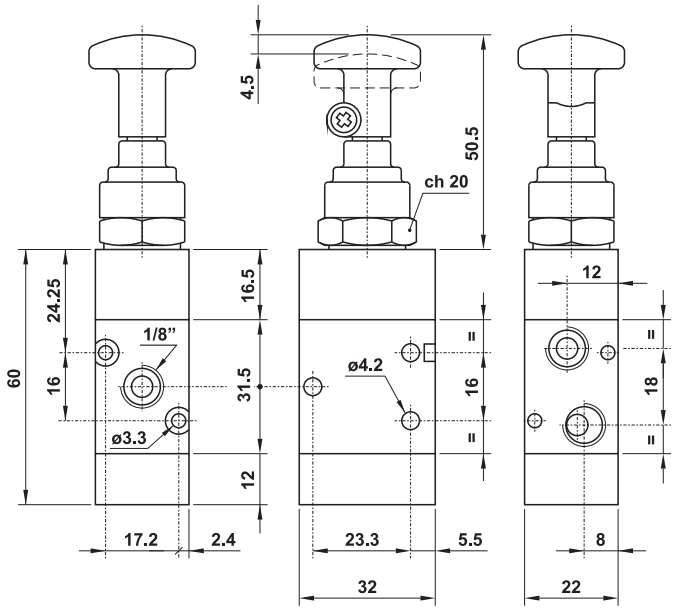


US321 MT

3/2 1/8" NPT push/pull with spring return

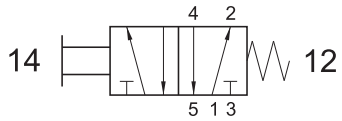


Standard push button: BLACK
On request RED push button

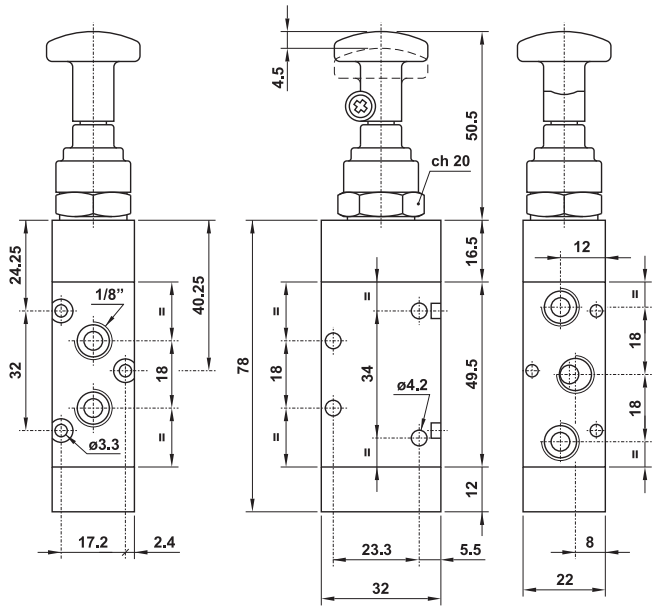


US521 MT

5/2 1/8" NPT push/pull with spring return

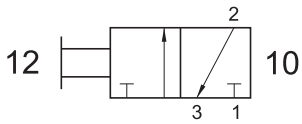


Standard push button: BLACK
On request RED push button

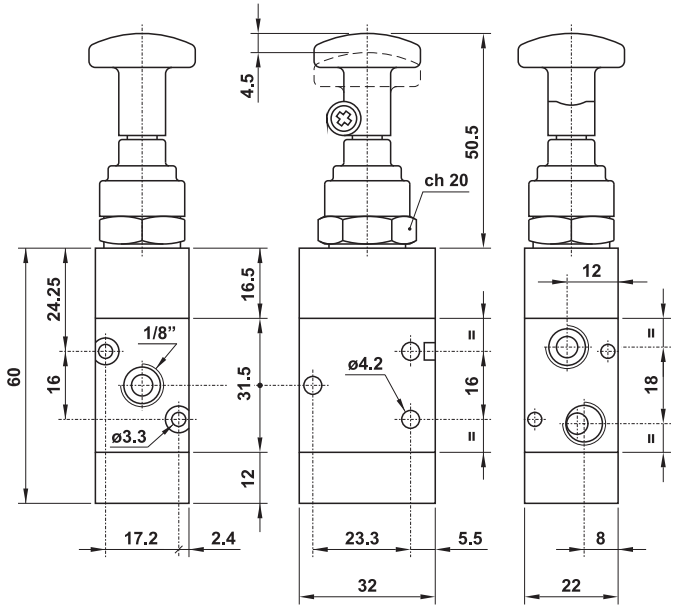


US321 TT

3/2 1/8" NPT bi-stable push/pull

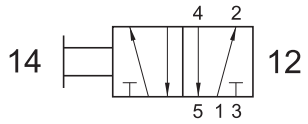


Standard push button: BLACK
On request RED push button

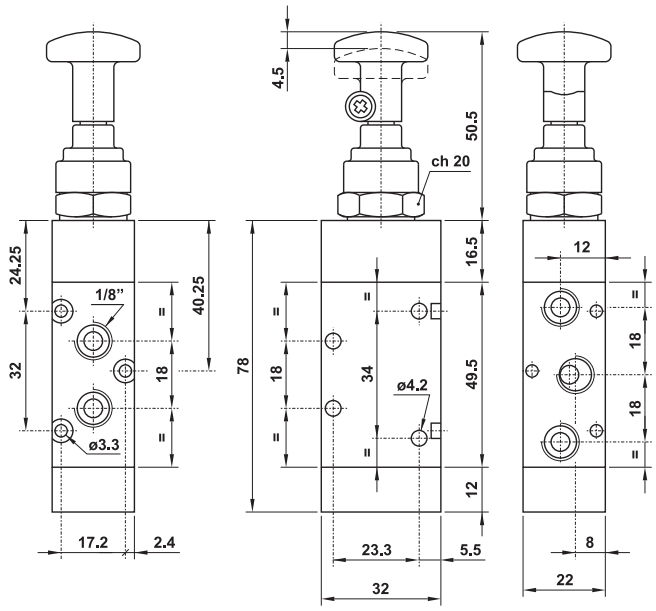


US521 TT

5/2 1/8" NPT bi-stable push/pull

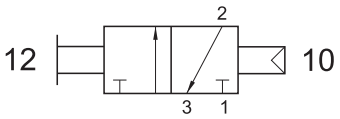


Standard push button: BLACK
On request RED push button



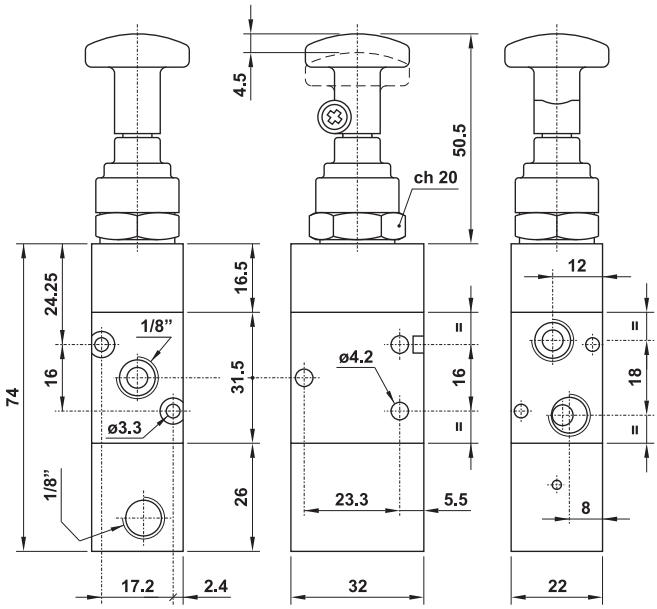
US321 CT

3/2 1/8" NPT push/pull with separate pneumatically piloted return



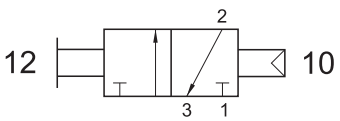
The return can be done only with pneumatic pilote signal.

Standard push button: BLACK
On request RED push button



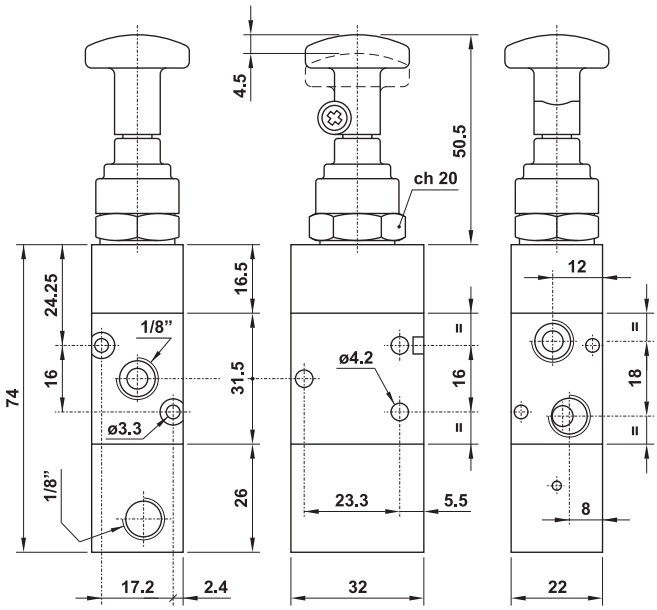
US321 CTT

3/2 1/8" NPT bi-stable push/pull with separate pneumatically piloted return



The return can be done with pneumatic pilote signal or by pulling the knob.

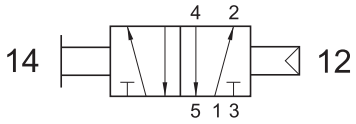
Standard push button: BLACK
On request RED push button



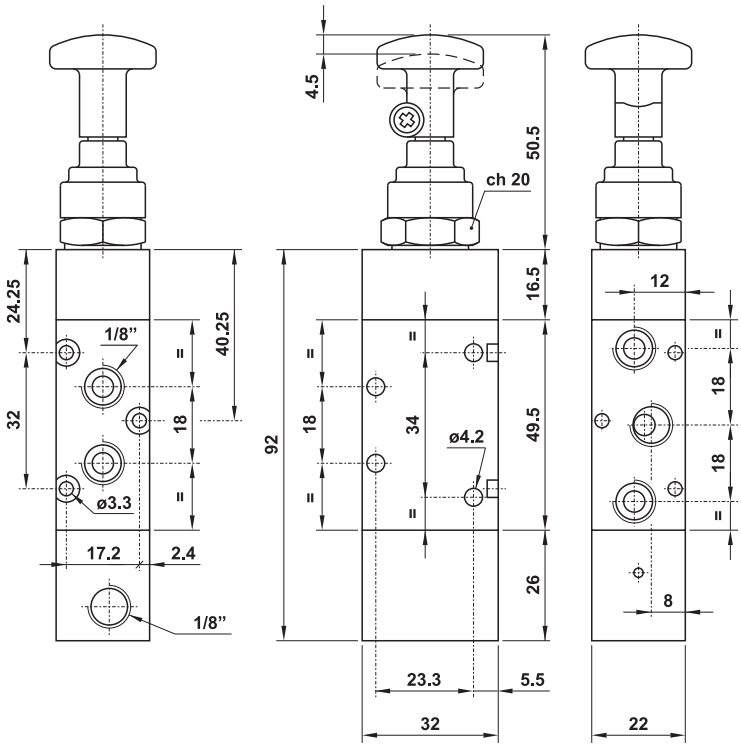
US521 CT

5/2 1/8" NPT push/pull with separate pneumatically piloted return

The return can be done only with pneumatic pilote signal.



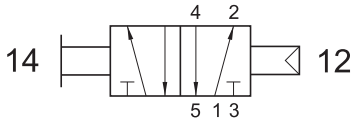
Standard push button: BLACK
On request RED push button



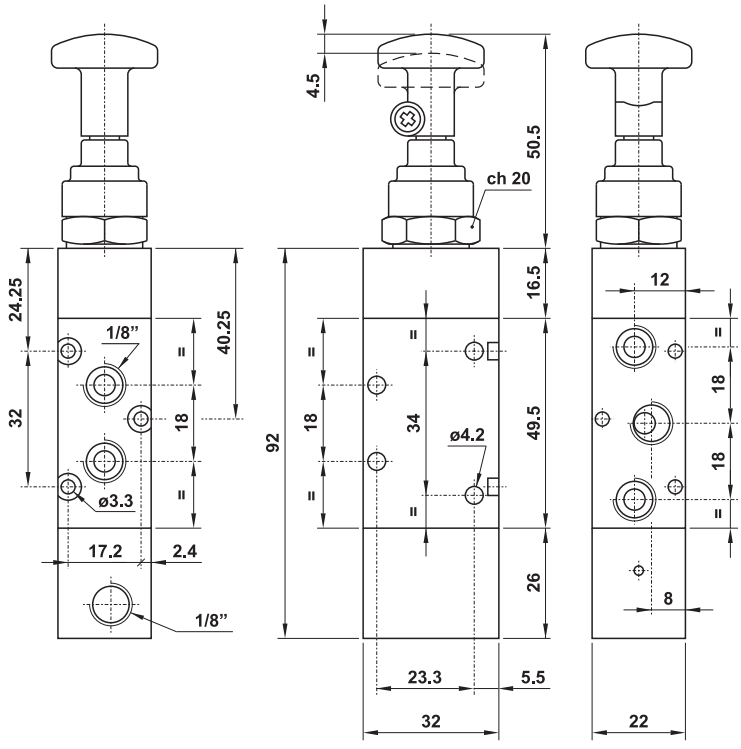
US521 CTT

5/2 1/8" NPT bi-stable push/pull with separate pneumatically piloted return

The return can be done with pneumatic pilote signal or by pulling the knob.

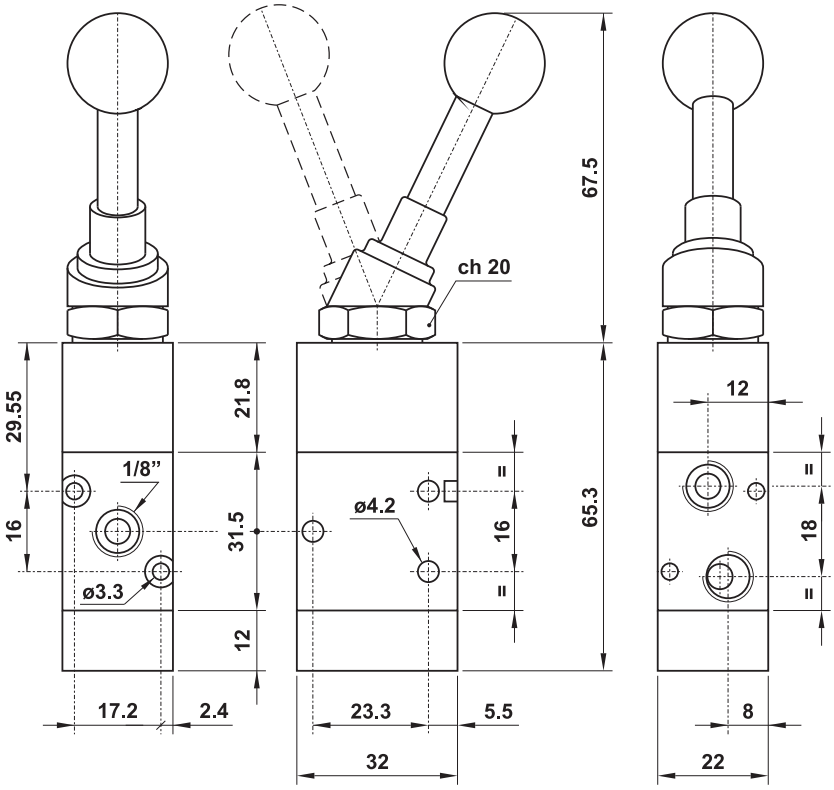


Standard push button: BLACK
On request RED push button



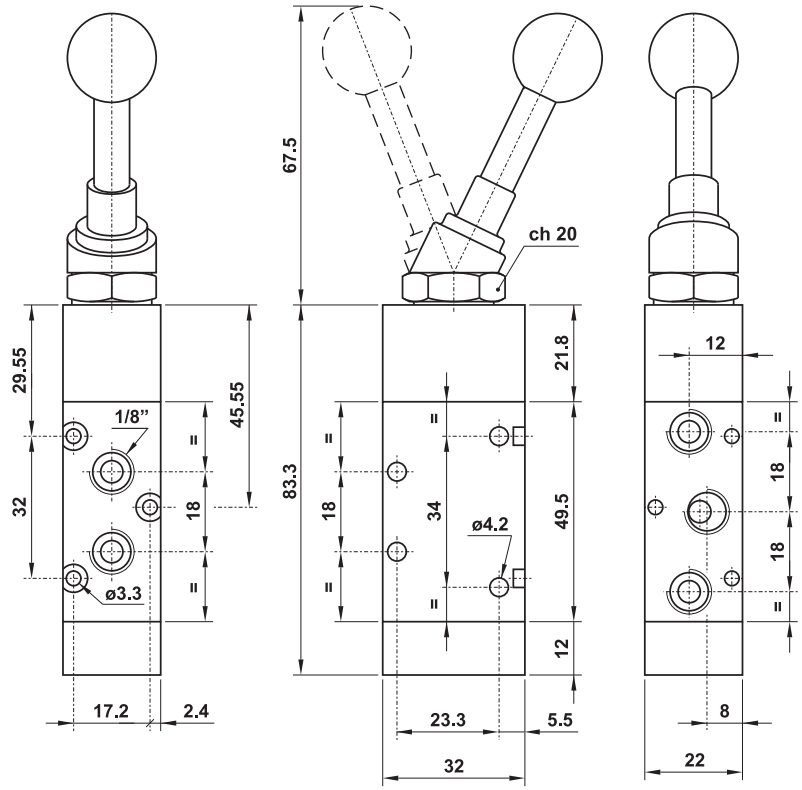
US321 LL

3/2 1/8" NPT bi-stable top lever



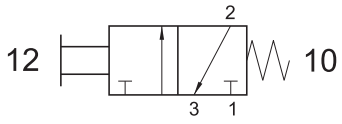
US521 LL

5/2 1/8" NPT bi-stable top lever

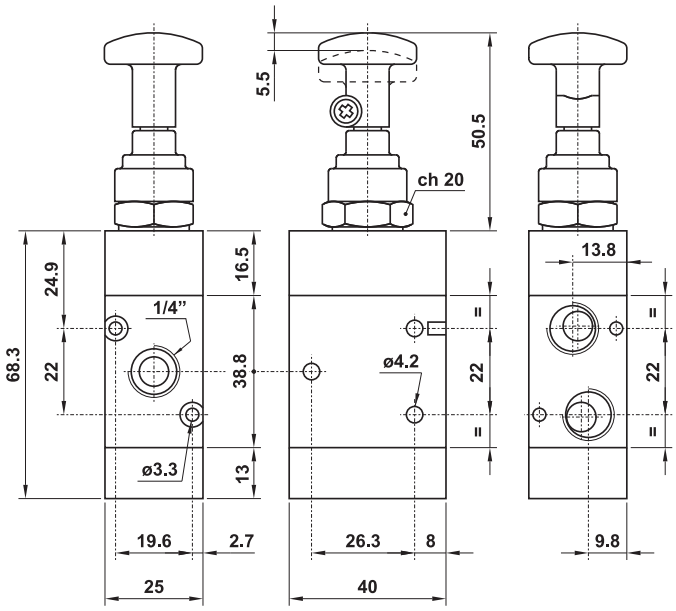


US322 MT

3/2 1/4" NPT push/pull with spring return

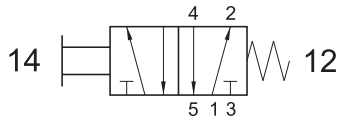


Standard push button: BLACK
On request RED push button

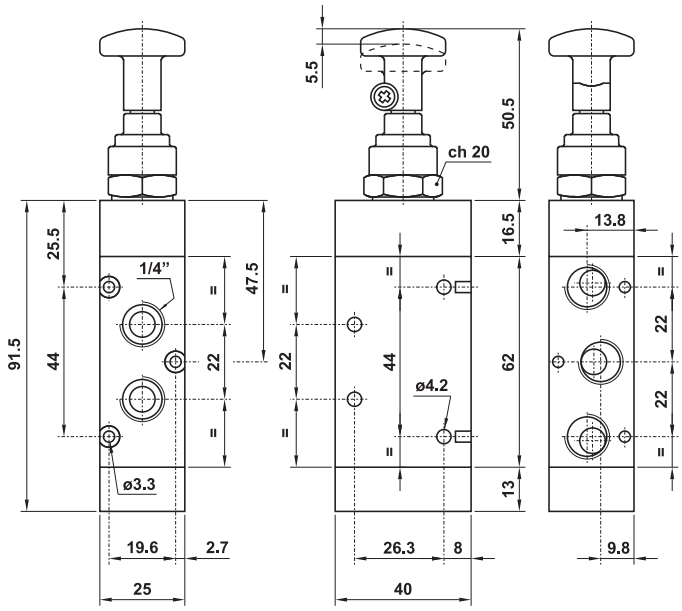


US522 MT

5/2 1/4" NPT push/pull with spring return

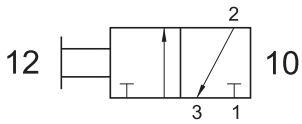


Standard push button: BLACK
On request RED push button

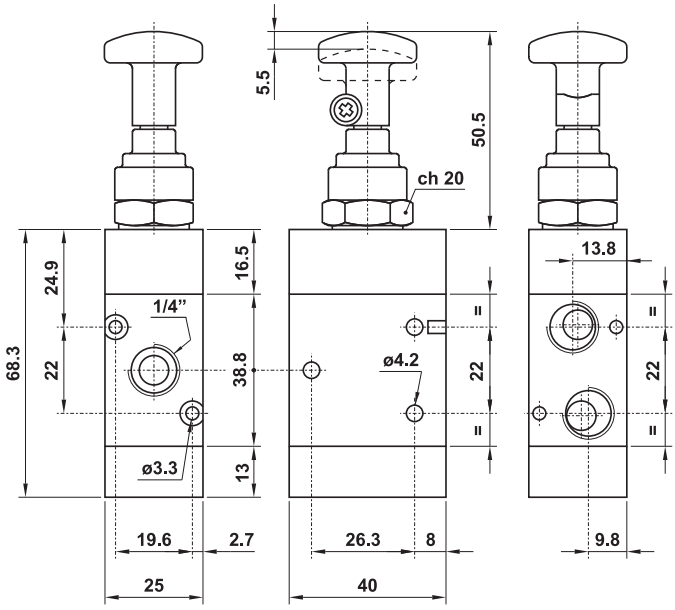


US322 TT

3/2 1/4" NPT bi-stable push/pull

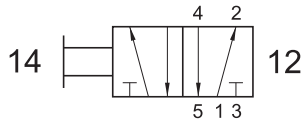


Standard push button: BLACK
On request RED push button

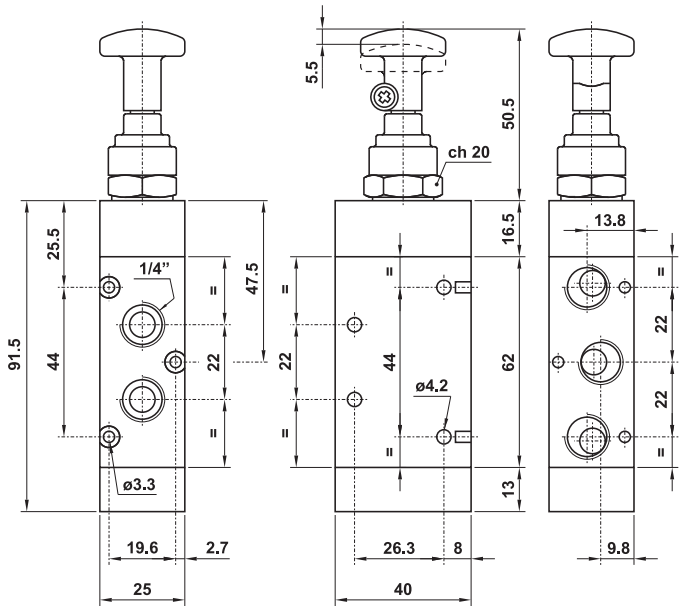


US522 TT

5/2 1/4" NPT bi-stable push/pull

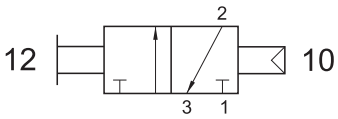


Standard push button: BLACK
On request RED push button

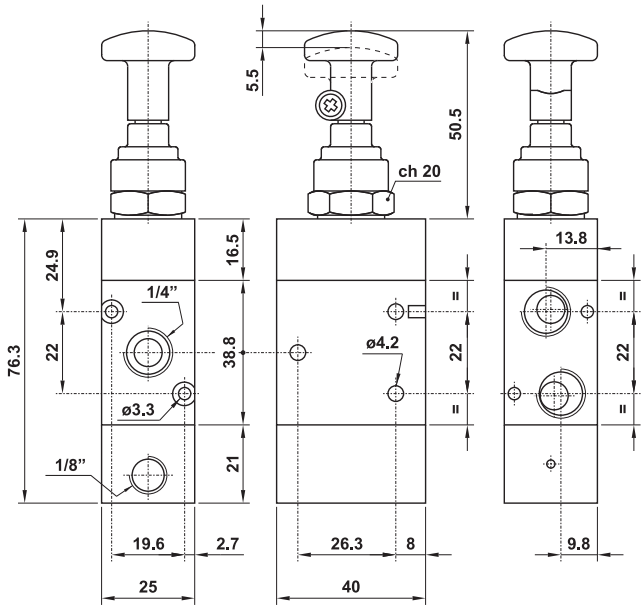


US322 CT

3/2 1/4" NPT push/pull with separate pneumatically piloted return

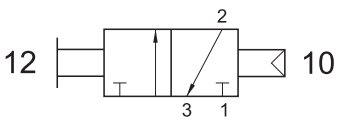


The return can be done only with pneumatic pilote signal.

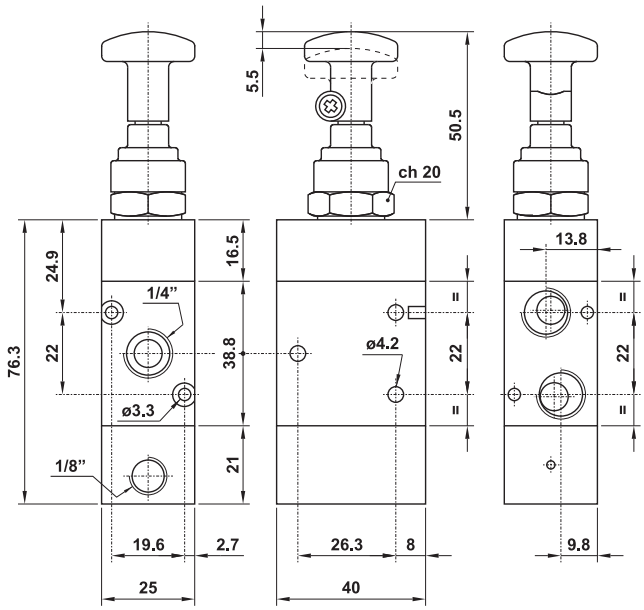


US322 CTT

3/2 1/4" NPT bi-stable push/pull with separate pneumatically piloted return



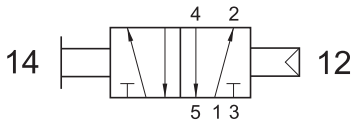
The return can be done with pneumatic pilote signal or by pulling the knob.

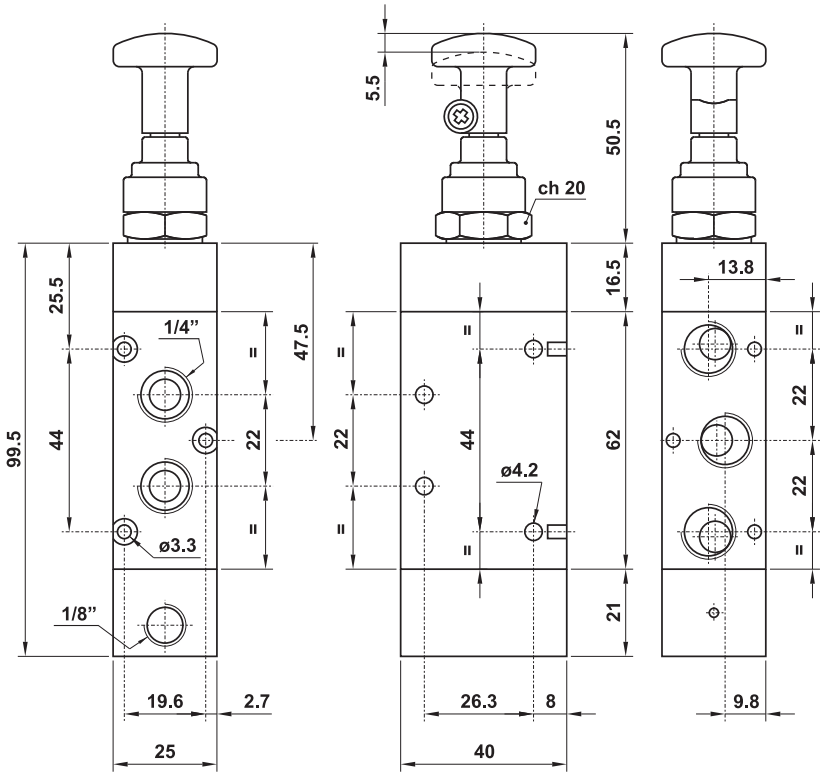


US522 CT

5/2 1/4" NPT push/pull with separate pneumatically piloted return

The return can be done only with pneumatic pilote signal.

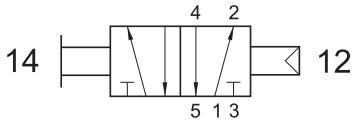


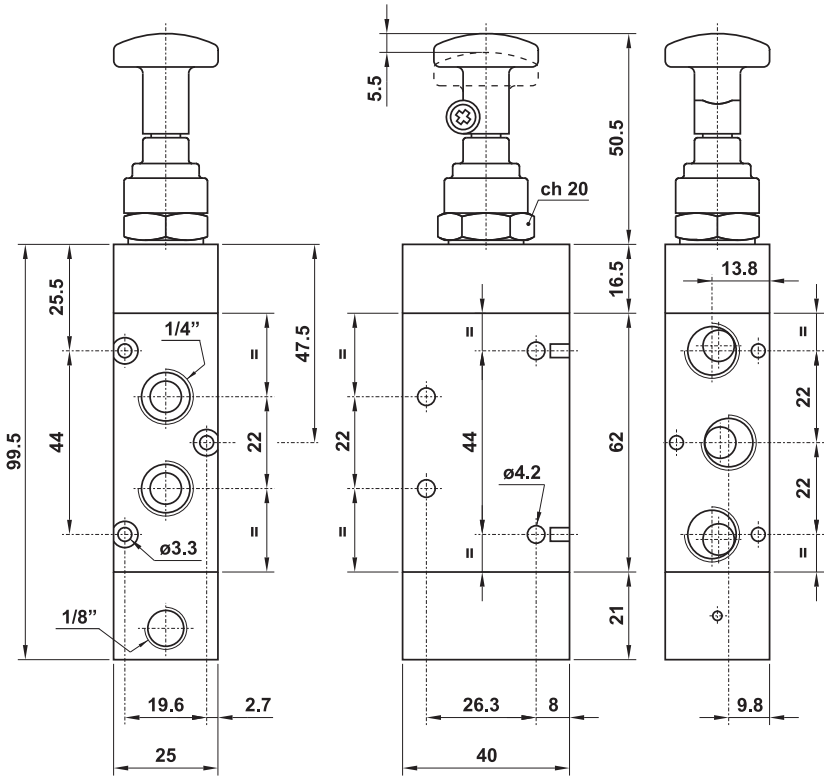


US522 CTT

5/2 1/4" NPT bi-stable push/pull with separate pneumatically piloted return

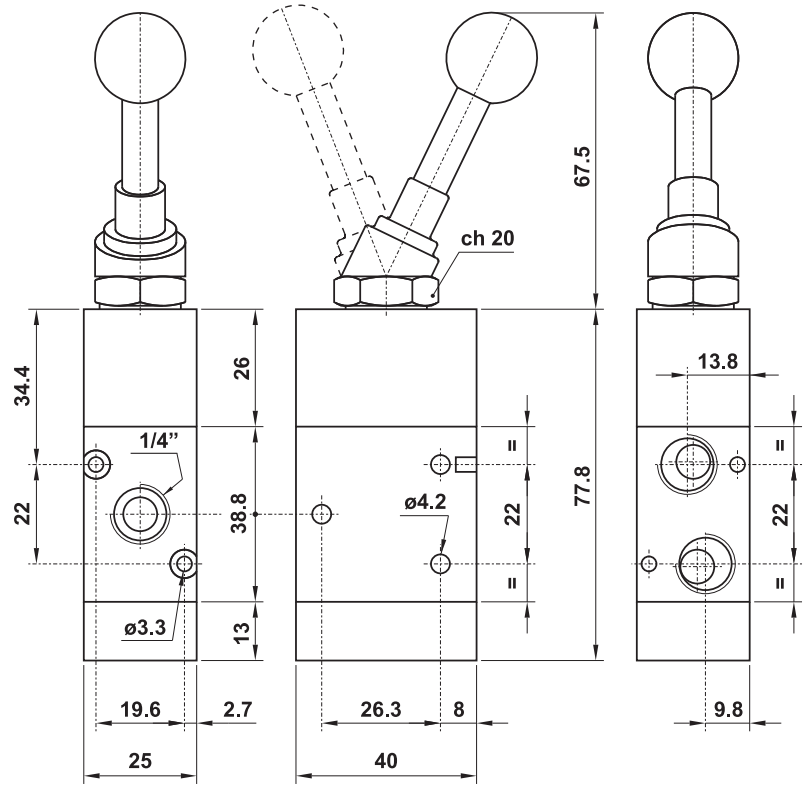
The return can be done with pneumatic pilote signal or by pulling the knob.





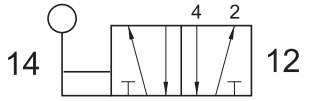
US322 LL

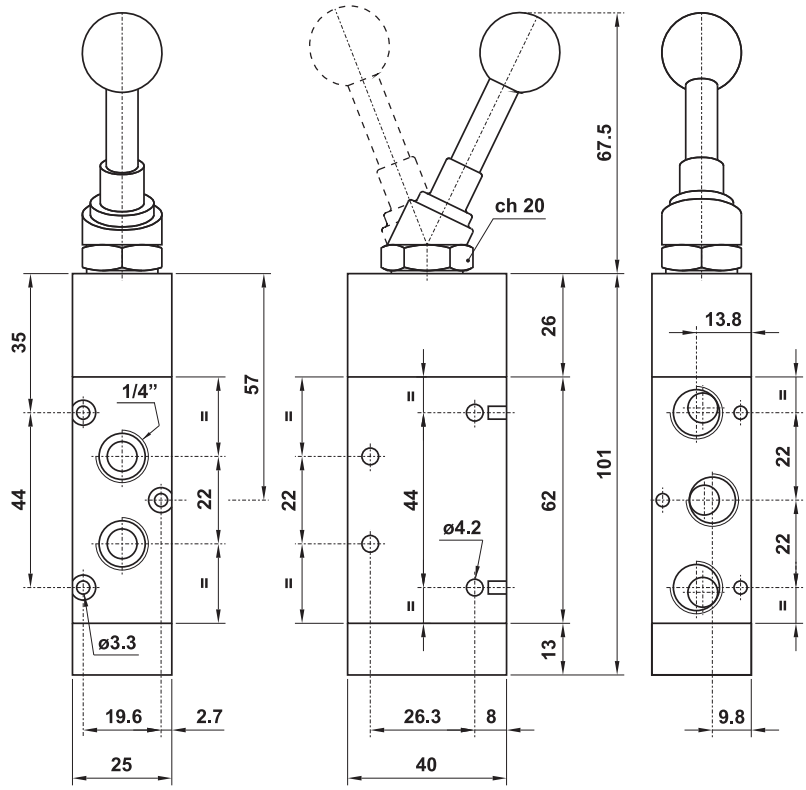
3/2 1/4" NPT bi-stable top lever



US522 LL

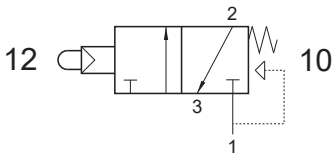
5/2 1/4" NPT bi-stable top lever

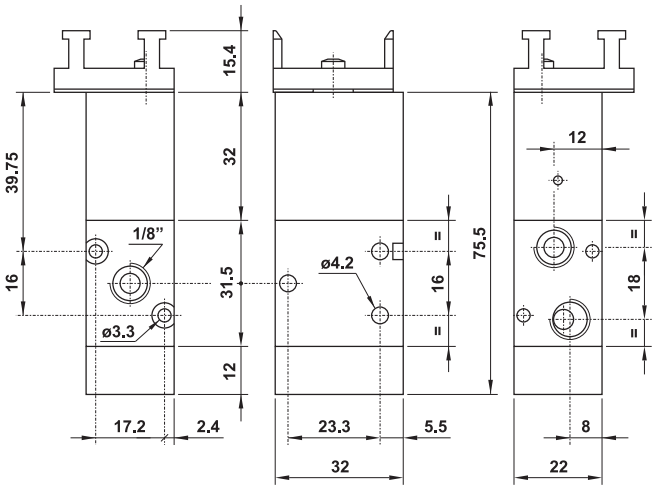




US321 MB

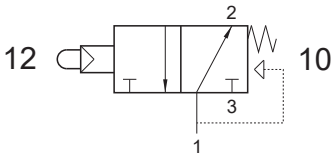
3/2 1/8" NPT N/C servo-piloted tappet with actuator adaptor for panel mounting - air and spring return



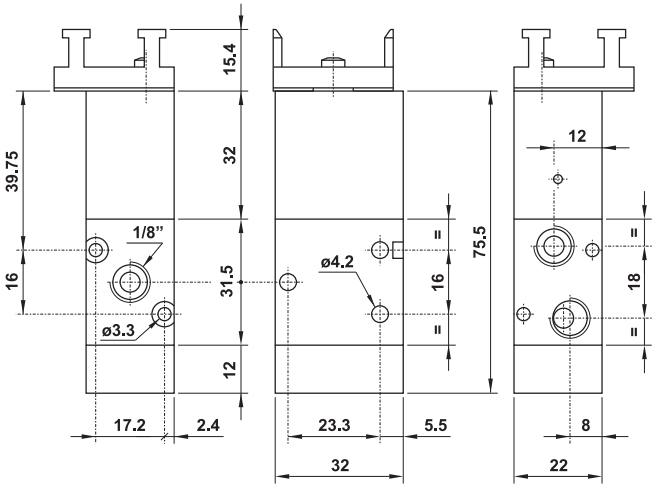


US321 MBA

3/2 1/8" NPT N/O servo-piloted tappet with actuator adaptor for panel mounting - air and spring return

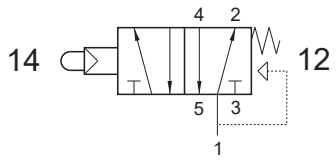


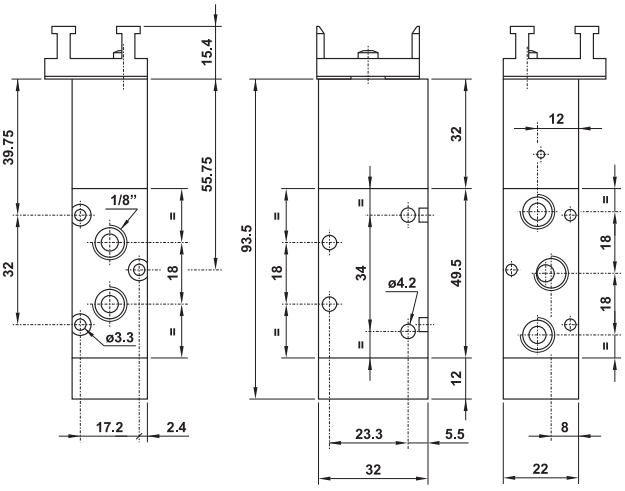
ONLY ALUMINIUM VERSION



US521 MB

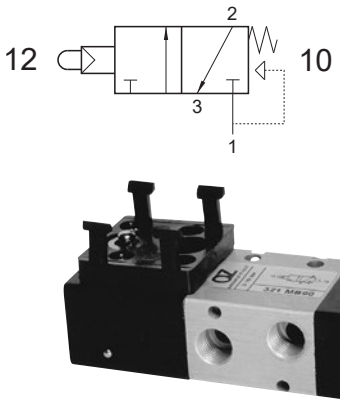
5/2 1/8" NPT servo-piloted tappet with actuator adaptor for panel mounting - air and spring return

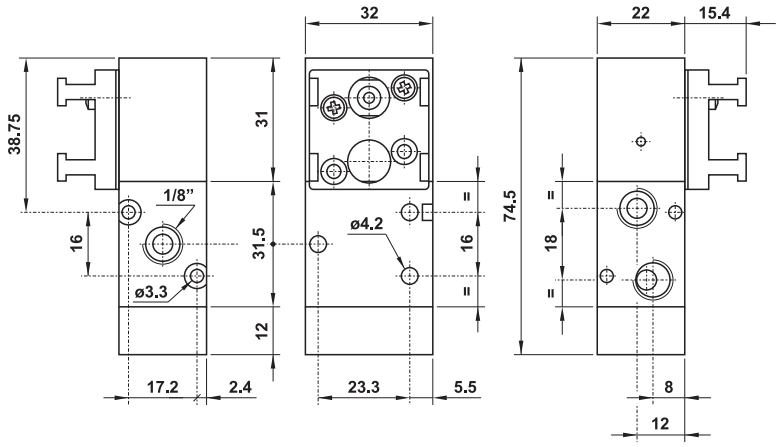




US321 MB90

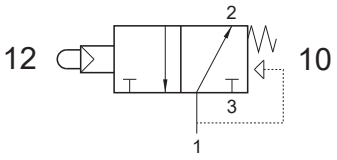
3/2 1/8" NPT N/C servo-piloted tappet with 90° actuator adaptor for panel mounting - air and spring return



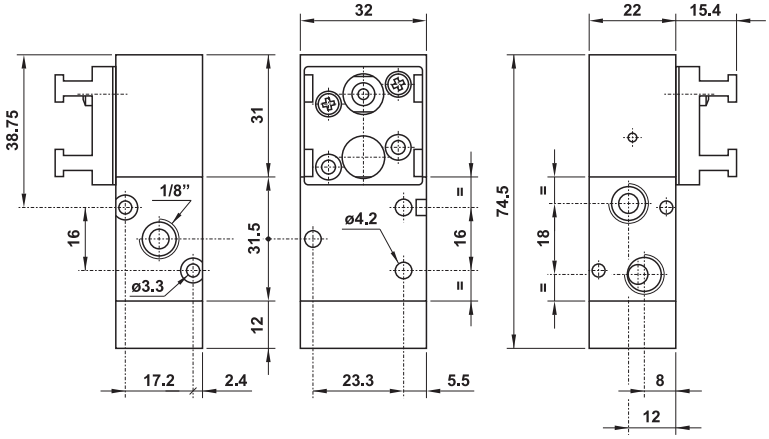


US321 MBA90

3/2 1/8" NPT N/O servo-piloted tappet with 90° actuator adaptor for panel mounting - air and spring return

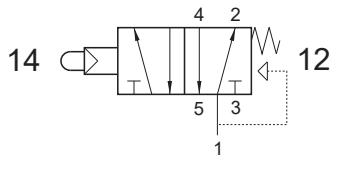


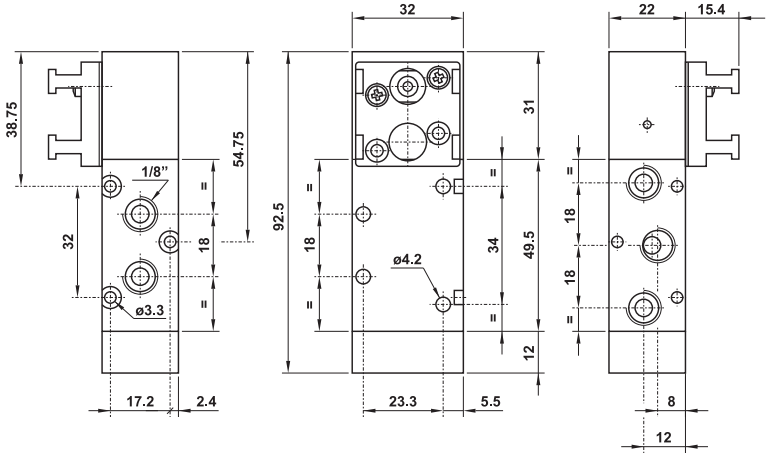
ONLY ALUMINIUM VERSION



US521 MB90

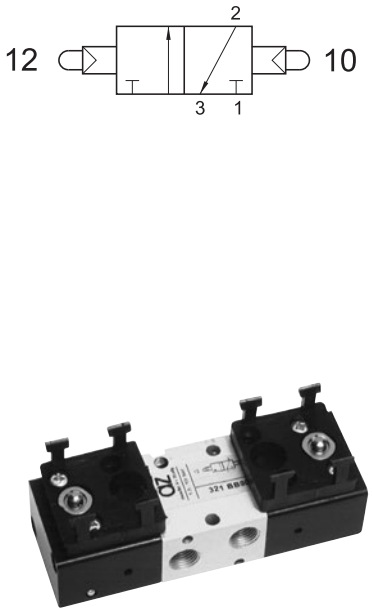
5/2 1/8" NPT servo-piloted tappet with 90° actuator adaptor for panel mounting - air and spring return

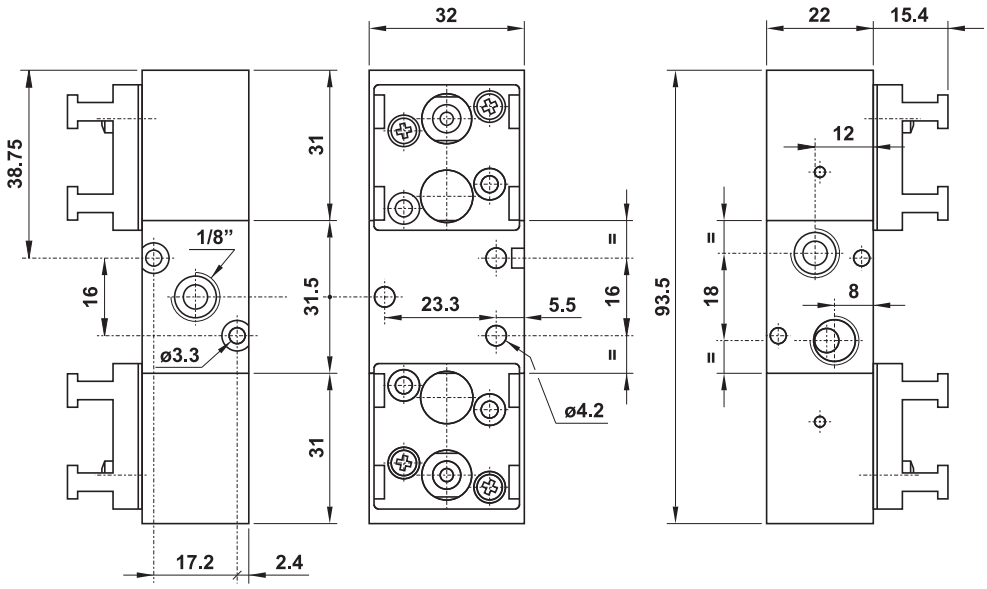




US321 BB90

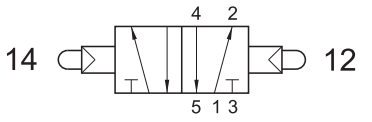
3/2 1/8" NPT double servo-piloted tappets with 90° actuator adaptor for panel mounting

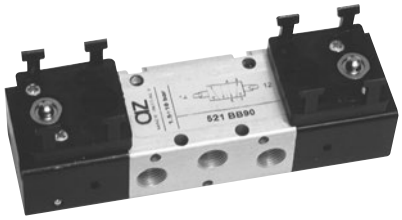


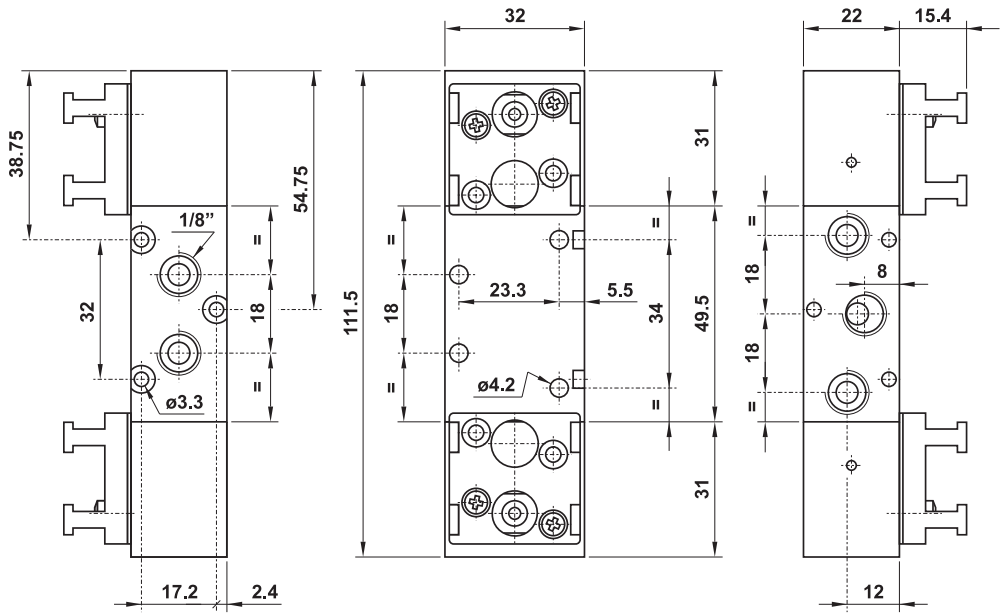


US521 BB90

5/2 1/8" NPT double servo-piloted tappets with 90° actuator adaptor for panel mounting

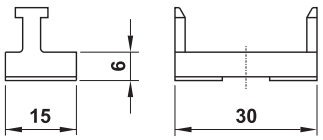






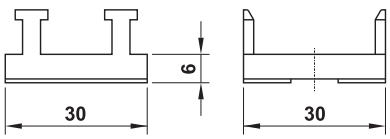
08.017.2

single adaptor for panel mounting actuator, complete with fixing screws



08.015.2

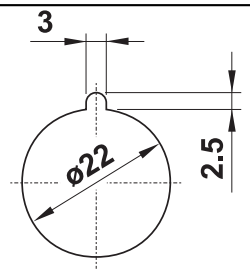
double adaptor for panel mounting actuator, complete with fixing screws



Protected push button

code	standard colours
PR1/NRB	RED, BLACK and WHITE (supplied in kit)

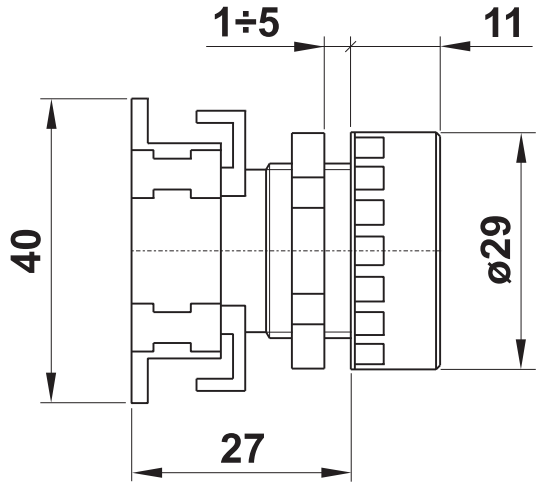
Panel mounting hole with antirotation feature



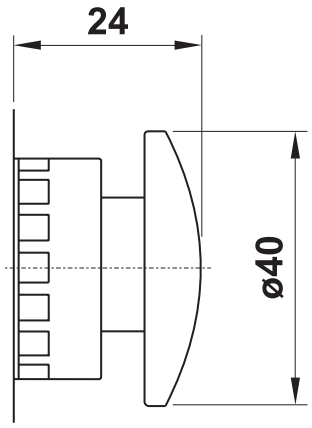
- The following colours can be ordered separately

code	colour
DCV1	GREEN
DCG1	YELLOW
DCA1	LIGHT BLUE
DCB1	WHITE

code	colour
DCN1	BLACK
DCR1	RED

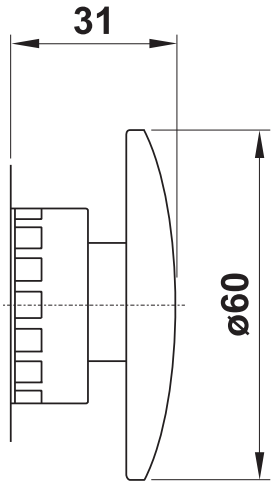


ø40 mushroom



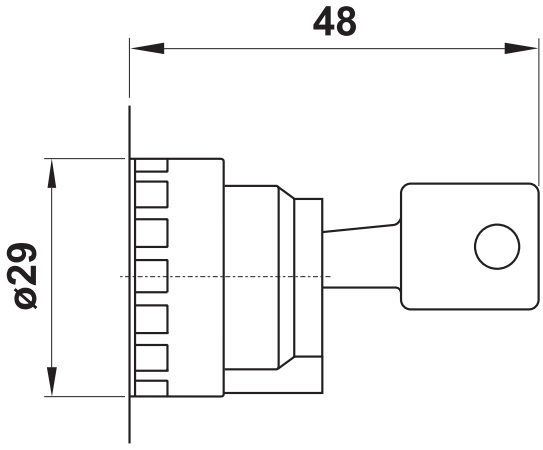
code	description	colour
PF2/40	axial mono-stable	RED
PF1/40	axial mono-stable	BLACK
PFB2/40	turn to unlock	RED

ø60 palm



code	description	colour
PFBA2	multi-directional	RED
PFB2/60	turn to unlock	RED

Key selector

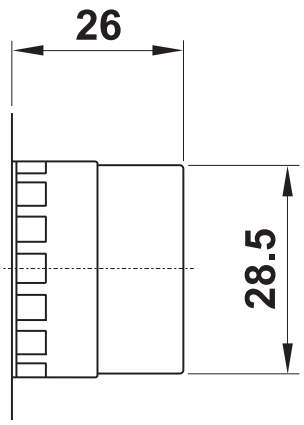


All locks and keys are identical

code	function	position to pull the key out
SSC/CD-V	0 1	only in central position
SSC/CD-Z	0 1	both positions
SSC/E-V	2 0 1	only in central position

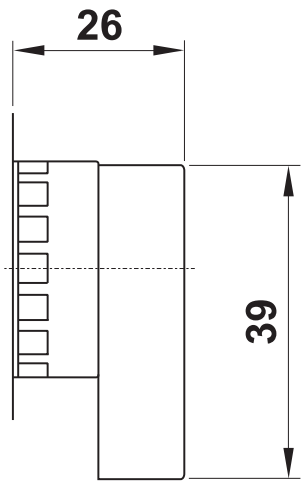
Short lever selector

code	colour	function
SS1/CD	BLACK	0 1
SS1/CD-R	BLACK	0 ← 1
SS1/E	BLACK	2 0 1
SS1/E-RC	BLACK	2 → 0 ← 1



Long lever selector

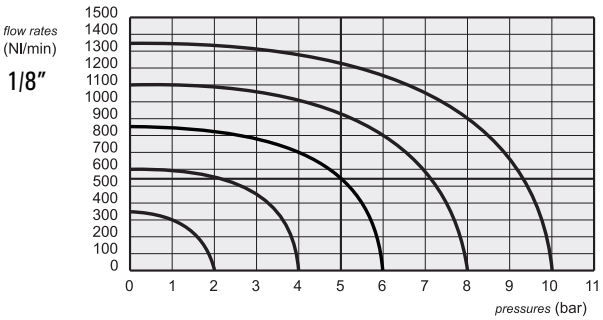
code	colour	function
SSP1/CD	BLACK	0 1
SSP1/CD/R	BLACK	0 ← 1
SSP1/E	BLACK	2 0 1
SSP1/E-RC	BLACK	2 → 0 ← 1

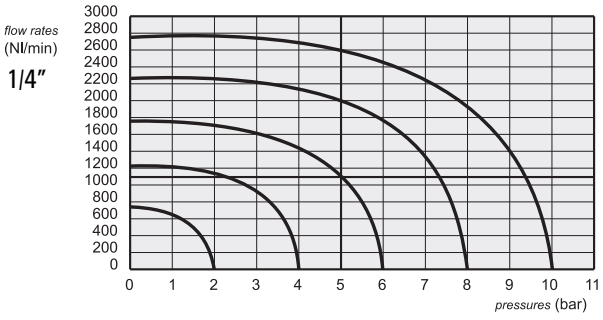


Material	High performance plastic material
Protection degree	IP 55
According to norms	EN 60947-5-1 VDE 0660 IEC 947-5
Temperature range	**-15** +**60**°C (131°F)
Mechanical life time	500000 actuations

Pneumatically piloted valves

- 3/2-5/2-5/3 spool valves with 1/8" NPT-1/4" NPT threaded ports
  BSP version avaiable on request
- Installation in-line, gang or manifold mounted (refer to pages 192-201)
- Comprehensive range of actuations
- Versions with integrated logic element
- Special versions on request





Materials
Body: aluminium 11S
End cups: aluminium 11S
Springs: stainless steel
Seals: NBR
Spool: nickel plated aluminium

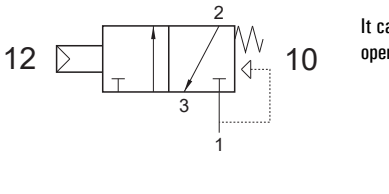
Response times

	1/8"	1/4"
mono-stable	TRA (14): 6 ms TRR (12): 15 ms	TRA (14): 7 ms TRR (12): 15 ms
bi-stable	TRA (14): 7 ms TRR (12): 7 ms	TRA (14): 7 ms TRR (12): 7 ms

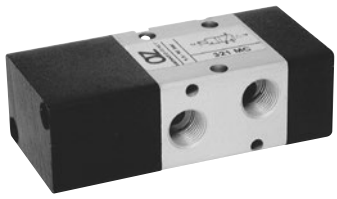
Nominal diameter	1/8" NPT: 5 mm 1/4'' NPT: 7.5 mm	
Temperature range	max +60°C (140°F)	
Operating pressure	mono-stable	bi-stable
	2.5 ... 10 bar (36 ... 145 PSI) 0.25 ... 1 MPa	-0.9 ... 10 bar (Vacuum ... 145 PSI) -0.09 ... 1 MPa
Actuating pressure	mono-stable	bi-stable
	2.5 ... 10 bar (36 ... 145 PSI) 0.25 ... 1 MPa	1 ... 10 bar (14 ... 145 PSI) 0.1 ... 1 MPa
Fluid	50μ filtered, lubricated or non lubricated air	

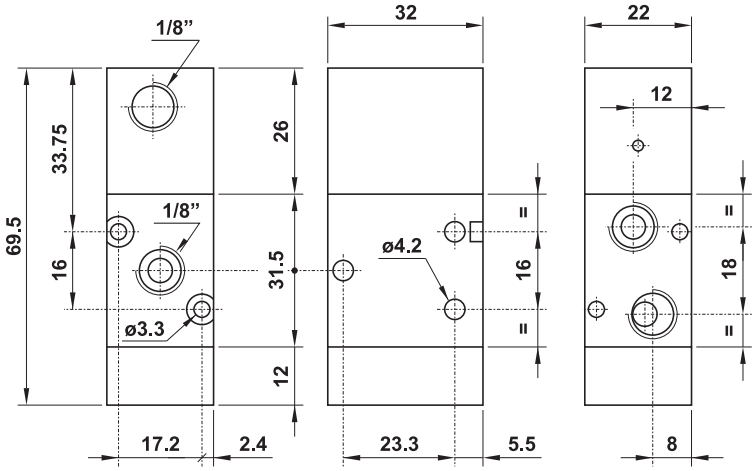
US321 MC

3/2 1/8" NPT N/C pneumatic pilot - air and spring return



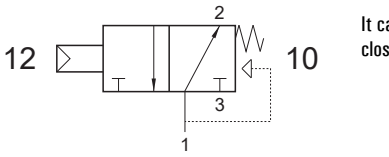
It cannot be used as normally open valve.



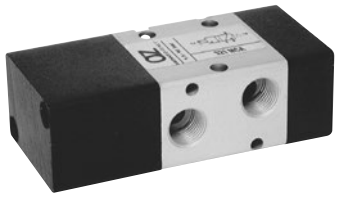


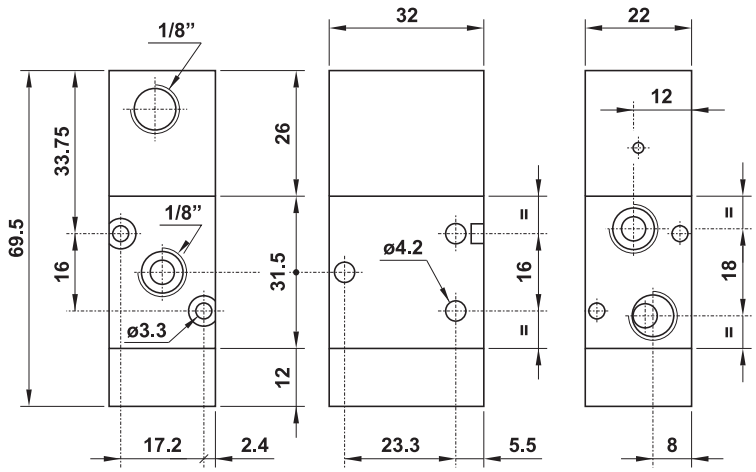
US321 MCA

3/2 1/8" NPT N/O pneumatic pilot - air and spring return



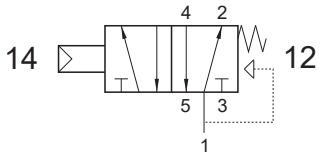
It cannot be used as normally closed valve.

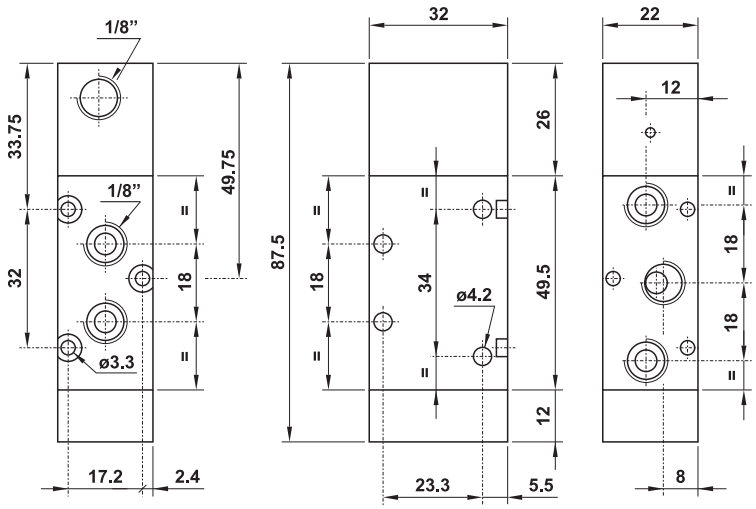




US521 MC

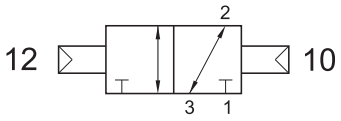
5/2 1/8" NPT pneumatic pilot - air and spring return



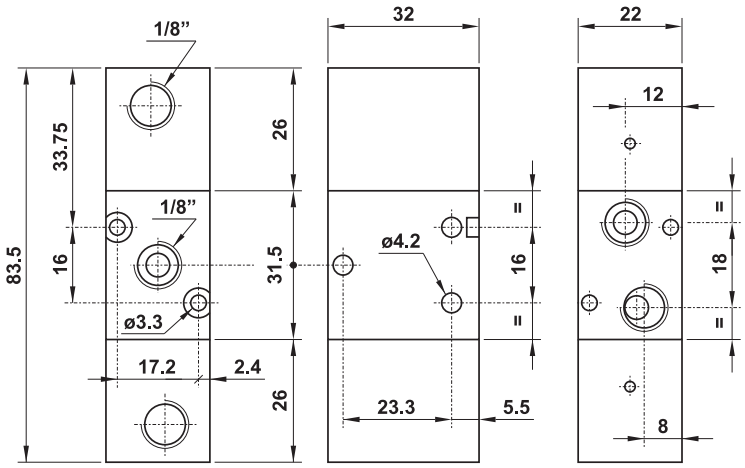


US321 CC

3/2 1/8" NPT double pneumatic pilot

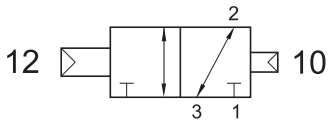


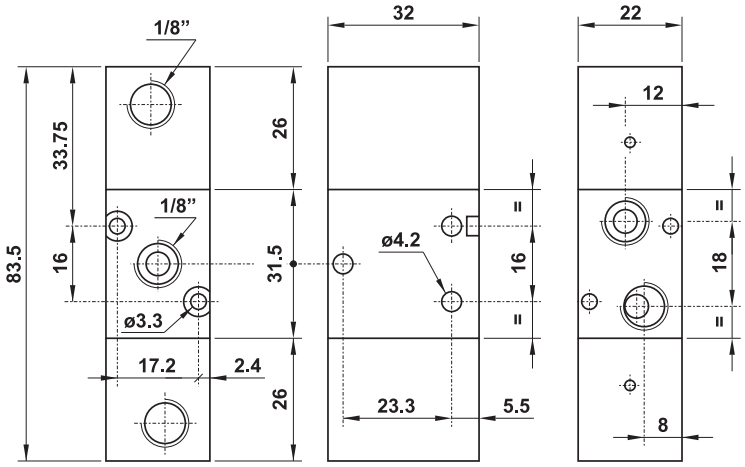
It can be used with vacuum.



US321 CCD

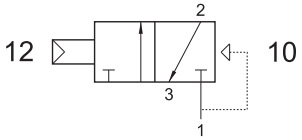
3/2 1/8" NPT double pneumatic pilot - with differential



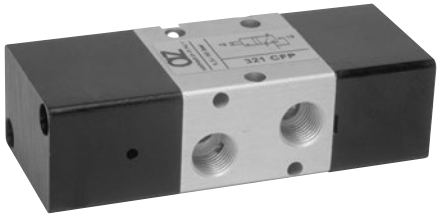


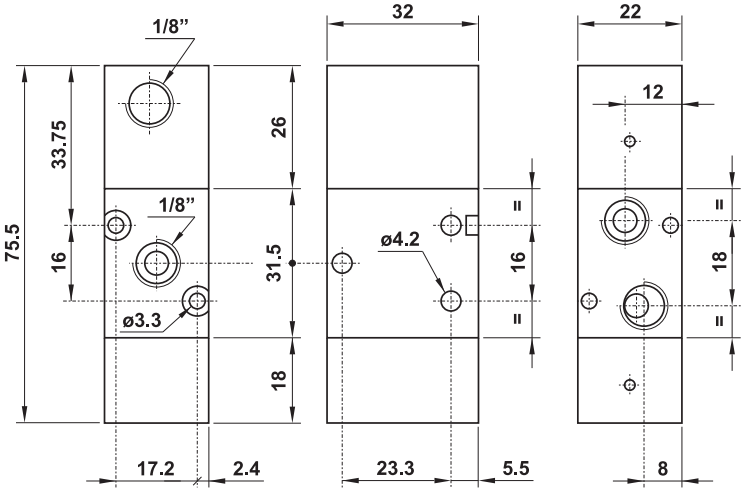
US321 CFP

3/2 1/8" NPT N/C pneumatic pilot - pneumatic return



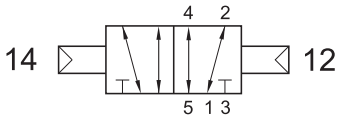
It cannot be used as normally open valve.



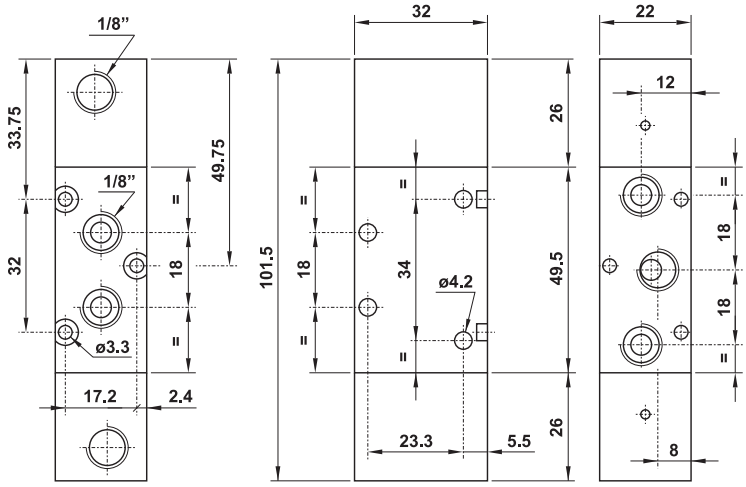


US521 CC

5/2 1/8" NPT double pneumatic pilot

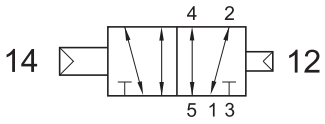


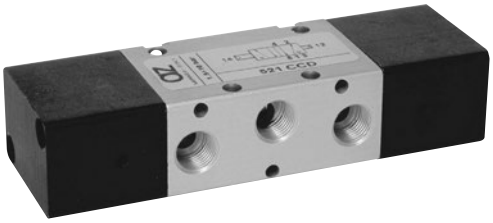
It can be used with vacuum.

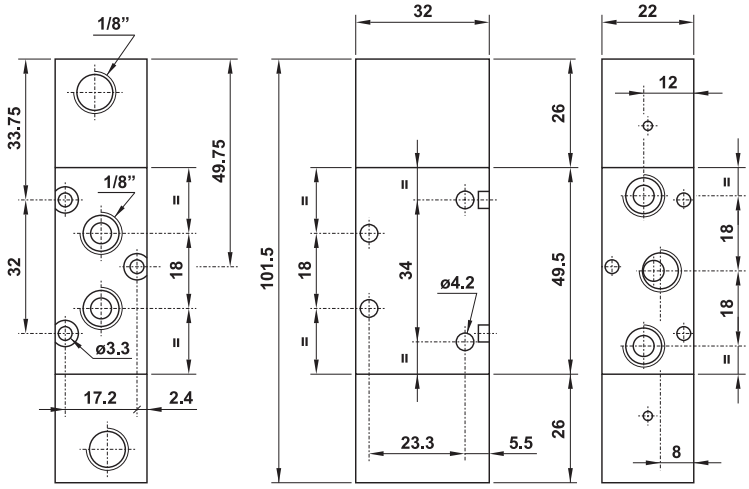


US521 CCD

5/2 1/8" NPT double pneumatic pilot - with differential

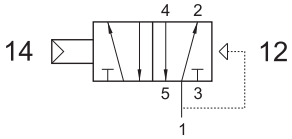


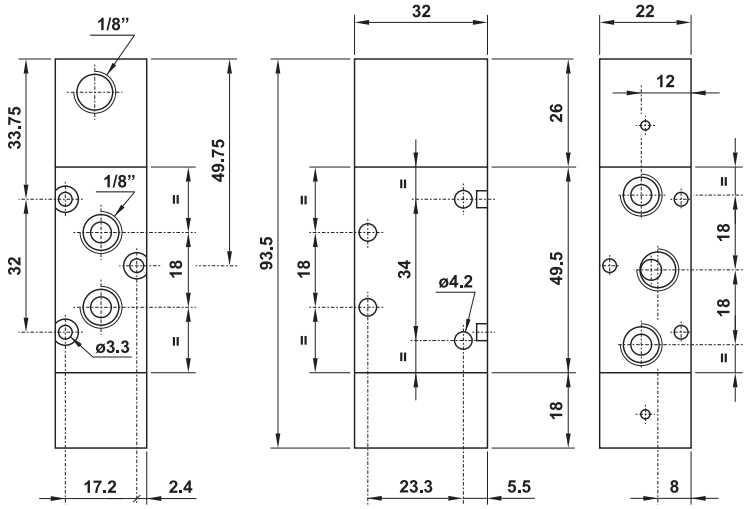




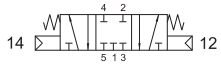
US521 CFP

5/2 1/8" NPT pneumatic pilot - pneumatic return

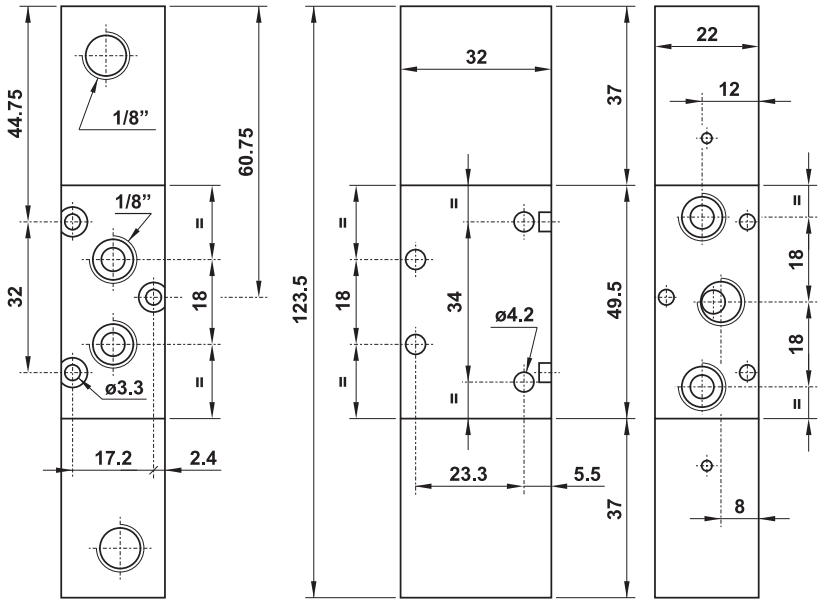




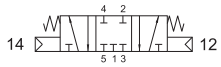
US5213C CC closed centers
US5213A CC open centers
US5213P CC pressurized centers



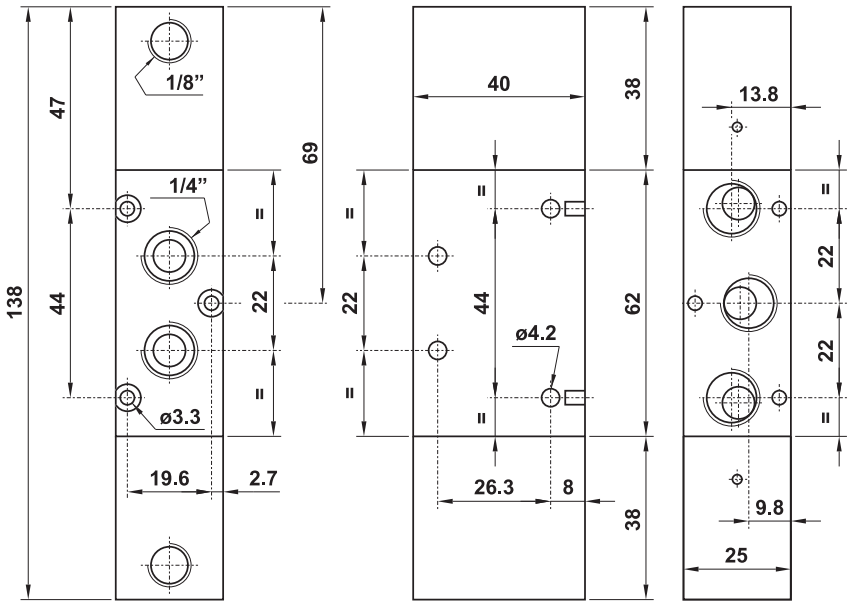
5/3 1/8" NPT double pneumatic pilot



US5223C CC closed centers
US5223A CC open centers
US5223P CC pressurized centers

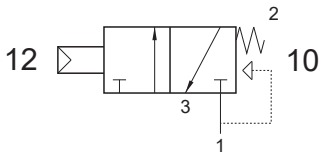


5/3 1/4" NPT double pneumatic pilot

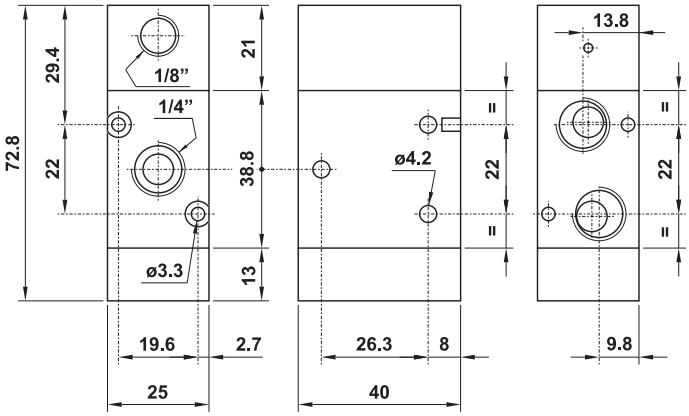


US322 MC

3/2 1/4" NPT N/C pneumatic pilot - air and spring return

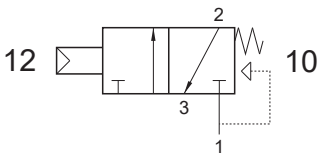


It cannot be used as normally open valve.

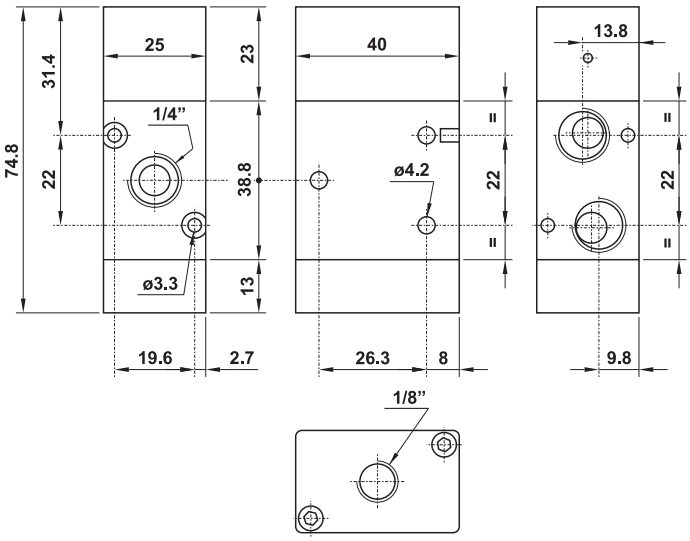


US322 MC SUP

3/2 1/4" NPT N/C pneumatic pilot on the top - air and spring return

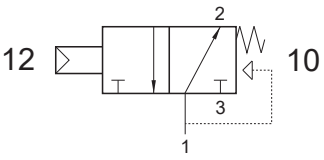


It cannot be used as normally open valve.

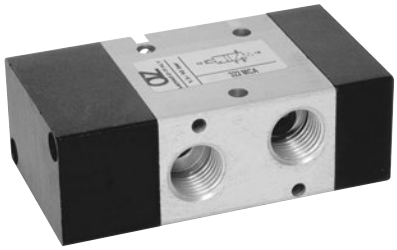


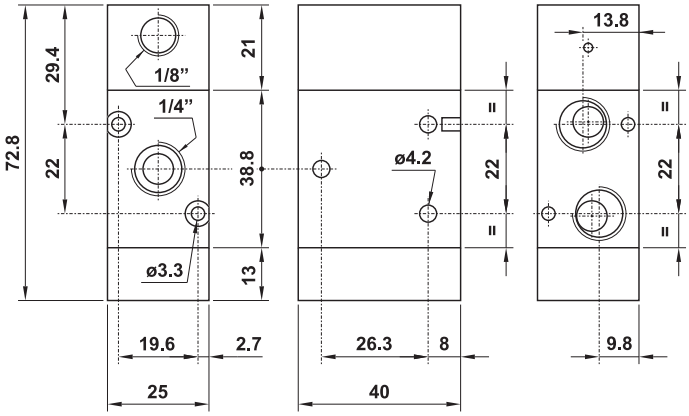
US322 MCA

3/2 1/4" NPT N/O pneumatic pilot - air and spring return



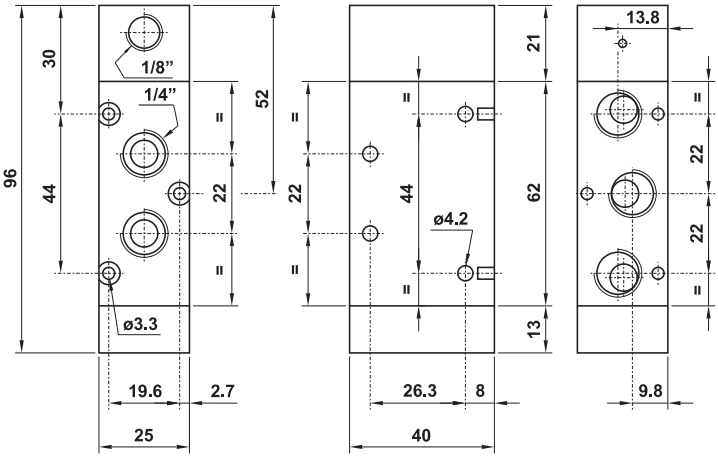
It cannot be used as normally closed valve.





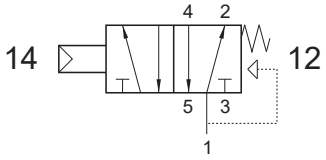
US522 MC

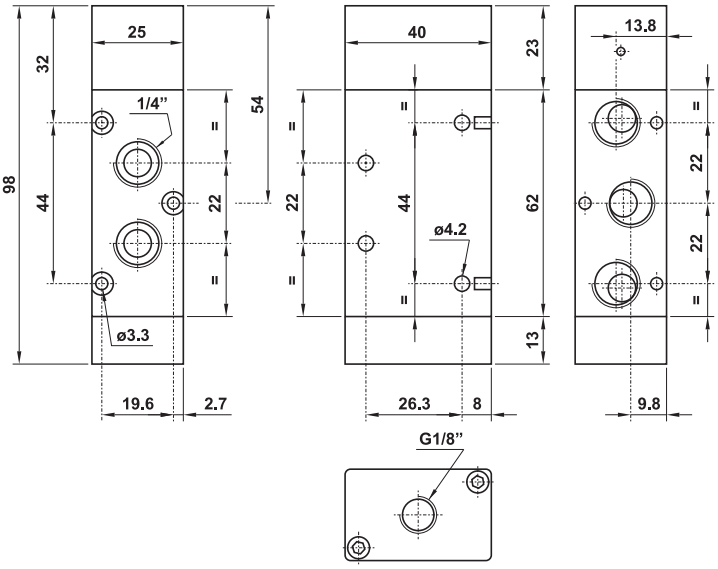
5/2 1/4" NPT pneumatic pilot - air and spring return



US522 MC SUP

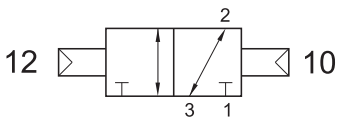
5/2 1/4" NPT pneumatic pilot on the top - air and spring return



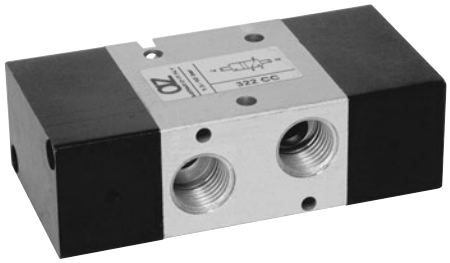


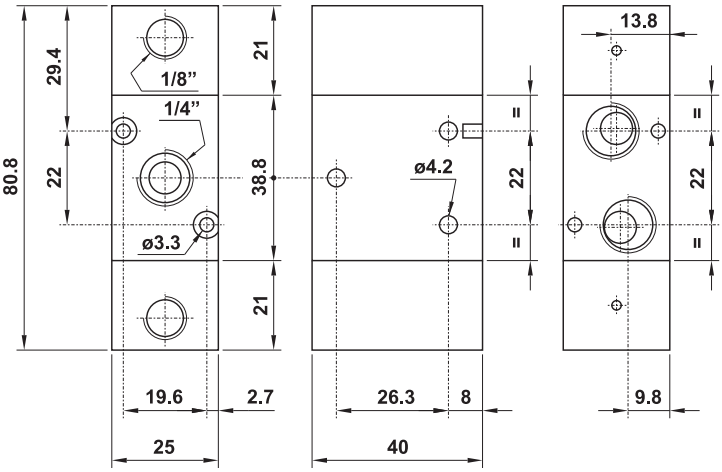
US322 CC

3/2 1/4" NPT double pneumatic pilot



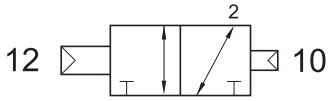
It can be used with vacuum.

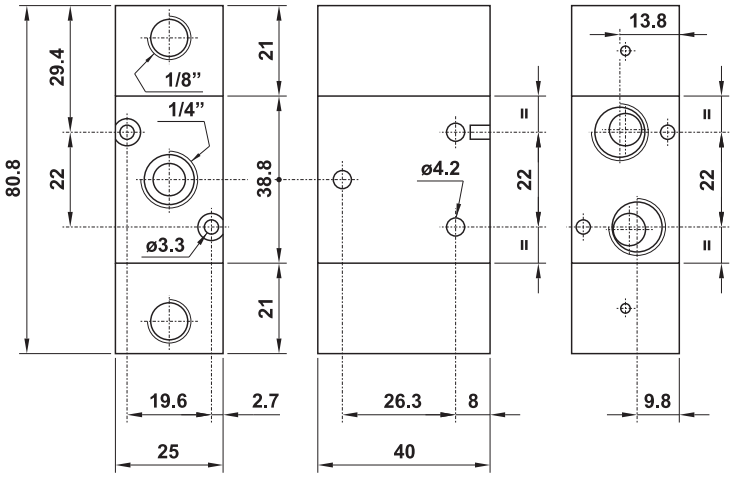




US322 CCD

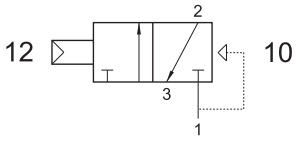
3/2 1/4" NPT double pneumatic pilot - with differential



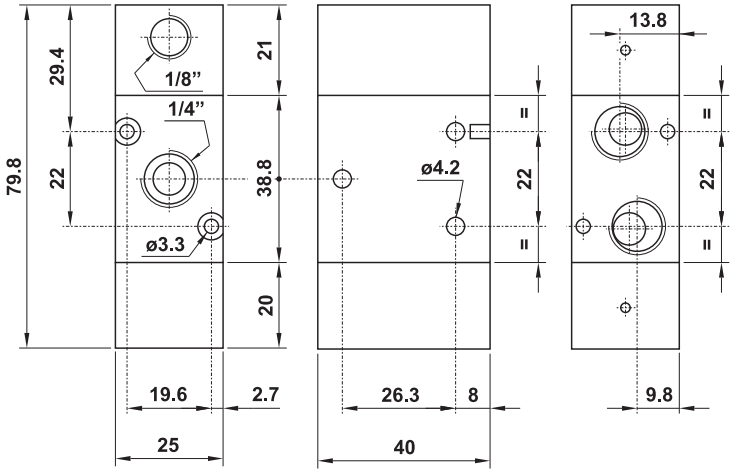


US322 CFP

3/2 1/4" NPT N/C pneumatic pilot - pneumatic return

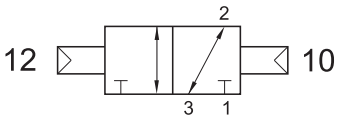


It cannot be used as normally open valve.

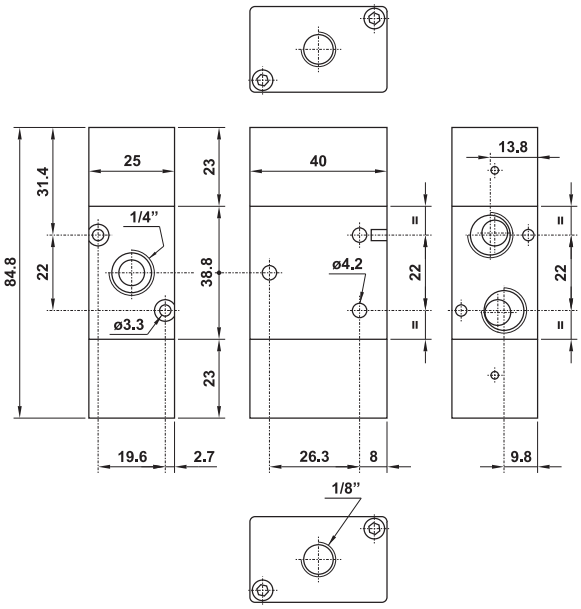


US322 CC SUP

3/2 1/4" NPT double pneumatic pilot on the top

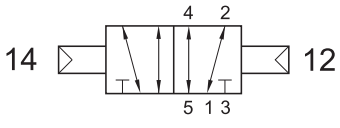


It can be used with vacuum.

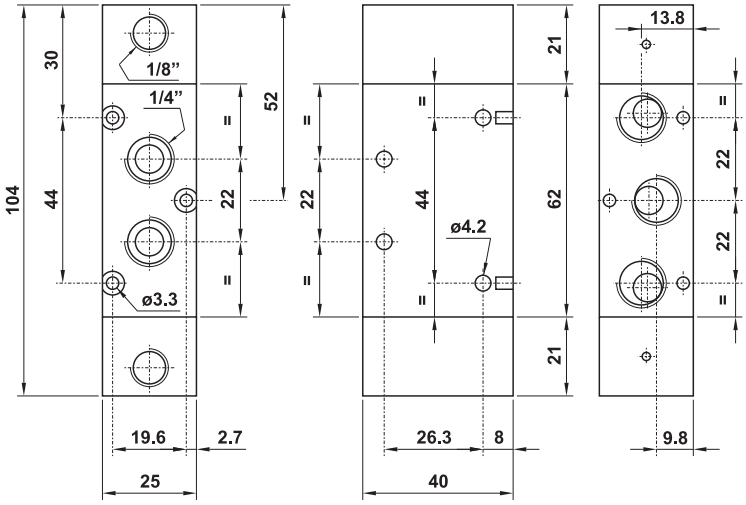


US522 CC

5/2 1/4" NPT double pneumatic pilot

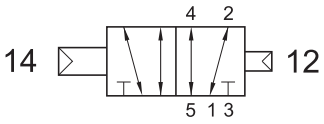


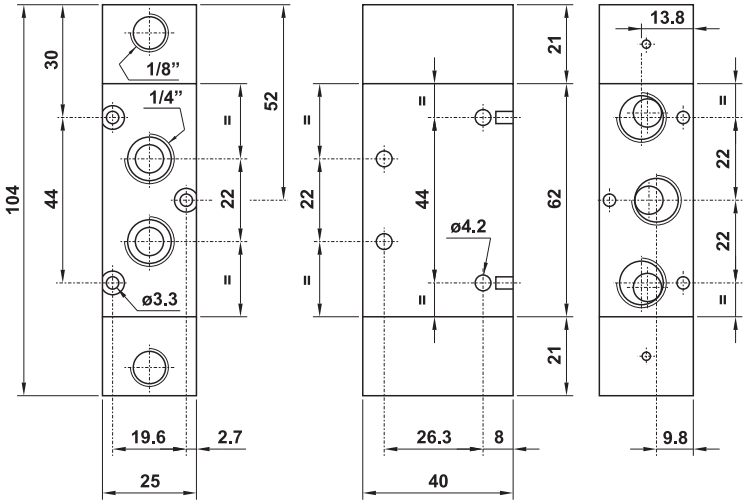
It can be used with vacuum.



US522 CCD

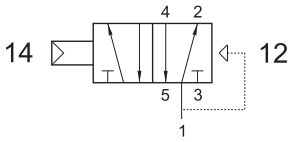
5/2 1/4" NPT double pneumatic pilot - with differential

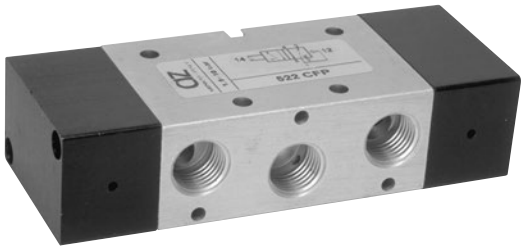


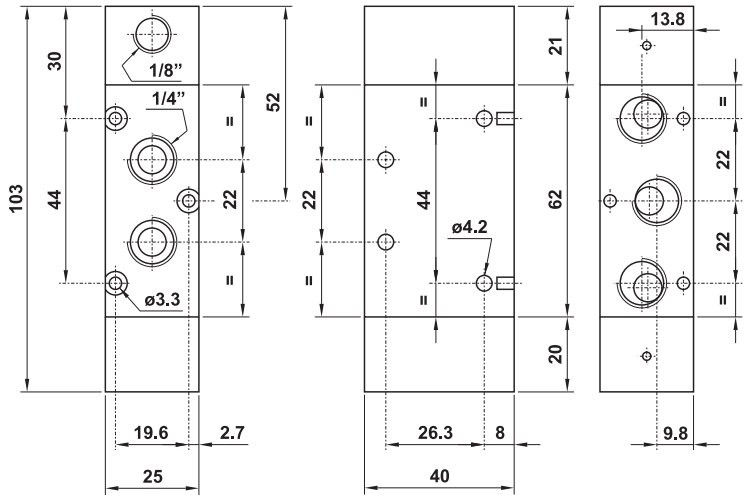


US522 CFP

5/2 1/4" NPT pneumatic pilot - pneumatic return

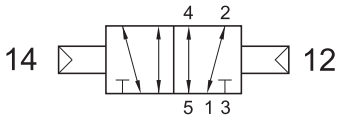




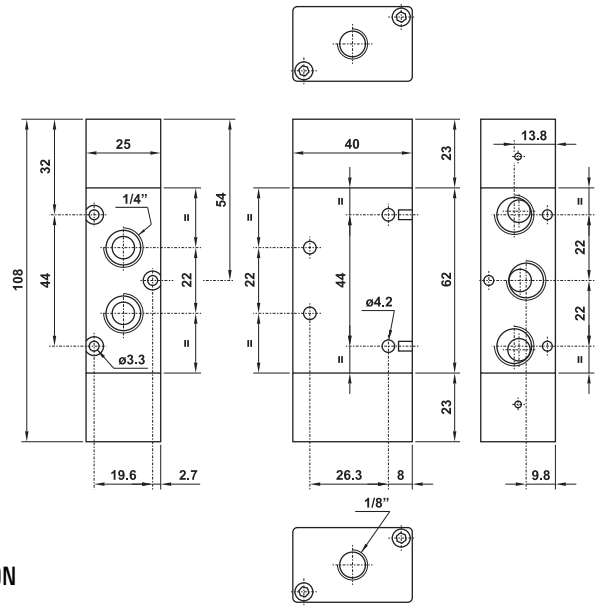


US522 CC SUP

5/2 1/4" NPT double pneumatic pilot on the top



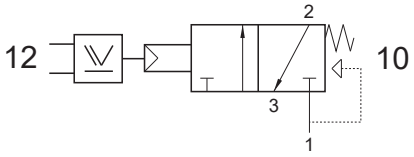
It can be used with vacuum.



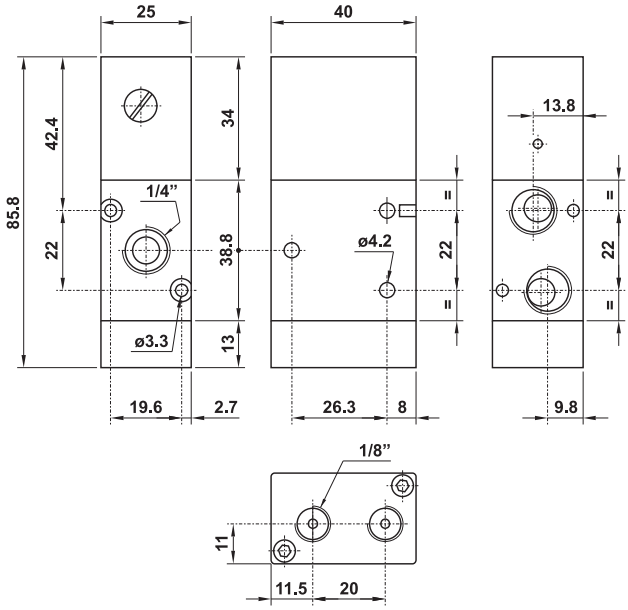
ONLY ALUMINIUM VERSION

US322 ORM

3/2 1/4" NPT N/C pneumatic pilot with integrated OR element - air and spring return

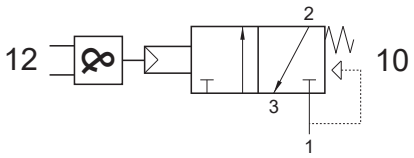


It cannot be used as normally open valve.

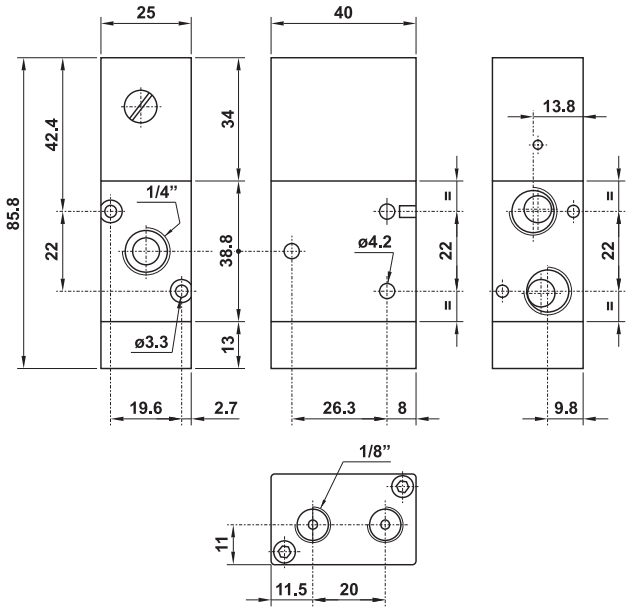


US322 ANDM

3/2 1/4" NPT N/C pneumatic pilot with integrated AND element - air and spring return

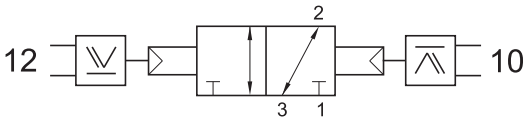


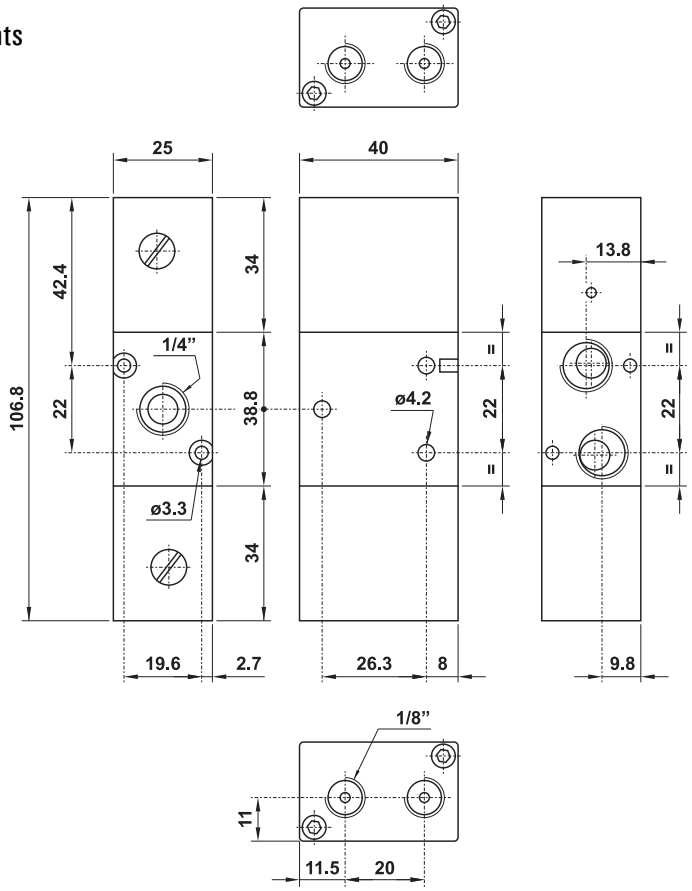
It cannot be used as normally open valve.



US322 2OR

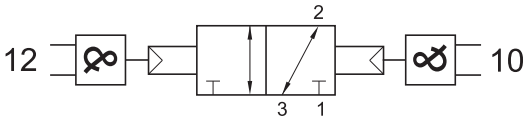
3/2 1/4" NPT double pneumatic pilot with integrated OR elements

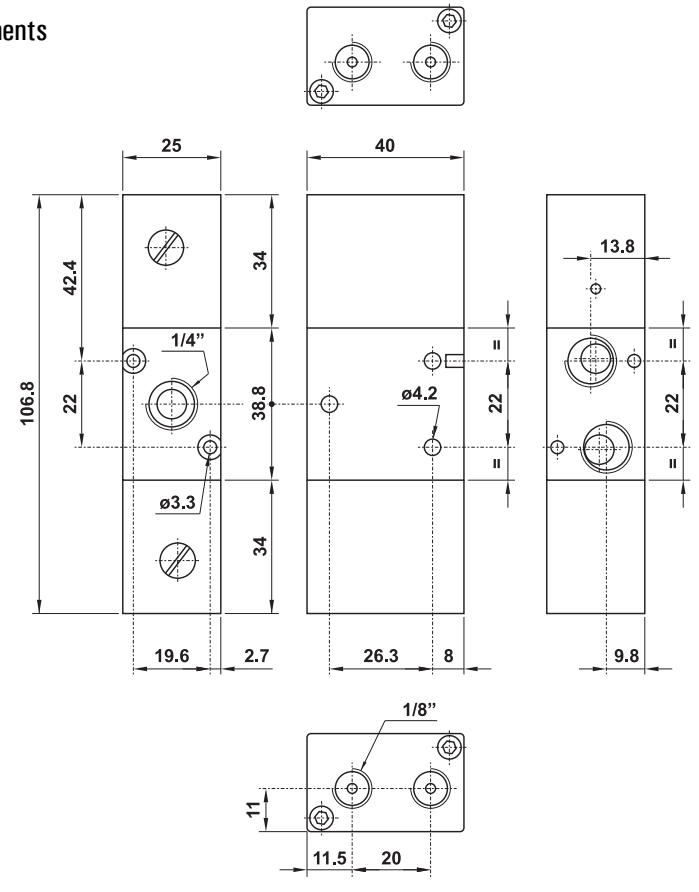




US322 2AND

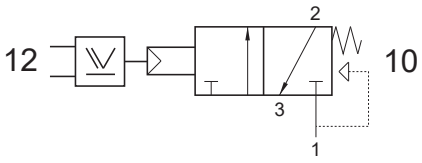
3/2 1/4" NPT double pneumatic pilot with integrated AND elements

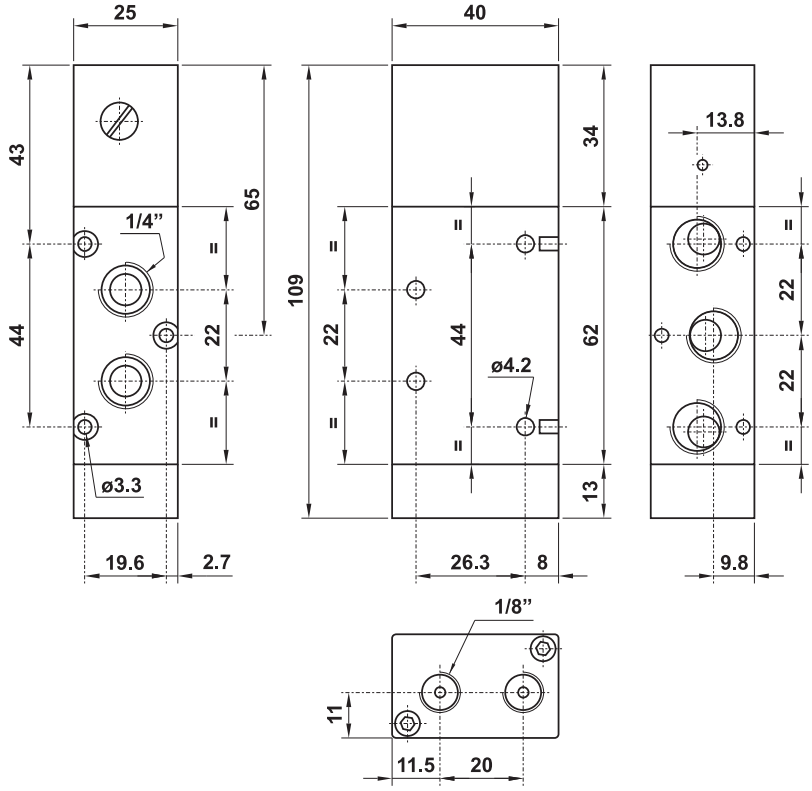




US522 ORM

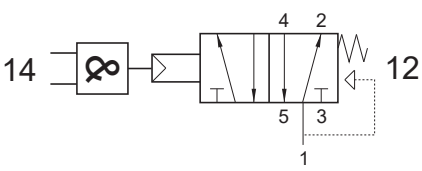
5/2 1/4" NPT pneumatic pilot with integrated OR element - air and spring return

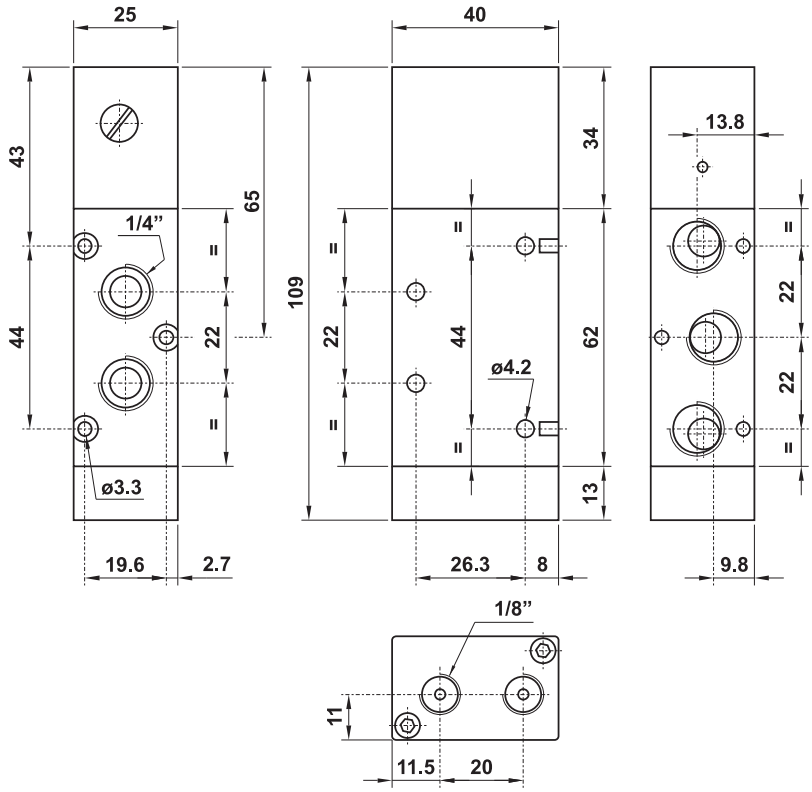




US522 ANDM

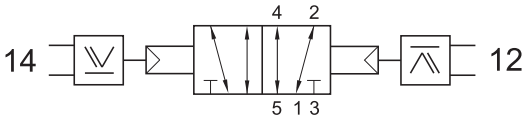
5/2 1/4" NPT pneumatic pilot with integrated AND element - air and spring return

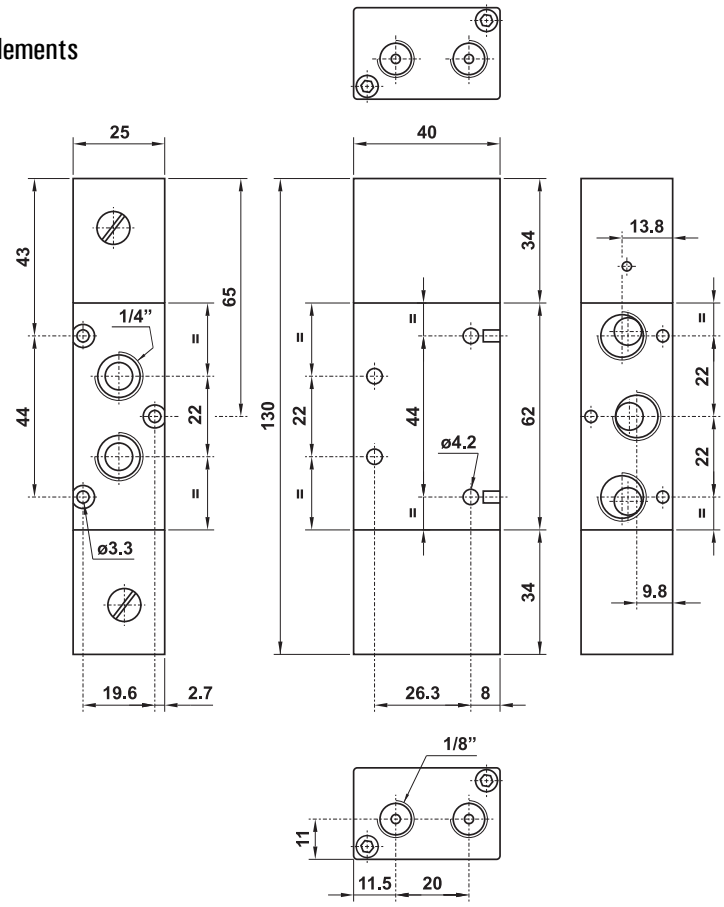




US522 2OR

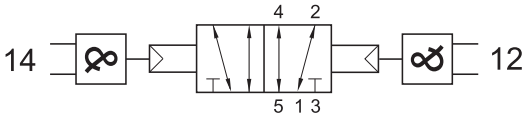
5/2 1/4" NPT double pneumatic pilot with integrated OR elements

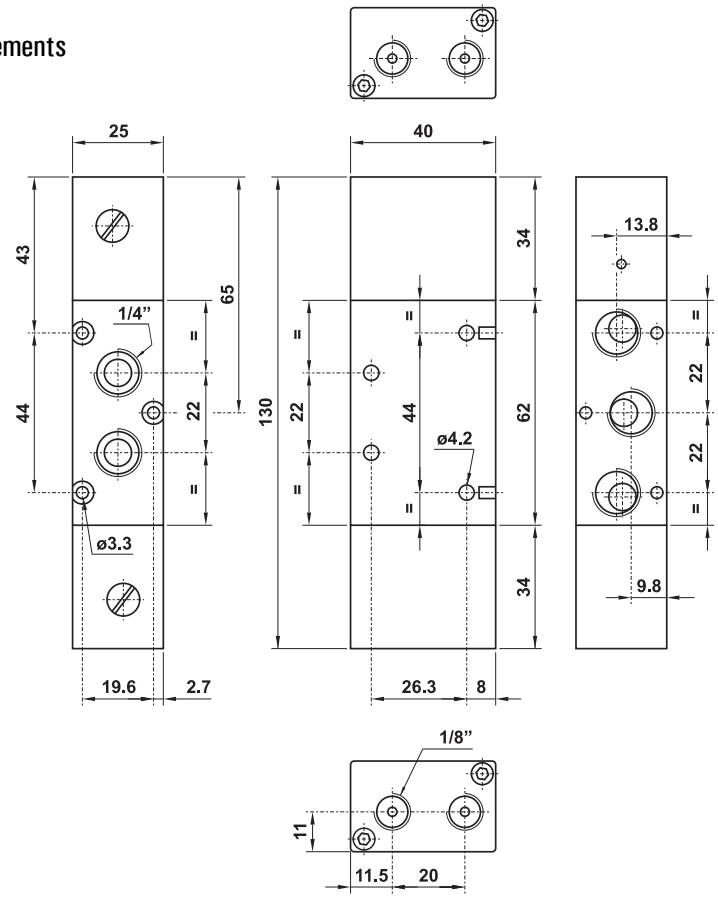




US522 2AND

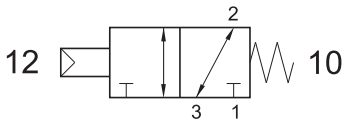
5/2 1/4" NPT double pneumatic pilot with integrated AND elements





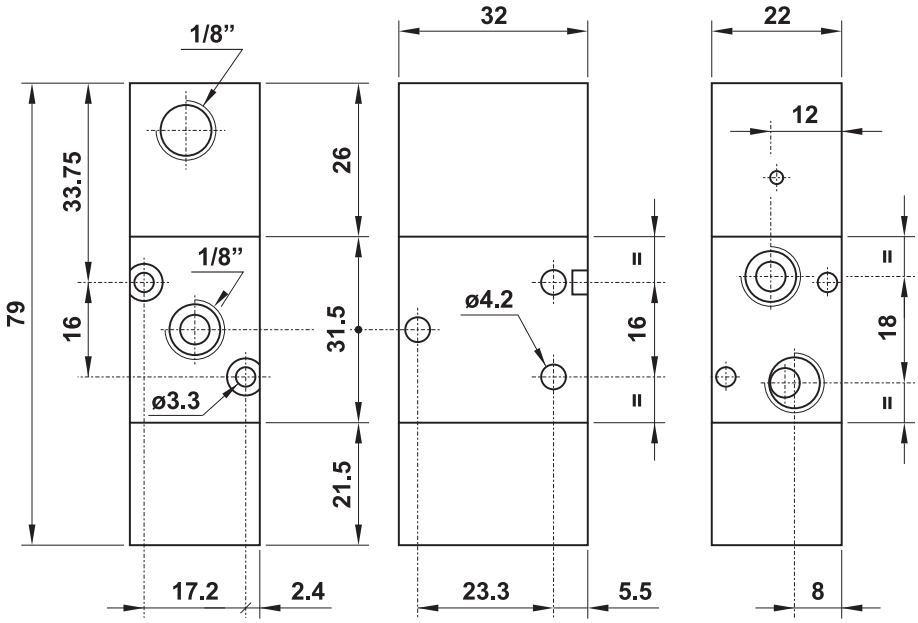
US321 MRC

3/2 1/8"NPT pneumatic pilot - REINFORCED spring return



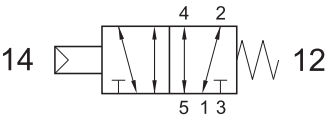
Operating pressure: -0.9 ... 10 bar (Vacuum ... 145 PSI)

Actuating pressure: 2.5 ... 10 bar (36 ... 145 PSI)



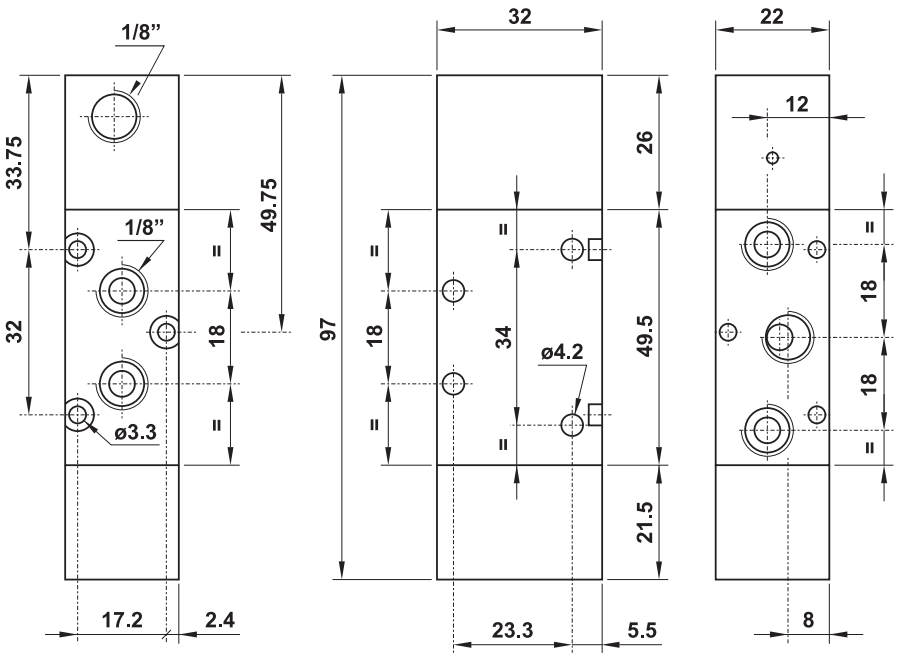
US521 MRC

5/2 1/8" NPT pneumatic pilot - REINFORCED spring return



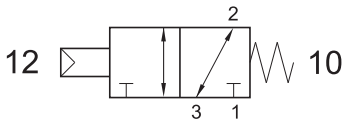
Operating pressure: -0.9 ... 10 bar (Vacuum ... 145 PSI)

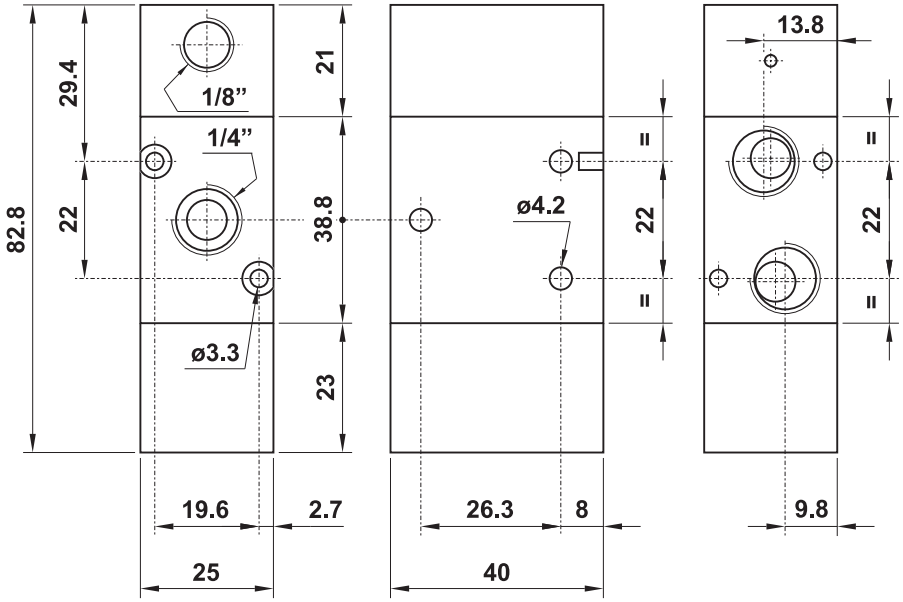
Actuating pressure: 2.5 ... 10 bar (36 ... 145 PSI)



US322 MRC

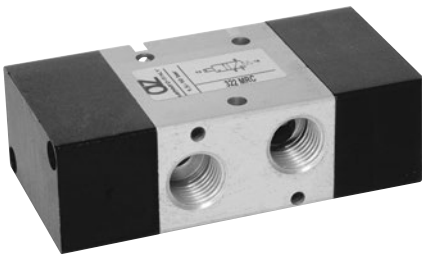
3/2 1/4" NPT pneumatic pilot - REINFORCED spring return





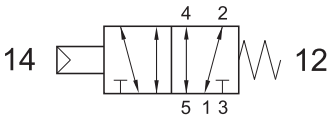
Operating pressure: -0.9 ... 10 bar (Vacuum ... 145 PSI)

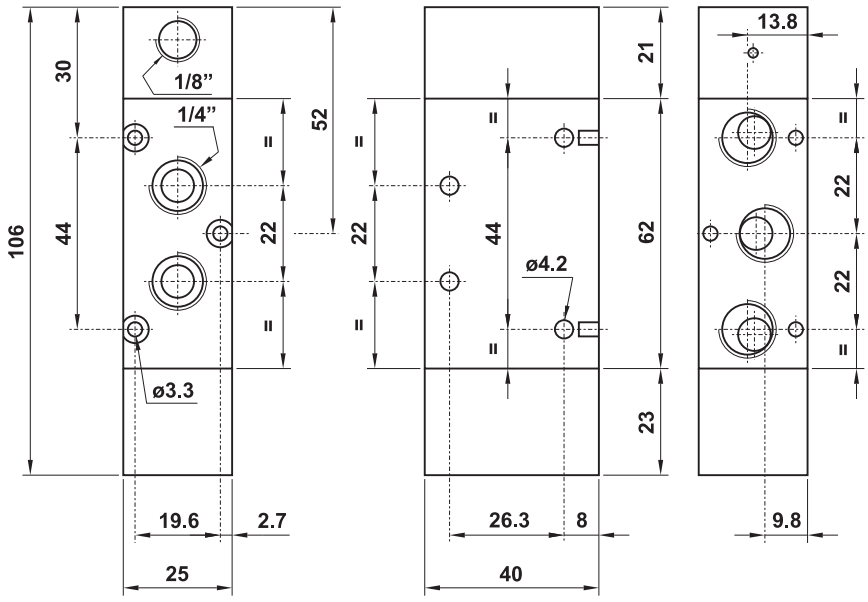
Actuating pressure: 2.5 ... 10 bar (36 ... 145 PSI)



US522 MRC

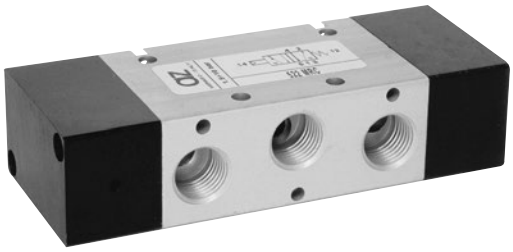
5/2 1/4" NPT pneumatic pilot - REINFORCED spring return





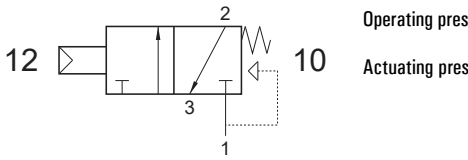
Operating pressure: -0.9 ... 10 bar (Vacuum ... 145 PSI)

Actuating pressure: 2.5 ... 10 bar (36 ... 145 PSI)



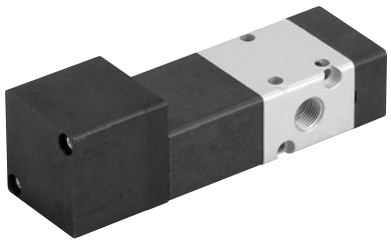
US321 MCQ

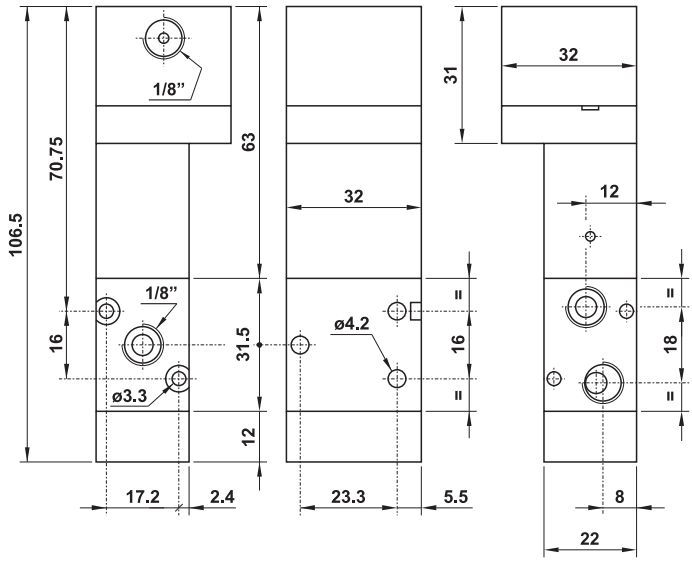
3/2 1/8" NPT N/C pneumatic pilot 0.3 bar (4.35 PSI) - air and spring return



Operating pressure: min. 2.5 bar (36 PSI)

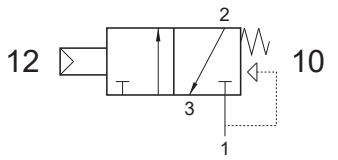
Actuating pressure: min. 0.3 bar (4.35 PSI)





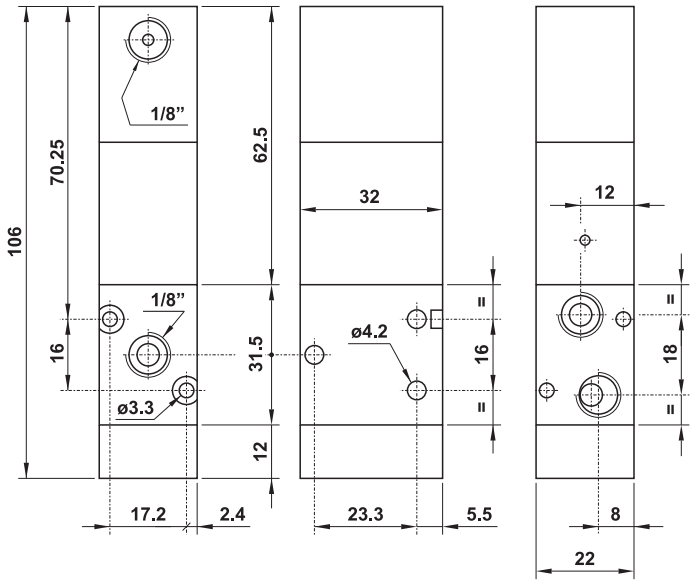
US321 MCS

3/2 1/8" NPT N/C pneumatic pilot 0.6 bar (8.7 PSI) - air and spring return



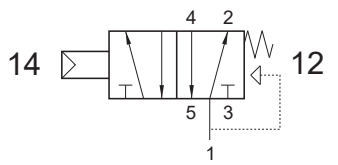
Operating pressure: min. 2.5 bar (36 PSI)

Actuating pressure: min. 0.6 bar (8.7 PSI)



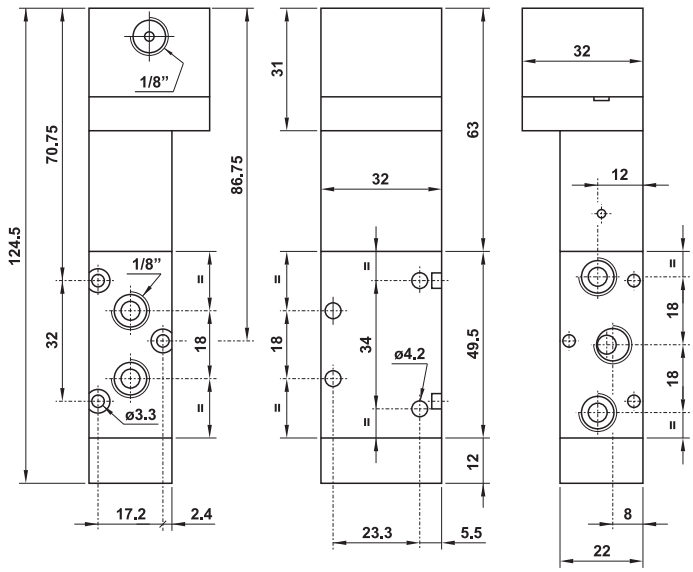
US521 MCQ

5/2 1/8" NPT pneumatic pilot 0.3 bar (4.35 PSI) - air and spring return



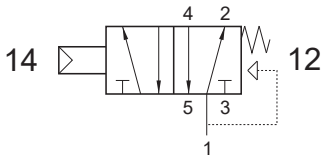
Operating pressure: min. 2.5 bar (36 PSI)

Actuating pressure: min. 0.3 bar (4.35 PSI)



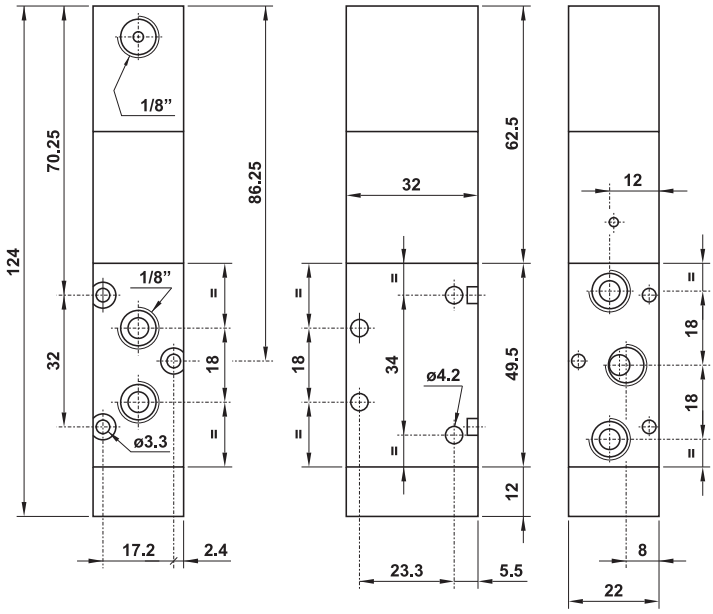
US521 MCS

5/2 1/8" NPT pneumatic pilot 0.6 (8.7 PSI) bar - air and spring return



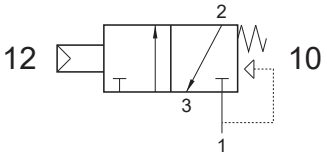
Operating pressure: min. 2.5 bar (36 PSI)

Actuating pressure: min. 0.6 bar (8.7 PSI)



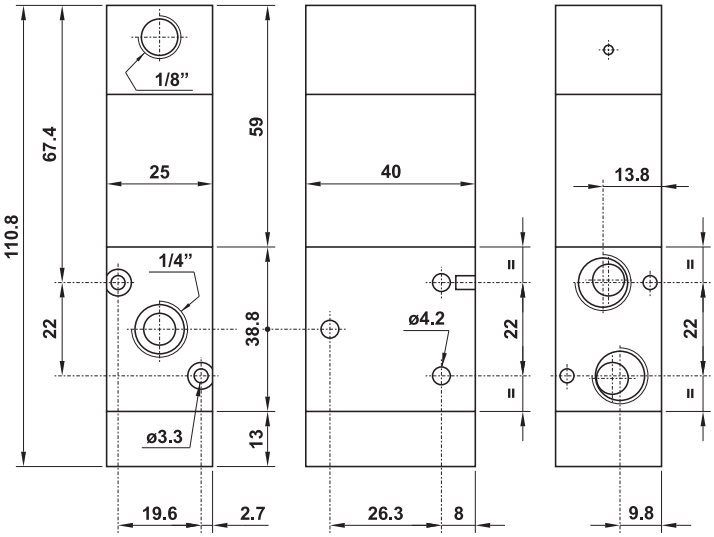
US322 MCS

3/2 1/4" NPT N/C pneumatic pilot 0.6 bar (8.7 PSI) - air and spring return



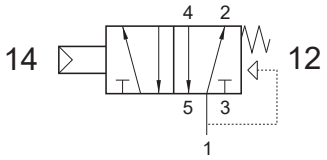
Operating pressure: min. 2.5 bar (36 PSI)

Actuating pressure: min. 0.6 bar (8.7 PSI)



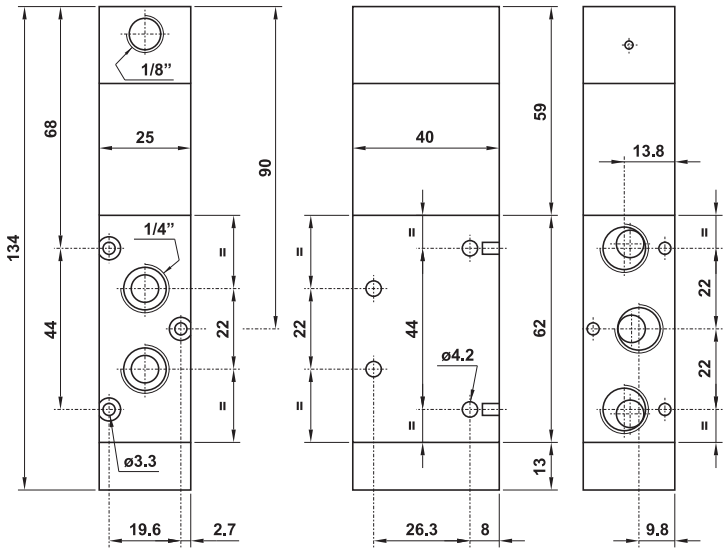
US522 MCS

5/2 1/4" NPT pneumatic pilot 0.6 bar (8.7 PSI) - air and spring return



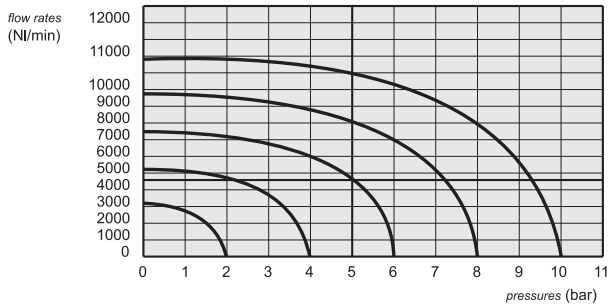
Operating pressure: min. 2.5 bar (36 PSI)

Actuating pressure: min. 0.6 bar (8.7 PSI)



Pneumatically piloted valves - 1/2″

- 3/2-5/2-5/3 spool valves with 1/2″ NPT threaded ports
  BSP version avaiable on request
- Very high flow rate
- Installation in-line
- Mono-stable or bi-stable pneumatic pilot



Spare parts

02.030.2 : for 3 way valves ME - ME AS - MC
02.031.2 : for 5 way valves ME - ME AS - MC
02.032.2 : for 3 way valves EE - EE AS - CC
02.033.2 : for 5 way valves EE - EE AS - CC

Response times

mono-stable	TRA (14): 24 ms TRR (12): 43 ms
bi-stable	TRA (14): 30 ms TRR (12): 30 ms

Materials

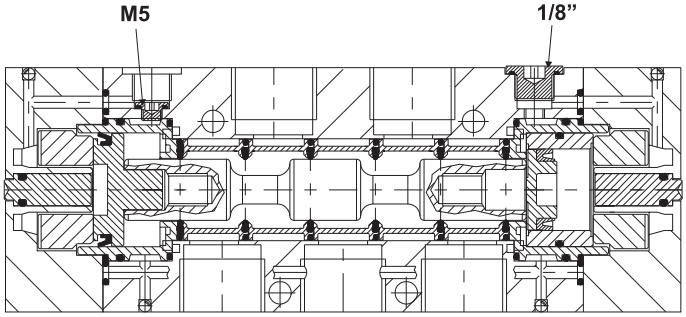
Body: aluminium 11S
Springs: stainless steel
Seals: NBR
Spool: nickel plated aluminium
Internal parts: brass OT58

Nominal diameter	13 mm (0.5 in)	
Nominal flow rate at 6 bar (87 PSI), Δp 1 bar (14 PSI)	4600 Nl/min (4.87 Cv)	
Temperature range	max +60°C (140°F)	
Operating pressure	mono-stable	bi-stable
	2.5 ... 10 bar (36 ... 145 PSI) 0.25 ... 1 MPa	-0.9 ... 10 bar (Vacuum ... 145 PSI) -0.09 ... 1 MPa
Actuating pressure	mono-stable	bi-stable
	2.5 ... 10 bar (36 ... 145 PSI) 0.25 ... 1 MPa	1 ... 10 bar (14 ... 145 PSI) 0.1 ... 1 MPa
Fluid	50μ filtered, lubricated or non lubricated air	

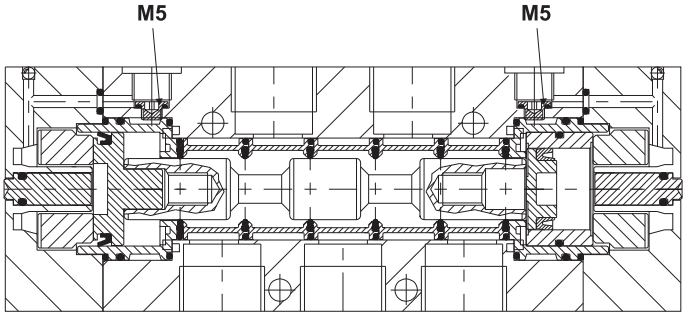
Multifunction feature of the valve

Valve functionality can be changed at any time. To do so, please re-collocate from its position either the M5 or 1/8" NPT plugs, which are inserted into the body according to the scheme. The valve is supplied according to the clients' needs on order. Interchangeable plugs must be ordered separately.

US324 CFP
US524 CFP

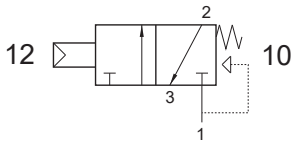


US324 CCD
US524 CCD



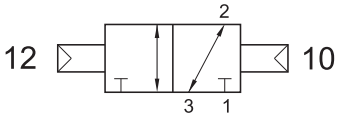
US324 MC

3/2 1/2" NPT N/C pneumatic pilot - air and spring return



US324 CC

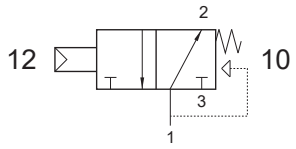
3/2 1/2" NPT double pneumatic pilot



It can be used with vacuum.

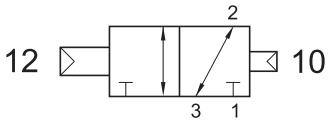
US324 MCA

3/2 1/2" NPT N/O pneumatic pilot - air and spring return



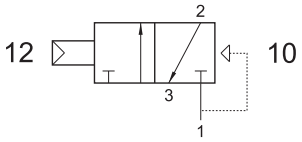
US324 CCD

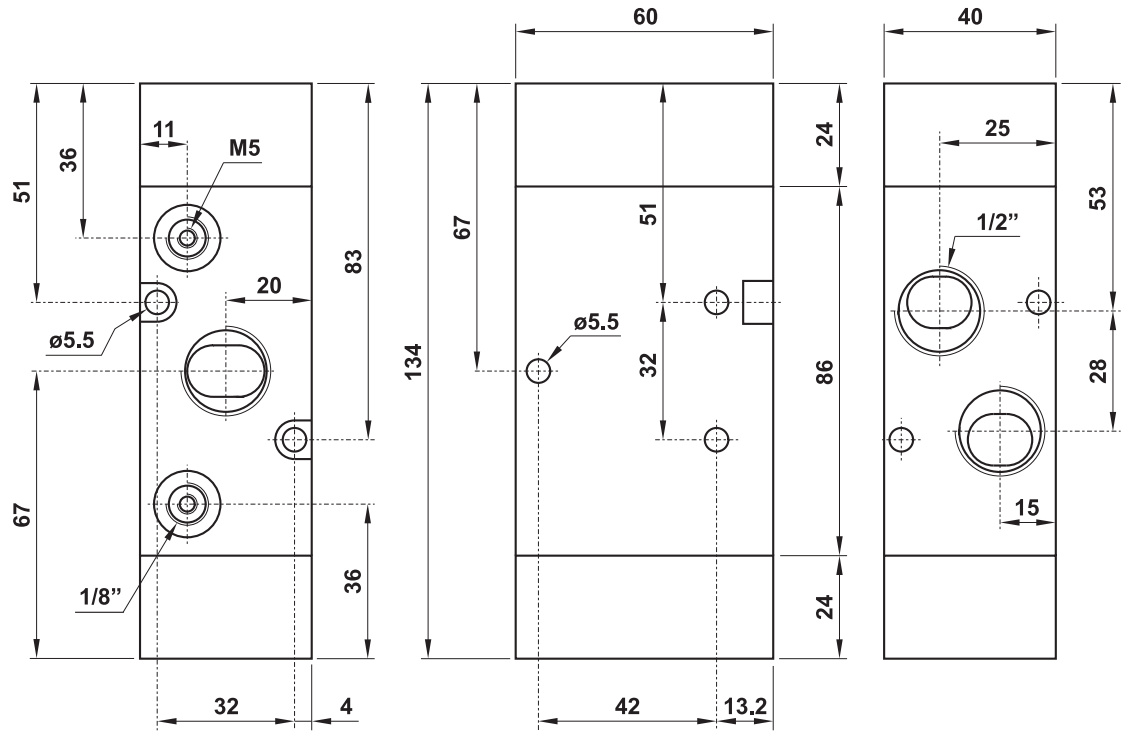
3/2 1/2" NPT double pneumatic pilot - with differential



US324 CFP

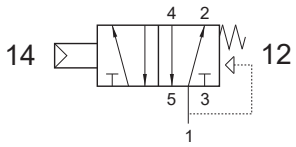
3/2 1/2" NPT N/C pneumatic pilot - pneumatic return





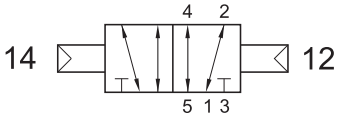
US524 MC

5/2 1/2" NPT pneumatic pilot - air and spring return



US524 CC

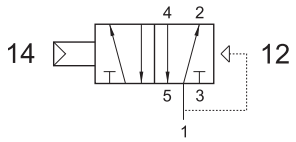
5/2 1/2" NPT double pneumatic pilot



It can be used with vacuum.

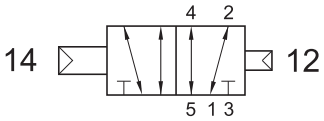
US524 CFP

5/2 1/2" NPT pneumatic pilot - pneumatic return



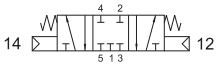
US524 CCD

5/2 1/2" NPT double pneumatic pilot - with differential



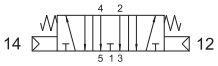
US5243C CC

closed centers



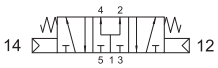
US5243A CC

open centers

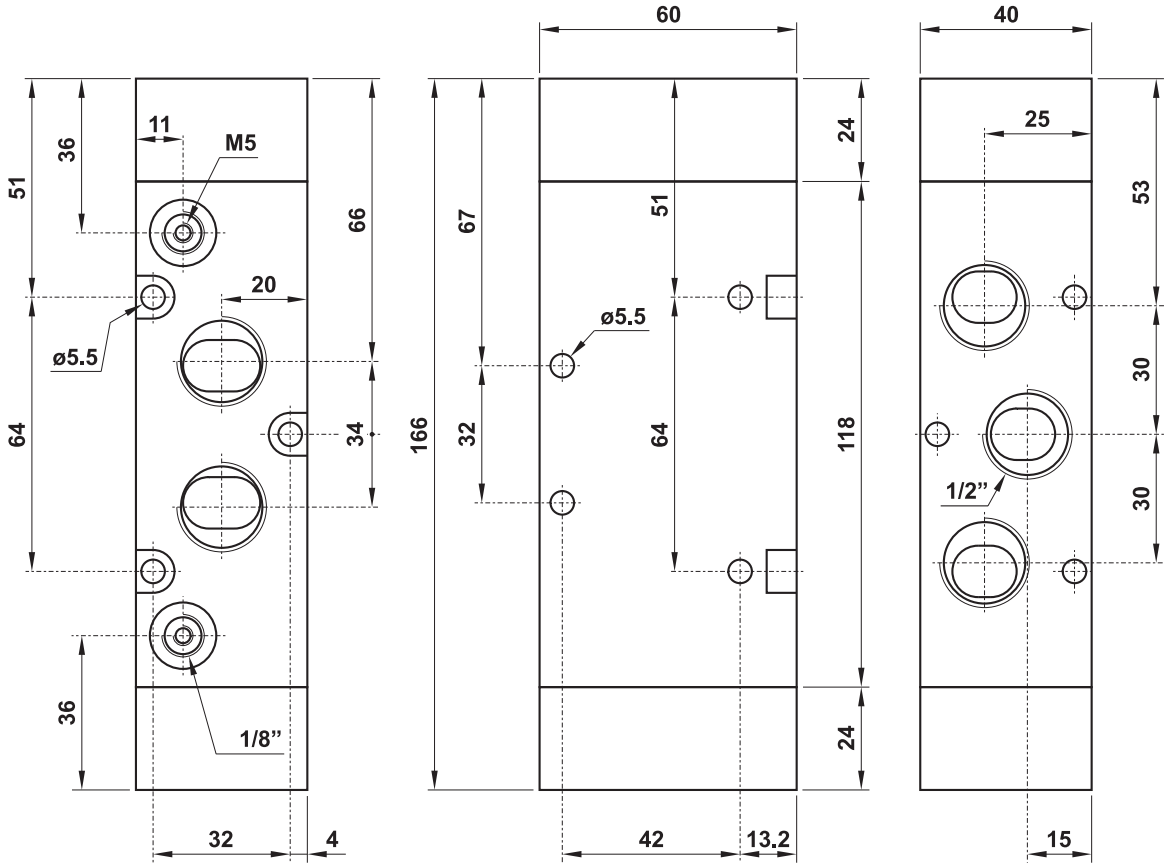


US5243P CC

pressurized centers



5/3 1/2" NPT double pneumatic pilot

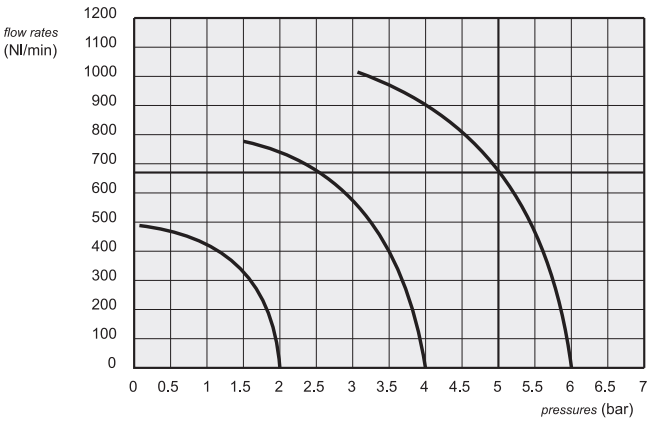


Pneumatic and Electric Foot Pedals

- 5/2 spool valve - it can be used as 3/2 or 2/2 by inserting stop plug in the unused ports
- 1/4" NPT threaded ports BSP version avaiable on request
- With or without pedal guard
- Mono-stable and detended
- Additional versions available with micro-valves, progressive flow rate valves and with special lateral security switch valves.

Pneumatic & Electric Characteristics

Materials
Body: aluminium 11S
Springs: stainless steel
Seals: NBR
Spool: nickel plated aluminium
Internal parts: brass OT58
Protection cover: shock resistant plastic material



Electric pedal

Lifetime (cycles))	10.000.000
Contact resistance	25 mΩ
Electrical protection degree	IP 54
Contacts	1 NO + 1 NC rapid switch

utilization power, according to IEC 337-1

UL Listed compliant electrical components

DC

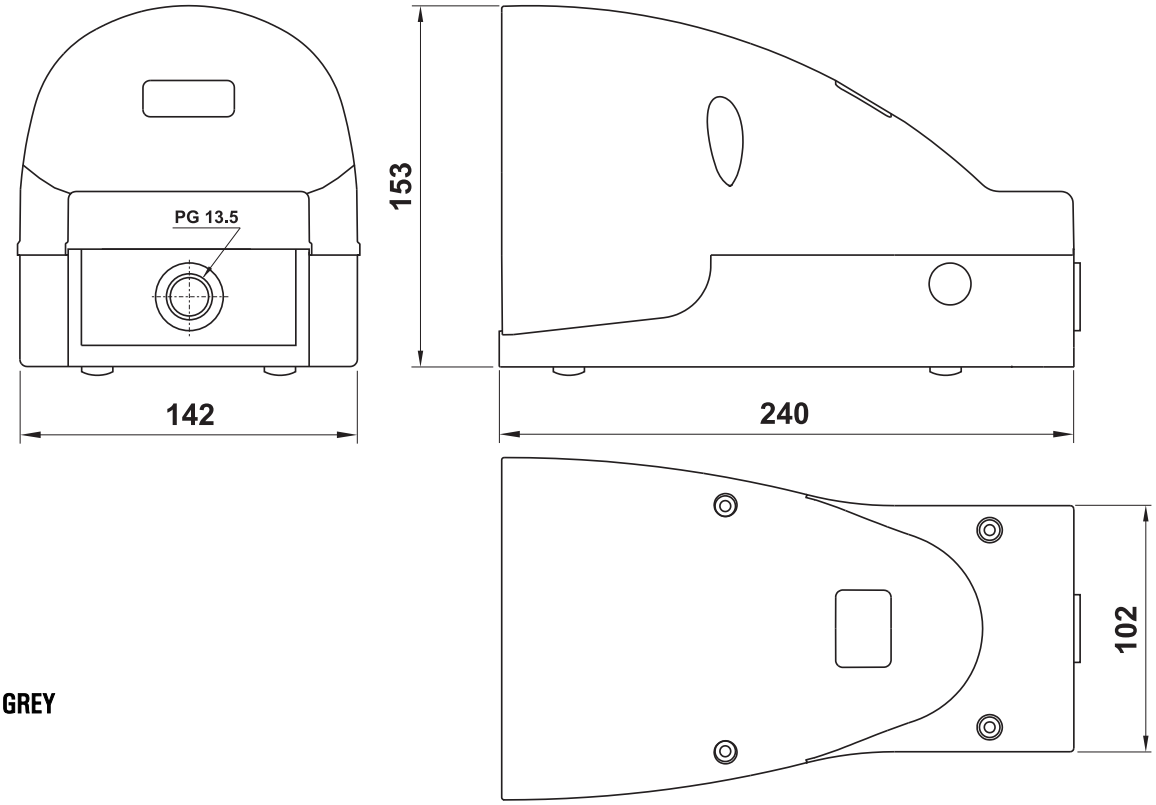
V	24	220
A	6	0.1

AC

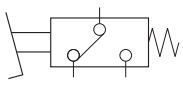
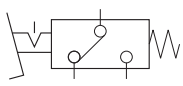
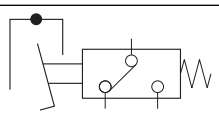
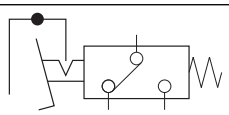
V	24	220	380	500
A	10	10	8	6

Nominal diameter	7.5 mm (0.3 in)
Ports	1/4" NPT
Temperature range	max +60°C (140°F)
Operating pressure	2 ... 10 bar (30 ... 145 PSI) 0.2 ... 1 MPa
Fluid	50μ filtered, lubricated or non lubricated air

PEDAL WITH ELECTRIC CONTACT N/C-N/O

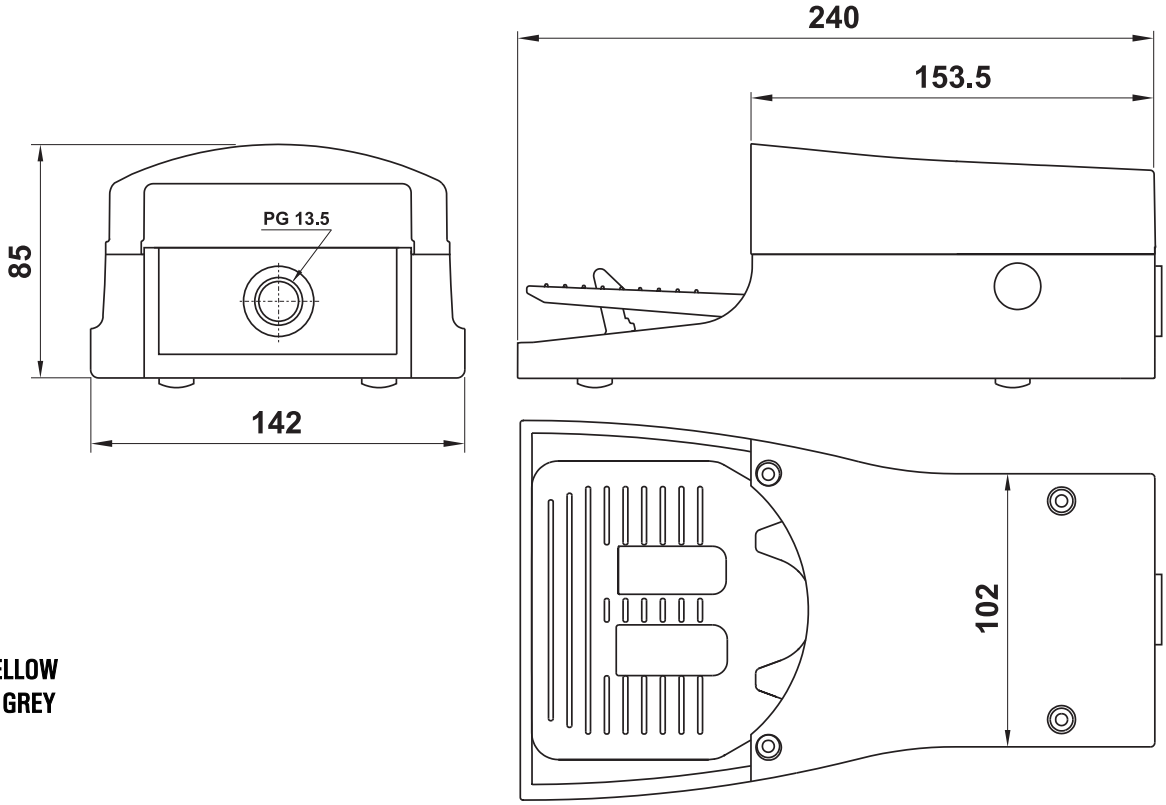


Cover colour: **YELLOW**
On request: **ORANGE** and **GREY**

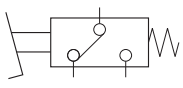
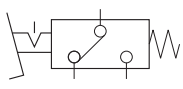
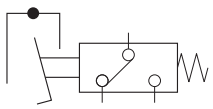
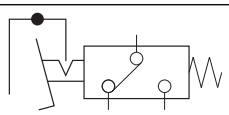
code	part number	description	symbol
01.087.4N	**PED EM**	Mono-stable pedal with electric contact N/C-N/O, with pedal guard	
01.115.4N	**PED EB**	Bi-stable pedal with electric contact N/C-N/O, with pedal guard	
01.088.4N	**PED ES**	Mono-stable pedal with electric contact N/C-N/O, with pedal guard and safety feature*	
01.127.4N	**PED EBS**	Bi-stable pedal with electric contact N/C-N/O, with pedal guard and safety feature*	

* **Safety feature**: to avoid accidental operation the pedal must be fully depressed. Press on the pedal with the whole shoe surface.

PEDAL WITH ELECTRIC CONTACT N/C-N/O - without pedal guard

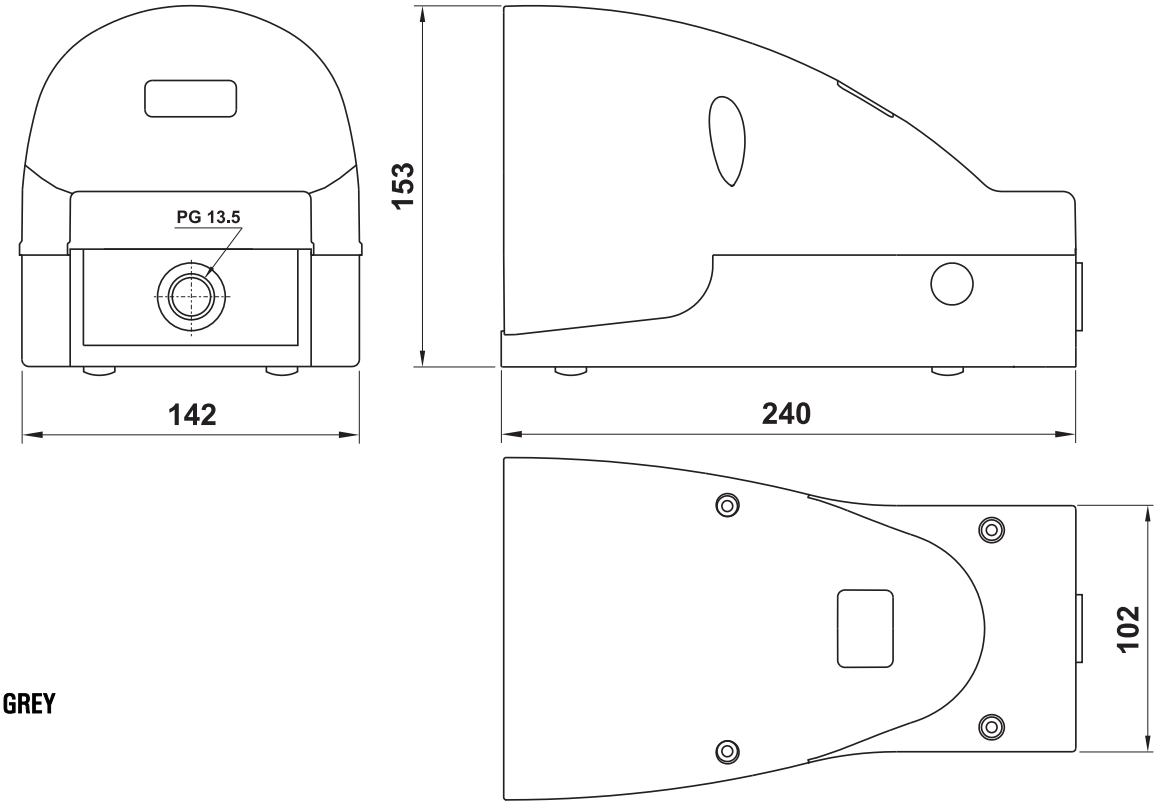


Standard cover colour: **YELLOW**
On request: **ORANGE** and **GREY**

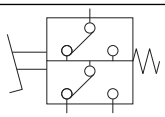
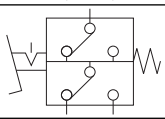
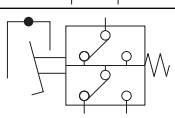
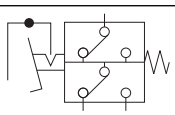
code	part number	description		symbol
01.143.4N	**PEDS EM**	Mono-stable pedal with electric contact N/C-N/O, without pedal guard		
01.144.4N	**PEDS EB**	yellow	Bi-stable pedal with electric contact N/C-N/O, without pedal guard	
01.161.4N	**PEDS EBR**	red		
01.145.4N	**PEDS ES**	Mono-stable pedal with electric contact N/C-N/O, without pedal guard, with safety feature*		
01.146.4N	**PEDS EBS**	Bi-stable pedal with electric contact N/C-N/O, without pedal guard, with safety feature*		

* **Safety feature:** to avoid accidental operation the pedal must be fully depressed. Press on the pedal with the whole shoe surface.

PEDAL WITH DOUBLE ELECTRIC CONTACT N/C-N/O

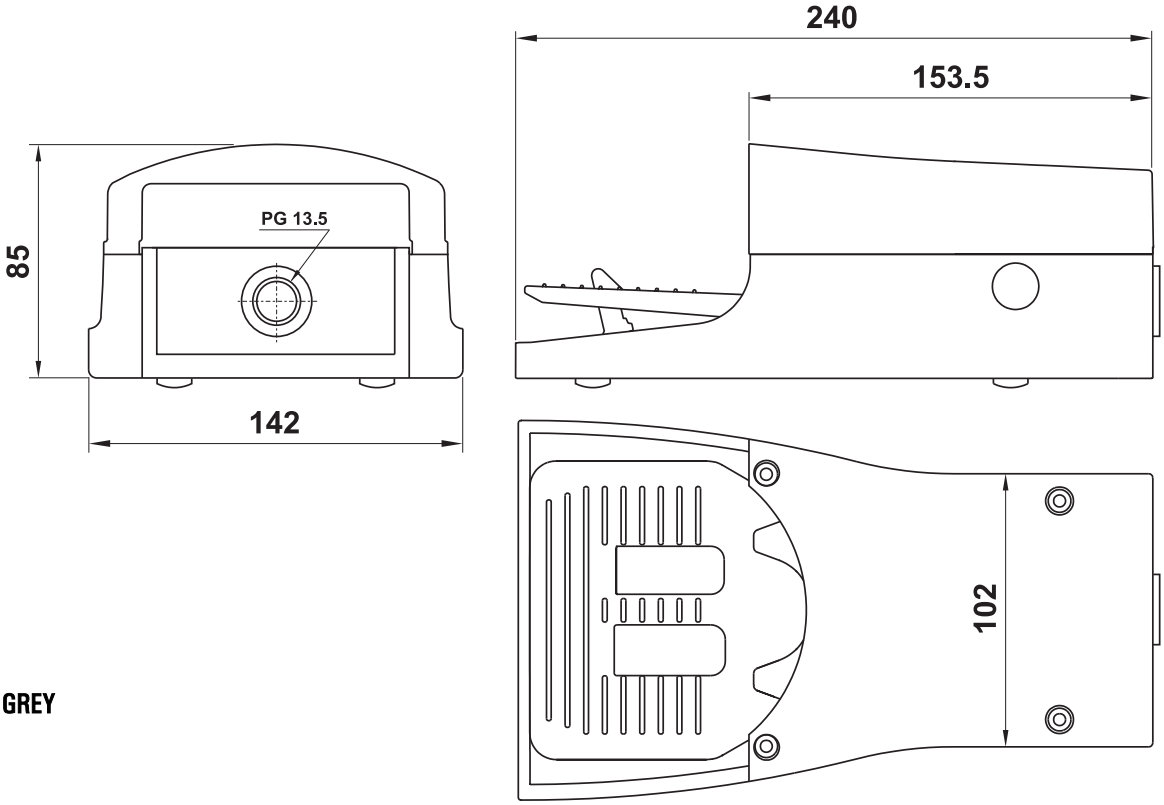


Cover colour: **YELLOW**
On request: **ORANGE** and **GREY**

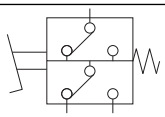
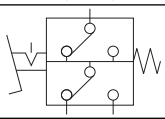
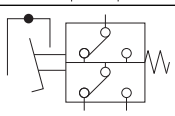
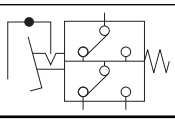
code	part number	description	symbol
01.148.4N	**PED EEM**	Mono-stable pedal with double electric contact N/C-N/O, with pedal guard	
01.149.4N	**PED EEB**	Bi-stable pedal with double electric contact N/C-N/O, with pedal guard	
01.150.4N	**PED EES**	Mono-stable pedal with double electric contact N/C-N/O, with pedal guard and safety feature*	
01.151.4N	**PED EEBS**	Bi-stable pedal with double electric contact N/C-N/O, with pedal guard and safety feature*	

* **Safety feature**: to avoid accidental operation the pedal must be fully depressed. Press on the pedal with the whole shoe surface.

PEDAL WITH DOUBLE ELECTRIC CONTACT N/C-N/O - without pedal guard



Cover colour: **YELLOW**
On request: **ORANGE** and **GREY**

code	part number	description	symbol
01.152.4N	**PEDS EEM**	Mono-stable pedal with double electric contact N/C-N/O, without pedal guard	
01.153.4N	**PEDS EEB**	Bi-stable pedal with double electric contact N/C-N/O, without pedal guard	
01.154.4N	**PEDS EES**	Mono-stable pedal with double electric contact N/C-N/O, without pedal guard, with safety feature*	
01.155.4N	**PEDS EEBS**	Bi-stable pedal with double electric contact N/C-N/O, without pedal guard, with safety feature*	

* **Safety feature**: to avoid accidental operation the pedal must be fully depressed. Press on the pedal with the whole shoe surface.

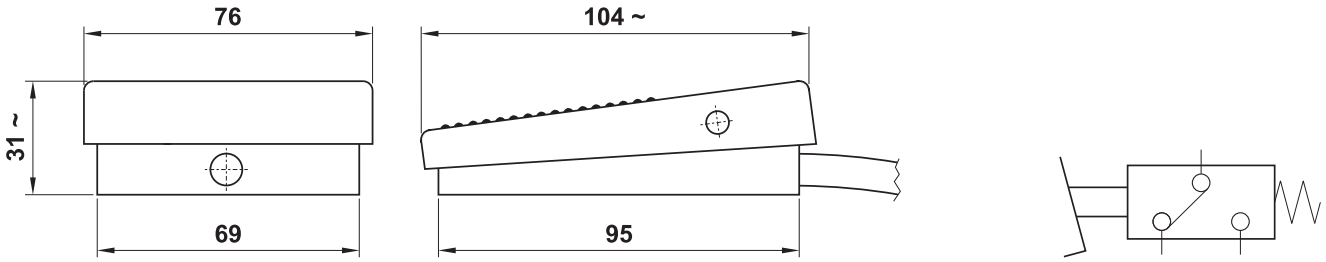
ELECTRIC MINI-PEDAL

electric pedal with cable 2 m

ORDER CODE

01.158.4

Pedal body: shock resistant plastic material

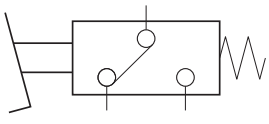


electric pedal without cable

ORDER CODE

01.159.4

Pedal body: shock resistant plastic material



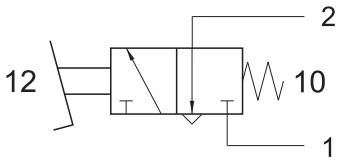
Lifetime (cycles)	5.000.000
Rating	2 A 24 V ~ 6(3) A 250 V ~
Electrical protection degree	IP 43
Actuating force	20 N

MINI-PEDAL PNEUMATIC VALVE

mono-stable pedal with microvalve 3/2 N/C

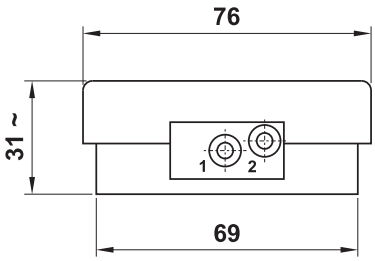
ORDER CODE

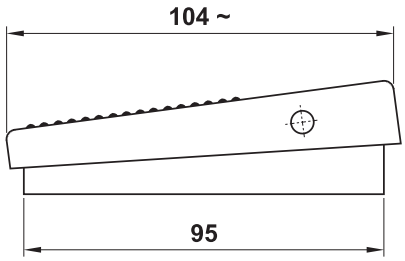
PED 304 M



Pedal body: shock resistant plastic material

Ports	5/32'' or ø4 mm push-in
Nominal flow rate at 6 bar (87 PSI)	100 Nl/min (0.1 Cv)

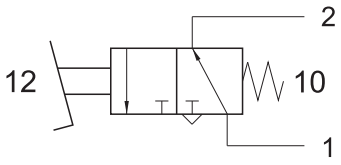




mono-stable pedal with microvalve 3/2 NO

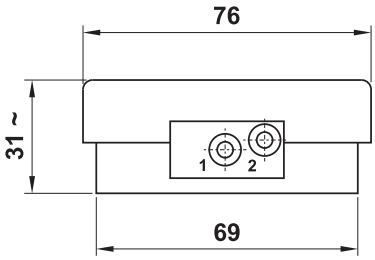
ORDER CODE

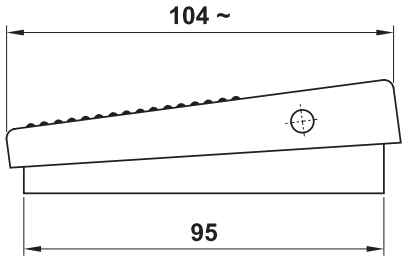
PED 314 M



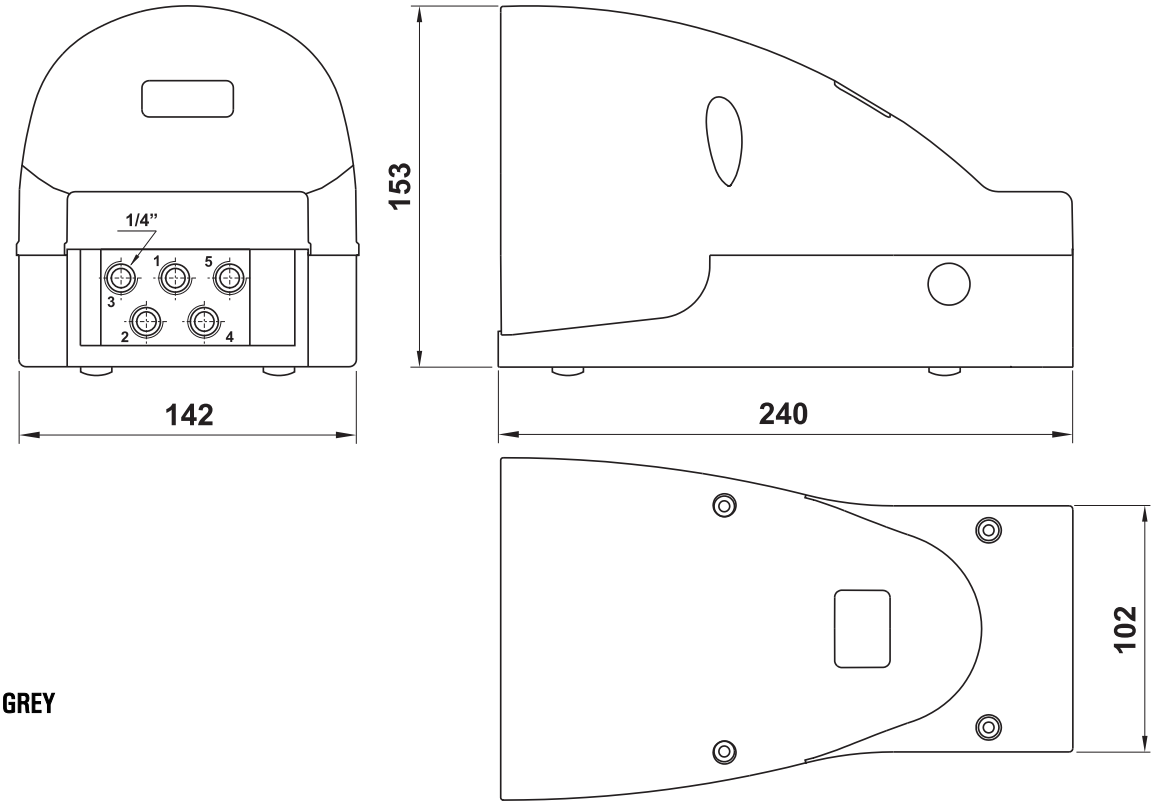
Pedal body: shock resistant plastic material

Ports	5/32'' or ø4 mm push-in
Nominal flow rate at 6 bar (87 PSI)	100 Nl/min (0.1 Cv)

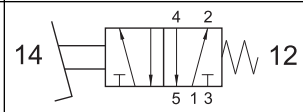
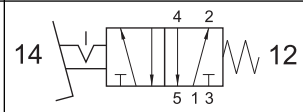
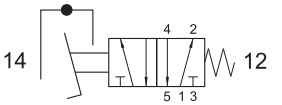
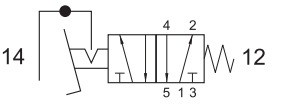




PEDAL WITH 5/2 1/4" NPT SERVO-PILOTED SPOOL VALVE WITH GUARD



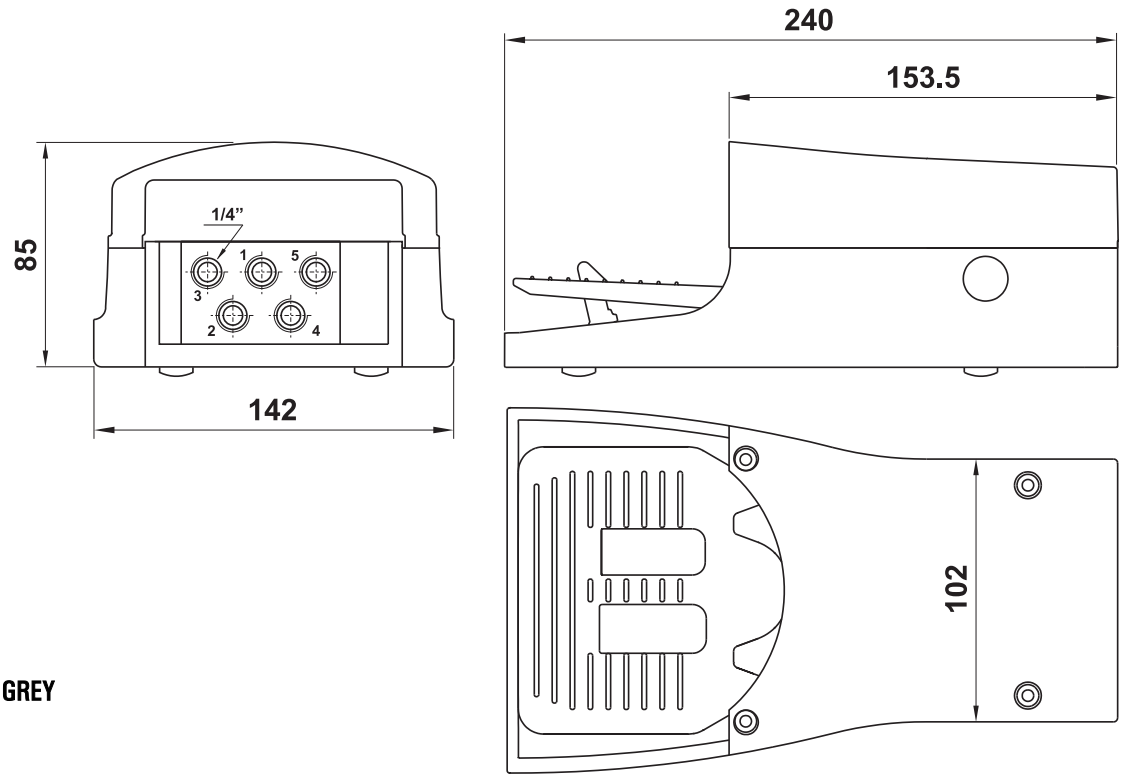
Cover colour: **YELLOW**
On request: **ORANGE** and **GREY**

code	part number	description	symbol
US01.052.4N	**PED 502 M**	Mono-stable pedal valve 5/2 1/4" NPT with pedal guard	
US01.053.4N	**PED 502 B**	Bi-stable pedal valve 5/2 1/4" NPT with pedal guard	
US01.072.4N	**PED 502 S**	Mono-stable pedal valve 5/2 1/4" NPT with pedal guard and safety feature*	
US01.126.4N	**PED 502 BS**	Bi-stable pedal valve 5/2 1/4" NPT with pedal guard and safety feature*	

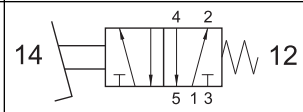
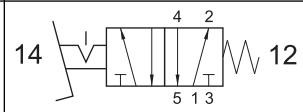
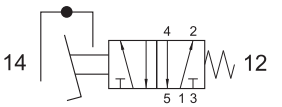
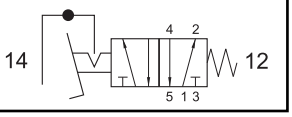
* **Safety feature**: to avoid accidental operation the pedal must be fully depressed. Press on the pedal with the whole shoe surface.

Spare parts
US01.051.3 : 5/2 1/4'' NPT valve for pedal
01.023.2 : seals kit for 5/2 pedal valve

PEDAL WITH 5/2 1/4" NPT SERVO-PILOTED SPOOL VALVE - without pedal guard



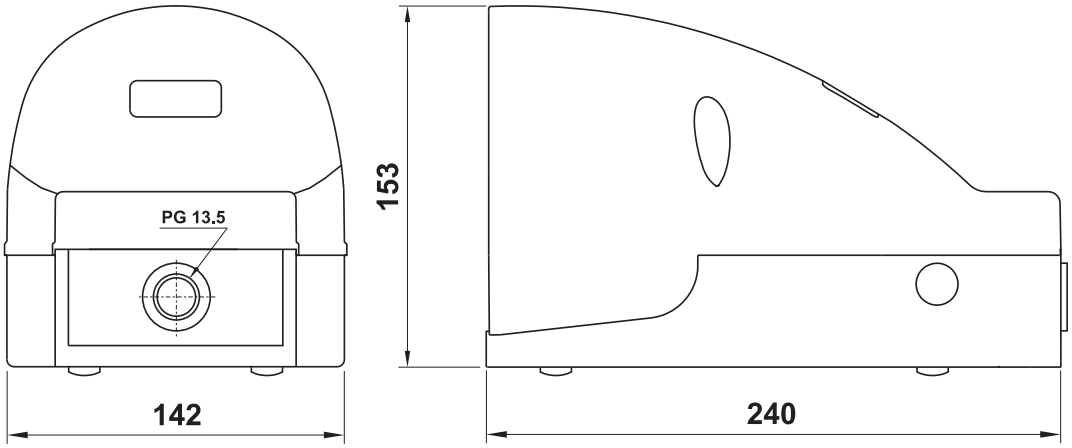
Cover colour: **YELLOW**
On request: **ORANGE** and **GREY**

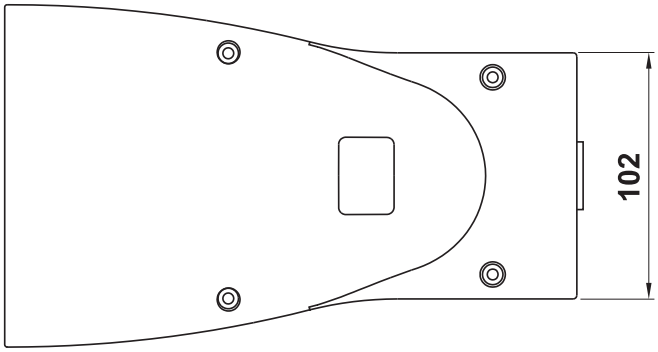
code	part number	description	symbol
US01.080.4N	**PEDS 502 M**	Mono-stable pedal valve 5/2 1/4" NPT without pedal guard	
US01.081.4N	**PEDS 502 B**	Bi-stable pedal valve 5/2 1/4" NPT without pedal guard	
US01.128.4N	**PEDS 502 S**	Mono-stable pedal valve 5/2 1/4" NPT without pedal guard, with safety feature*	
US01.129.4N	**PEDS 502 BS**	Bi-stable pedal valve 5/2 1/4" NPT without pedal guard, with safety feature*	

* **Safety feature**: to avoid accidental operation the pedal must be fully depressed. Press on the pedal with the whole shoe surface.

Spare parts
US01.051.3 : 5/2 1/4'' NPT valve for pedal
01.023.2 : seals kit for 5/2 pedal valve

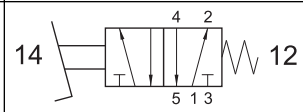
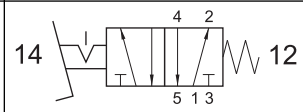
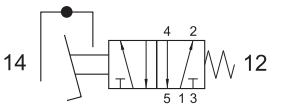
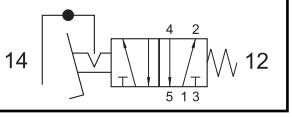
PEDAL WITH 5/2 1/4" NPT SERVO-PILOTED SPOOL VALVE WITH GUARD - valve in retracted position





Cover colour: **YELLOW**
On request: **ORANGE** and **GREY**

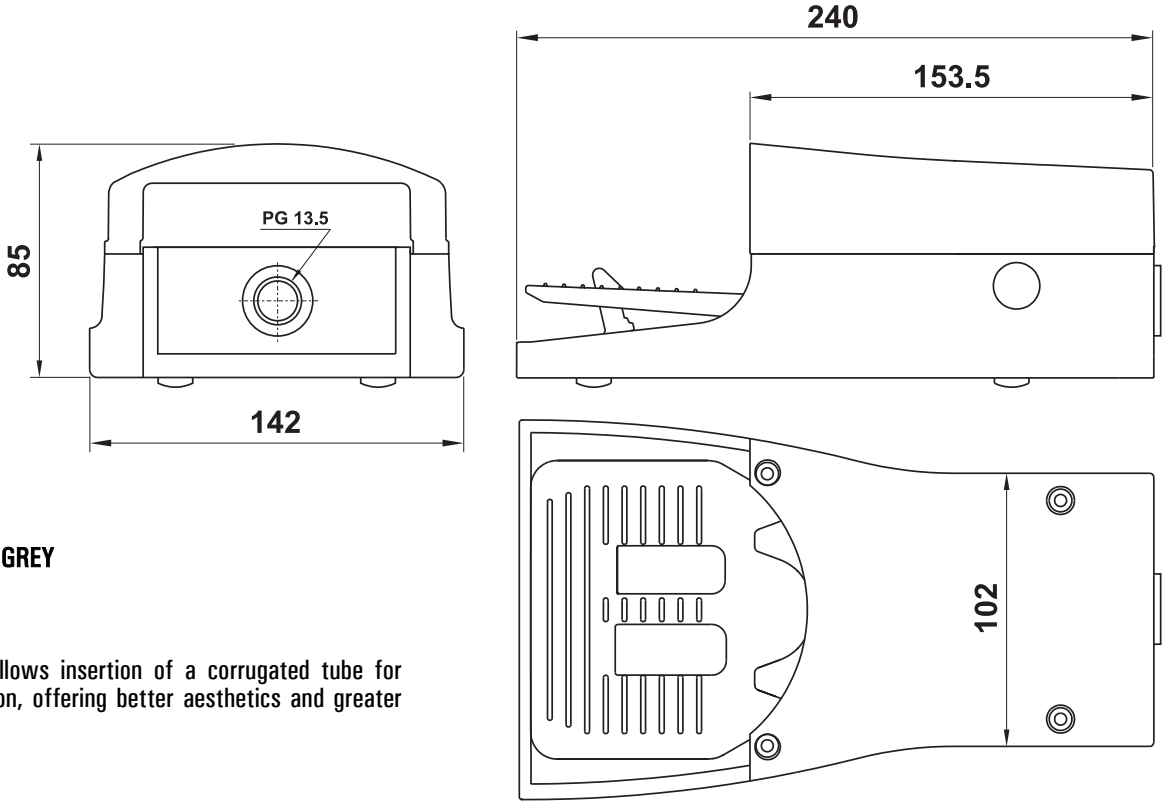
The retracted position allows insertion of a corrugated tube for pneumatic tube connection, offering better aesthetics and greater safety.

code	part number	description	symbol
US01.135.4N	**PED 502 MA**	Mono-stable pedal valve 5/2 1/4" NPT with pedal guard	
US01.136.4N	**PED 502 BA**	Bi-stable pedal valve 5/2 1/4" NPT with pedal guard	
US01.137.4N	**PED 502 SA**	Mono-stable pedal valve 5/2 1/4" NPT with pedal guard and safety feature*	
US01.138.4N	**PED 502 BSA**	Bi-stable pedal valve 5/2 1/4" NPT with pedal guard and safety feature*	

* **Safety feature**: to avoid accidental operation the pedal must be fully depressed. Press on the pedal with the whole shoe surface.

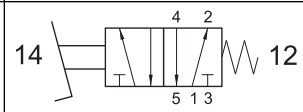
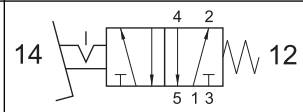
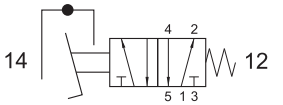
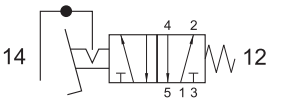
Spare parts
US01.051.3 : 5/2 1/4" NPT valve for pedal
01.023.2 : seals kit for 5/2 pedal valve

PEDAL WITH 5/2 1/4" NPT SERVO-PILOTED SPOOL VALVE - valve in retracted position - without pedal guard



Cover colour: **YELLOW**
On request: **ORANGE** and **GREY**

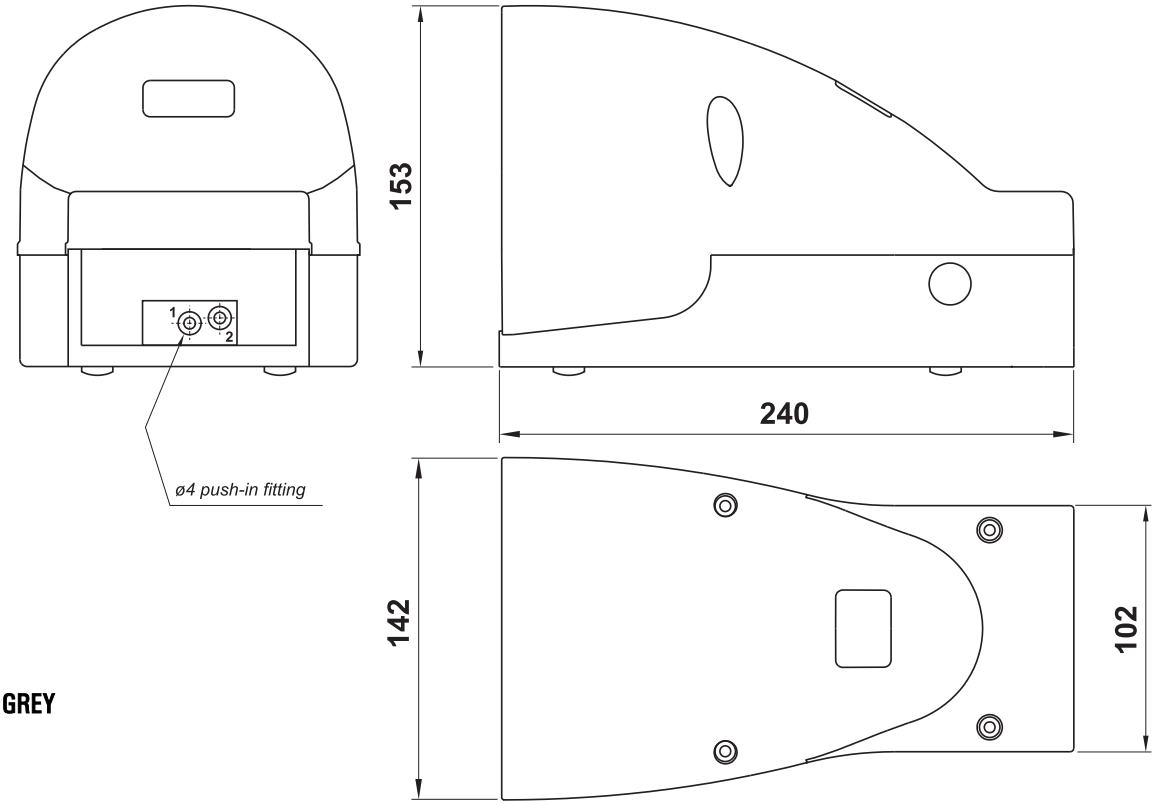
The retracted position allows insertion of a corrugated tube for pneumatic tube connection, offering better aesthetics and greater safety.

code	part number	description	symbol
US01.139.4N	**PEDS 502 MA**	Mono-stable pedal valve 5/2 1/4" NPT without pedal guard	
US01.140.4N	**PEDS 502 BA**	Bi-stable pedal valve 5/2 1/4" NPT without pedal guard	
US01.141.4N	**PEDS 502 SA**	Mono-stable pedal valve 5/2 1/4" NPT without pedal guard, with safety feature*	
US01.142.4N	**PEDS 502 BSA**	Bi-stable pedal valve 5/2 1/4" NPT without pedal guard, with safety feature*	

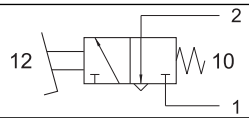
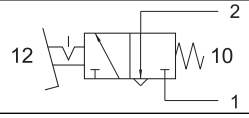
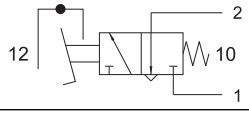
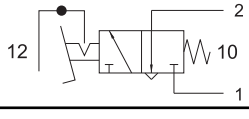
* **Safety feature**: to avoid accidental operation the pedal must be fully depressed. Press on the pedal with the whole shoe surface.

Spare parts
US01.051.3 : 5/2 1/4" NPT valve for pedal
01.023.2 : seals kit for 5/2 pedal valve

PEDAL WITH 3/2 NC MICROVALVE , push-in fittings for 5/32'' or ø4 mm tube

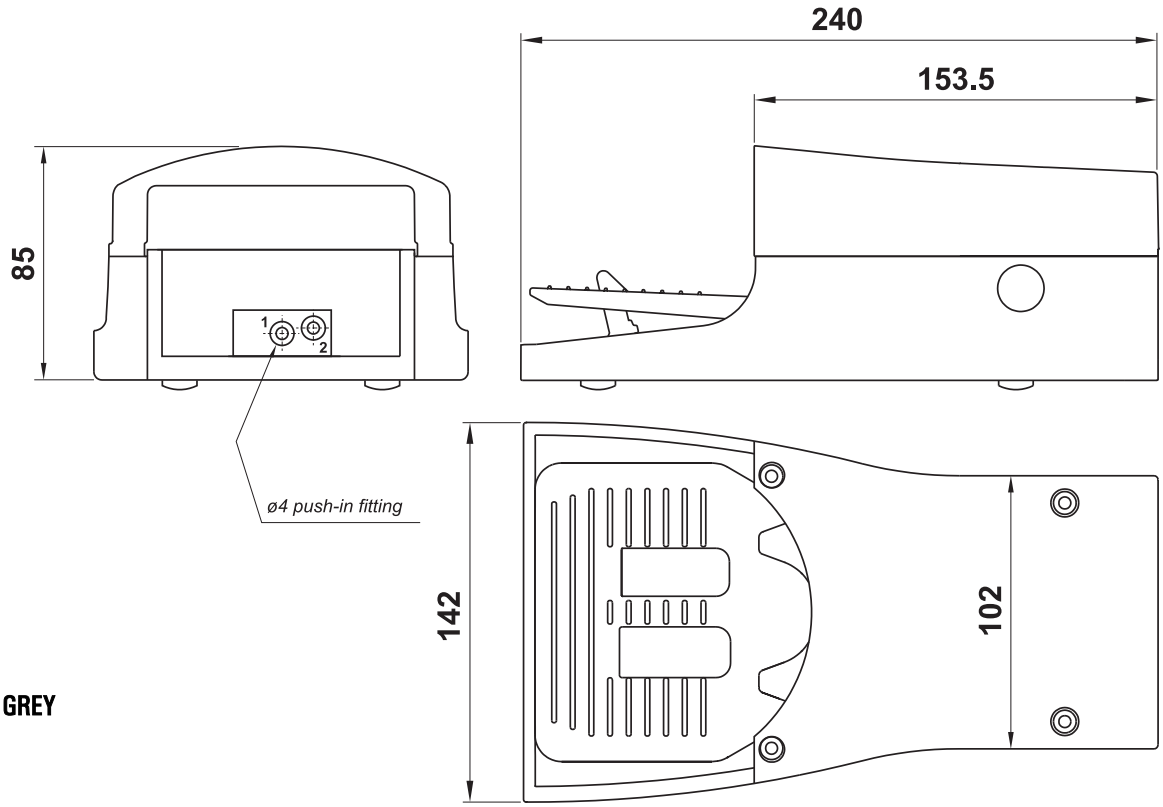


Cover colour: **YELLOW**
On request: **ORANGE** and **GREY**

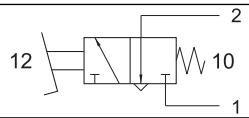
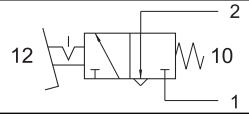
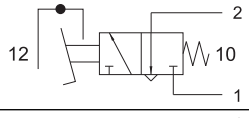
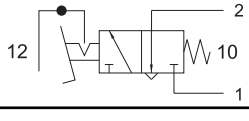
code	part number	description	symbol
08.197.4N	**PEDN 304 M**	Mono-stable pedal valve 3/2 N/C, push-in fittings 5/32'' or ø4 mm, with pedal guard	
08.198.4N	**PEDN 304 B**	Bi-stable pedal valve 3/2 N/C, push-in fittings 5/32'' or ø4mm, with pedal guard	
08.207.4N	**PEDN 304 S**	Mono-stable pedal valve 3/2 N/C, push-in fittings 5/32'' or ø4 mm, with pedal guard and safety feature*	
08.209.4N	**PEDN 304 BS**	Bi-stable pedal valve 3/2 N/C, push-in fittings 5/32'' or ø4 mm, with pedal guard and safety feature*	

* **Safety feature**: to avoid accidental operation the pedal must be fully depressed. Press on the pedal with the whole shoe surface.

PEDAL WITH 3/2 N/C MICROVALVE, push-in fittings for 5/32 '' or ø4 mm tube - without pedal guard

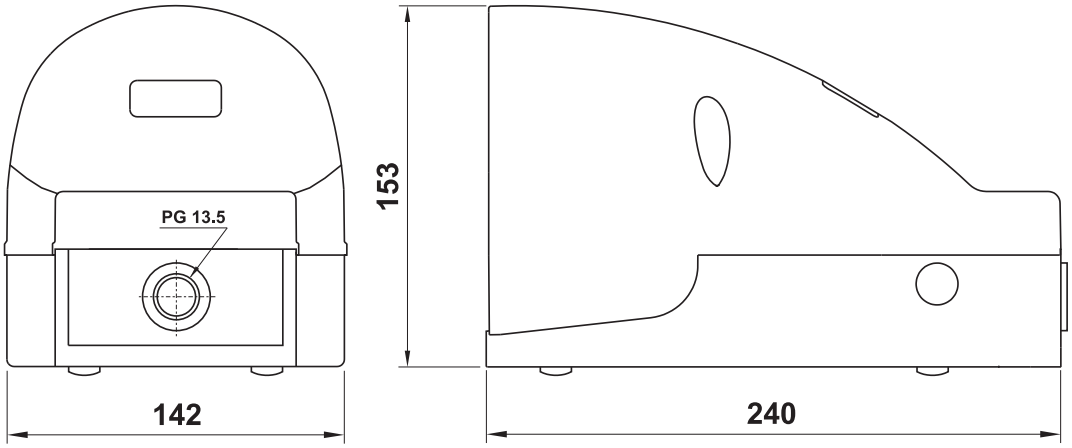


Cover colour: **YELLOW**
On request: **ORANGE** and **GREY**

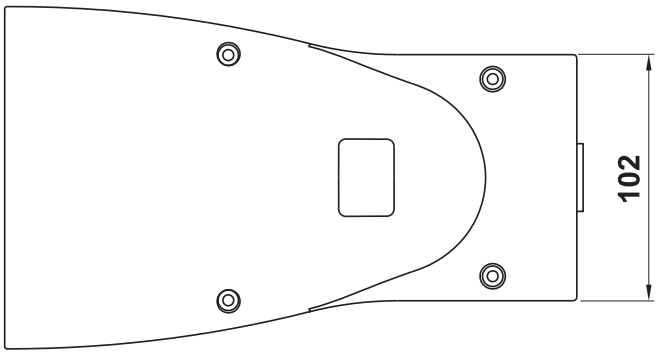
code	part number	description	symbol
08.307.4N	**PEDS 304 M**	Mono-stable pedal valve 3/2 N/C, push-in fittings 5/32'' or ø4 mm, without pedal guard	
08.308.4N	**PEDS 304 B**	Bi-stable pedal valve 3/2 N/C, push-in fittings 5/32'' or ø4 mm, without pedal guard	
08.309.4N	**PEDS 304 S**	Mono-stable pedal valve 3/2 N/C, push-in fittings 5/32'' or ø4 mm, without pedal guard, with safety feature*	
08.310.4N	**PEDS 304 BS**	Bi-stable pedal valve 3/2 N/C, push-in fittings 5/32'' or ø4 mm, without pedal guard, with safety feature*	

* **Safety feature:** to avoid accidental operation the pedal must be fully depressed. Press on the pedal with the whole shoe surface.

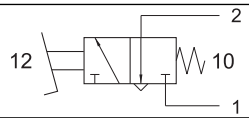
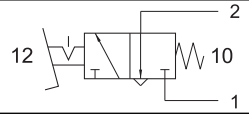
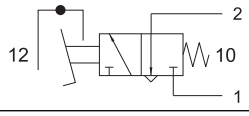
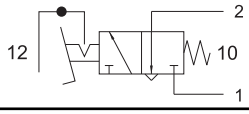
PEDAL WITH 3/2 N/C MICROVALVE, push-in fittings for 5/32'' or ø4 mm tube - valve in retracted position



Cover colour: **YELLOW**
On request: **ORANGE** and **GREY**

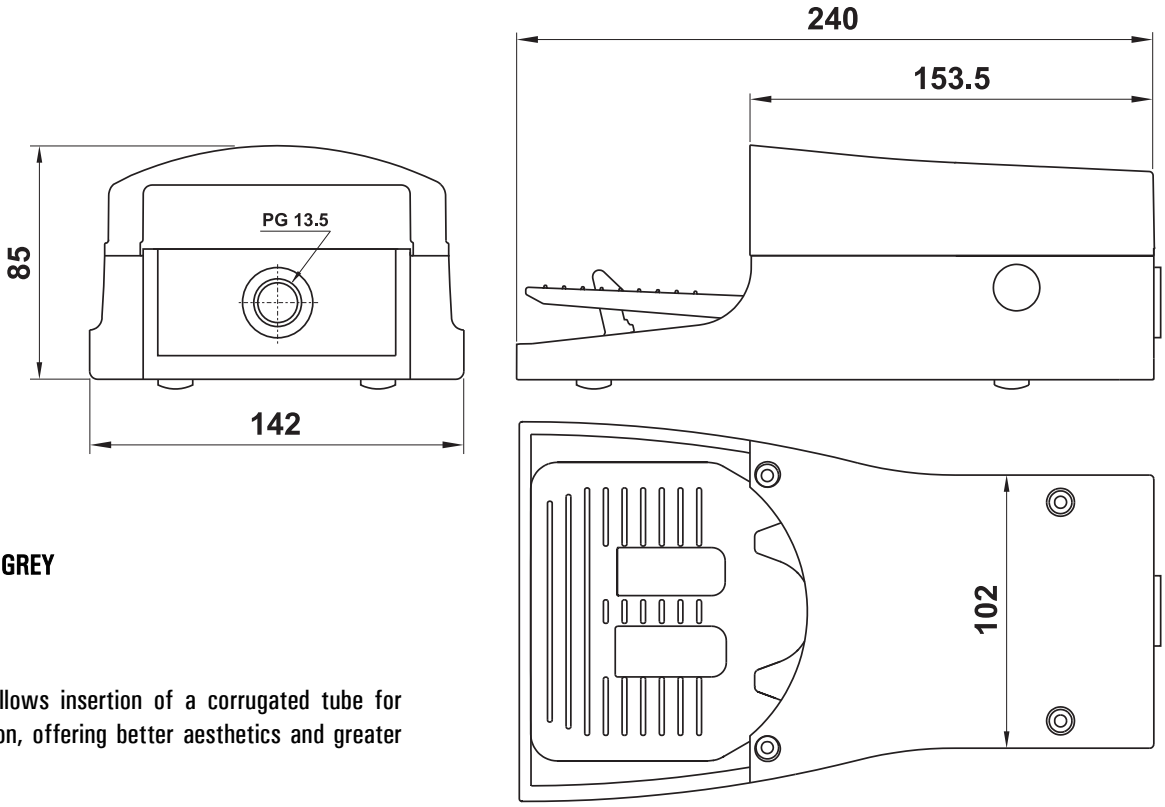


The retracted position allows insertion of a corrugated tube for pneumatic tube connection, offering better aesthetics and greater safety.

code	part number	description	symbol
08.311.4N	**PEDN 304 MA**	Mono-stable pedal valve 3/2 N/C, push-in fittings 5/32'' NPT or ø4 mm, with pedal guard	
08.312.4N	**PEDN 304 BA**	Bi-stable pedal valve 3/2 N/C, push-in fittings 5/32'' NPT or ø4 mm, with pedal guard	
08.313.4N	**PEDN 304 SA**	Mono-stable pedal valve 3/2 N/C, push-in fittings 5/32'' NPT or ø4 mm, with pedal guard and safety feature*	
08.314.4N	**PEDN 304 BSA**	Bi-stable pedal valve 3/2 N/C, push-in fittings 5/32'' NPT or ø4 mm, with pedal guard and safety feature*	

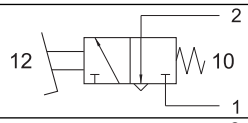
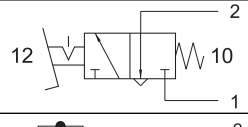
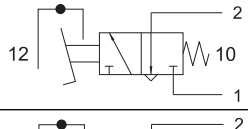
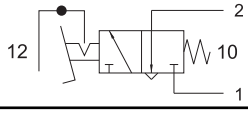
* **Safety feature**: to avoid accidental operation the pedal must be fully depressed. Press on the pedal with the whole shoe surface.

PEDAL WITH 3/2 NC MICROVALVE, push-in fittings for 5/32'' or ø4 mm tube - valve in retracted position - without pedal guard



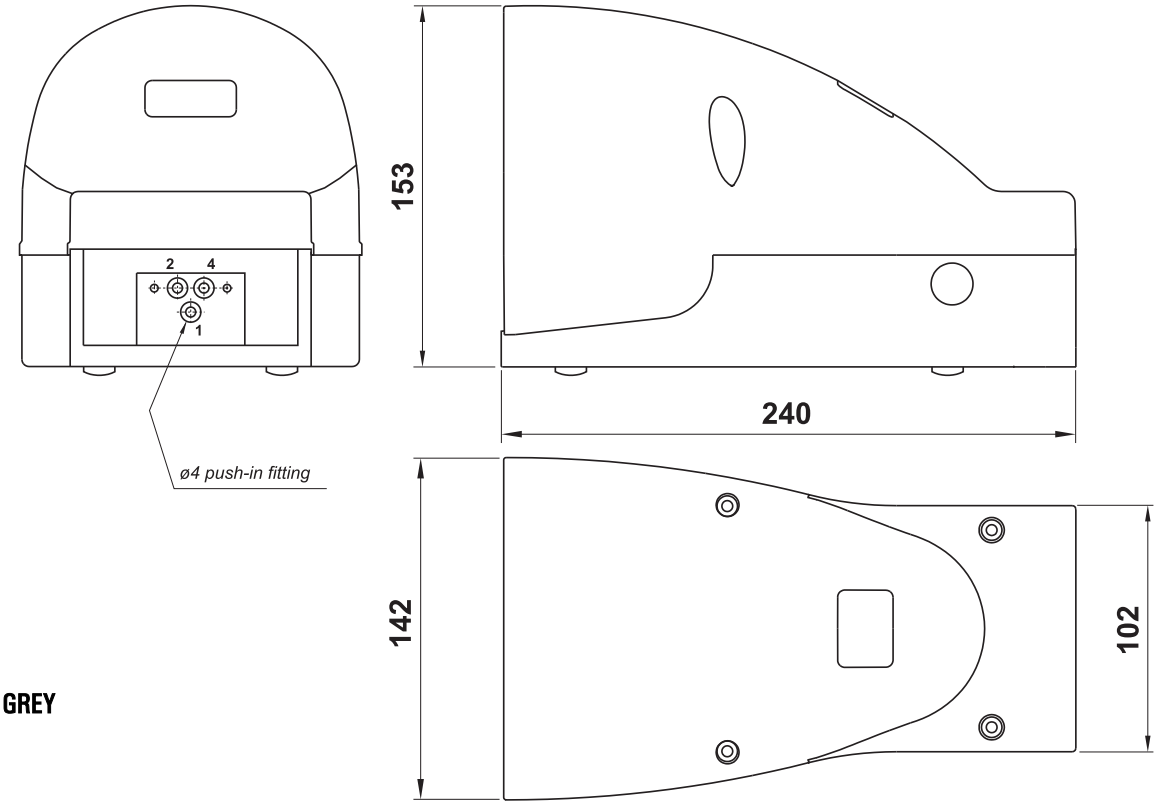
Cover colour: **YELLOW**
On request: **ORANGE** and **GREY**

The retracted position allows insertion of a corrugated tube for pneumatic tube connection, offering better aesthetics and greater safety.

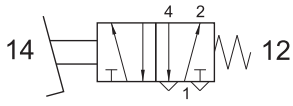
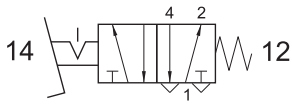
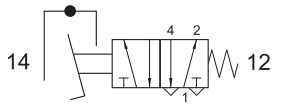
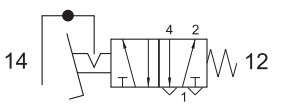
code	part number	description	symbol
08.315.4N	**PEDS 304 MA**	Mono-stable pedal valve 3/2 N/C, push-in fittings 5/32'' NPT or ø4 mm, without pedal guard	
08.316.4N	**PEDS 304 BA**	Bi-stable pedal valve 3/2 N/C, push-in fittings 5/32'' NPT or ø4 mm, without pedal guard	
08.317.4N	**PEDS 304 SA**	Mono-stable pedal valve 3/2 N/C, push-in fittings 5/32'' NPT or ø4 mm, without pedal guard, with safety feature*	
08.318.4N	**PEDS 304 BSA**	Bi-stable pedal valve 3/2 N/C, push-in fittings 5/32'' NPT or ø4 mm, without pedal guard, with safety feature*	

* **Safety feature:** to avoid accidental operation the pedal must be fully depressed. Press on the pedal with the whole shoe surface.

PEDAL WITH 5/2 MICROVALVE, push-in fittings for 5/32'' or ø4 mm tube

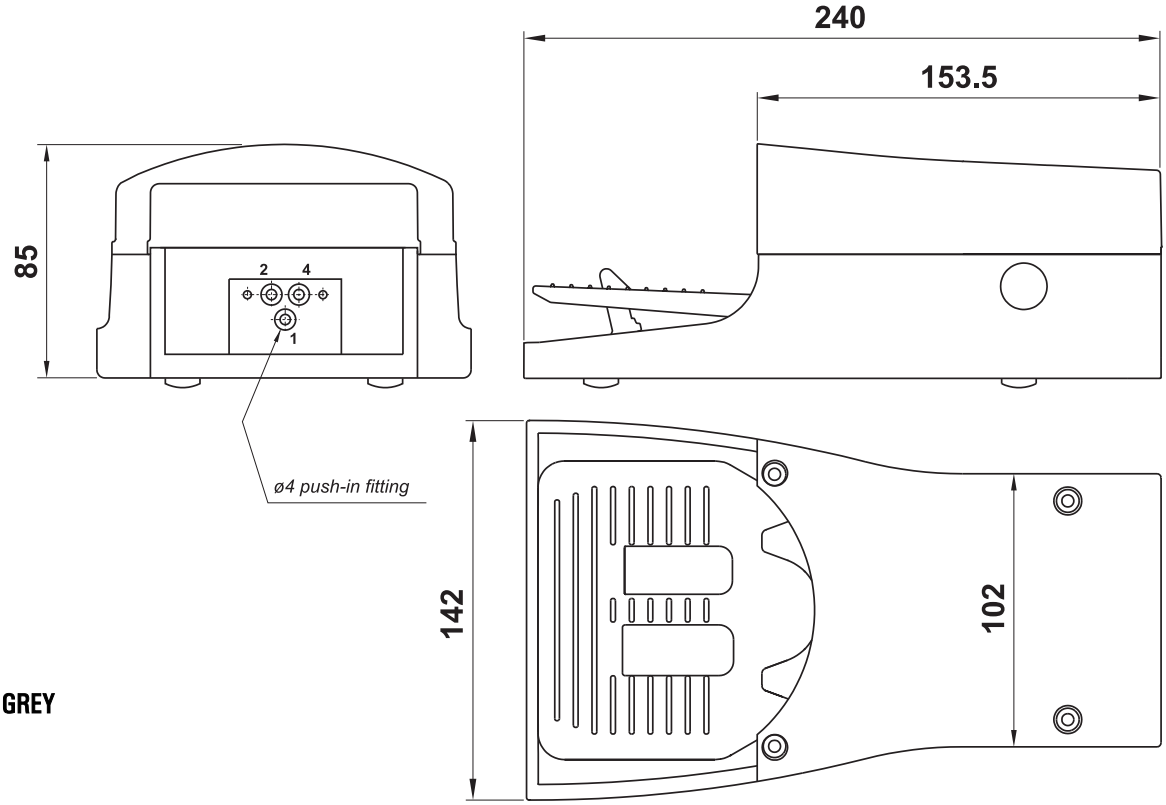


Cover colour: **YELLOW**
On request: **ORANGE** and **GREY**

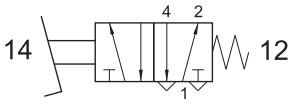
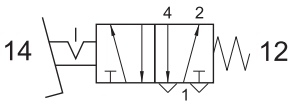
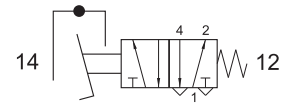
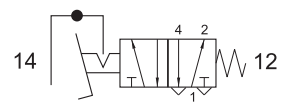
code	part number	description	symbol
08.303.4N	**PED 504 M**	Mono-stable pedal valve 5/2, push-in fittings 5/32'' NPT or ø4 mm, with pedal guard	
08.304.4N	**PED 504 B**	Bi-stable pedal valve 5/2, push-in fittings 5/32'' NPT or ø4 mm, with pedal guard	
08.305.4N	**PED 504 S**	Mono-stable pedal valve 5/2, push-in fittings 5/32'' NPY or ø4 mm, with pedal guard and safety feature*	
08.306.4N	**PED 504 BS**	Bi-stable pedal valve 5/2, push-in fittings 5/32'' NPT or ø4 mm, with pedal guard and safety feature*	

* **Safety feature**: to avoid accidental operation the pedal must be fully depressed. Press on the pedal with the whole shoe surface.

PEDAL WITH 5/2 MICROVALVE, push-in fittings for 5/32'' or ø4 mm tube - without pedal guard

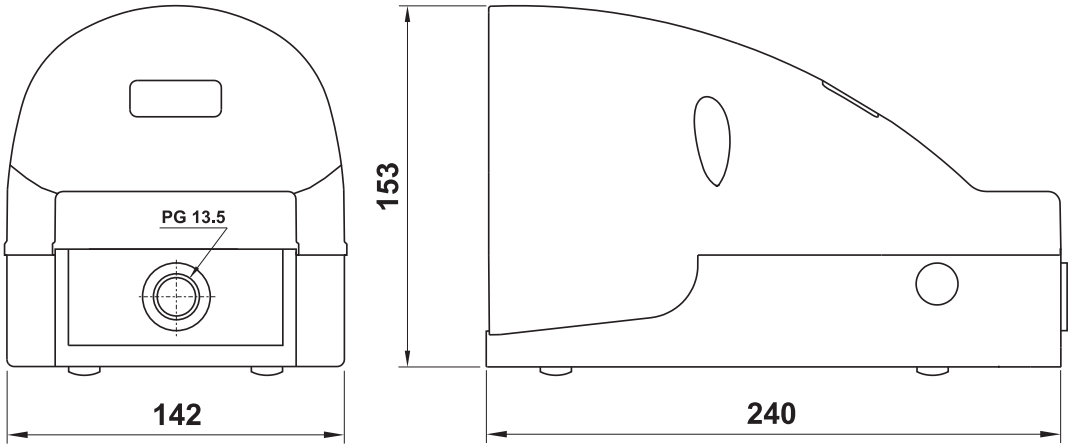


Cover colour: **YELLOW**
On request: **ORANGE** and **GREY**

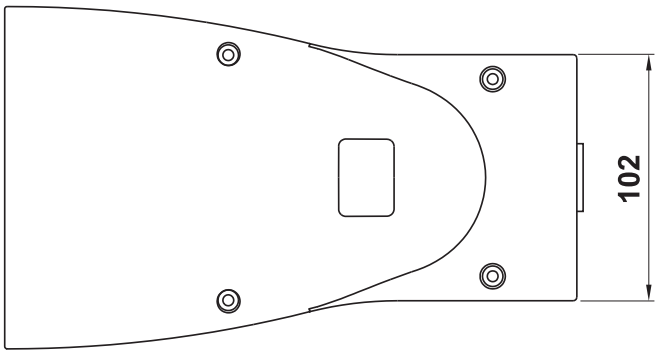
code	part number	description	symbol
08.319.4N	**PEDS 504 M**	Mono-stable pedal valve 5/2, push-in fittings 5/32'' NPT or ø4 mm, without pedal guard	
08.320.4N	**PEDS 504 B**	Bi-stable pedal valve 5/2, push-in fittings 5/32'' NPT or ø4 mm, without pedal guard	
08.321.4N	**PEDS 504 S**	Mono-stable pedal valve 5/2, push-in fittings 5/32'' NPT or ø4 mm, without pedal guard, with safety feature*	
08.322.4N	**PEDS 504 BS**	Bi-stable pedal valve 5/2, push-in fittings 5/32'' NPT or ø4 mm, without pedal guard, with safety feature*	

* **Safety feature**: to avoid accidental operation the pedal must be fully depressed. Press on the pedal with the whole shoe surface.

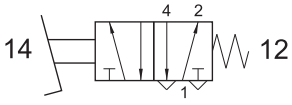
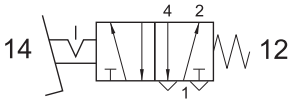
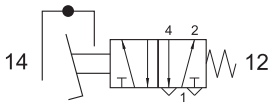
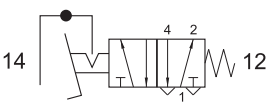
PEDAL WITH 5/2 MICROVALVE, push-in fittings for 5/32'' or ø4 mm tube - valve in retracted position



Cover colour: **YELLOW**
On request: **ORANGE** and **GREY**

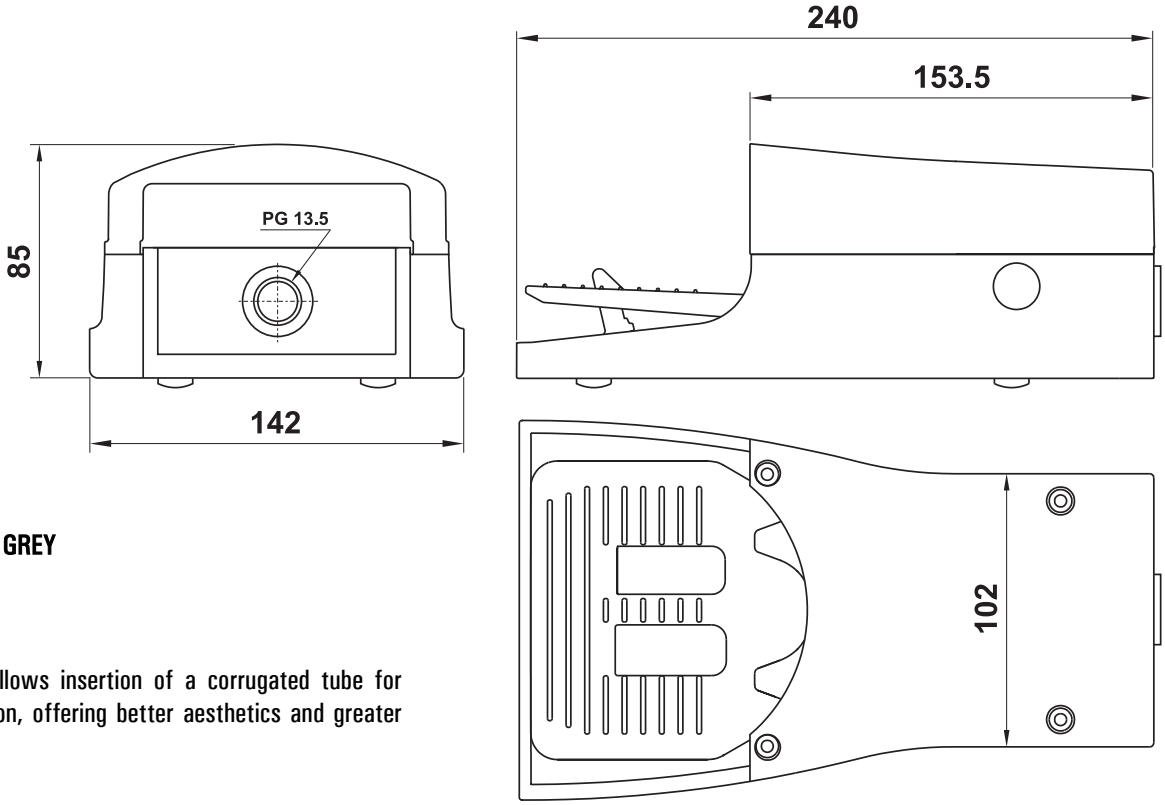


The retracted position allows insertion of a corrugated tube for pneumatic tube connection, offering better aesthetics and greater safety.

code	part number	description	symbol
08.323.4N	**PED 504 MA**	Mono-stable pedal valve 5/2, push-in fittings 5/32'' NPT or ø4 mm, with pedal guard	
08.324.4N	**PED 504 BA**	Bi-stable pedal valve 5/2, push-in fittings 5/32'' NPT or ø4 mm, with pedal guard	
08.325.4N	**PED 504 SA**	Mono-stable pedal valve 5/2, push-in fittings 5/32'' NPT or ø4 mm, with pedal guard and safety feature*	
08.326.4N	**PED 504 BSA**	Bi-stable pedal valve 5/2, push-in fittings 5/32'' NPT or ø4 mm, with pedal guard and safety feature*	

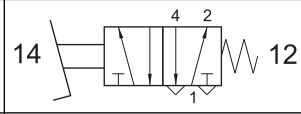
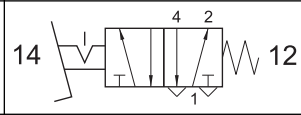
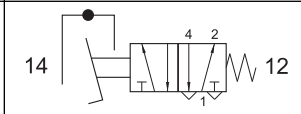
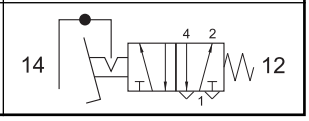
***Safety feature**: to avoid accidental operation the pedal must be fully depressed. Press on the pedal with the whole shoe surface.

PEDAL WITH 5/2 MICROVALVE, push-in fittings for 5/32'' or ø4 mm tube - valve in rear position - without protection cover



Cover colour: **YELLOW**
On request: **ORANGE** and **GREY**

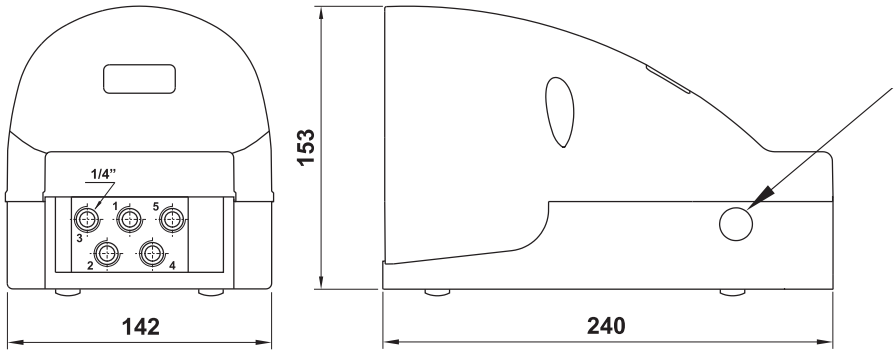
The retracted position allows insertion of a corrugated tube for pneumatic tube connection, offering better aesthetics and greater safety.

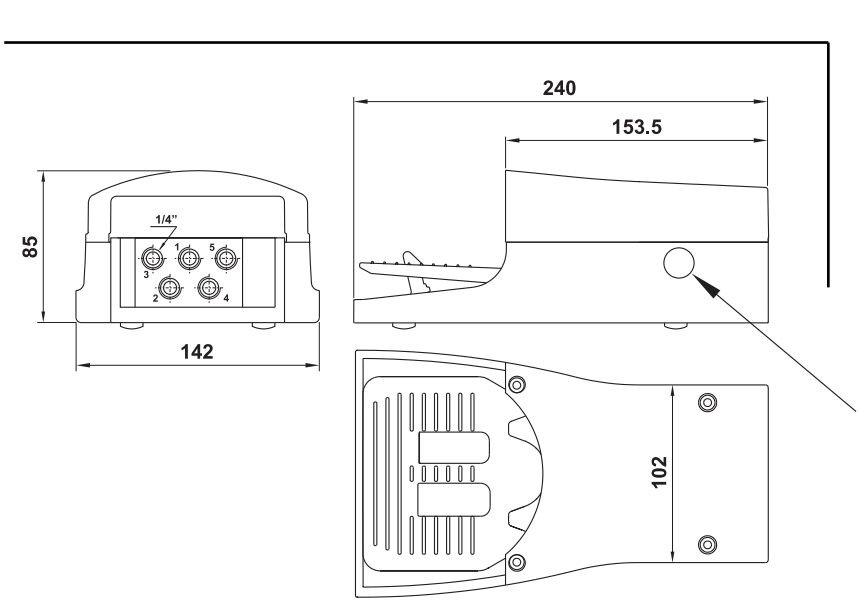
code	part number	description	symbol
08.327.4N	**PEDS 504 MA**	Mono-stable pedal valve 5/2, push-in fittings 5/32'' NPT or ø4 mm, without pedal guard	
08.328.4N	**PEDS 504 BA**	Bi-stable pedal valve 5/2, push-in fittings 5/32'' NPT or ø4 mm, without pedal guard	
08.329.4N	**PEDS 504 SA**	Mono-stable pedal valve 5/2, push-in fittings 5/32'' NPT or ø4 mm, without pedal guard, with safety feature*	
08.330.4N	**PEDS 504 BSA**	Bi-stable pedal valve 5/2, push-in fittings 5/32'' NPT or ø4 mm, without pedal guard, with safety feature*	

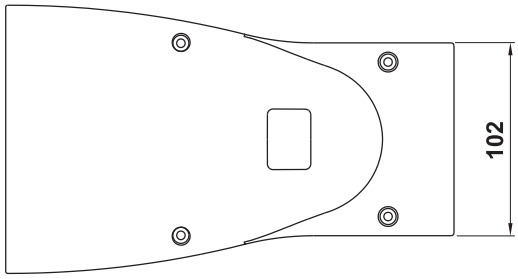
***Safety feature**: to avoid accidental operation the pedal must be fully depressed. Press on the pedal with the whole shoe surface.

PEDAL WITH 5/2 1/4" NPT SERVO-PILOTED SPOOL VALVE LATERAL SECURITY SWITCH
(BSP version avaiable on request)

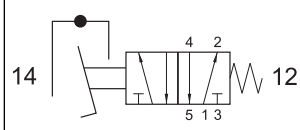
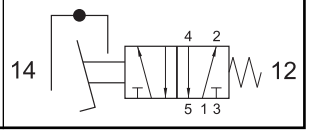
Cover colour: **YELLOW**
On request: **ORANGE** and **GREY**







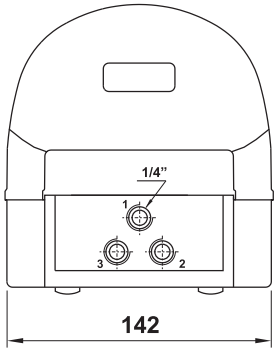
Security Switch: after connecting air supply, for proper operations, simply push the button to activate the valve. The same operation is necessary to re-start the valve if air supply is interrupted or missing.

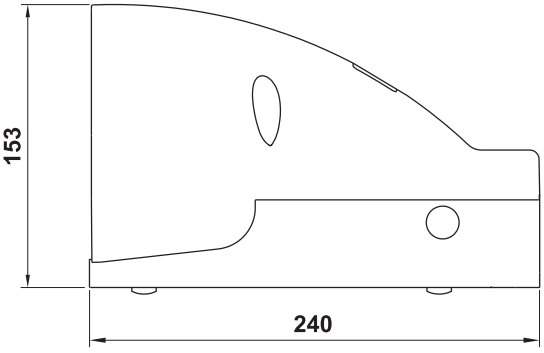
code	part number	description	symbol
US01.125.4N	**PED 502 SR**	Mono-stable pedal valve 5/2 1/4" NPT with pedal guard, safety feature* and security switch	
US01.147.4N	**PEDS 502 SR**	Mono-stable pedal valve 5/2 1/4" NPT without pedal guard, with safety feature* and with security switch	

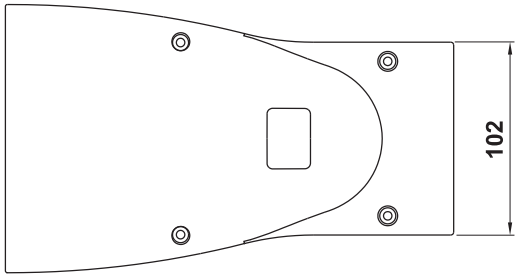
* **Safety feature**: to avoid accidental operation the pedal must be fully depressed. Press on the pedal with the whole shoe surface.

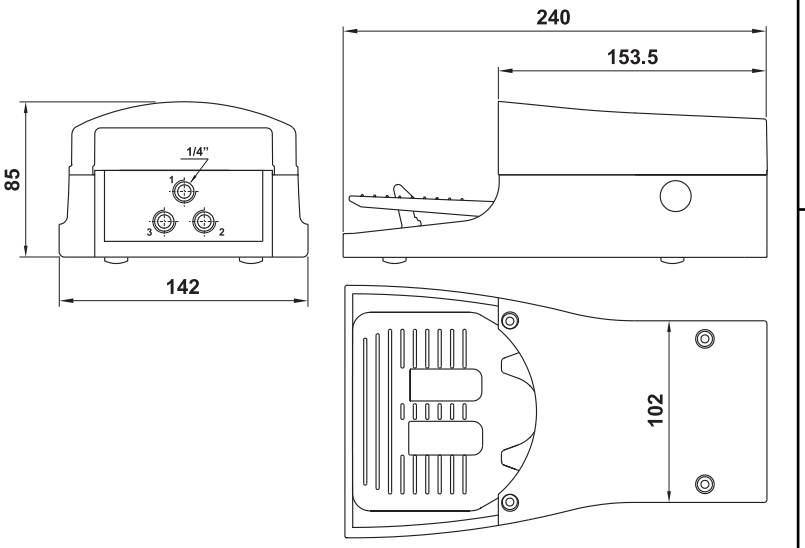
PEDAL WITH DIRECTLY ACTUATED VALVE WITH PROGRESSIVE FLOW RATE

Cover colour: **YELLOW**
On request: **ORANGE** and **GREY**

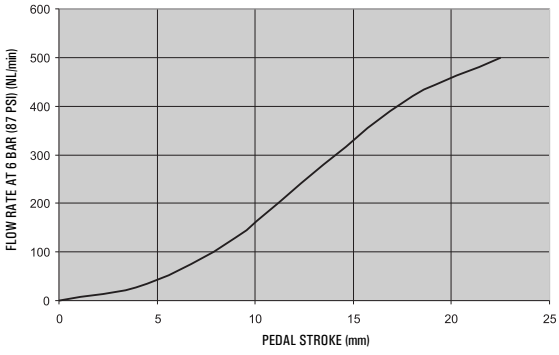


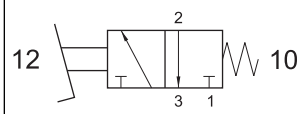
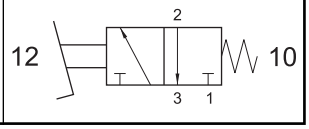






Valve flow rate related to pedal stroke



code	part number	description	symbol
US01.133.4N	**PED 302 P**	Mono-stable pedal valve 3/2 N/C 1/4" NPT progressive flow rate, with pedal guard	
US01.156.4N	**PEDS 302 P**	Mono-stable pedal valve 3/2 N/C 1/4" NPT progressive flow rate, without pedal guard	

Attention: the valve cannot be used as normally open.

DOUBLE PEDAL

The two pedals are connected by a connecting block (aluminium). The hand grip is made of chromed steel.ø10, height mm 700

code	part number	description
US01.157.4N	**PED 502 M + PEDS EB**	Mono-stable pedal valve 5/2 1/4" NPT with pedal guard + bi-stable pedal with electric contact N/C-N/O, without pedal guard

Other combinations are possible upon request.

ACCESSORIES FOR DOUBLE PEDAL ASSEMBLY

kit connecting block

01.081.2

stick ø10; height mm 700

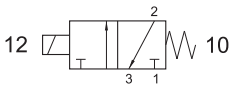
01.080.2

Notes

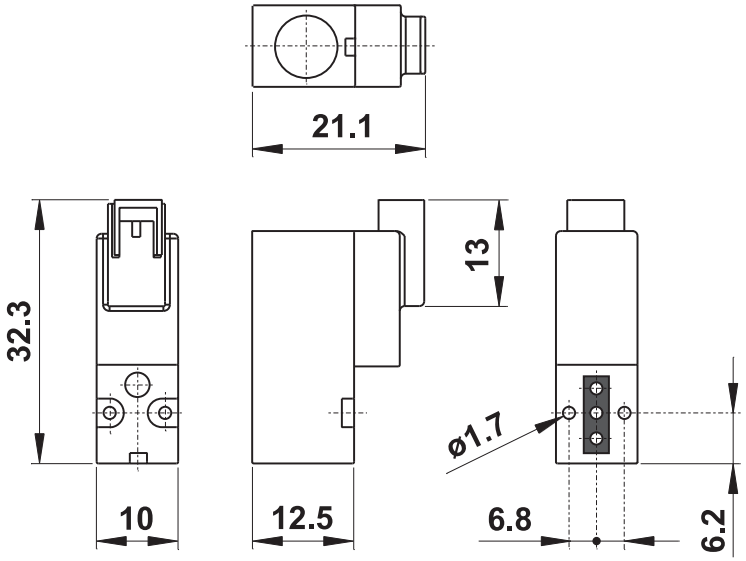
COILS, CONNECTORS, SOLENOID VALVES

10 mm solenoids

Solenoid valve **10 mm** CE



00.441.0

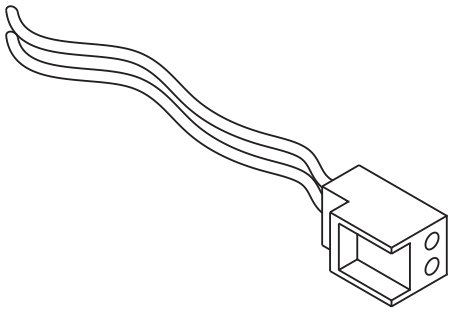


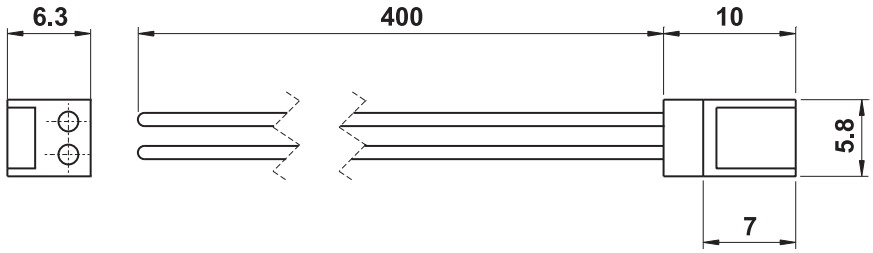
Tension	24V DC ±10%
Power	0.5 ... 1 W
Nominal flow rate at 6 bar (87 PSI), Δp 1 bar (14 PSI)	15 Nl/min (0.01 Cv)

Temperature range	-5°C ...+60°C (23°F ... 140 ° F)
Operating pressure	0 ... 7 bar (0 ... 101 PSI) 0 ... 0.7 MPa
Fluid	5μ filtered, lubricated or non lubricated air

ACCESSORIES

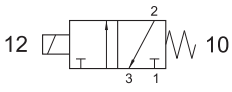
07.049.0 Connector for 10 mm solenoid with cable red/black, length 400 mm





15 mm solenoids and connectors

15 mm CE



valve function	**3/2 NC**
nominal diameter	**1.1 mm**
flow rate 1-2	**30 Nl/min (0.032 Cv)**
flow rate 2-3	**35 Nl/min (0.038 Cv)**
operating pressure	**max 10 bar (145 PSI)**
lifetime (cycles)	**100x10^6**
response time	**10 ms**
max operating temperature	**+50°C (122 °F)**
duty cycle	**ED 100%**
rated power consumption	**DC: 2W**
	AC: 1.3VA
protection	**IP 51**
tension tolerance	**-10%; +15%**

- Electrical connection: DIN 43650, C form
- With non-detented manual override

ACCESSORIES

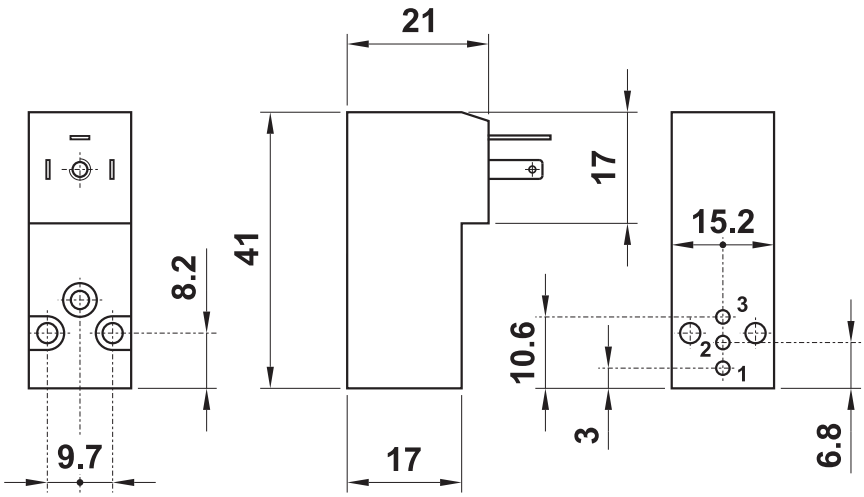
mounting plate with gasket

00.414.0

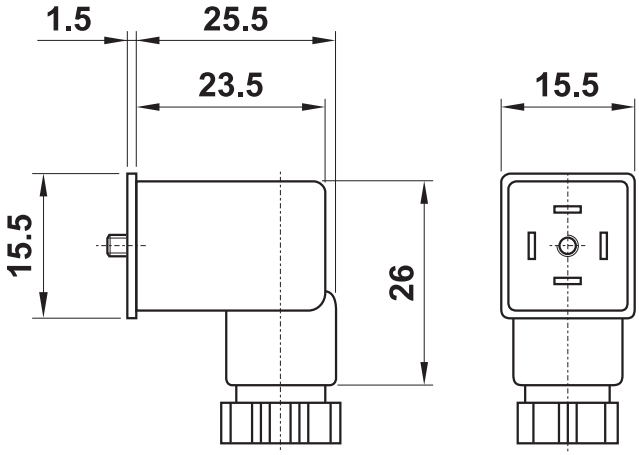
mounting screw (2 screws are necessary)

00.413.0

code	tension
00.253.0	12V DC
00.254.0	24V DC
00.255.0	24V 50/60Hz
00.256.0	110V 50/60Hz
00.257.0	220V 50/60Hz



code	colour	cable	type
00.252.0	black	PG07	standard
00.340.0	transparent	PG07	with LED 24V
00.341.0	transparent	PG07	with LED 24V and VDR
00.342.0	transparent	PG07	with LED 115V
00.343.0	transparent	PG07	with LED 115V and VDR
00.398.0	transparent	PG07	with LED 230V
00.399.0	transparent	PG07	with LED 230V and VDR



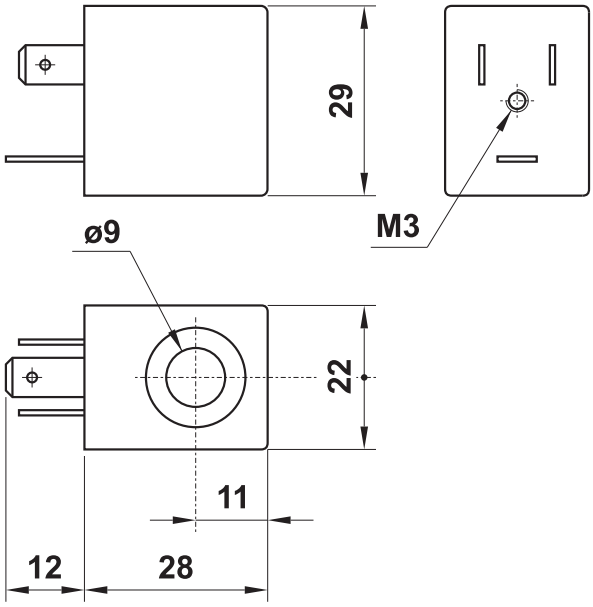
22 mm coils and connectors

22 mm c UL us

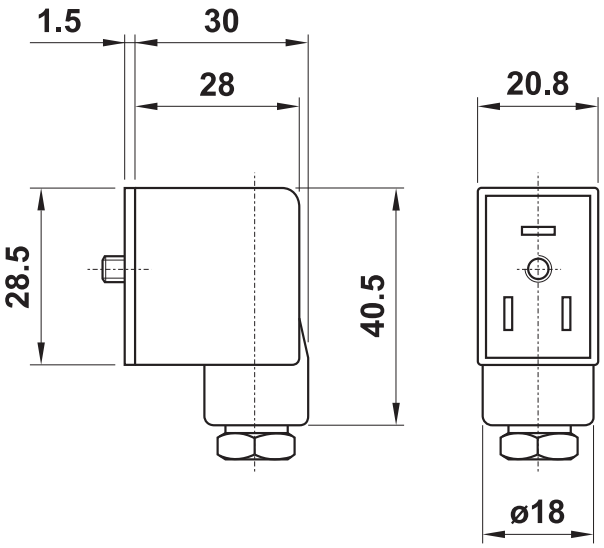
max working temperature	+50°C (122 °F)
duty cycle	ED 100%
protection with connector correctly mounted	IP 65
tension tolerance	±10%

- low consumption (1.5W) on request

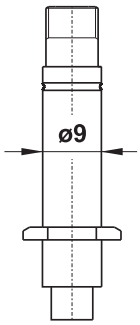
code	tension	power	
		rated	inrush
00.486.0	24V DC	3W	
00.487.0	24V 50/60Hz	5VA	7.5VA
00.488.0	110V 50/60Hz	5VA	7.5VA



code	colour	cable	type
00.197.0	black	PG09	standard
00.344.0	transparent	PG09	with LED 24V
00.345.0	transparent	PG09	with LED 24V and VDR
00.346.0	transparent	PG09	with LED 115V
00.347.0	transparent	PG09	with LED 115V and VDR
00.394.0	transparent	PG09	with LED 230V
00.395.0	transparent	PG09	with LED 230V and VDR



SPARE PARTS



armature for solenoid pilot

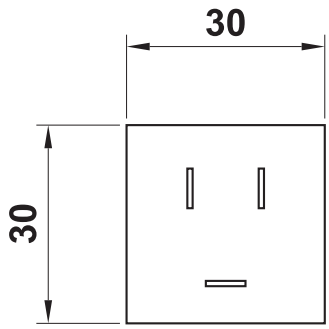
N/C : 00.088.0
N/O : 00.306.0

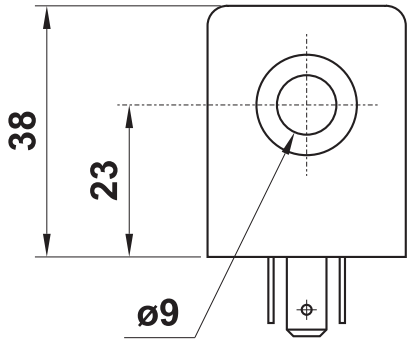
aluminium nut and elastic ring

00.125.2

30 mm CE

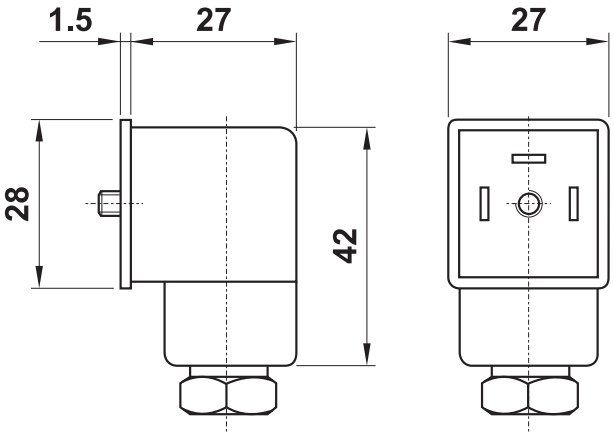
max working temperature	+50°C (122°F)
duty cycle	ED 100%
protection with connector correctly mounted	IP 65
tension tolerance	±10%



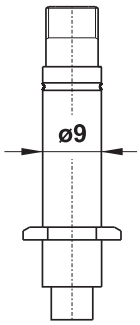


code	tension	power	
		rated	inrush
00.258.0	24V DC	2W	
00.259.0	24V 50/60Hz	5VA	9VA
00.260.0	110V 50/60Hz	5VA	9VA
00.261.0	220V 50/60Hz	5VA	9VA

code	colour	cable	type
00.251.0	black	PG09	standard
00.348.0	transparent	PG09	with LED 24V
00.349.0	transparent	PG09	with LED 24V and VDR
00.350.0	transparent	PG09	with LED 115V
00.351.0	transparent	PG09	with LED 115V and VDR
00.396.0	transparent	PG09	with LED 230V
00.397.0	transparent	PG09	with LED 230V and VDR



SPARE PARTS



armature for solenoid pilot

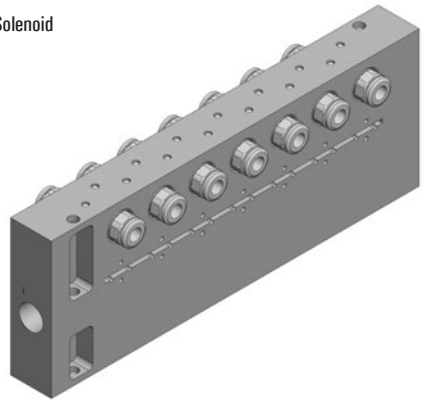
N/C :00.088.0
N/O : 00.306.0

aluminium nut and elastic ring

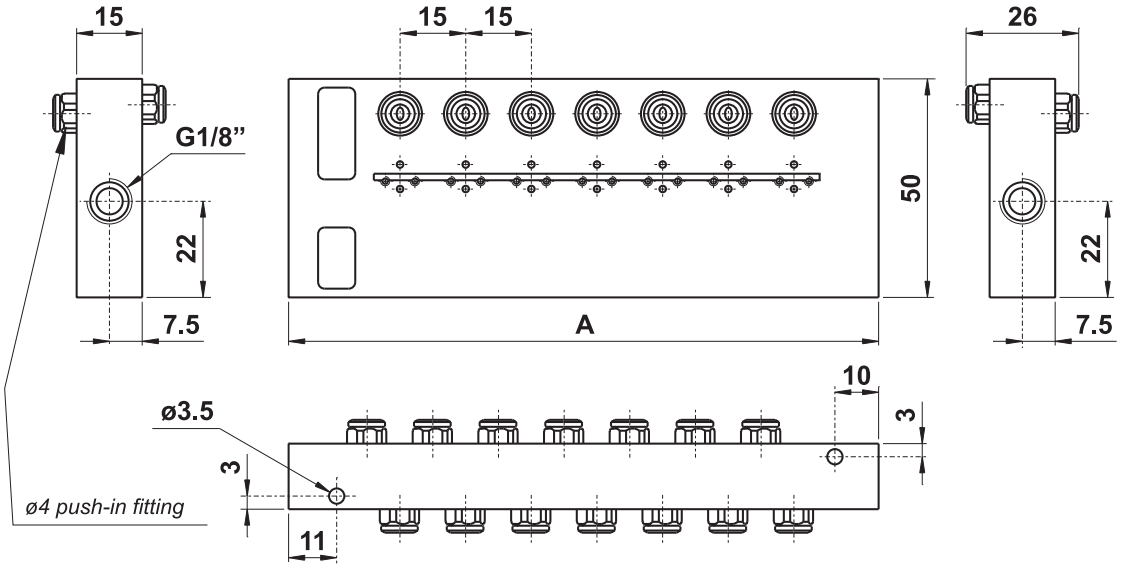
00.125.2

manifolds for 10 mm solenoid valves

The following codes refers only to manifolds. Solenoid valves can be bought separately (see above).



- These manifolds can be used independently or mounted in multiconnection systems (refer to pages 209-211))
- Attention: maximum torque for mounting screws of the solenoid valves: 0.25 Nm



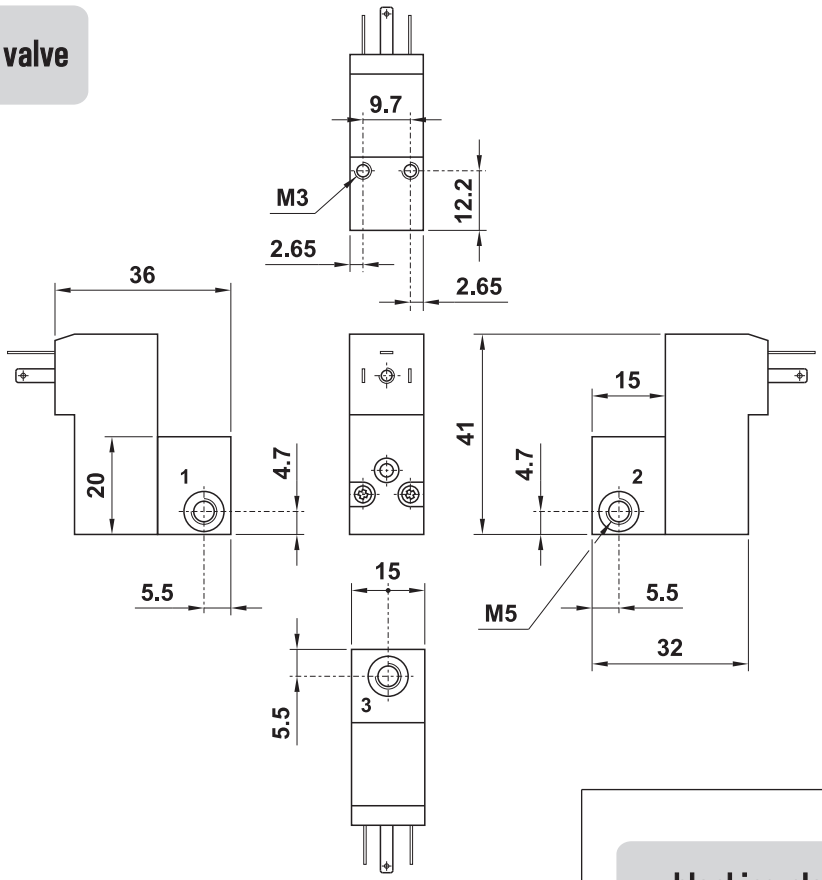
model	no. stations	A
07.090.2	4	60
07.091.2	6	75
07.092.2	8	90
07.093.2	10	105
07.094.2	12	120
07.095.2	14	135
07.096.2	16	150
07.097.2	18	165
07.098.2	20	180
07.099.2	22	195
07.100.2	24	210

Manifolds for 15 mm solenoid valves

The following codes refers only to manifolds. Solenoid valves can be bought separately

single manifold for 15 mm N/C solenoid valve

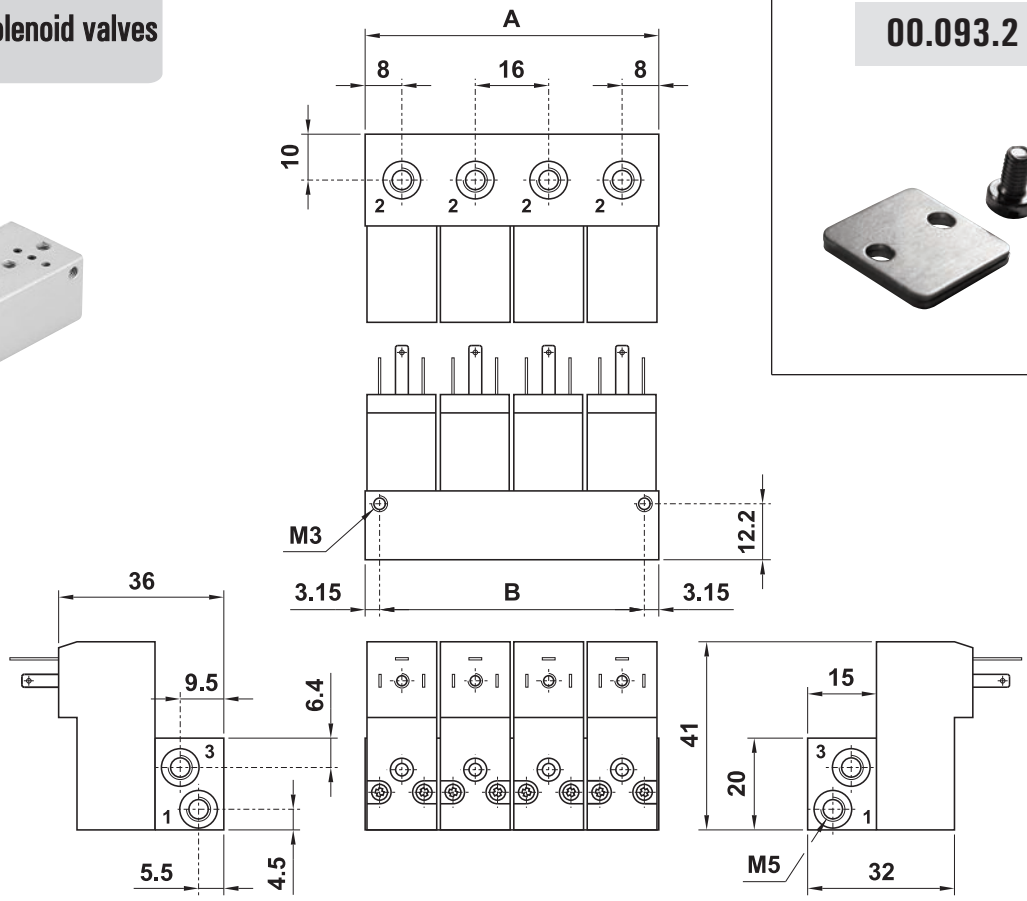
AU.061.1



blanking plate

00.093.2

manifolds for 15 mm N/C solenoid valves



model	no. stations	A	B
AU.062.1	2	32	25.7
AU.063.1	3	48	41.7
AU.064.1	4	64	57.7
AU.065.1	5	80	73.7
AU.066.1	6	96	89.7
AU.067.1	7	112	105.7
AU.068.1	8	128	121.7
AU.069.1	9	144	137.7
AU.070.1	10	160	153.7

Solenoid valves on manifold

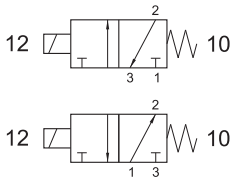
The following products are sold without coils. These can be bought separately

To use these products as 2/2 valves, for each solenoid valve it is necessary to order the aluminium nut (code **00.125.2**) with M5 plug (code **36.643.0**).

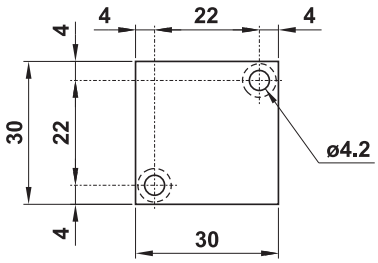
3/2 single solenoid valve with or without detented manual override

1/8"NPT

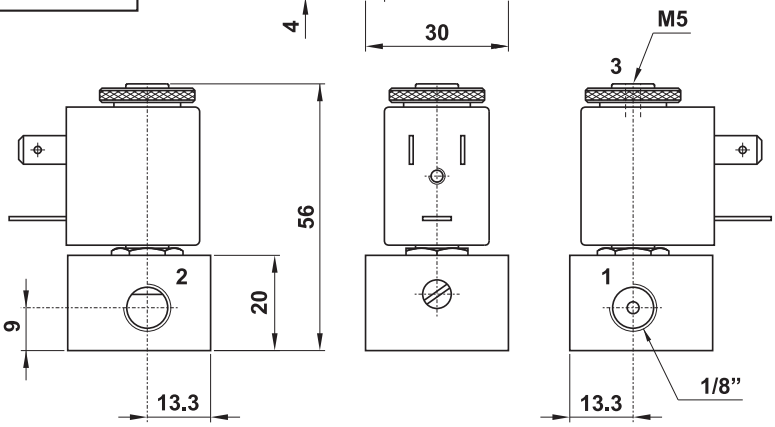
coil **22 mm**



	ORDER CODES	
	N/C	N/O
without manual override	US00.071.3	US00.088.3
with manual override	US00.051.3	



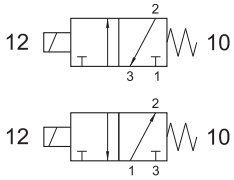
Temperature range	max +60°C (140°F)
Operating pressure	-0.7 ... 10 bar (Vacuum ... 145 PSI) -0.07 ... 1 MPa
Nominal diameter	1.1 mm
Nominal flow rate 1-2	30 Nl/min (0.03 Cv)
Fluid	50μ filtered, lubricated or non lubricated air



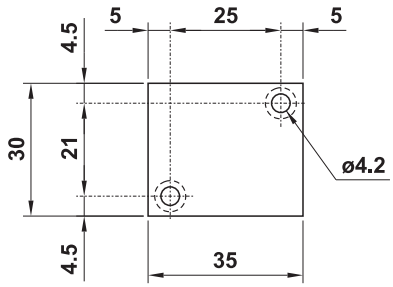
3/2 single solenoid valve with or without detented manual override

1/4"NPT

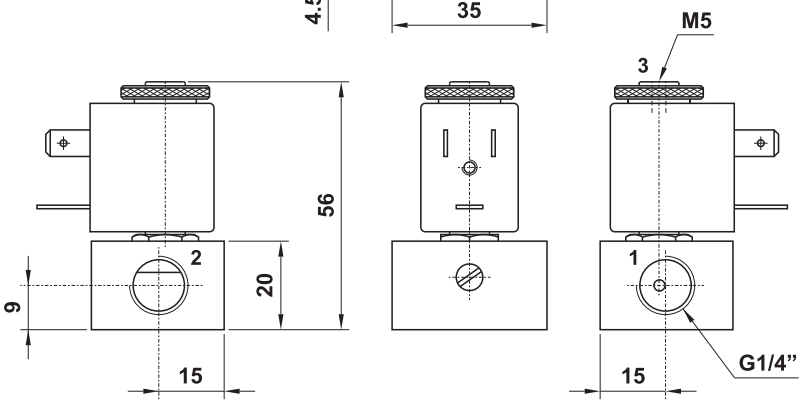
coil **22 mm**



	ORDER CODES	
	N/C	N/O
without manual override	US01.068.3	US01.066.3
with manual override	US01.005.3	



Temperature range	max +60°C (140 °F)
Operating pressure	-0.7 ... 10 bar (Vacuum ... 145 PSI) 0.07 ... 1 MPa
Nominal diameter	1.1 mm
Nominal flow rate 1-2	30 Nl/min (0.03 Cv)
Fluid	50μ filtered, lubricated or non lubricated air



Solenoid valves on manifold

The following products are sold without coils. These can be bought separately

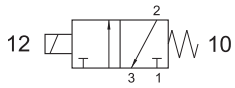
To use these products as 2/2 valves, for each solenoid valve it is necessary to order the aluminium nut (code **00.125.2**) with M5 plug (code **36.643.0**).

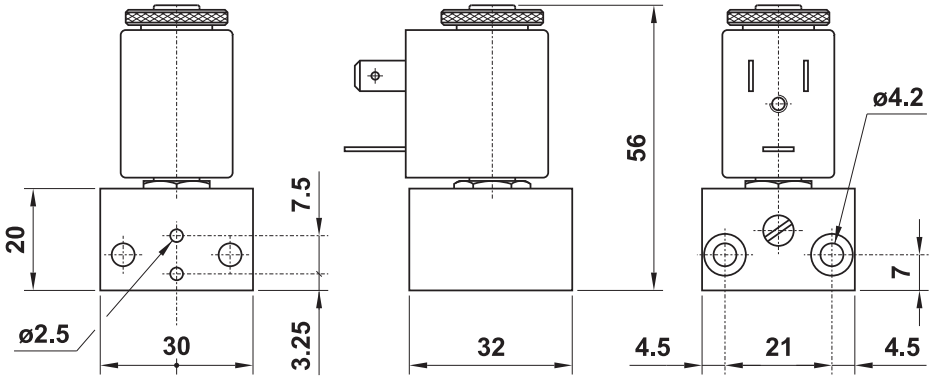
3/2 N/C single solenoid valve on CNOMO-base with manual override

coil **22 mm**

US00.004.3 with detented manual override

US00.064.3 with non-detented manual override

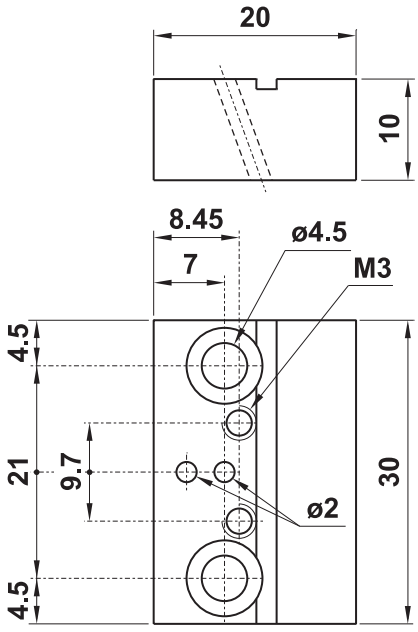




Temperature range	max +60°C (140°F)
Operating pressure	-0.7 ... 10 bar (Vacuum... 145 PSI) -0.07 ... 1 MPa
Nominal diameter	1.1 mm
Nominal flow rate 1-2	30 Nl/min (0.03 Cv)
Fluid	50μ filtered, lubricated or non lubricated air

interface for 15 mm solenoid valve on CNOMO-base

00.441.1



Solenoid valves on manifold

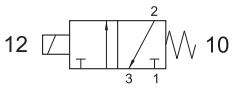
The following products are sold without coils. These can be bought separately

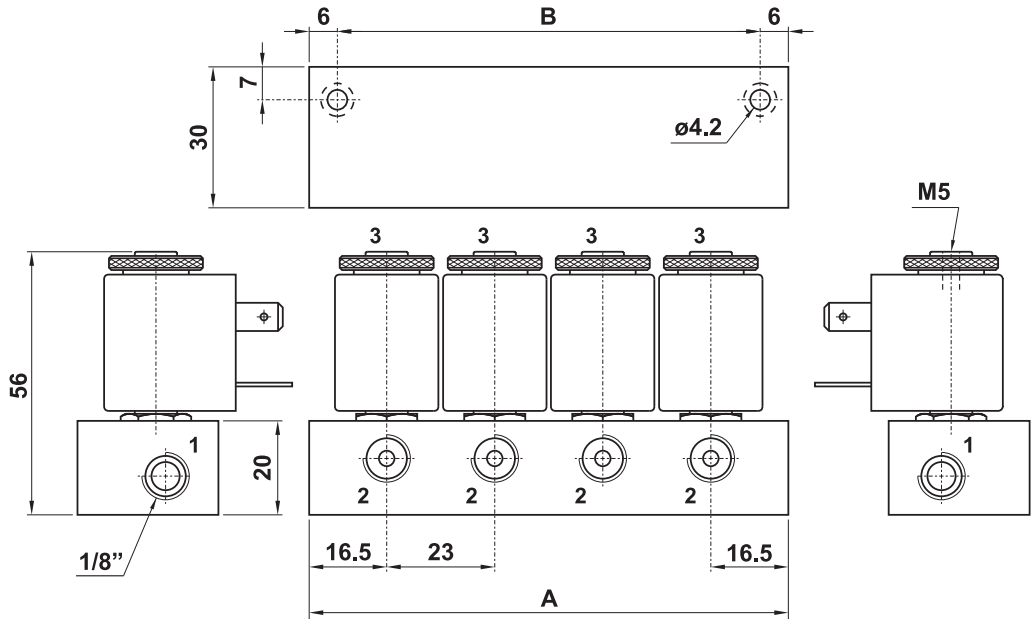
To use these products as 2/2 valves, for each solenoid valve it is necessary to order the aluminium nut (code **00.125.2**) with M5 plug (code **36.643.0**).

3/2 N/C solenoid valves on manifold without manual override

22 mm

- nominal diameter 1.1 mm (0.04 in)



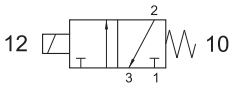


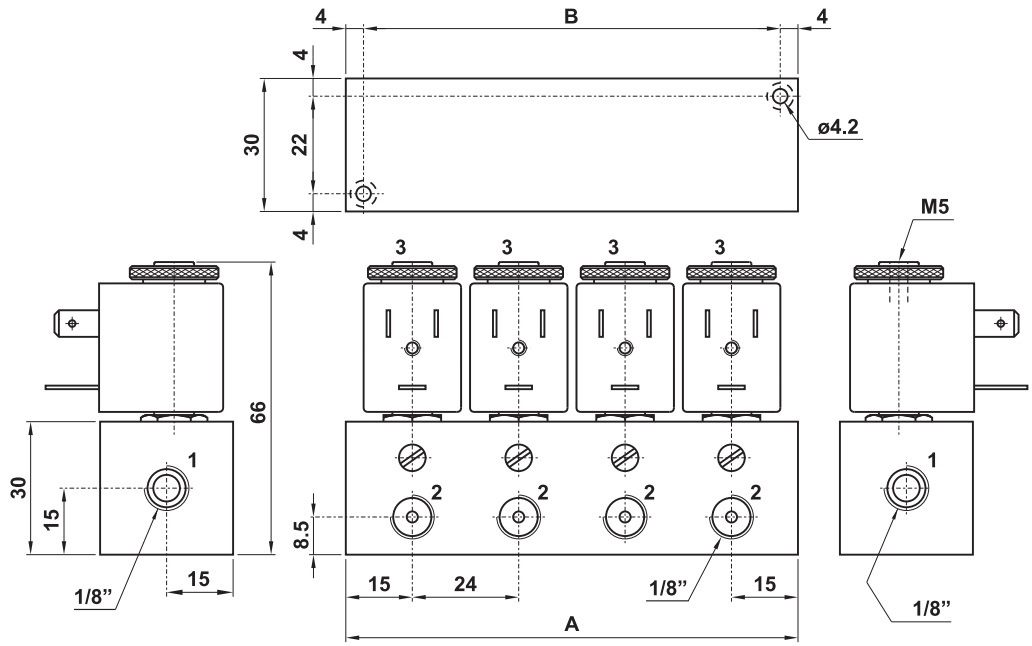
model	no. stations	A	B
US00.072.3	2	56	44
US00.073.3	3	79	67
US00.074.3	4	102	90
US00.075.3	5	125	113
US00.076.3	6	148	136
US00.077.3	7	171	159
US00.078.3	8	194	182
US00.079.3	9	217	205
US00.080.3	10	240	228

3/2 N/C solenoid valves on manifold with detented manual override

22 mm

- nominal diameter 1.1 mm (0.04 in)

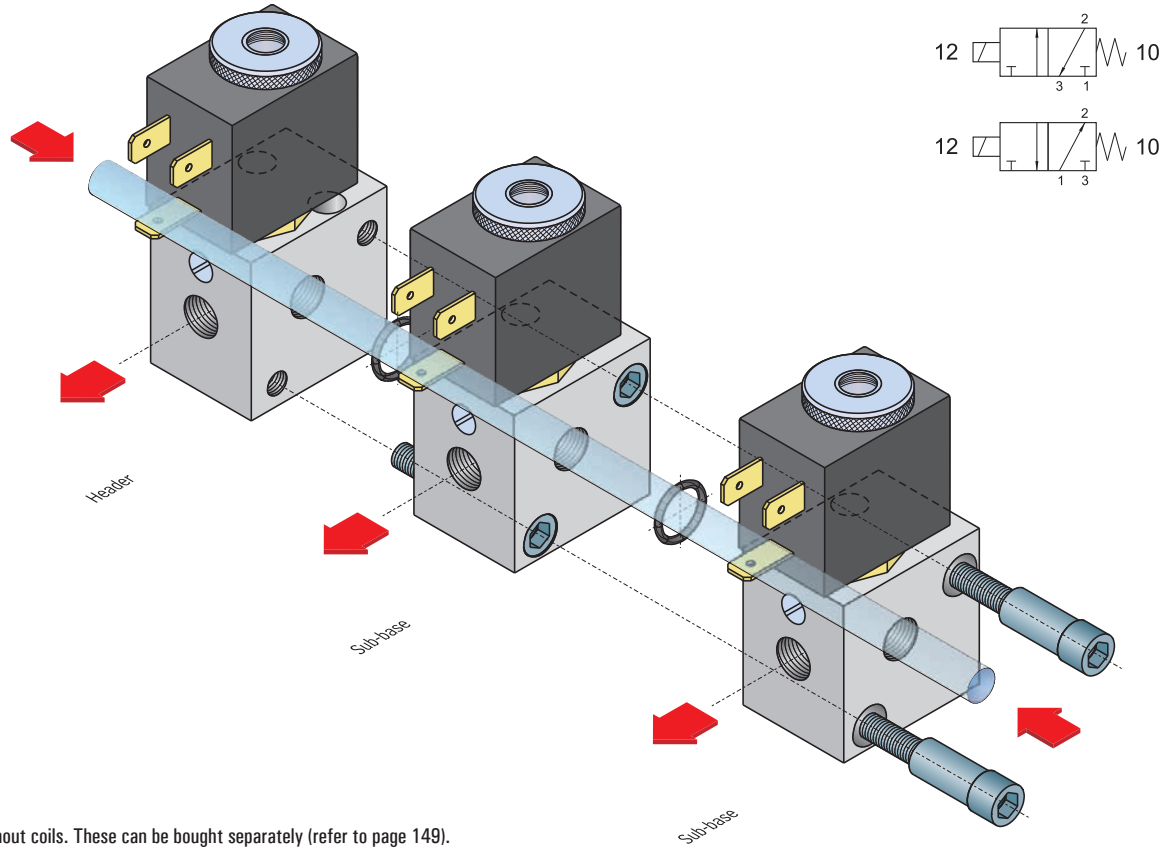




model	no. stations	A	B
US00.052.3	2	54	46
US00.053.3	3	78	70
US00.054.3	4	102	94
US00.055.3	5	126	118
US00.056.3	6	150	142

Solenoid valves on multiple sub-bases

- User ports: 1/8" NPT (BSP version avaiable on request) or push-in fittings for 5/32'' or ø4 mm tube
- Headers can be used also as bases for standing-alone solenoid valves
- With or without detented manual override
- Normally closed and normally open 3/2 version
- For 22 mm coils



The following products are sold without coils. These can be bought separately (refer to page 149).

Temperature range	max +60°C (140°F)
Operating pressure	-0.7 ... 10 bar (Vacuum ... 145 PSI) -0.07 ... 1 MPa
Nominal diameter	1.1 mm (0.04 in)
Fluid	50μ filtered, lubricated or non lubricated air

To use these products as 2/2 valves, for each solenoid valve it is necessary to order the aluminium nut (code **00.125.2**) with M5 plug (code **36.643.0**).

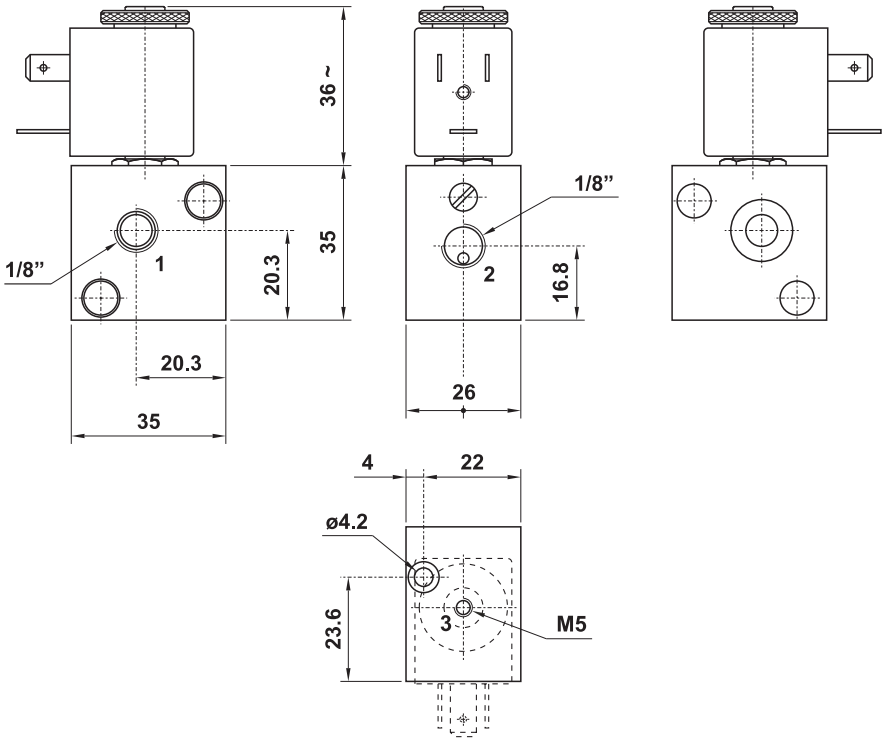
Sub-bases and headers are sold with all necessary pieces for installation.

sub-base

with detented manual override

1/8"NPT

ORDER CODE
N/C
US00.094.3

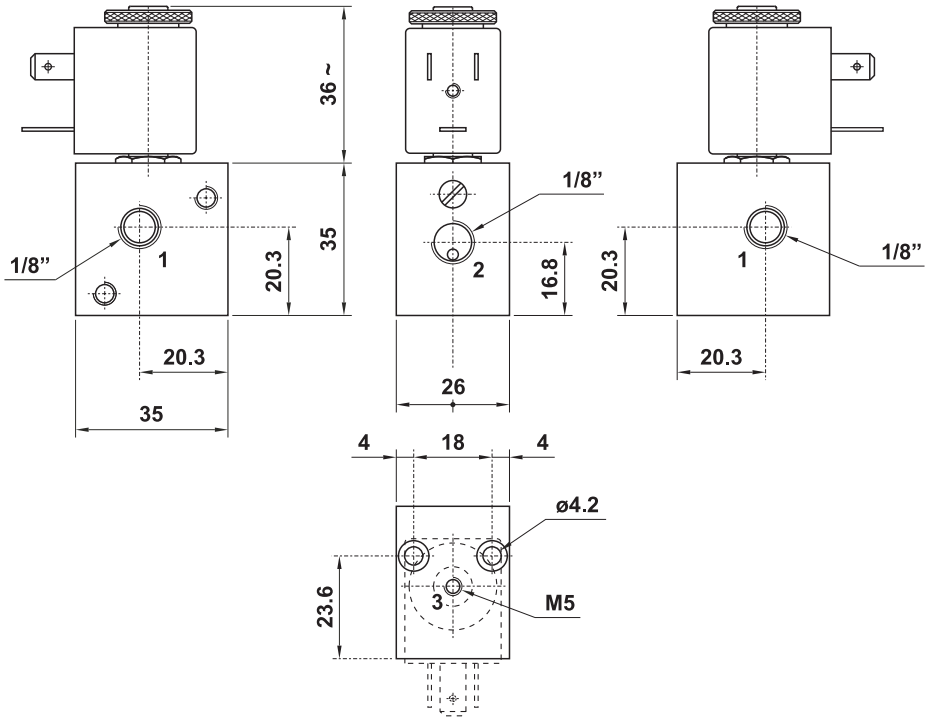


header

with detented manual override

1/8"NPT

ORDER CODE
N/C
US00.095.3

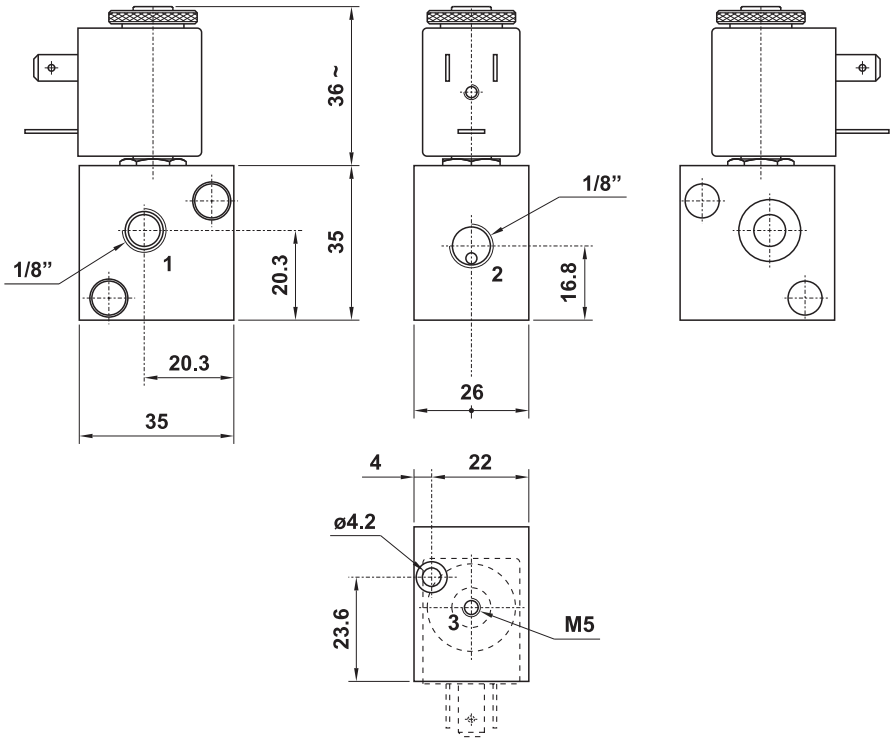


sub-base

without manual override

1/8"NPT

ORDER CODES	
N/C	N/O
US00.096.3	US00.130.3

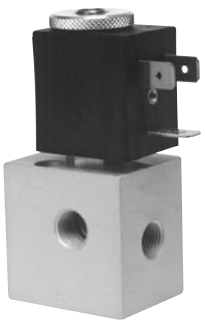


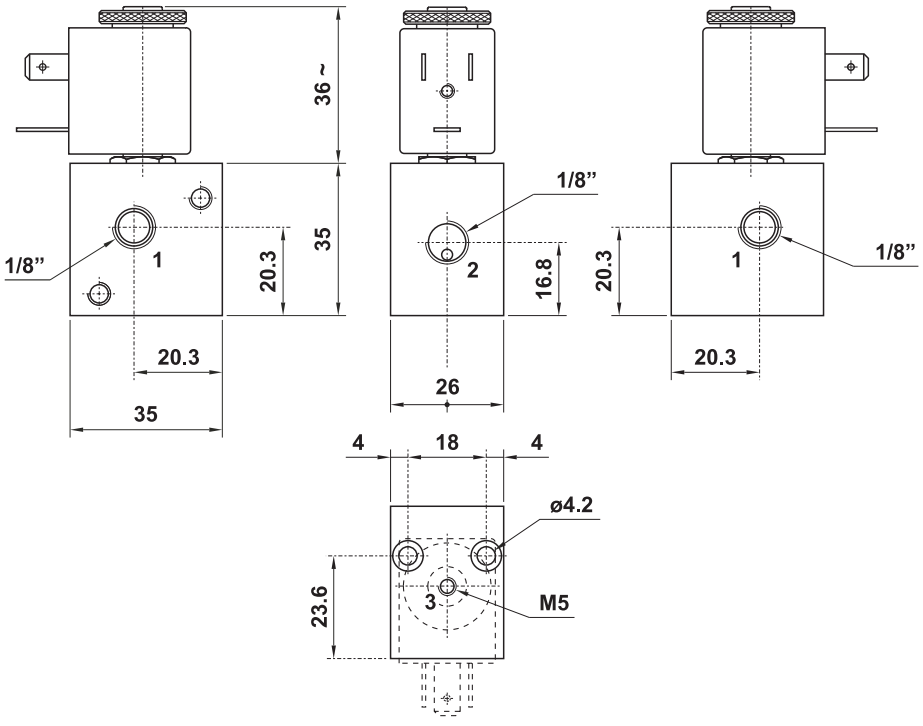
header

without manual override

1/8"NPT

ORDER CODES	
N/C	N/O
US00.097.3	US00.131.3



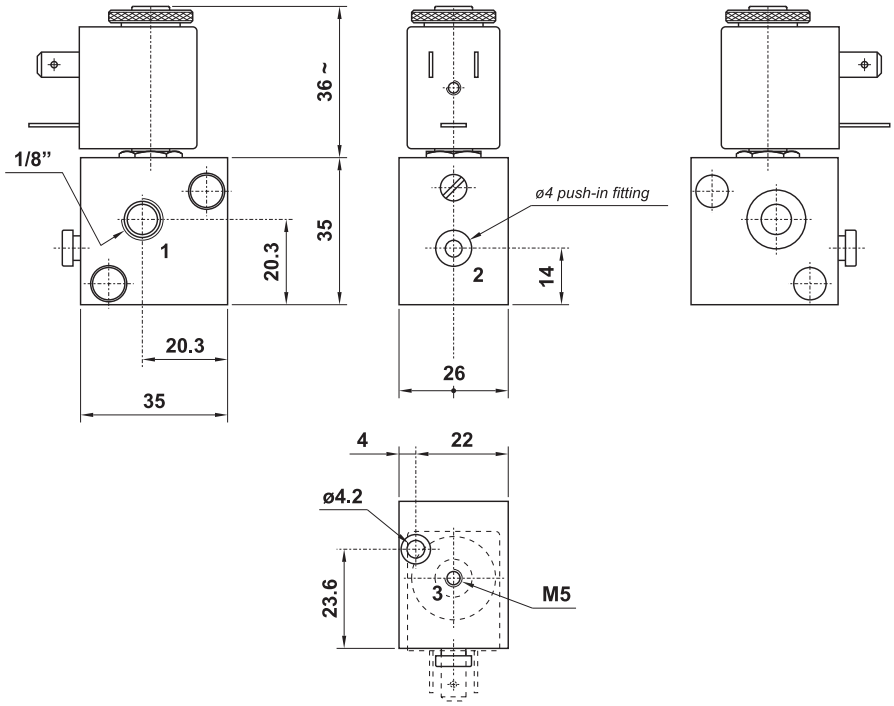


sub-base

with detented manual override

ø4

ORDER CODE
N/C
US00.098.3

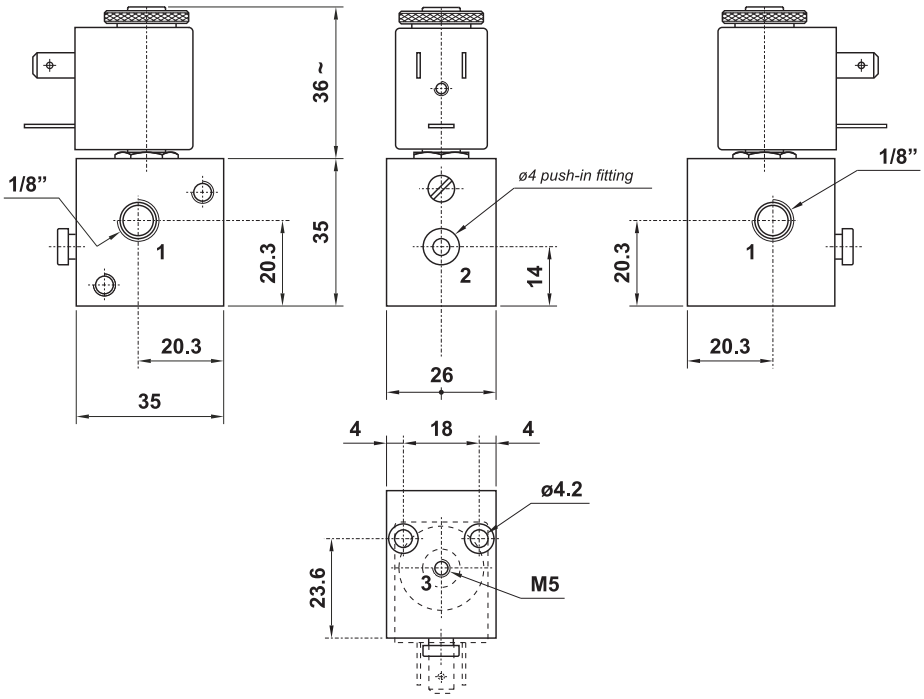


header

with detented manual override

ø4

ORDER CODE
N/C
US00.099.3

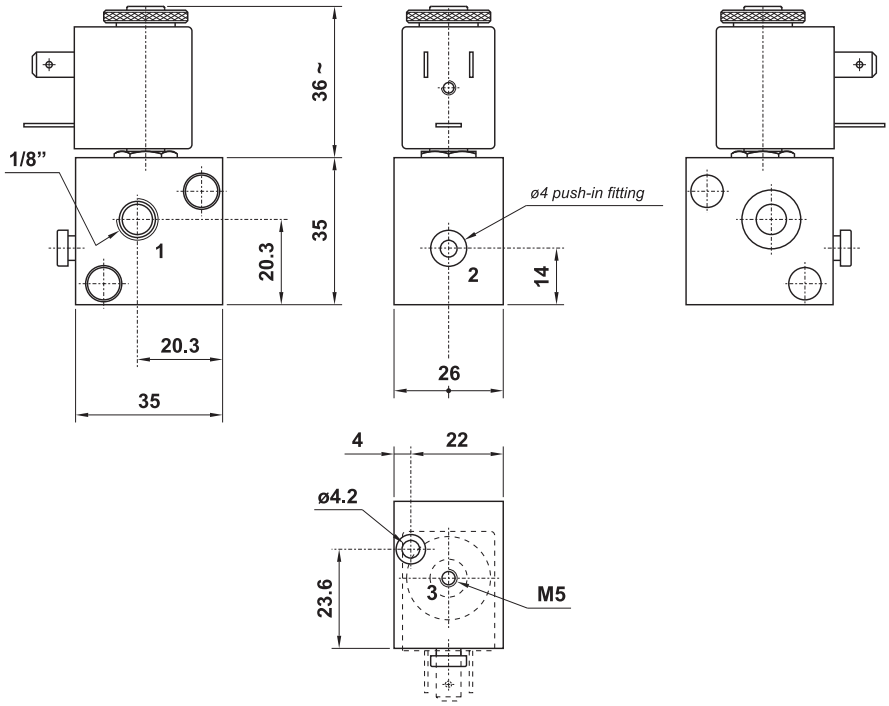


sub-base

without manual override

ø4

ORDER CODES	
N/C	N/O
US00.100.3	US00.134.3

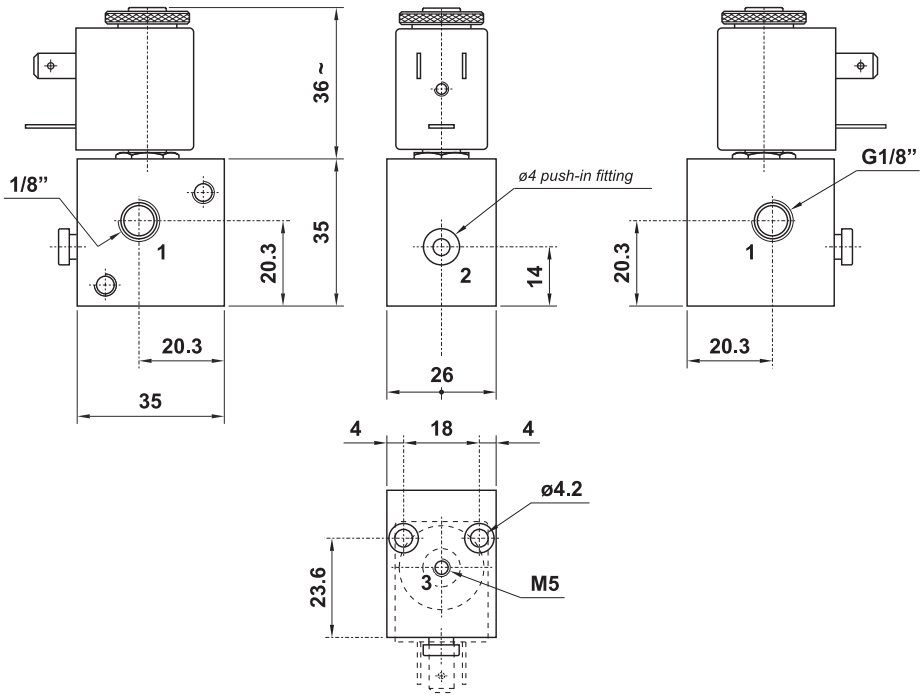


header

without manual override

ø4

ORDER CODES	
N/C	N/O
US00.101.3	US00.135.3

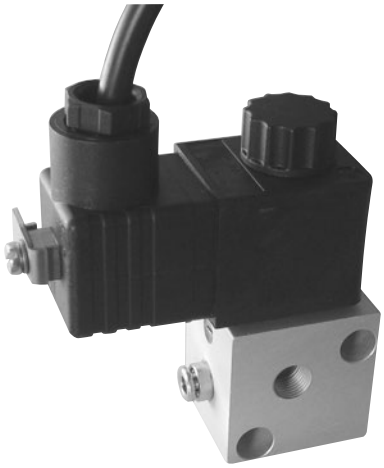


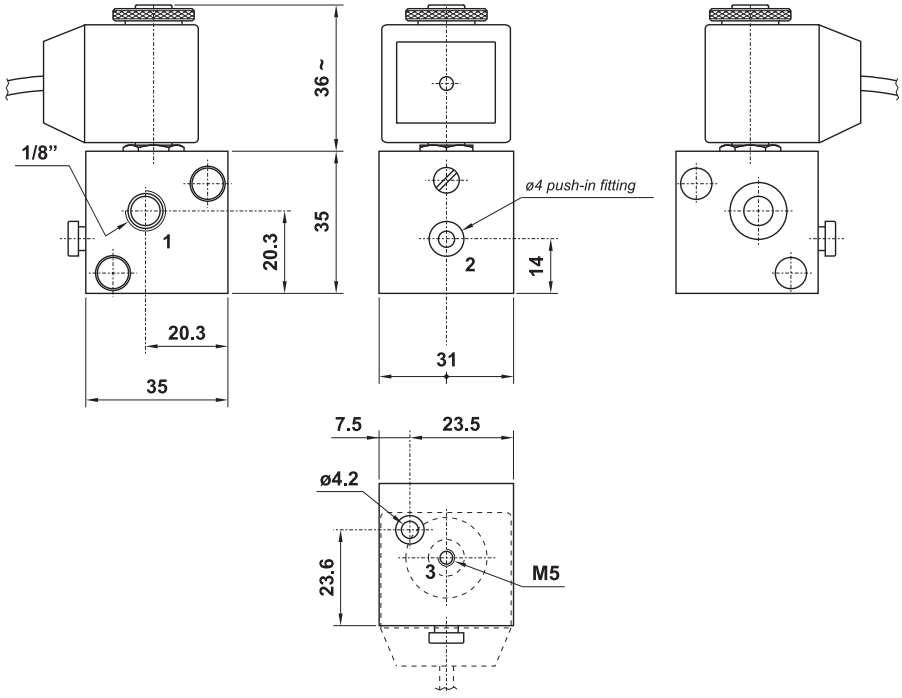
sub-base

with manual override

ø4

ORDER CODE
N/C
US00.104.3X



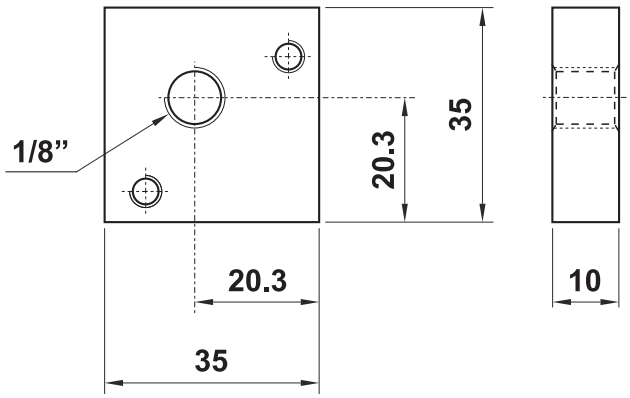


ATEX version on request

The following products are sold without coils. These can be bought separately (refer to page 151: ATEX 30 mm coils). They can be used only as 3/2 NC valve.

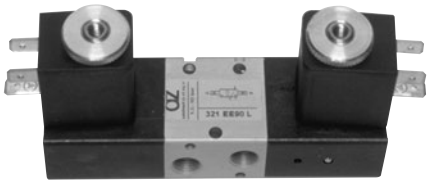
closed header

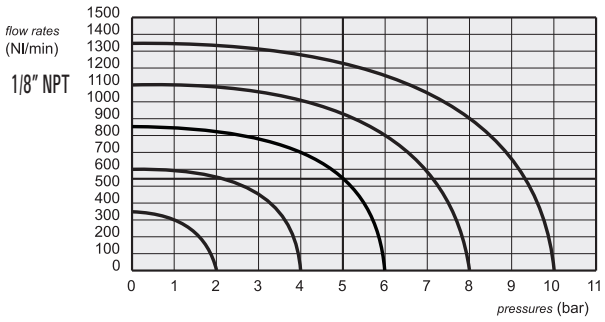
US00.360.1

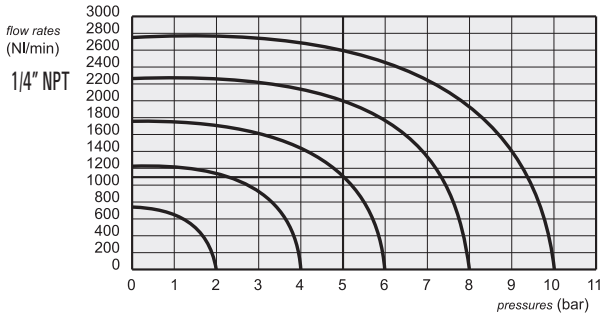


Solenoid actuated valves

- 3/2-5/2-5/3 spool valves with 1/8" - 1/4" - 1/2" NPT threaded ports, BSP version avaiable on request
- Installation in-line, on gang or modular manifolds
- Solenoid pilots with detented manual override as standard
- On request with low consumption 1.5W
- Special versions on request
- **Coil sold separately on request**







Materials

Body: aluminium 11S
End cups: aluminium 11s
Springs: stainless steel
Seals: NBR
Spool: nickel plated aluminium
Internal parts: brass OT58

Response times

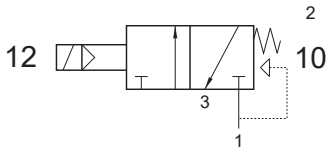
	1/8" NPT	1/4" NPT
mono-stable	TRA (14): 15 ms TRR (12): 35 ms	TRA (14): 19 ms TRR (12): 45 ms
bi-stable	TRA (14): 20 ms TRR (12): 20 ms	TRA (14): 22 ms TRR (12): 22 ms

The following products are sold without coils. These can be bought separately (refer to page 185).

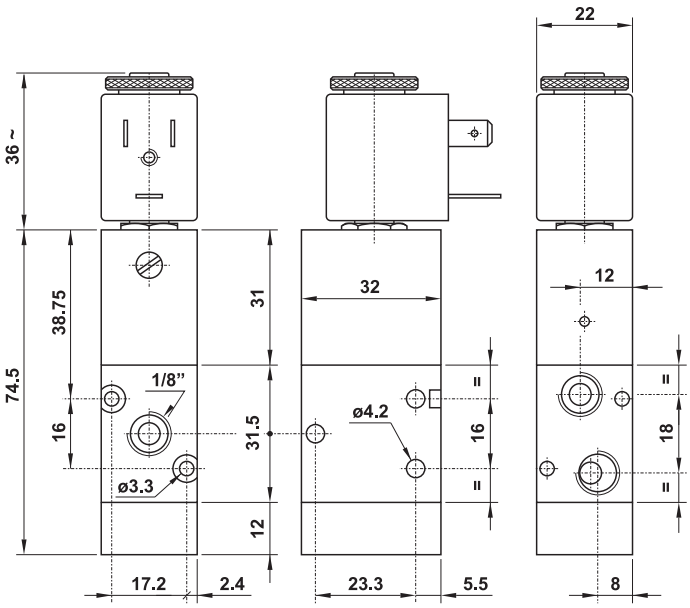
Nominal diameter	1/8" NPT: 5 mm 1/4'' NPT: 7.5 mm		
Temperature range	max +60°C (140 °F)		
Operating pressure	mono-stable internal air supply	bi-stable internal air supply	separate air supply
	2.5 ... 10 bar (36 ... 145 PSI) 0.25 ... 1 MPa	1 ... 10 bar (14 ... 145 PSI) 0.1 ... 1 MPa	-0.9 ... 10 bar (Vacuum ... 145 PSI) -0.09 ... 1 MPa
Actuating pressure (for separate air supply)	mono-stable	bi-stable	
	2.5 ... 10 bar (36 ... 145 PSI) 0.25 ... 1 MPa	1 ... 10 bar (14 ... 145 PSI) 0.1 ... 1 MPa	
Fluid	50μ filtered, lubricated or non lubricated air		

US321 ME

3/2 1/8" NPT N/C solenoid pilot - air and spring return

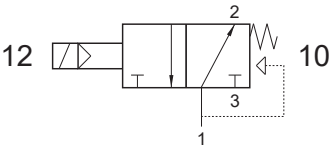


It cannot be used as normally open valve.

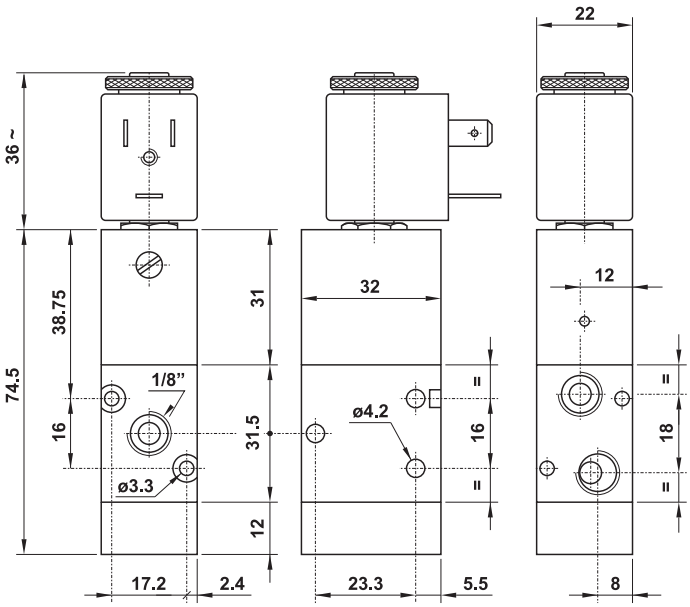


US321 MEA

3/2 1/8" NPT N/O solenoid pilot - air and spring return

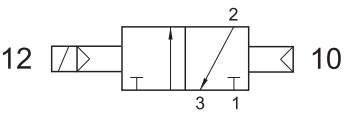


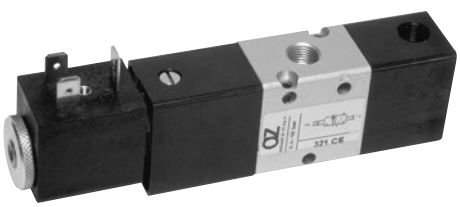
It cannot be used as normally closed valve.

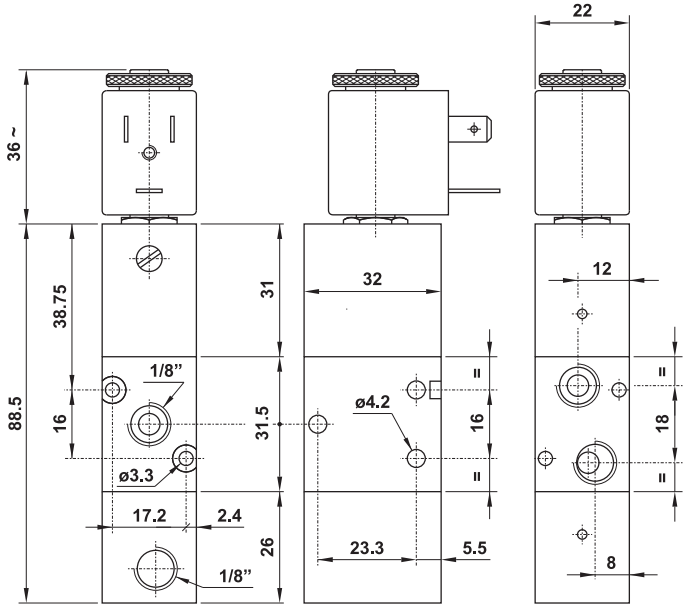


US321 CE

3/2 1/8" NPT solenoid pilot - separate pneumatically piloted return

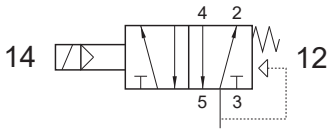


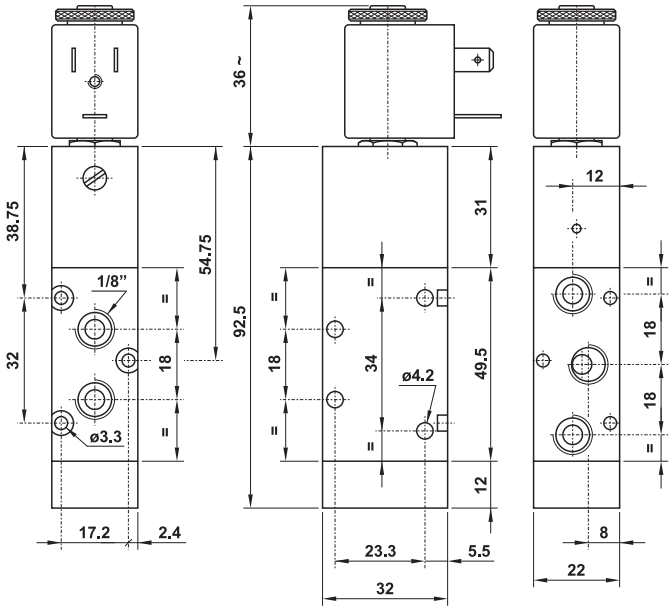




US521 ME

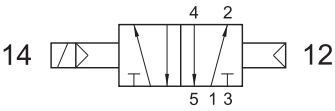
5/2 1/8" NPT solenoid pilot - air and spring return

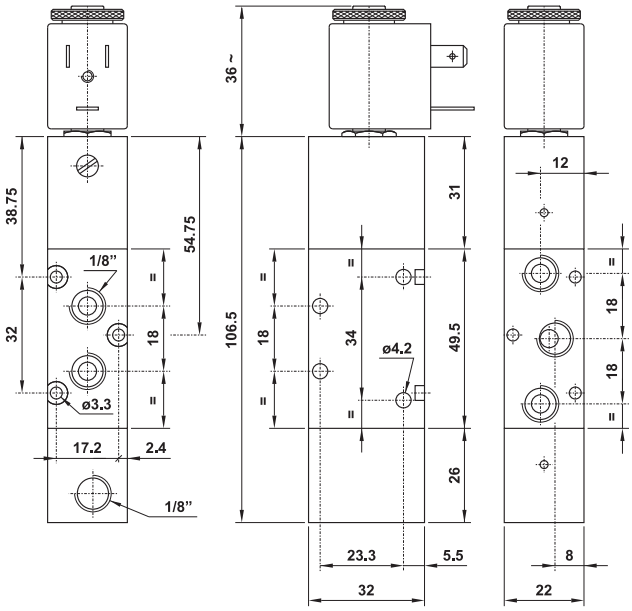




US521 CE

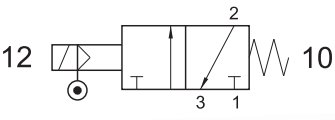
5/2 1/8" NPT solenoid pilot - separate pneumatically piloted return

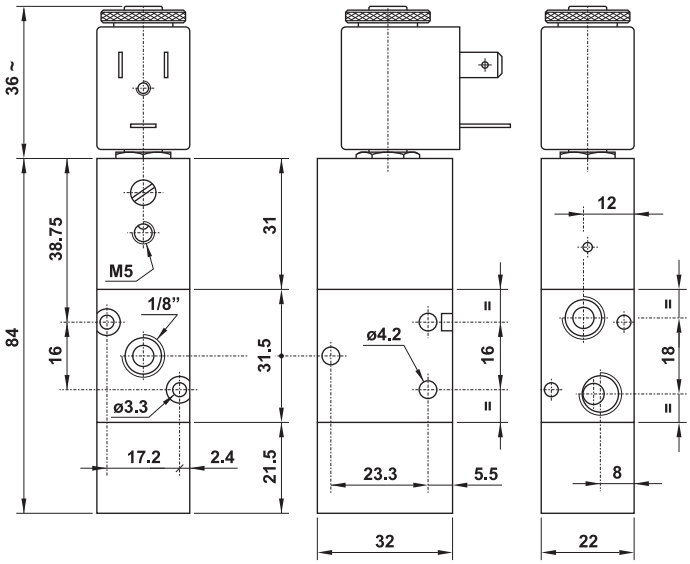




US321 ME AS

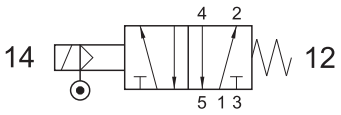
3/2 1/8" NPT solenoid pilot with separate air supply - spring return

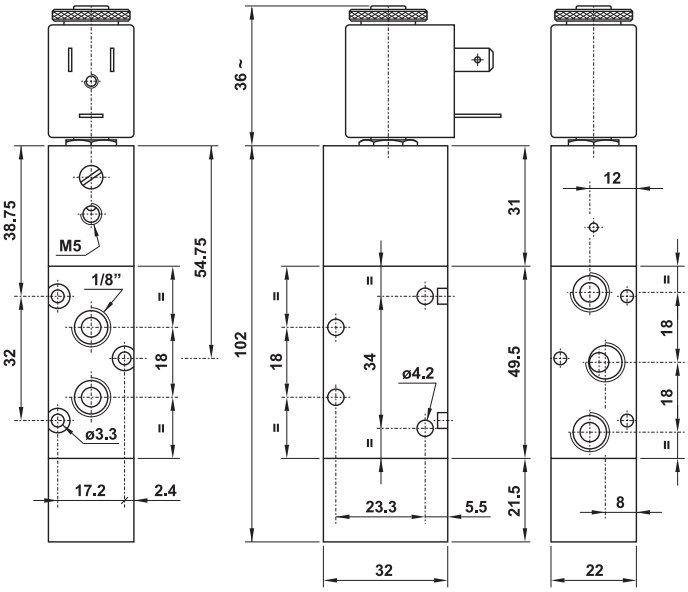




US521 ME AS

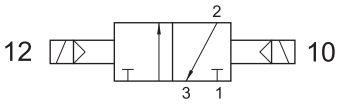
5/2 1/8" NPT solenoid pilot with separate air supply - spring return

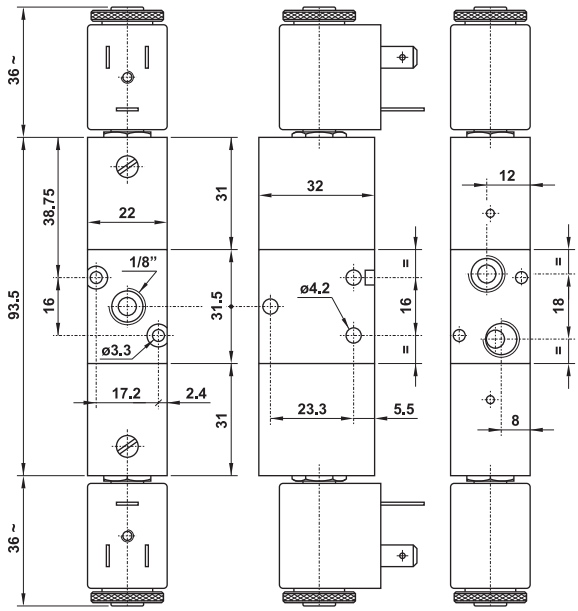




US321 EE

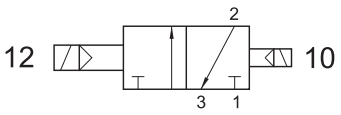
3/2 1/8" NPT double solenoid pilot

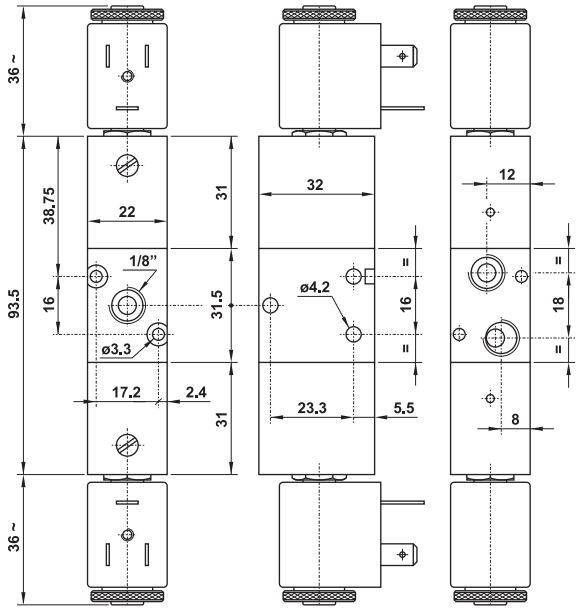




US321 EED

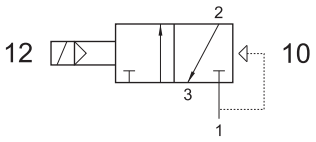
3/2 1/8" NPT double solenoid pilot - with differential



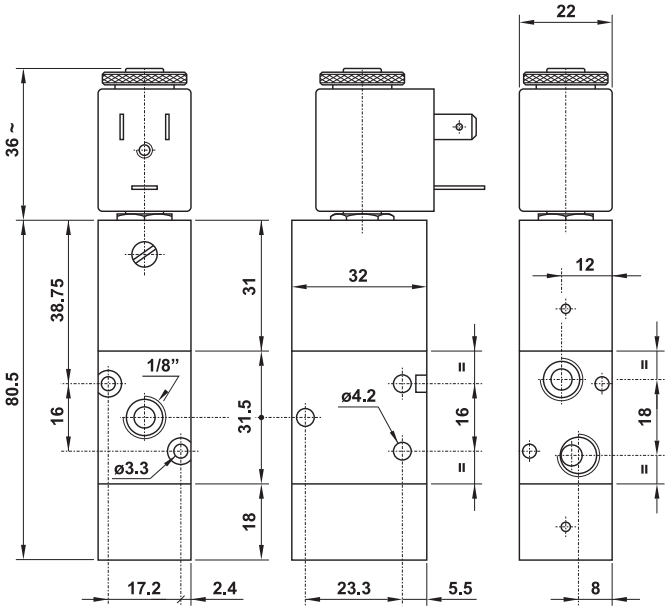


US321 EFP

3/2 1/8" NPT N/C solenoid pilot - pneumatic spring return

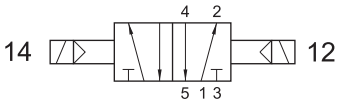


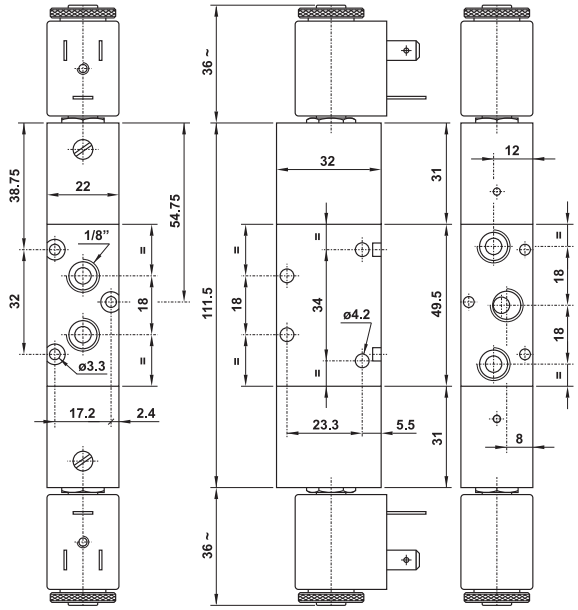
It cannot be used as normally open valve.



US521 EE

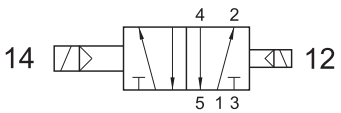
5/2 1/8" NPT double solenoid pilot

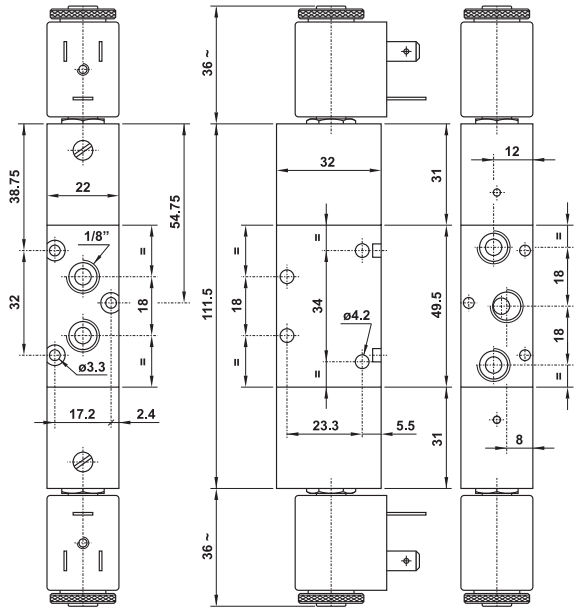




US521 EED

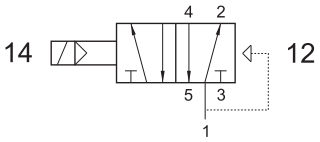
5/2 1/8" NPT double solenoid pilot - with differential

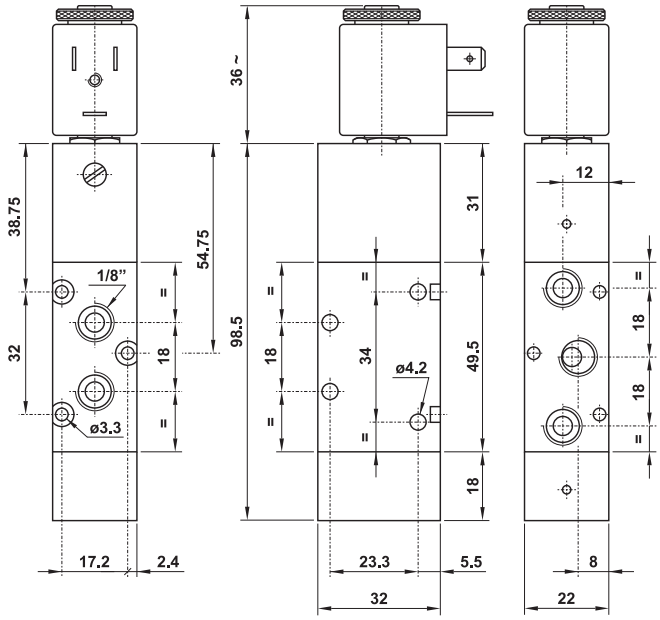




US521 EFP

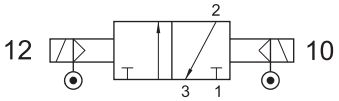
5/2 1/8" NPT solenoid pilot - pneumatic spring return

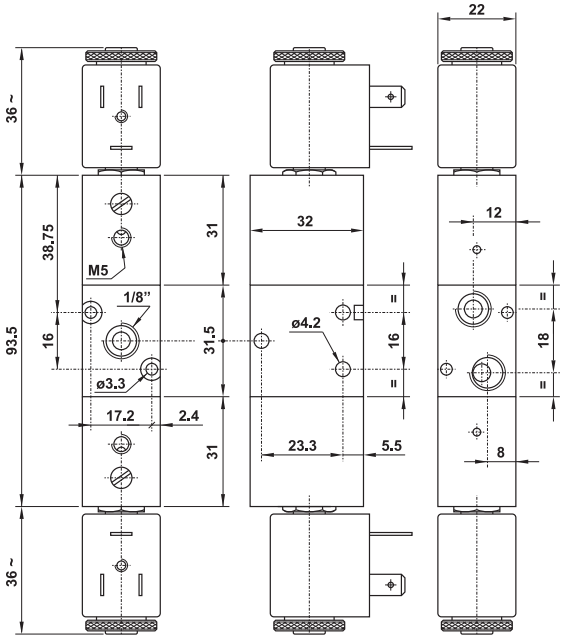




US321 EE AS

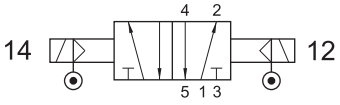
3/2 1/8" NPT double solenoid pilot with separate air supply

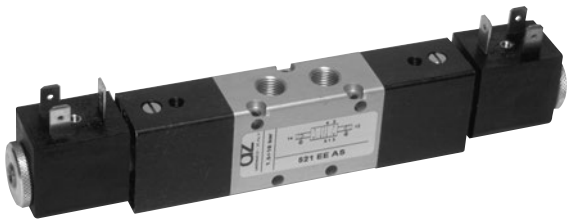


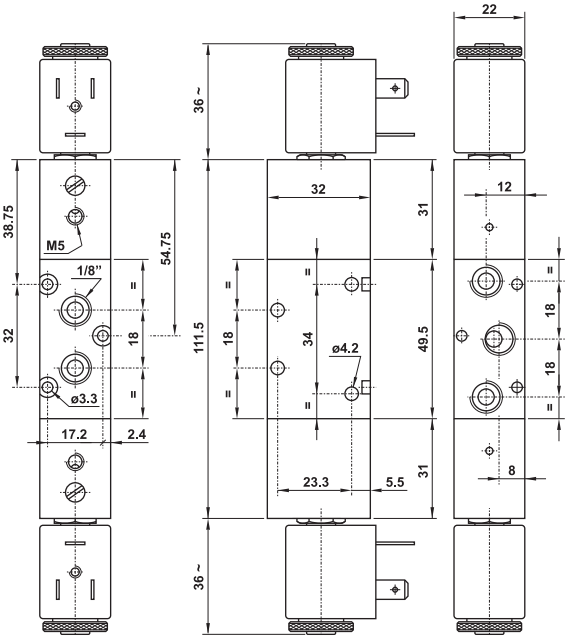


US521 EE AS

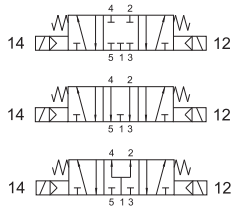
5/2 1/8" NPT double solenoid pilot with separate air supply





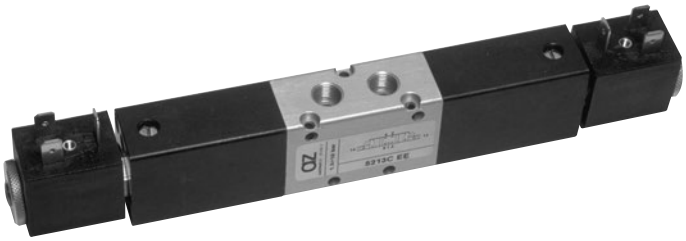


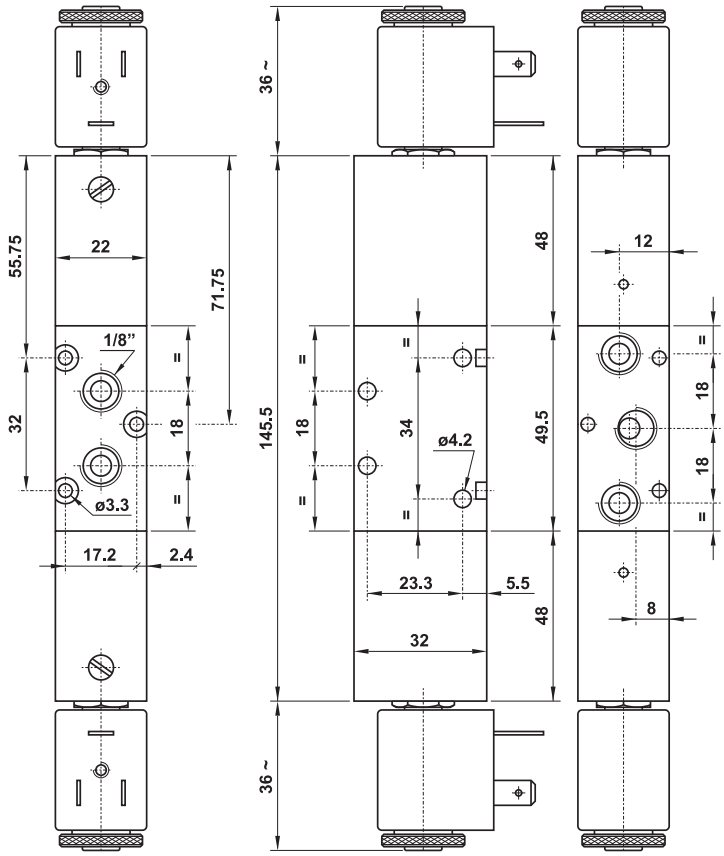
US5213C EE closed centers
US5213A EE open centers
US5213P EE pressurized centers



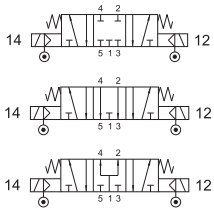
5/3 1/8" NPT double solenoid pilot

ONLY ALUMINIUM VERSION



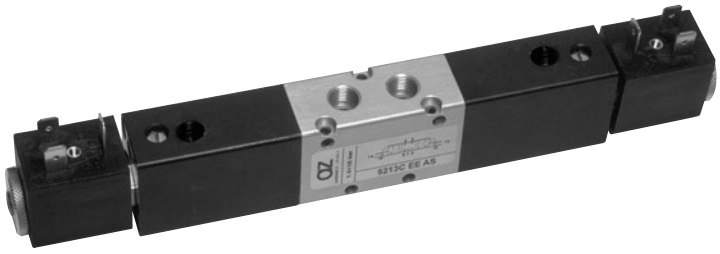


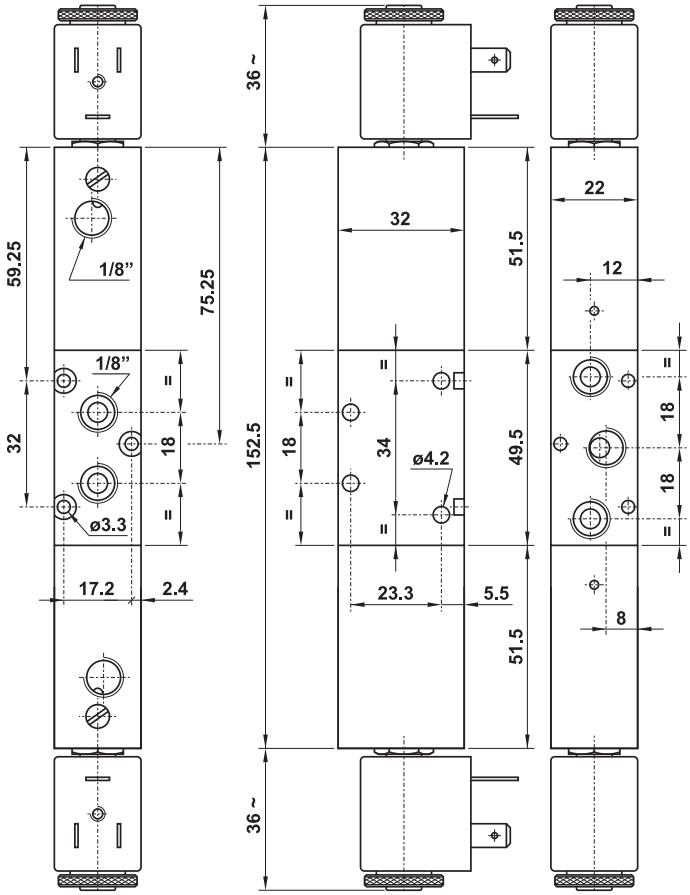
US5213C EE AS closed centers
US5213A EE AS open centers
US5213P EE AS pressurized centers



5/3 1/8" NPT double solenoid pilot with separate air supply

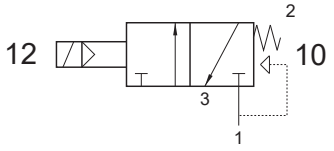
ONLY ALUMINIUM VERSION



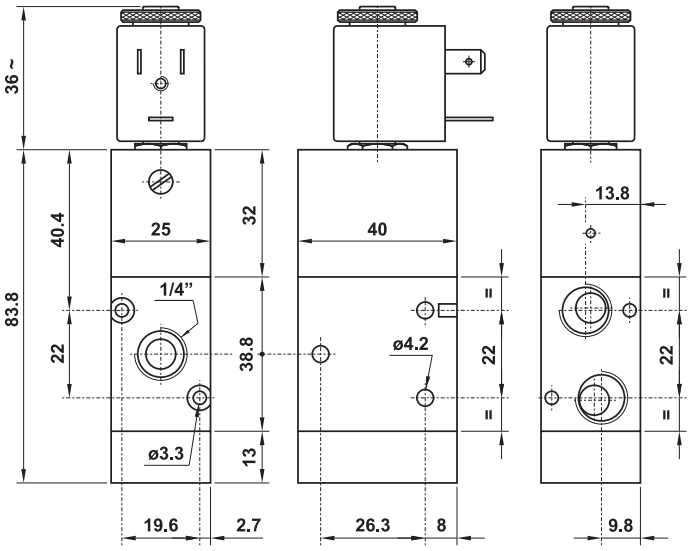


US322 ME

3/2 1/4" NPT NC solenoid pilot - spring and air return

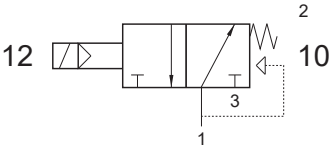


It cannot be used as normally open valve.

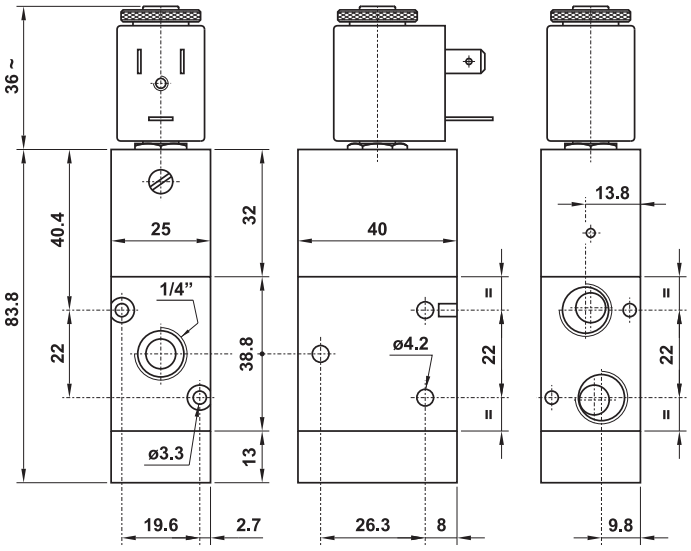


US322 MEA

3/2 1/4" NPT NO solenoid pilot - spring and air return

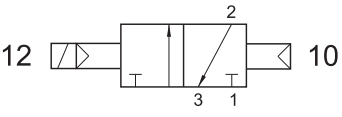


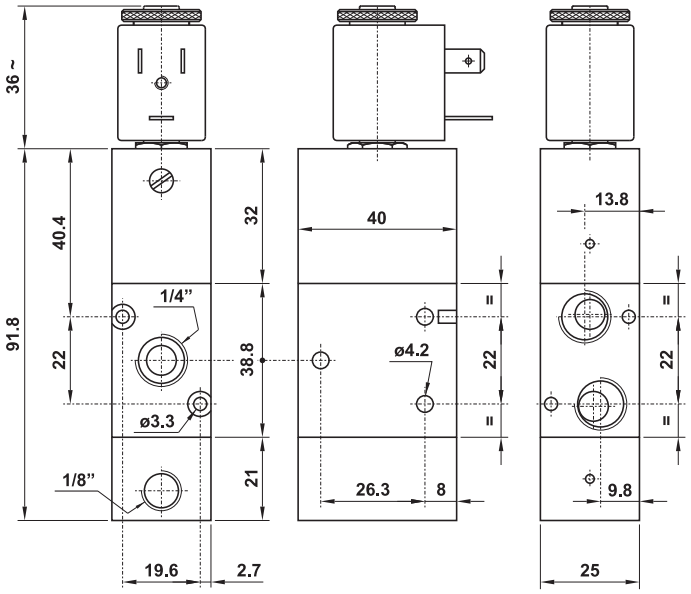
It cannot be used as normally closed valve.



US322 CE

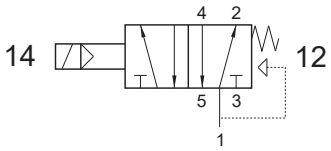
3/2 1/4" NPT solenoid pilot - separate pneumatically piloted return

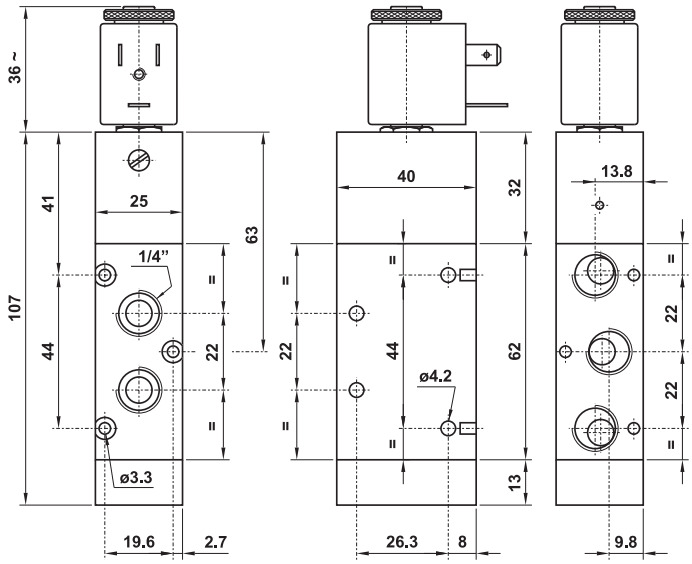




US522 ME

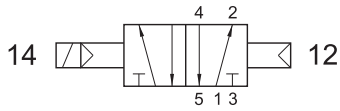
5/2 1/4" NPT solenoid pilot - spring and air return

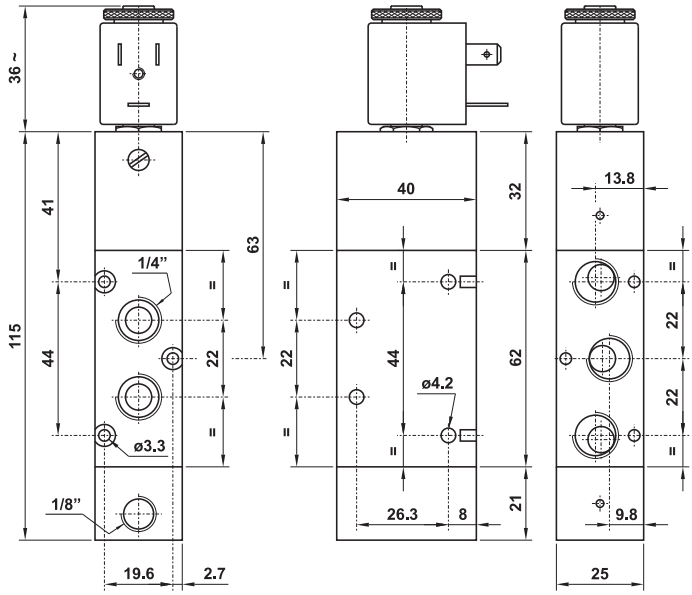




US522 CE

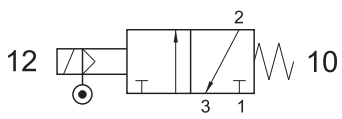
5/2 1/4" NPT solenoid pilot - separate pneumatically piloted return

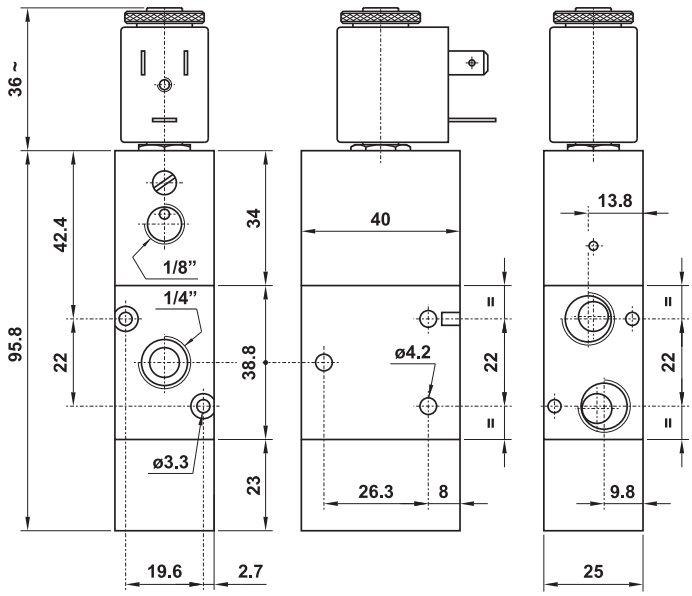




US322 ME AS

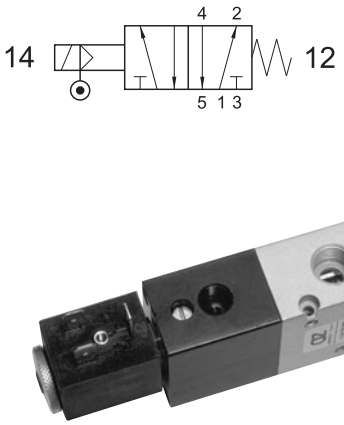
3/2 1/4" NPT solenoid pilot with separate air supply - spring return

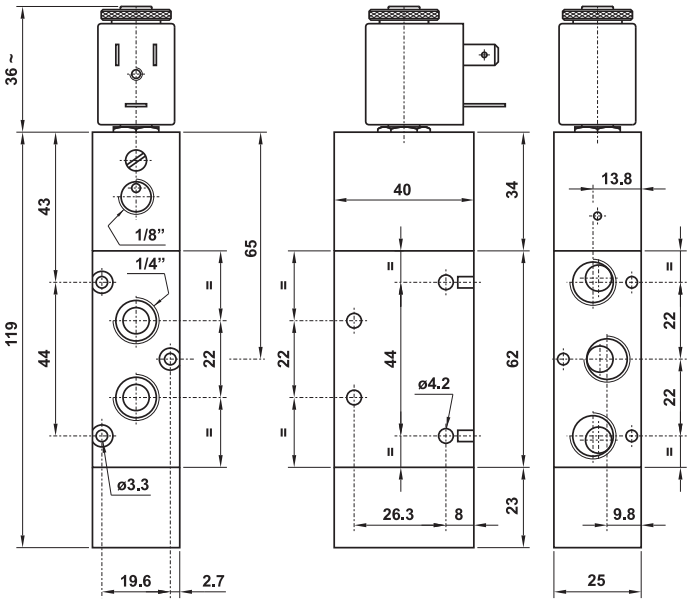




US522 ME AS

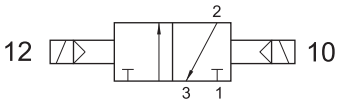
5/2 1/4" NPT solenoid pilot with separate air supply - spring return

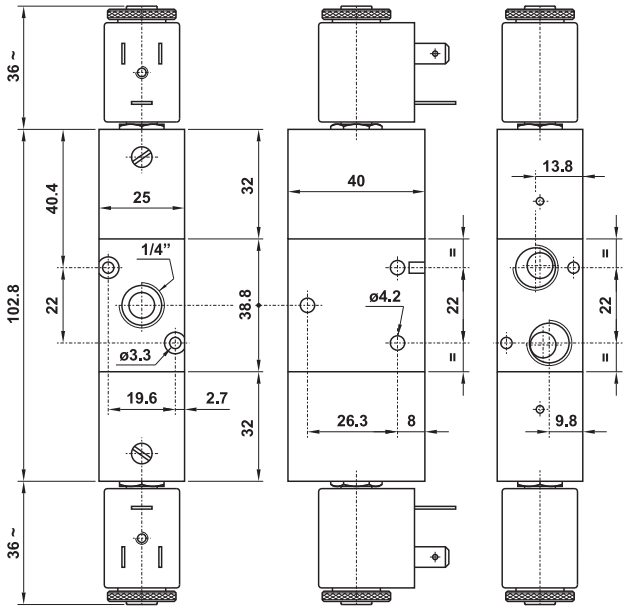




US322 EE

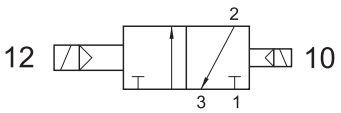
3/2 1/4" NPT double solenoid pilot

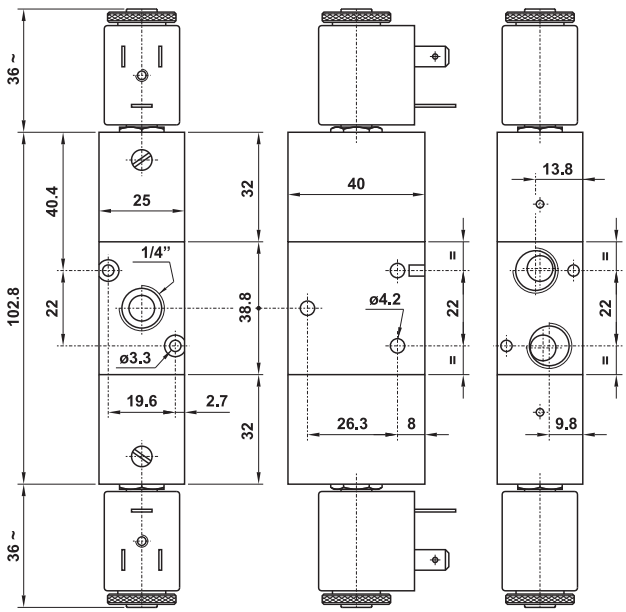




US322 EED

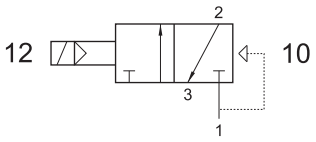
3/2 1/4" NPT double solenoid pilot - with differential



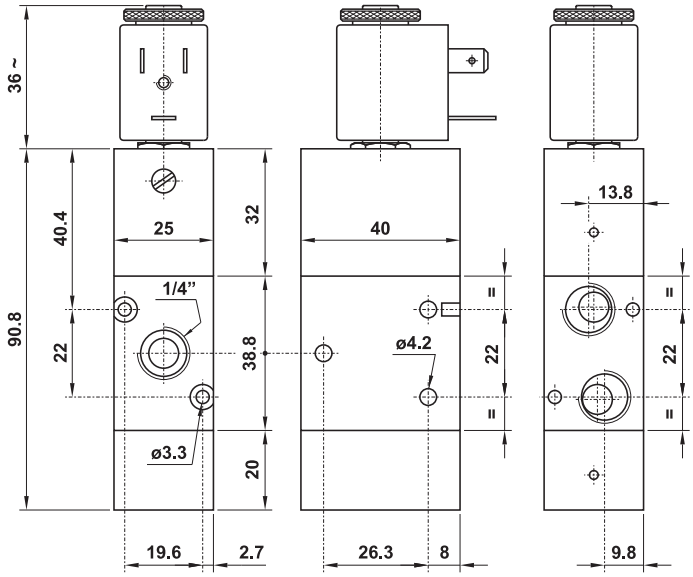


US322 EFP

3/2 1/4" NPT N/C solenoid pilot - pneumatic spring return

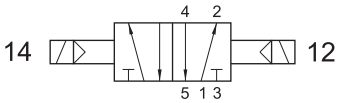


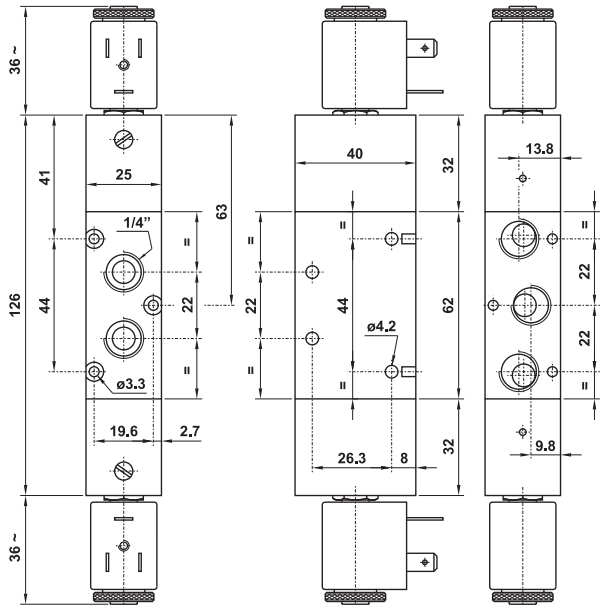
It cannot be used as normally open valve.



US522 EE

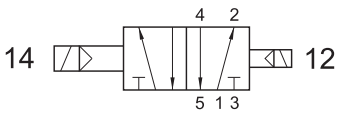
5/2 1/4" NPT double solenoid pilot

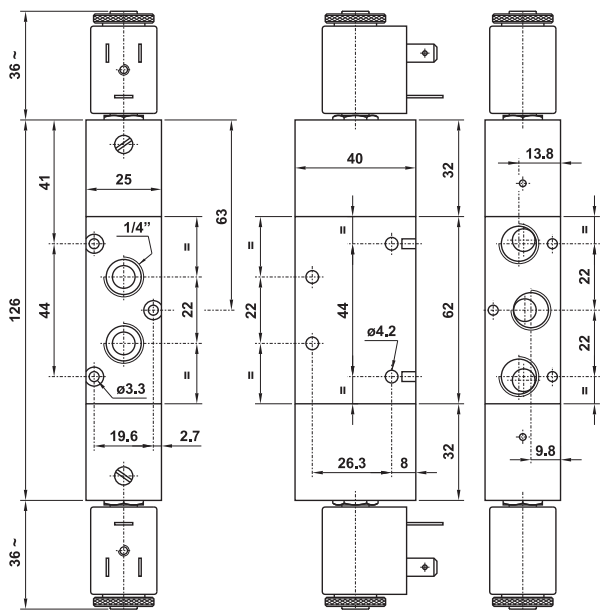




US522 EED

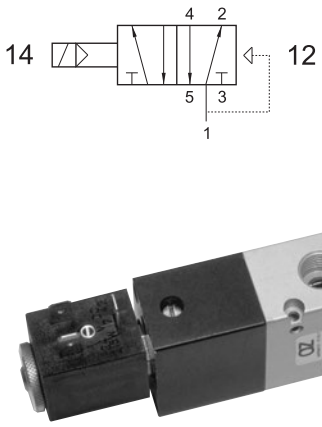
5/2 1/4" NPT double solenoid pilot - with differential

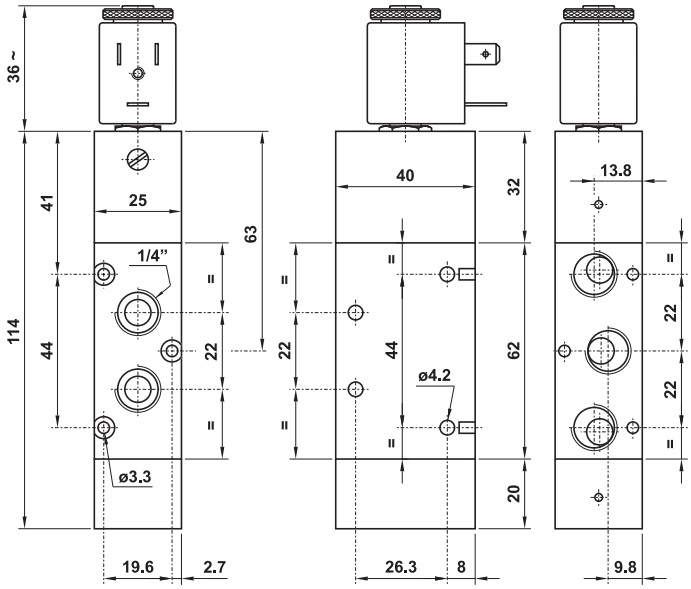




US522 EFP

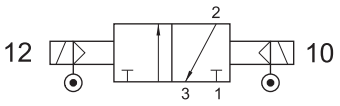
5/2 1/4" NPT solenoid pilot - pneumatic spring return

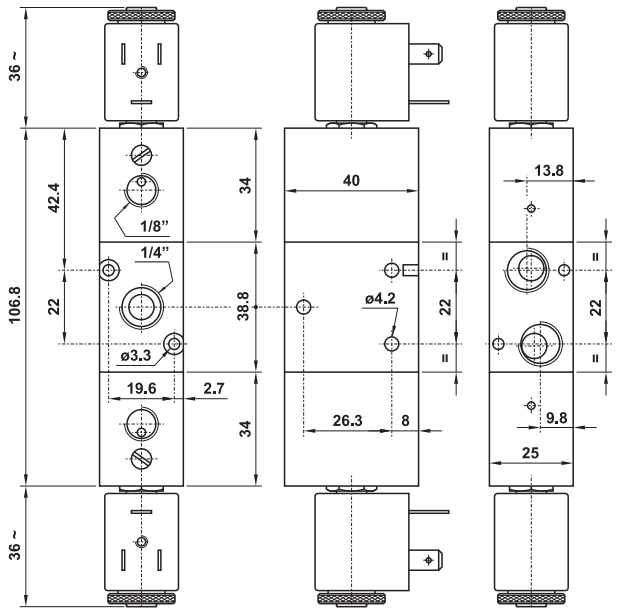




US322 EE AS

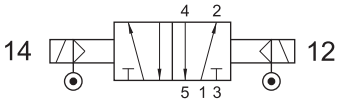
3/2 1/4" NPT double solenoid pilot with separate air supply

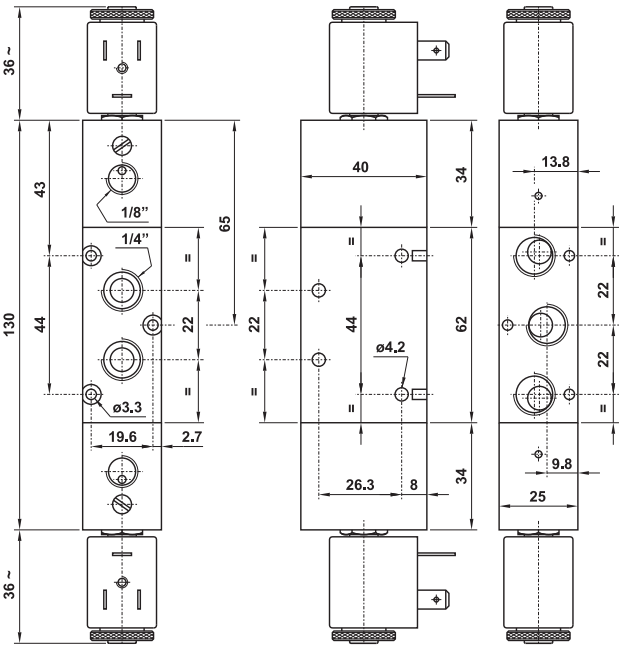




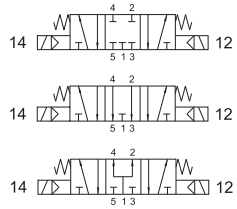
US522 EE AS

5/2 1/4" NPT double solenoid pilot with separate air supply

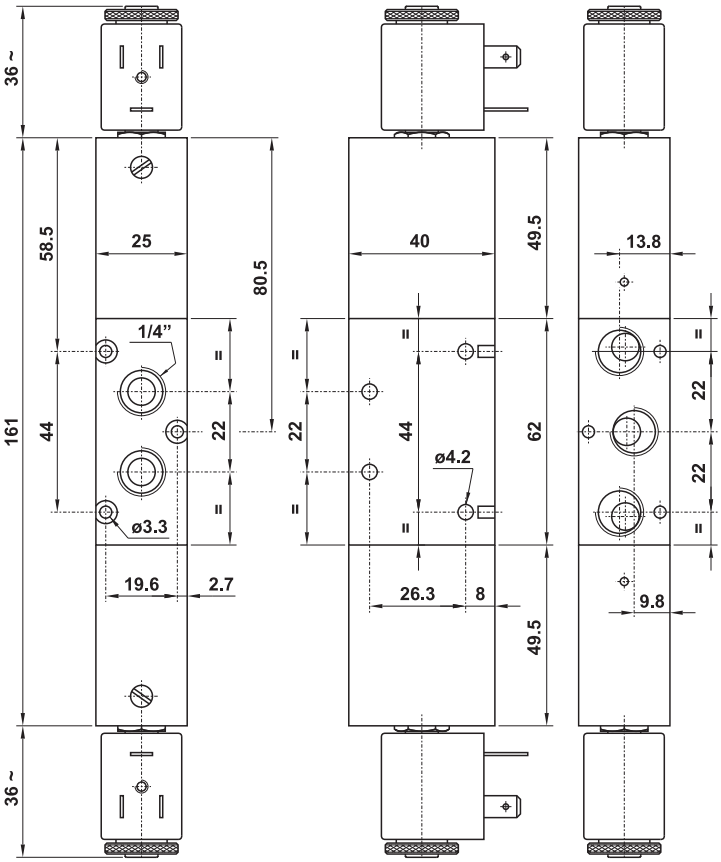




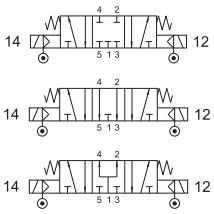
US5223C EE closed centers
US5223A EE open centers
US5223P EE pressurized centers



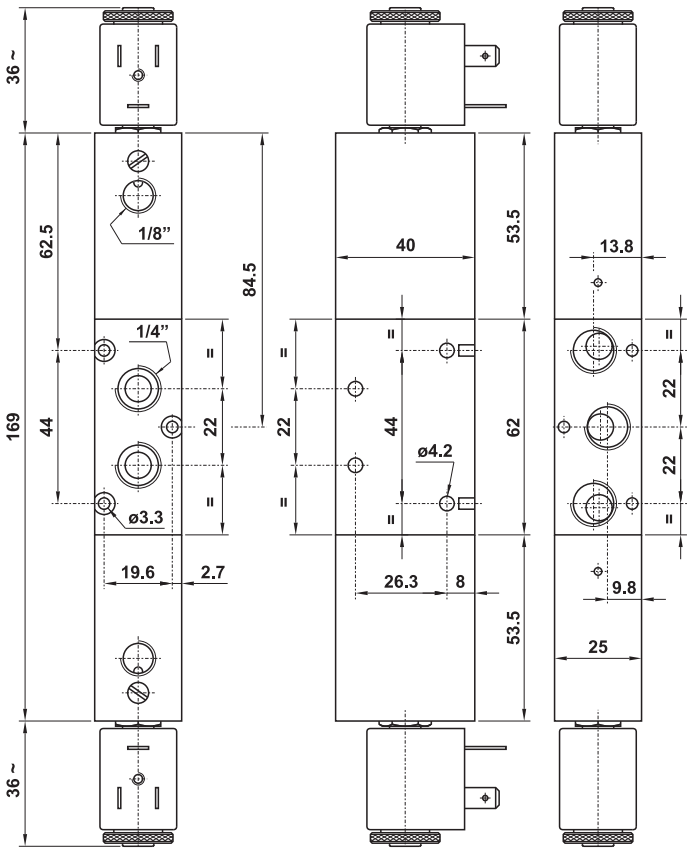
5/3 1/4" NPT double solenoid pilot



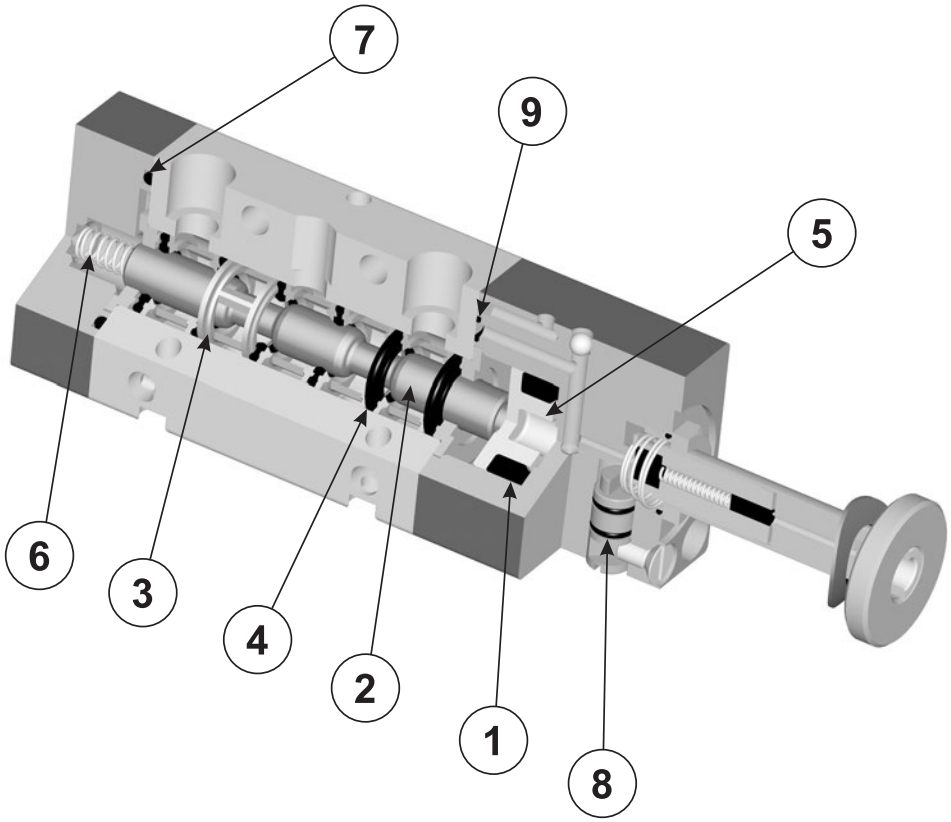
US5223C EE AS closed centers
US5223A EE AS open centers
US5223P EE AS pressurized centers



5/3 1/4" NPT double solenoid pilot with separate air supply



Spare parts for spool valves



1. DE seal for piston: NBR
2. Spool: aluminium 11S, nickeled
3. Spacer for spool: brass
4. Seal for spool: NBR
5. Piston to actuate the spool: delrin
6. Spring: steel
7. O-Ring seal: NBR
8. O-Ring seal 4x1: NBR
9. Shaped O-Ring: NBR

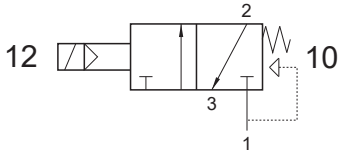
code of kit	suitable for		
00.036.2	US321 MC	US321 MCA	US321 ME
	US321 MEA		
00.039.2	US521 MC	US521 ME	
00.037.2	US321 CC	US321 EE	US321 CE
	US321 EE AS		
00.040.2	US521 CC	US521 EE	US521 CE
	US521 EE AS		
01.014.2	US322 MC	US 322 MC SUP	US 322 MCA
	US322 ME	US322 MEA	
01.020.2	US522 MC	US522 MC SUP	US522 ME
01.015.2	US322 CC	US322 CC SUP	US322 CE
	US322 EE	US322 EE AS	
01.021.2	US522 CC	US522 CC SUP	US522 CE
	US522 EE	US522 EE AS	

code of kit	suitable for		
00.038.2	US321 EED	US321 EFP	US321 CCD
	US321 CFP		
00.041.2	US521 EED	US521 EFP	US521 CCD
	US521 CFP		
01.019.2	US322 EED	US322 EFP	US322 CCD
	US322 CFP		
01.022.2	US522 EED	US522 EFP	US522 CCD
	US522 CFP		
00.050.2	US321 ME AS		
01.035.2	US322 ME AS		
00.051.2	US521 ME AS		
01.036.2	US522 ME AS		
00.108.2	US5213C CC	US5213A CC	US5213P CC
	US5213C EE	US5213A EE	US5213P EE
	US5213C EE AS	US5213A EE AS	US5213P EE AS
01.061.2	US5223C CC	US5223A CC	US5223P CC
	US5223C EE	US5223A EE	US5223P EE
	US5223C EE AS	US5223A EE AS	US5223P EE AS

US321 ME MIC xx

3/2 1/8" NPT N/C with 15 mm solenoid pilot

The valve is sold with mounted solenoid pilot(s); for technical data refer to page 191.

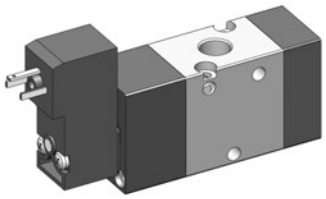


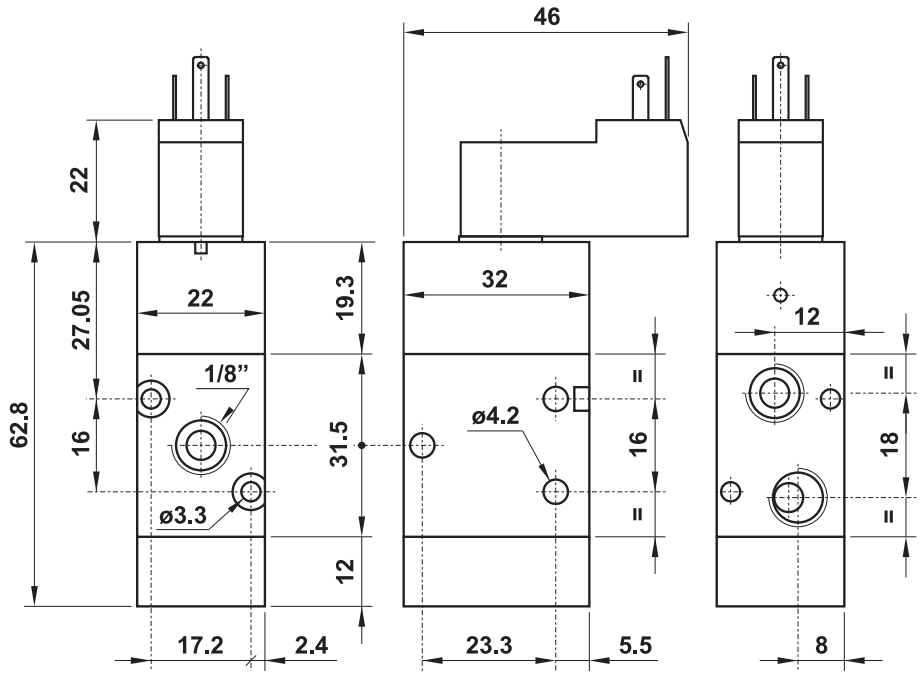
It cannot be used as normally open valve.

In the part number replace "xx" with the reference of the solenoid tension.

24V DC	**01**
24V 50/60Hz	**02**

CE

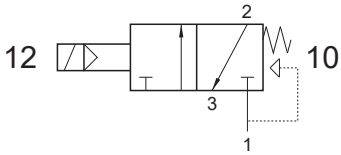




US322 ME MIC xx

3/2 1/4" NPT N/C with 15 mm solenoid pilot

The valve is sold with mounted solenoid pilot(s); for technical data refer to page 191.

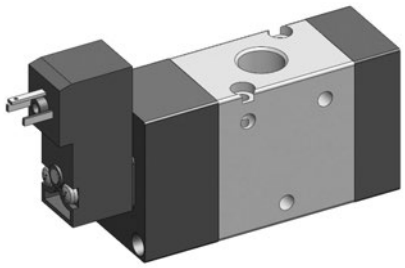


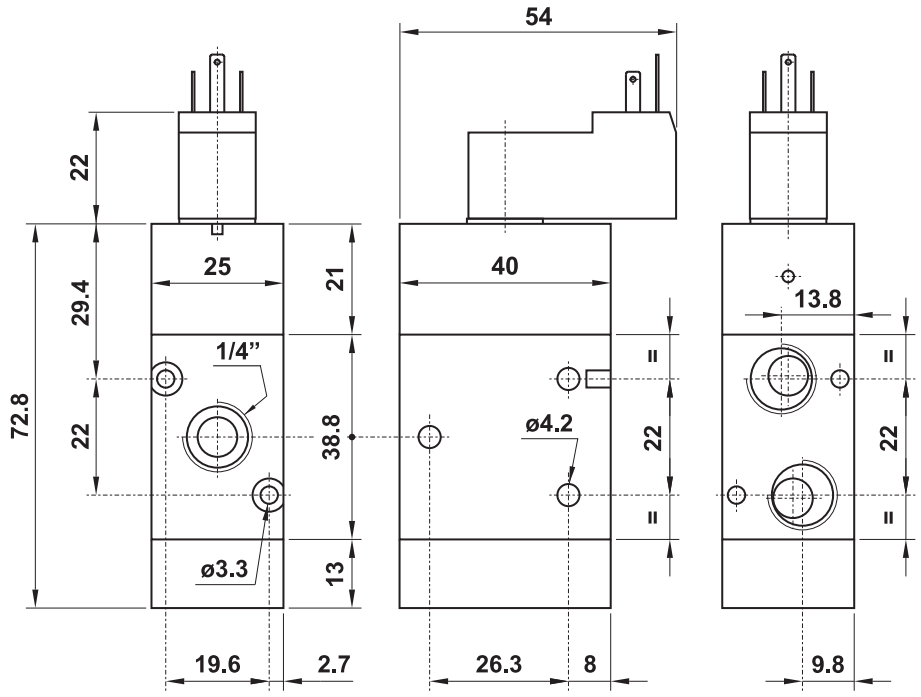
It cannot be used as normally open valve.

In the part number replace "xx" with the reference of the solenoid tension.

24V DC	**01**
24V 50/60Hz	**02**

CE

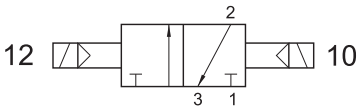




US321 EE MIC xx

3/2 1/8" NPT with double 15 mm solenoid pilot

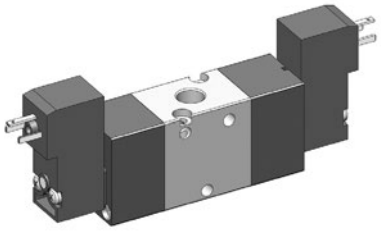
The valve is sold with mounted solenoid pilot(s); for technical data refer to page 191.

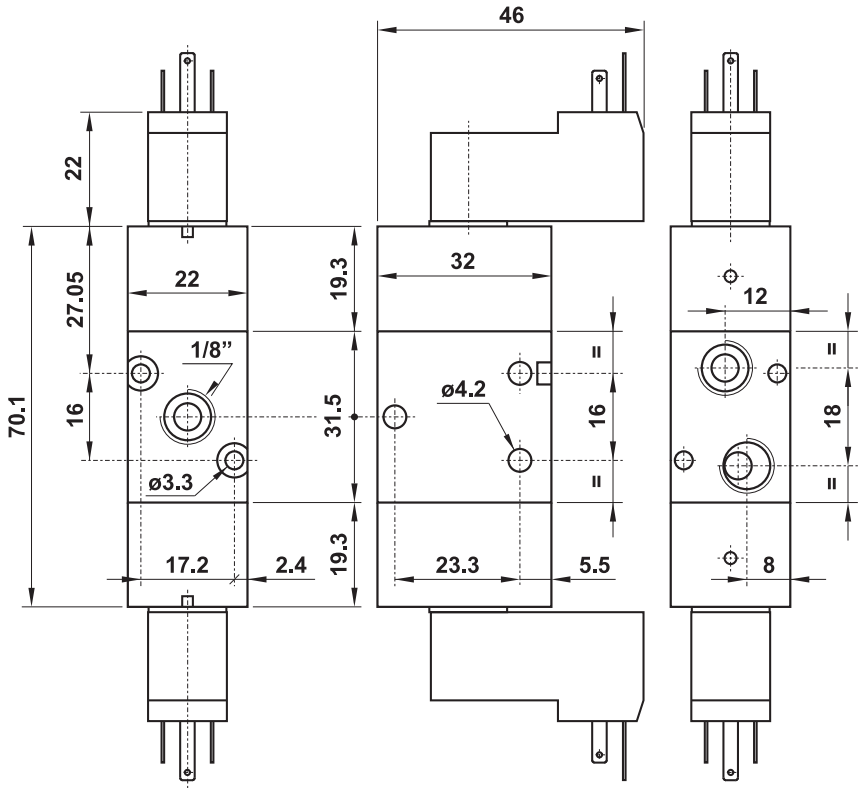


In the part number replace "xx" with the reference of the solenoid tension.

24V DC	**01**
24V 50/60Hz	**02**

CE

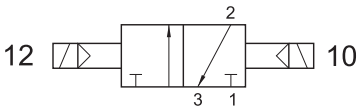




US322 EE MIC xx

3/2 1/4" NPT with double 15 mm solenoid pilot

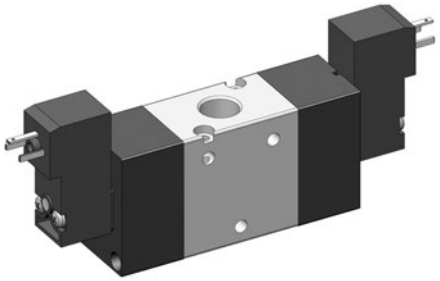
The valve is sold with mounted solenoid pilot(s); for technical data refer to page 191.

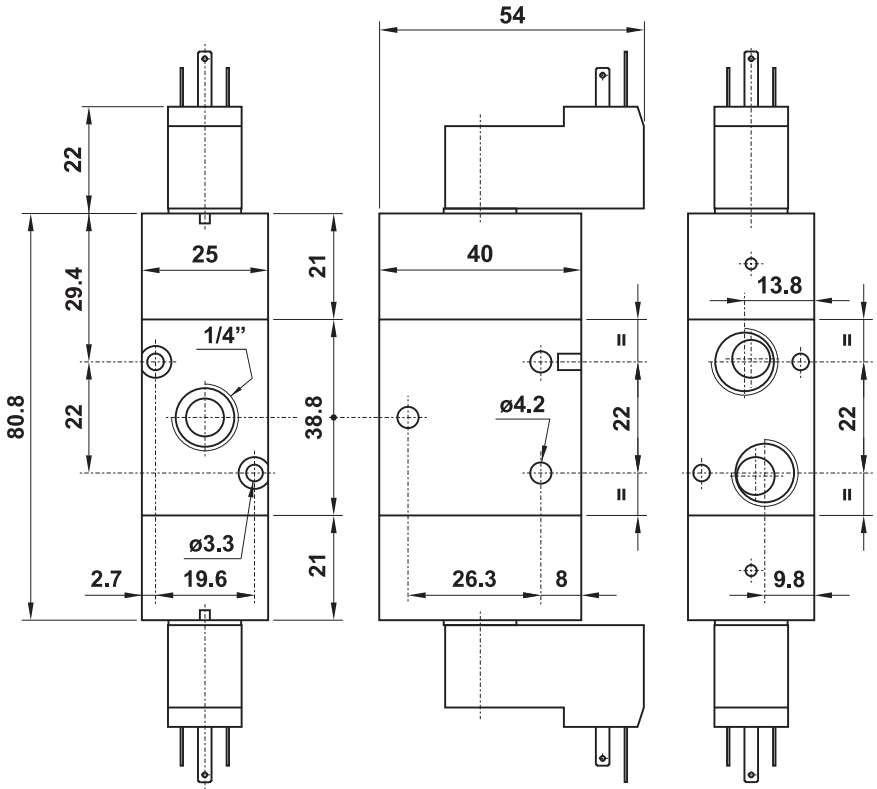


In the part number replace "xx" with the reference of the solenoid tension.

24V DC	**01**
24V 50/60Hz	**02**

CE

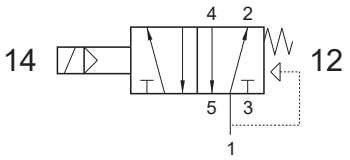




US521 ME MIC xx

5/2 1/8" NPT with 15 mm solenoid pilot

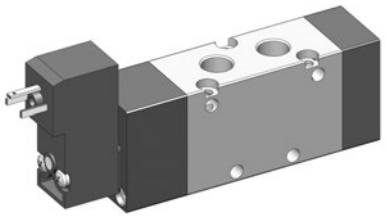
The valve is sold with mounted solenoid pilot(s); for technical data refer to page 191.

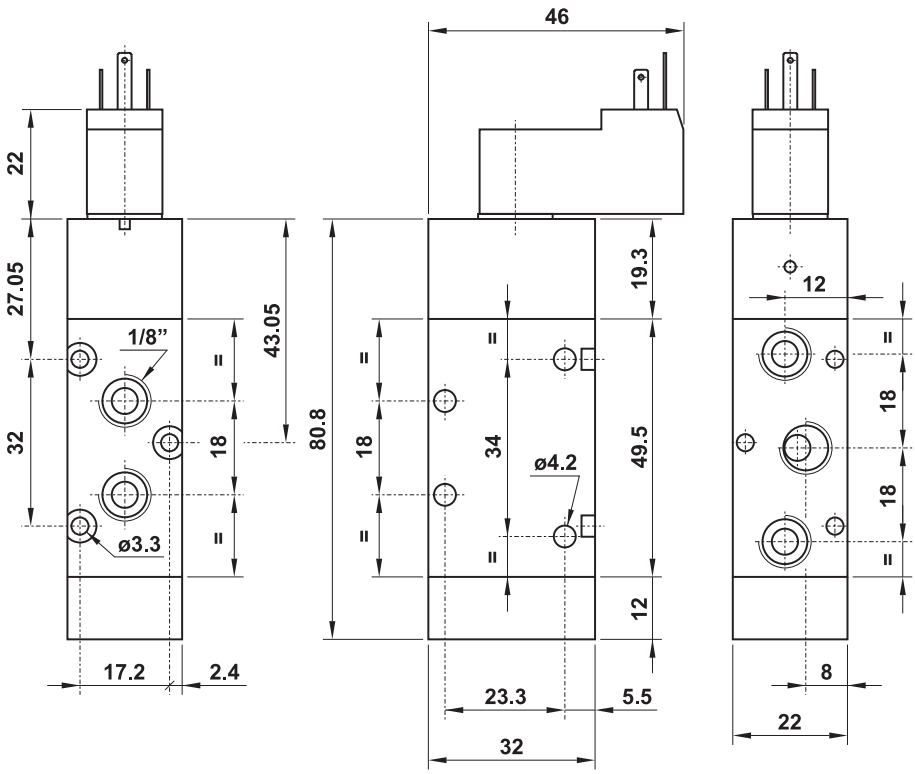


In the part number replace "xx" with the reference of the solenoid tension.

24V DC	**01**
24V 50/60Hz	**02**

CE

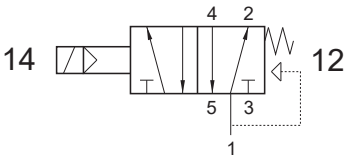




US522 ME MIC xx

5/2 1/4" NPT with 15 mm solenoid pilot

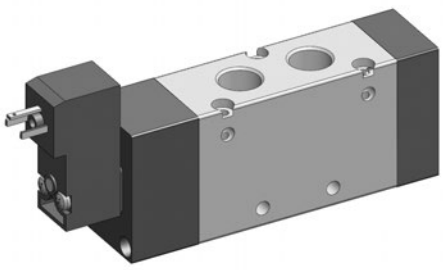
The valve is sold with mounted solenoid pilot(s); for technical data refer to page 191.

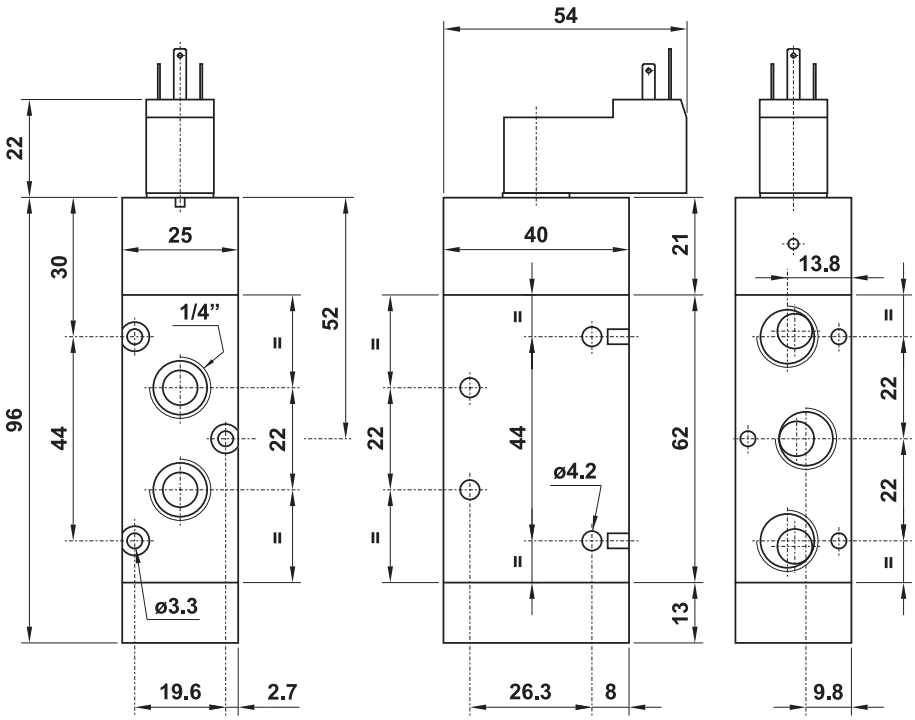


In the part number replace "xx" with the reference of the solenoid tension.

24V DC	**01**
24V 50/60Hz	**02**

CE

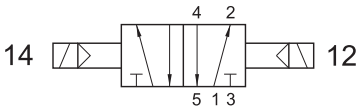




US521 EE MIC xx

5/2 1/8" NPT with double 15 mm solenoid pilot

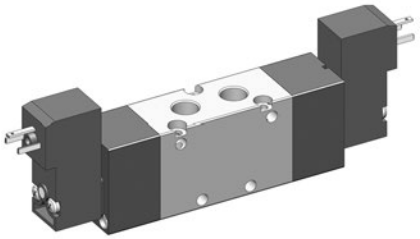
The valve is sold with mounted solenoid pilot(s); for technical data refer to page 191.

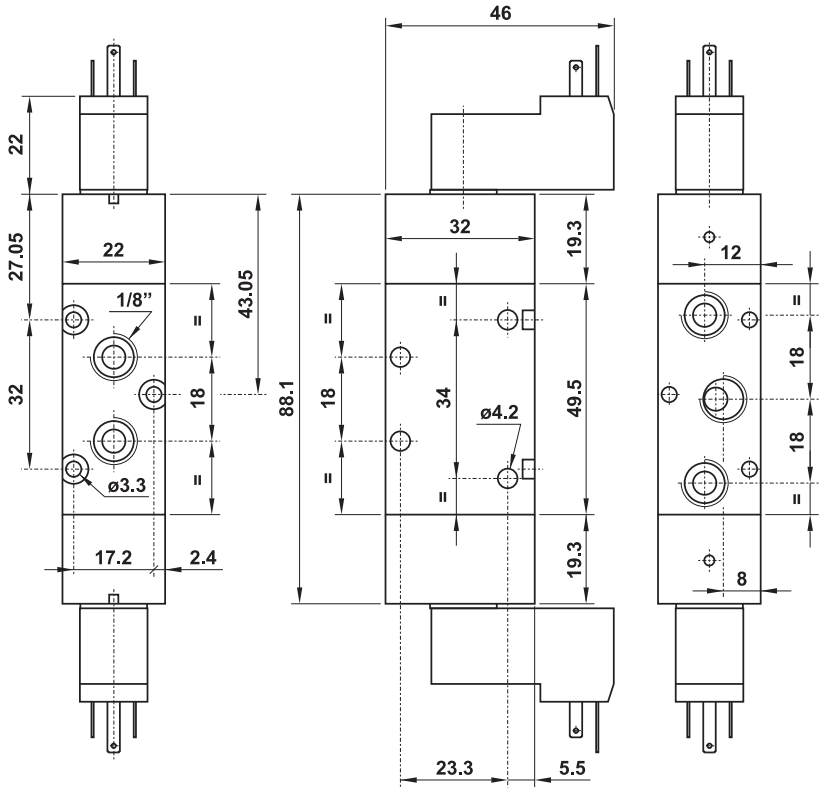


In the part number replace "xx" with the reference of the solenoid tension.

24V DC	**01**
24V 50/60Hz	**02**

CE

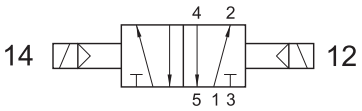




US522 EE MIC xx

5/2 1/4" NPT with double 15 mm solenoid pilot

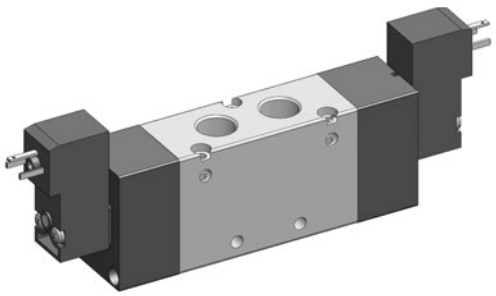
The valve is sold with mounted solenoid pilot(s); for technical data refer to page 191.

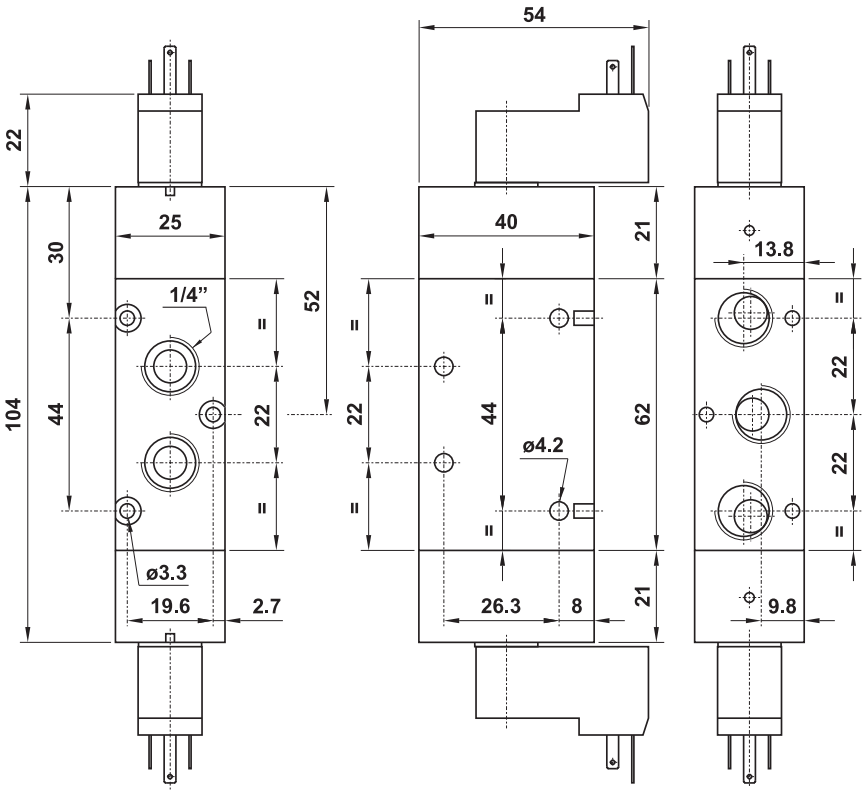


In the part number replace "xx" with the reference of the solenoid tension.

24V DC	**01**
24V 50/60Hz	**02**

CE



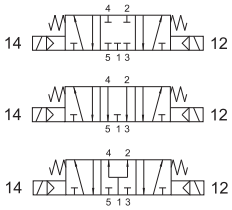


US5213C EE MIC xx closed centers

US5213A EE MIC xx open centers

US5213P EE MIC xx pressurized centers

5/3 1/8" NPT with double 15 mm solenoid pilot

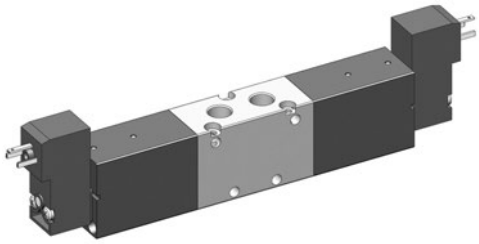


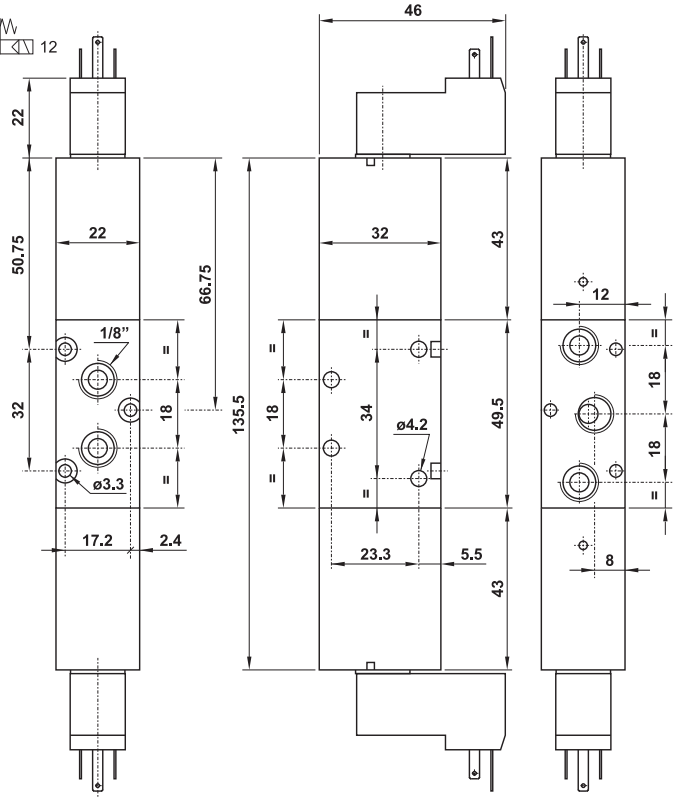
The valve is sold with mounted solenoid pilot(s); for technical data refer to page 191.

In the part number replace "xx" with the reference of the solenoid tension.

24V DC	**01**
24V 50/60Hz	**02**

CE



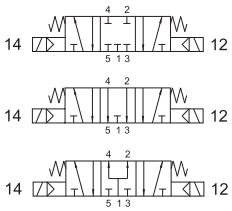


US5223C EE MIC xx closed centers

US5223A EE MIC xx open centers

US5223P EE MIC xx pressurized centers

5/3 1/4" NPT with double 15 mm solenoid pilot

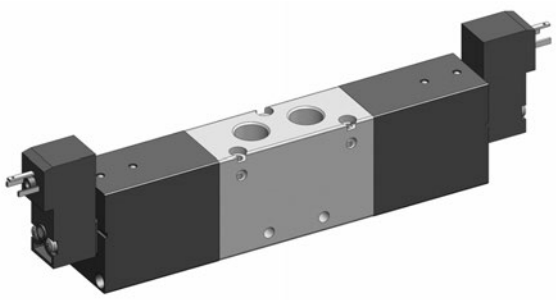


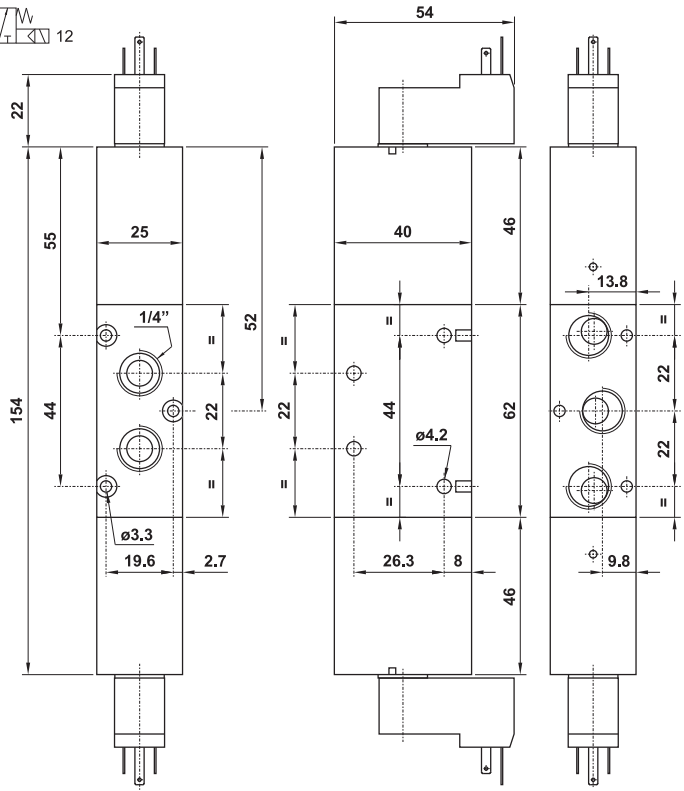
The valve is sold with mounted solenoid pilot(s); for technical data refer to page 191.

In the part number replace "xx" with the reference of the solenoid tension.

24V DC	**01**
24V 50/60Hz	**02**

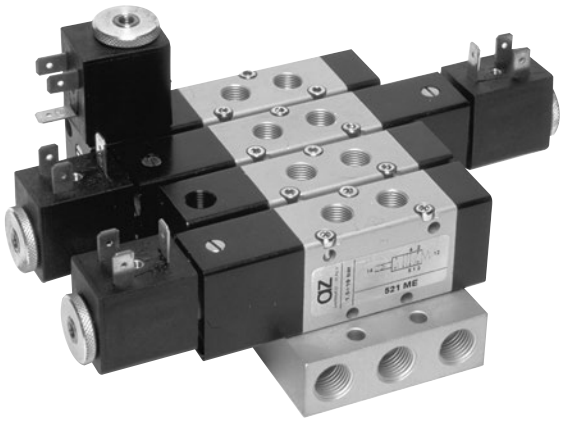
CE

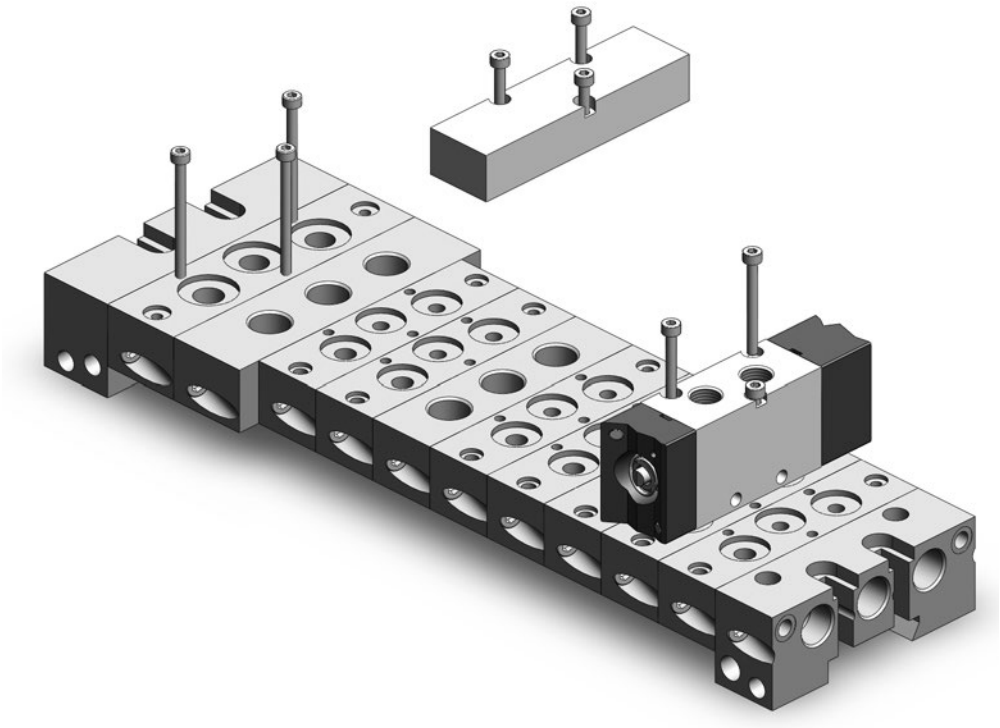


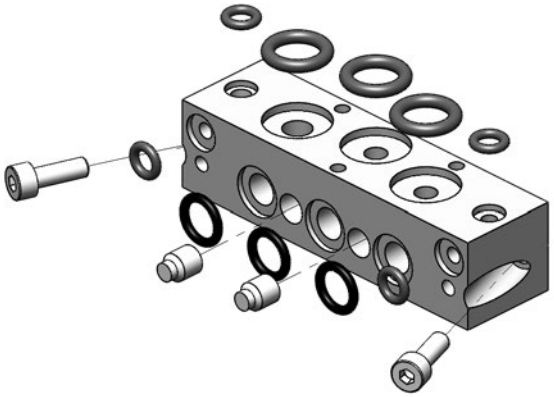


Manifolds for spool valves

- Multiple sub-bases for 1/8" NPT and 1/4" NPT spool valves, BSP version avaiable on request
- Manifolds for 1/8" NPT and 1/4" NPT spool valves
- Special manifolds on request
- Material: aluminium (anodize treatment)





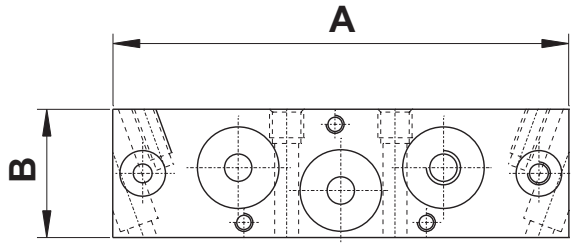


ASSEMBLY EXAMPLE

Multiple sub-bases for spool valves

sub-base

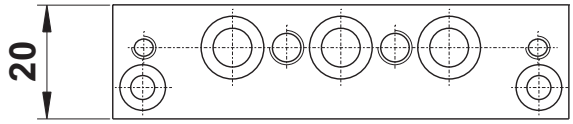
	1/8" NPT	1/8" NPT ATEX	1/4" NPT	1/4" NPT ATEX
A	80	80	95	95
B	22.5	31	26	31



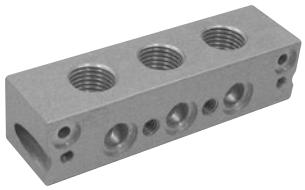
Each sub-base is sold with all necessary components to install 1/8" NPT or 1/4" NPT valves.

ORDER CODES

07.039.2 for 1/8" NPT valves
07.008.2 for 1/8" NPT valves ATEX
07.052.2 for 1/4" NPT valves
07.060.2 for 1/4" NPT valves ATEX

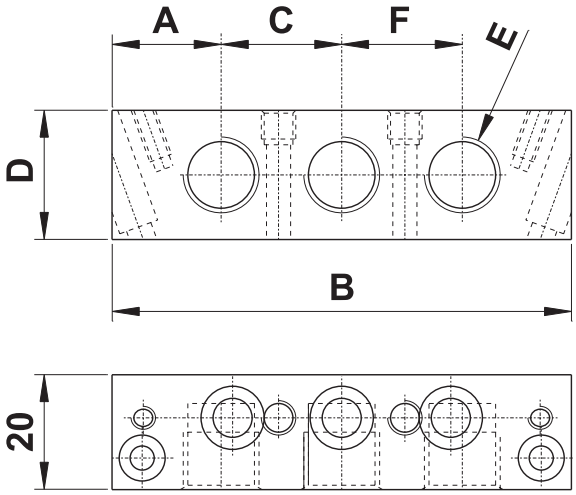


intermediate header



An intermediate header with separate air supply is available to be installed in a manifold system which requires mixed operating pressures. It can be used also to divide the common exhausts. It is sold with all necessaries components for installation.

	1/8" NPT	1/4" NPT
A	19	20
B	80	95
C	21	24
D	22.5	26
E	1/4" NPT	3/8" NPT
F	21	23

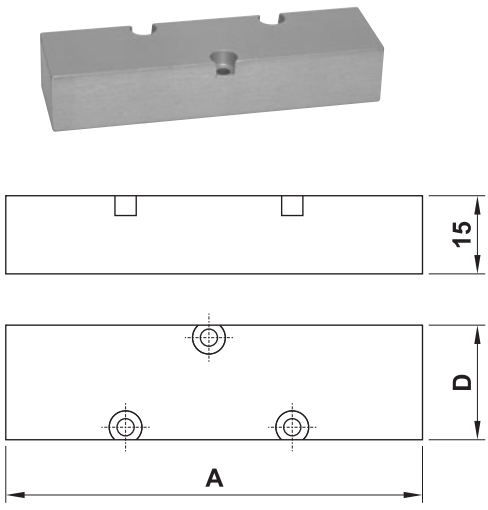


ORDER CODES

US07.040.2 for 1/8" NPT manifolds
US07.053.2 for 1/4" NPT manifolds

blanking plate

	1/8" NPT 00.011.3	1/8"NPT 00.078.2	1/4"NPT 01.007.3	1/4"NPT 01.078.2
A	80	60	95	70
D	22	22	25	25

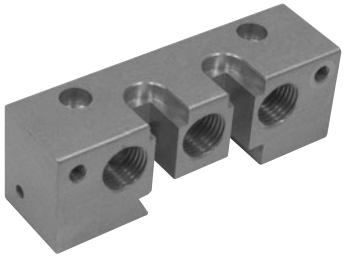


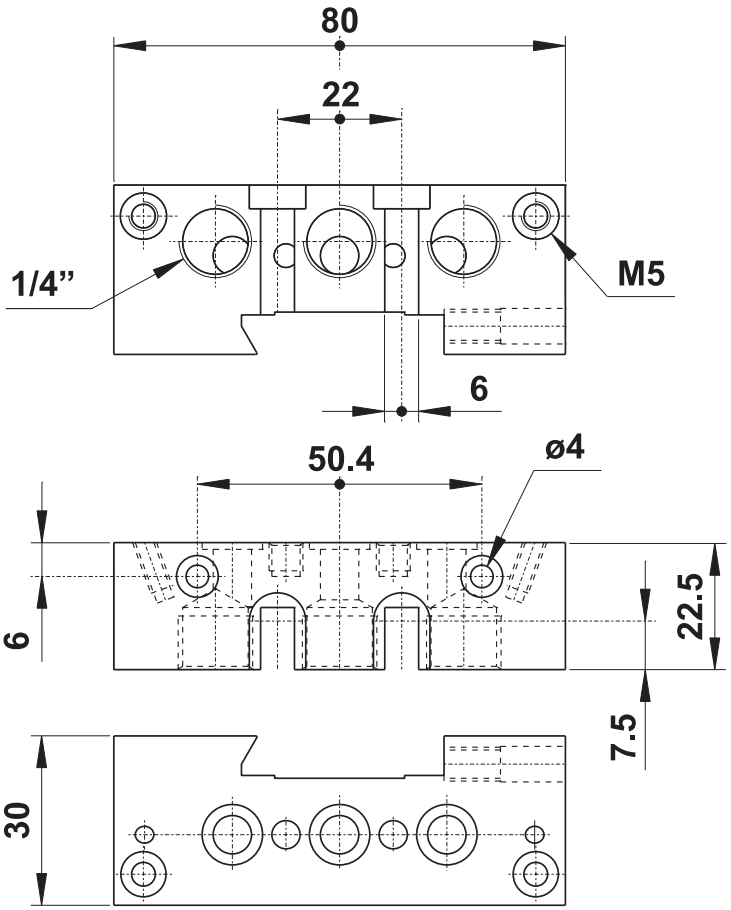
The blanking plate with screws is available to close manifold stations not in use.

ORDERD CODES

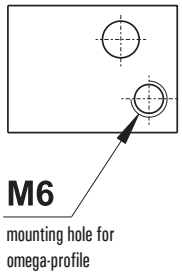
00.011.3 for 1/8" NPT multiple sub-bases
00.078.2 for 1/8" NPT manifolds
01.007.3 for 1/4" NPT multiple sub-bases
01.078.2 for 1/4" NPT manifolds

1/8" NPT right inlet header





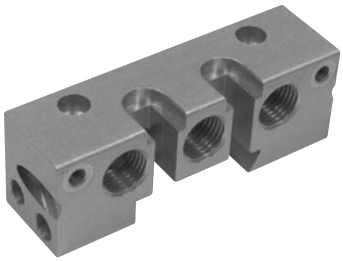
Each manifold assembly requires a right and a left hand inlet header kit. Each inlet header is sold with all necessary components.

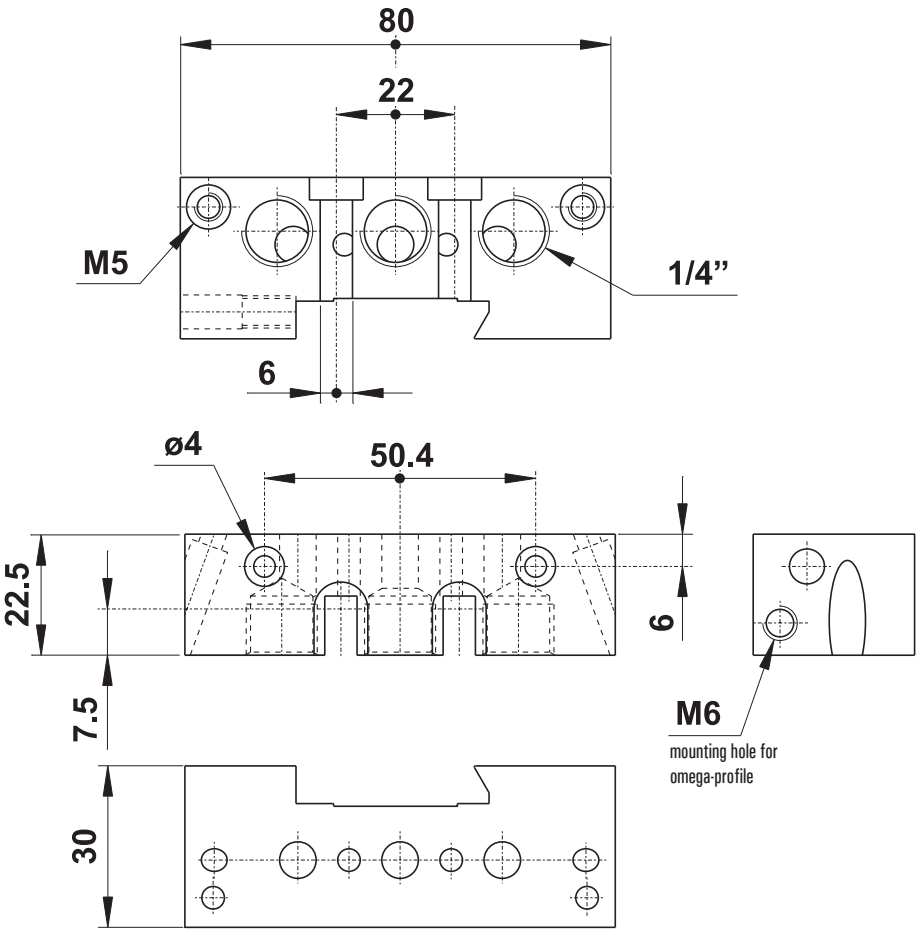


ORDER CODE

US07.009.2 right hand header for 1/8" NPT manifolds

1/8" NPT left inlet header



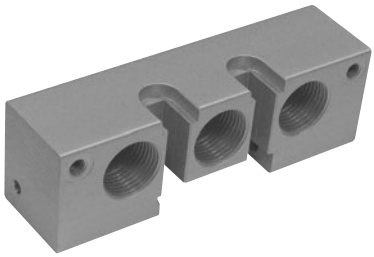


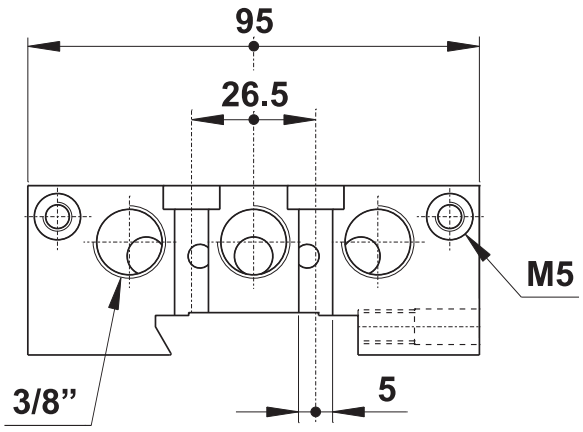
Each manifold assembly requires a right and a left hand inlet header kit. Each inlet header is sold with all necessary components.

ORDER CODE

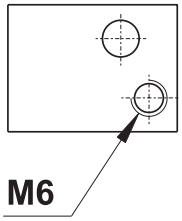
US07.010.2 left hand header for 1/8" NPT manifolds

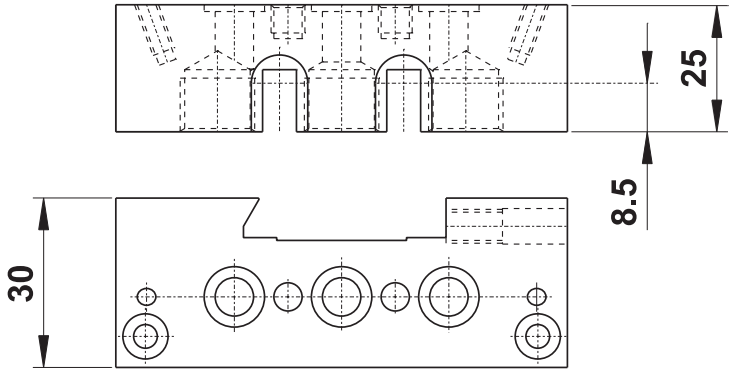
1/4" NPT right inlet header





Each manifold assembly requires a right and a left hand inlet header kit. Each inlet header is sold with all necessary components.

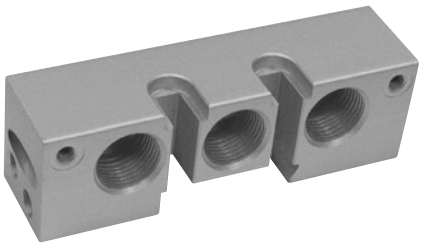


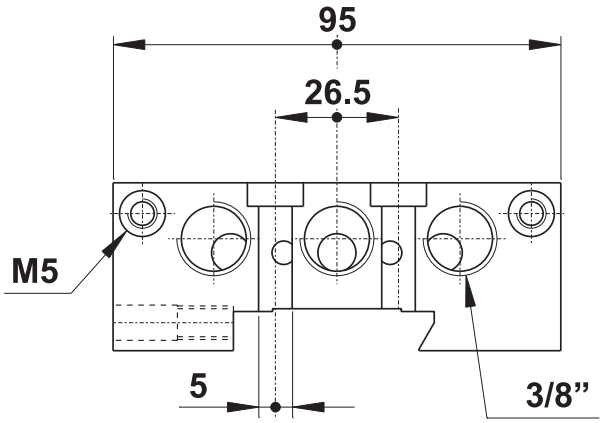


ORDER CODE

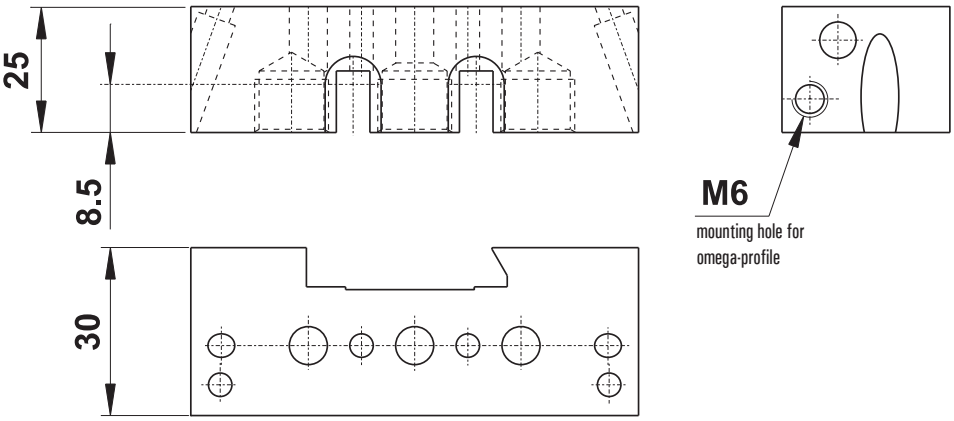
US07.054.2 right hand header for 1/4" NPT manifolds

1/4" NPT left inlet header





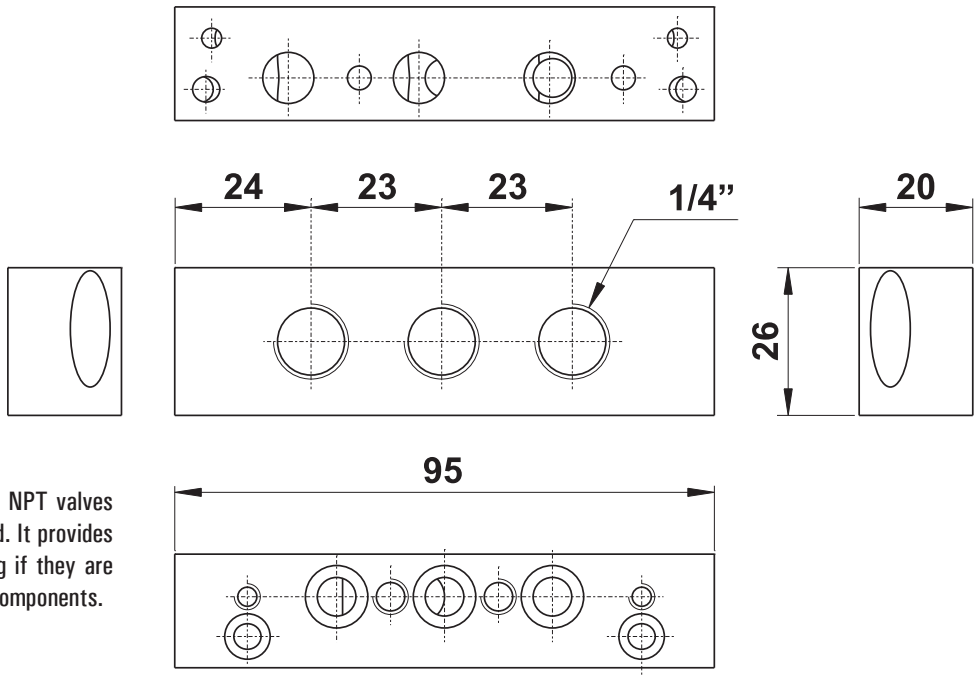
Each manifold assembly requires a right and a left hand inlet header kit. Each inlet header is sold with all necessary components.



ORDER CODE

US07.055.2 left hand header for 1/4" NPT manifolds

1/4"-1/8" NPT interface



This reduction sub-base is used to assemble 1/8" NPT valves on a 1/4" NPT manifold, creating a hybrid manifold. It provides extra 1/4" NPT-connections (close them by a plug if they are not necessary). It is sold in kit with all necessary components.

ORDER CODE

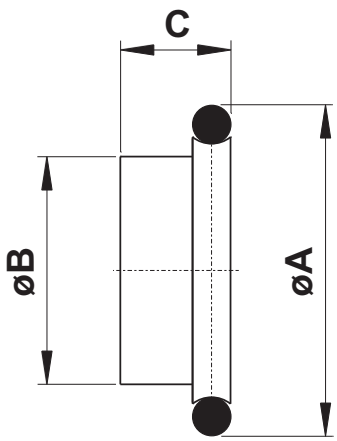
US07.081.2

---

internal diaphragm

This diaphragm must be inserted between two elements of the manifold to interrupt the air flow and divide the manifold into two or more parts. It can be used to interrupt only the supply air flow, only the exhausts or both air supply and exhausts.

	1/8" NPT	1/4" NPT
A	10	12
B	6.6	8.8
C	3.2	3.2



ORDER CODE

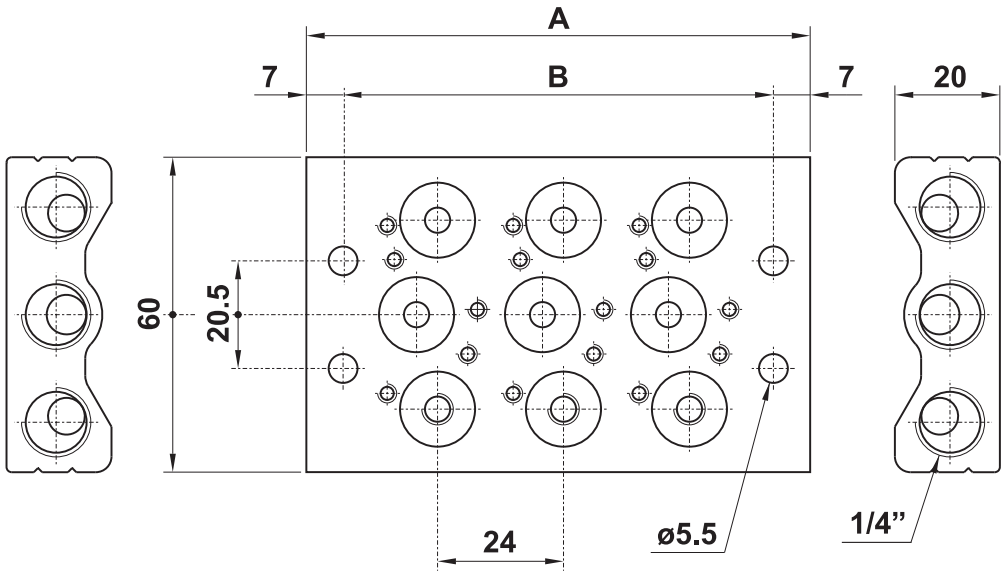
07.011.2 for 1/8" NPT manifolds
07.057.2 for 1/4" NPT manifolds

Manifolds for spool valves

These manifolds can be used for the installation of three and five way valves, 1/8" NPT or 1/4" NPT. Each manifold is sold with all necessary pieces for installation. Unused stations can be closed with a blanking plate. Accessories (see next page) are available to obtain a separate air inlet or exhaust for certain valves.

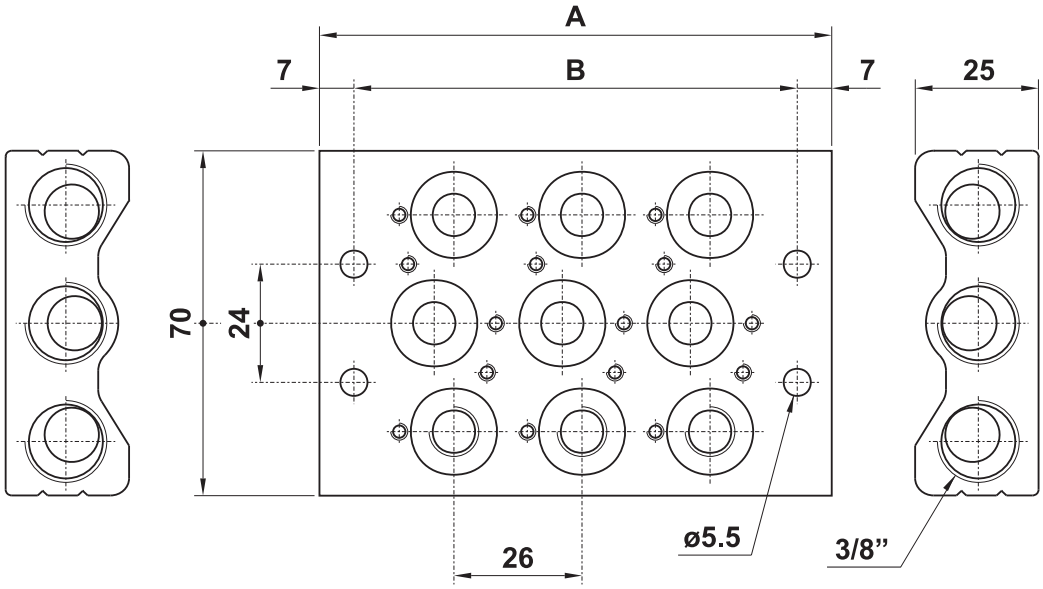
1/8" NPT

model	no. stations	A	B
US00.052.2	2	72	58
US00.053.2	3	96	82
US00.054.2	4	120	106
US00.055.2	5	144	130
US00.056.2	6	168	154
US00.057.2	7	192	178
US00.058.2	8	216	202
US00.059.2	9	240	226
US00.060.2	10	264	250
US00.081.2	11	288	274
US00.097.2	12	312	298

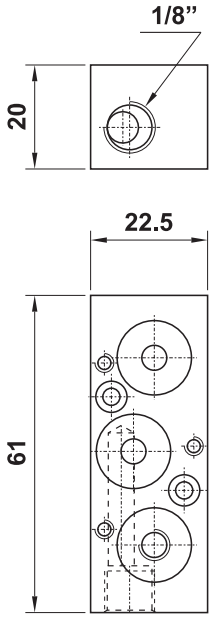
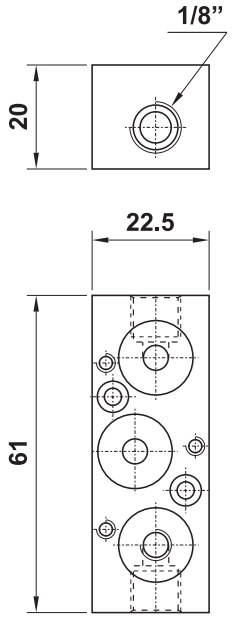
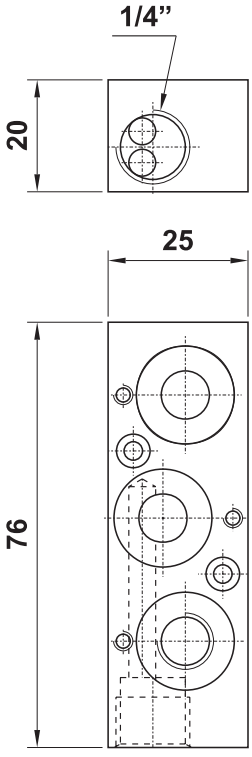
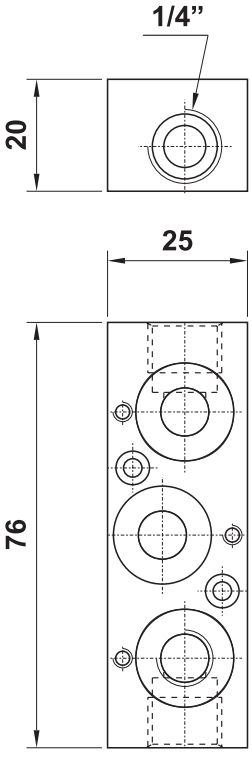


1/4" NPT

model	no. stations	A	B
US01.042.2	2	78	64
US01.043.2	3	104	90
US01.044.2	4	130	116
US01.045.2	5	156	142
US01.046.2	6	182	168
US01.047.2	7	208	194
US01.048.2	8	234	220
US01.051.2	9	260	246
US01.052.2	10	286	272



Accessories for manifolds

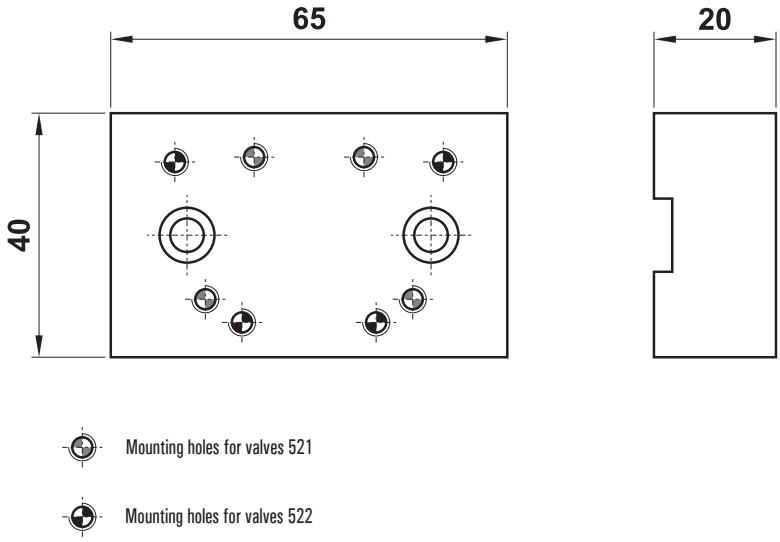
	adapting plate for separate air inlet	adapting plate for separate air exhaust
1/8" NPT	US00.064.2	US00.080.2
		
		
1/4" NPT	US01.049.2	US01.050.2
		
		

Each element is sold in kit with all necessary pieces for installation.

interface for cylinder ISO 6431

ORDER CODE

00.095.2



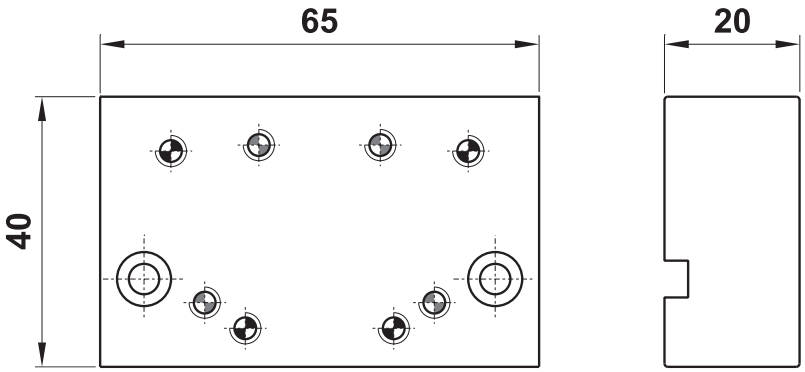
It can be used to install a valve 521 or 522 on a cylinder ISO 6431 from bore 32 to bore 100 (series N).
It is sold with all necessary pieces for installation.

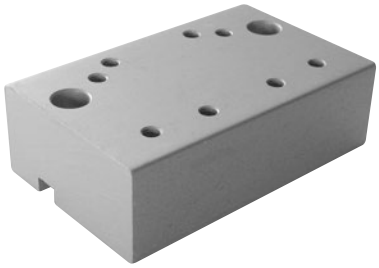
For the installation on the cylinder it is necessary to remove one end cap.

interface for cylinder ISO 6431 profile EASY

ORDER CODE

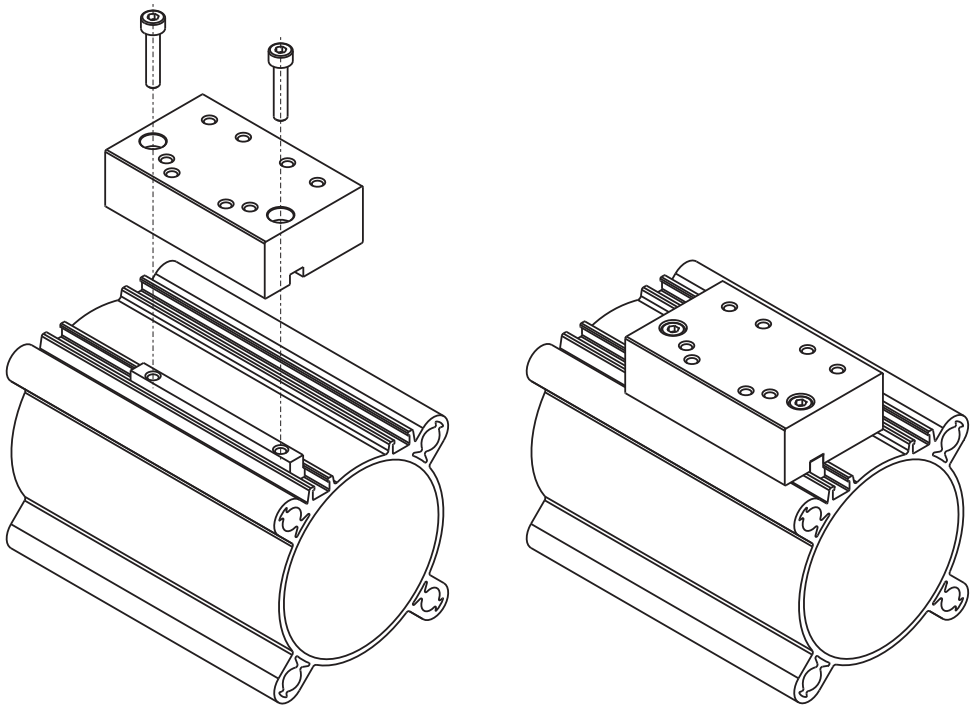
00.131.2





Mounting holes for valves 521

Mounting holes for valves 522

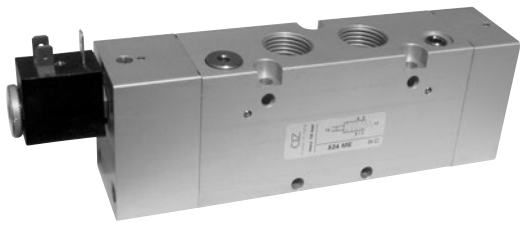


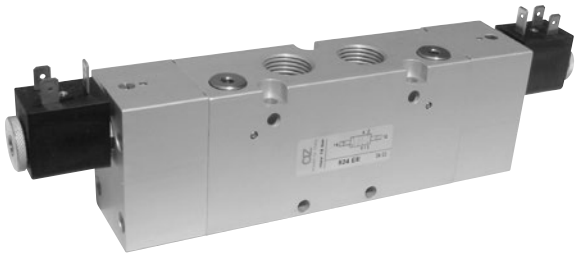
It can be used to install a valve 521 or 522 on a cylinder ISO 6431 from bore 32 to bore 125, PROFILE EASY (series E).
It is sold with all necessary pieces for installation.

For the installation on the cylinder it is necessary to remove one end cap.

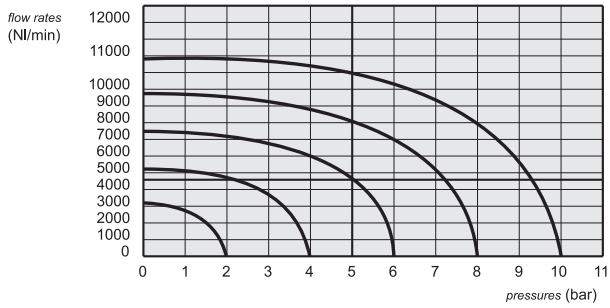
Solenoid actuated valves - 1/2″ NPT

- 3/2-5/2-5/3 spool valves with 1/2″ NPT threaded ports, BSP version avaiable on request
- Very high flow rate
- Installation in-line
- Solenoid pilots with detented manual override as standard
- Multifunction feature
- **Coils sold separately upon request**





The following products are sold without coils. These can be bought separately (refer to page 208).



Spare parts

02.030.2 : for 3/2 way valves ME - ME AS - MC
02.031.2 : for 5/2 way valves ME - ME AS - MC
02.032.2 : for 3/2 way valves EE - EE AS - CC
02.033.2 : for 5/2 way valves EE - EE AS - CC
02.034.2 : for 5/3 way valves EE - EE AS - CC

Response times

mono-stable	TRA (14): 39 ms TRR (12): 60 ms
bi-stable	TRA (14): 90 ms TRR (12): 90 ms

Materials

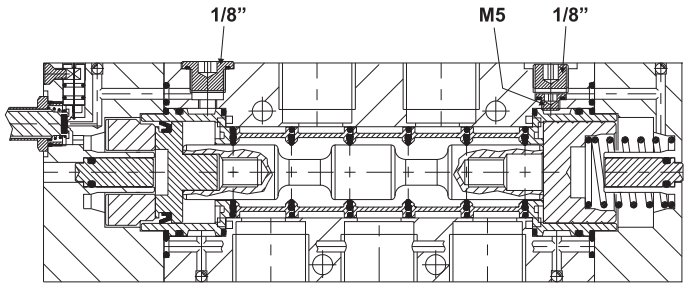
Body: aluminium 11S
Springs: stainless steel
Seals: NBR
Spool: stainless steel
Internal parts: brass OT58

Nominal diameter		13 mm (0.5 in)	
Nominal flow rate at 6 bar (87 PSI), Δp 1 bar (14 PSI)		4600 Nl/min (4.87 Cv)	
Temperature range		**-15** +**60**°C (**5**-**140**°F)	
Operating pressure	mono-stable internal air supply	bi-stable internal air supply	separate air supply
	2.5 ... 10 bar (36 ... 145 PSI) 0.25 ... 1 MPa	1 ... 10 bar (14 ... 145 PSI) 0.1 ... 1 MPa	-0.9 ... 10 bar (Vacuum ... 145 PSI) -0.09 ... 1 MPa
Actuating pressure (for separate air supply)		mono-stable	bi-stable
		2.5 ... 10 bar (36 ... 145 PSI) 0.25 ... 1 MPa	1 ... 10 bar (14 ... 145 PSI) 0.1 ... 1 MPa
Fluid		50μ filtered, lubricated or non lubricated air	

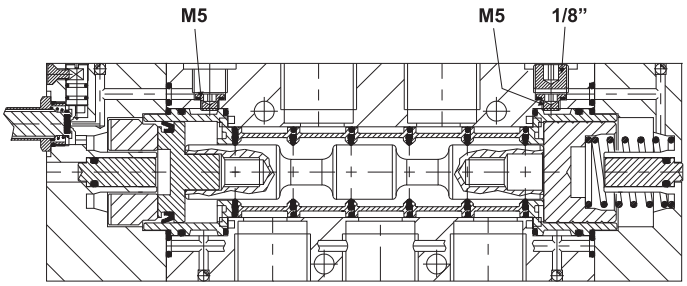
Multifunction feature of the valve

Valve functionality can be changed at any time. To do so, please re-collocate from its position either the M5 or 1/8" NPT plugs, which are inserted into the body according to the scheme. The valve is supplied according to the clients' needs on order. Interchangeable plugs must be ordered separately.

US324 ME
US524 ME

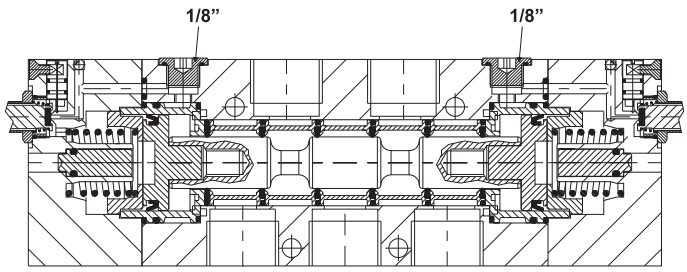


US324 ME AS
US524 ME AS



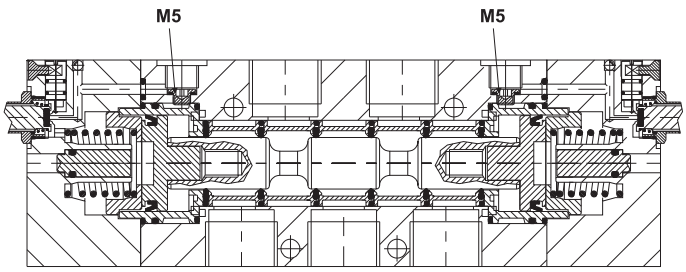
US324 EE
US524 EE

US5243C EE
US5243A EE
US5243P EE



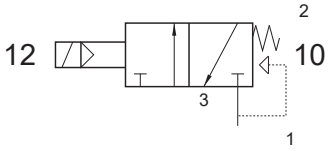
US324 EE AS
US524 EE AS

US5243C EE AS
US5243A EE AS
US5243P EE AS



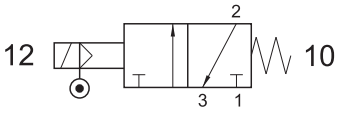
US324 ME

3/2 1/2" NPT N/C solenoid pilot - air and spring return



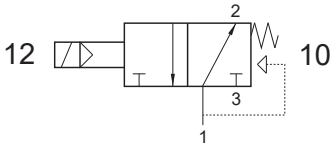
US324 ME AS

3/2 1/2" NPT solenoid pilot with separate air supply - spring return



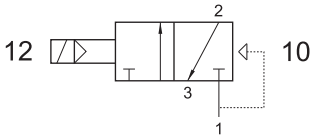
US324 MEA

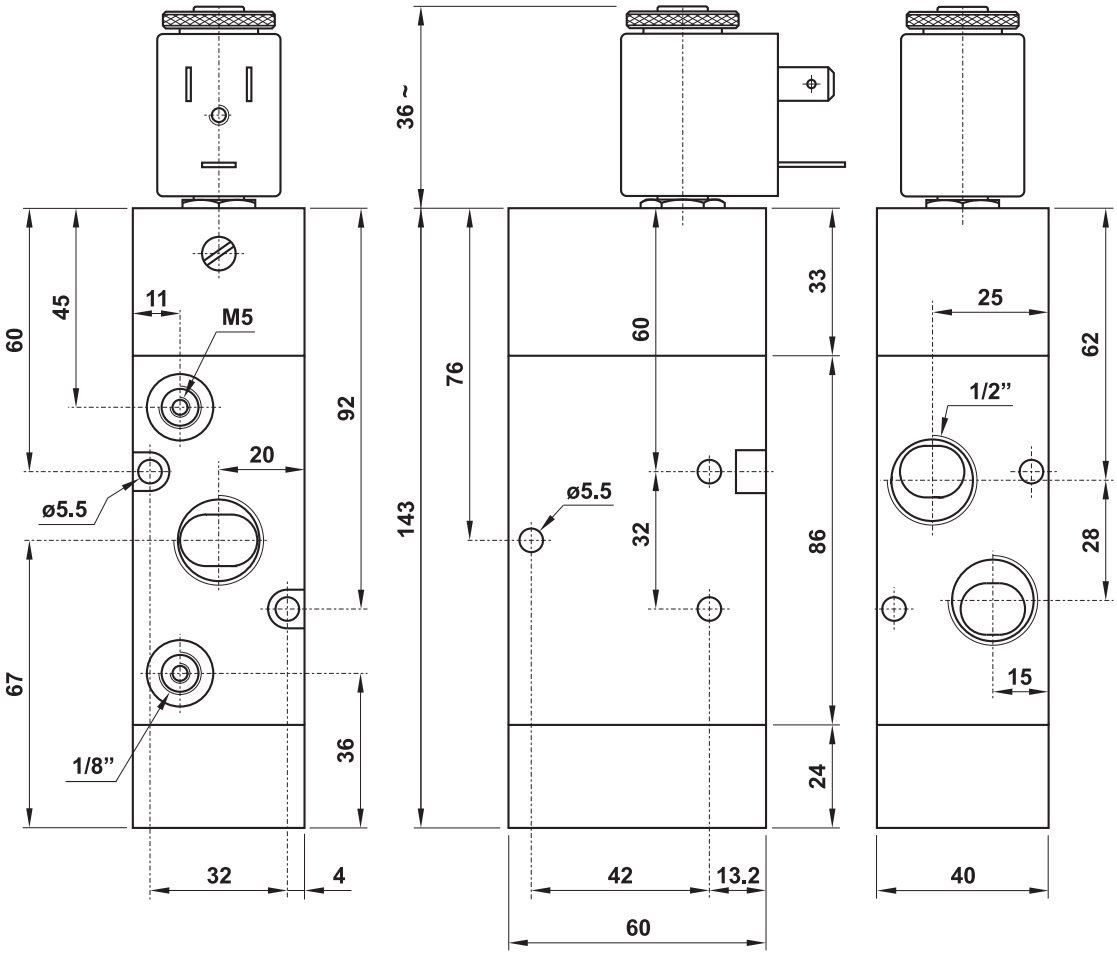
3/2 1/2" NPT N/O solenoid pilot - air and spring return



US324 EFP

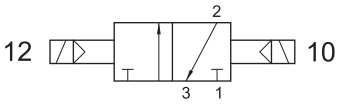
3/2 1/2" NPT N/C solenoid pilot - pneumatic spring return





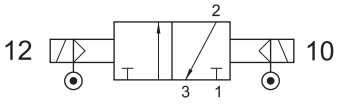
US324 EE

3/2 1/2" NPT double solenoid pilot



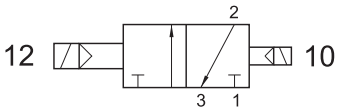
US324 EE AS

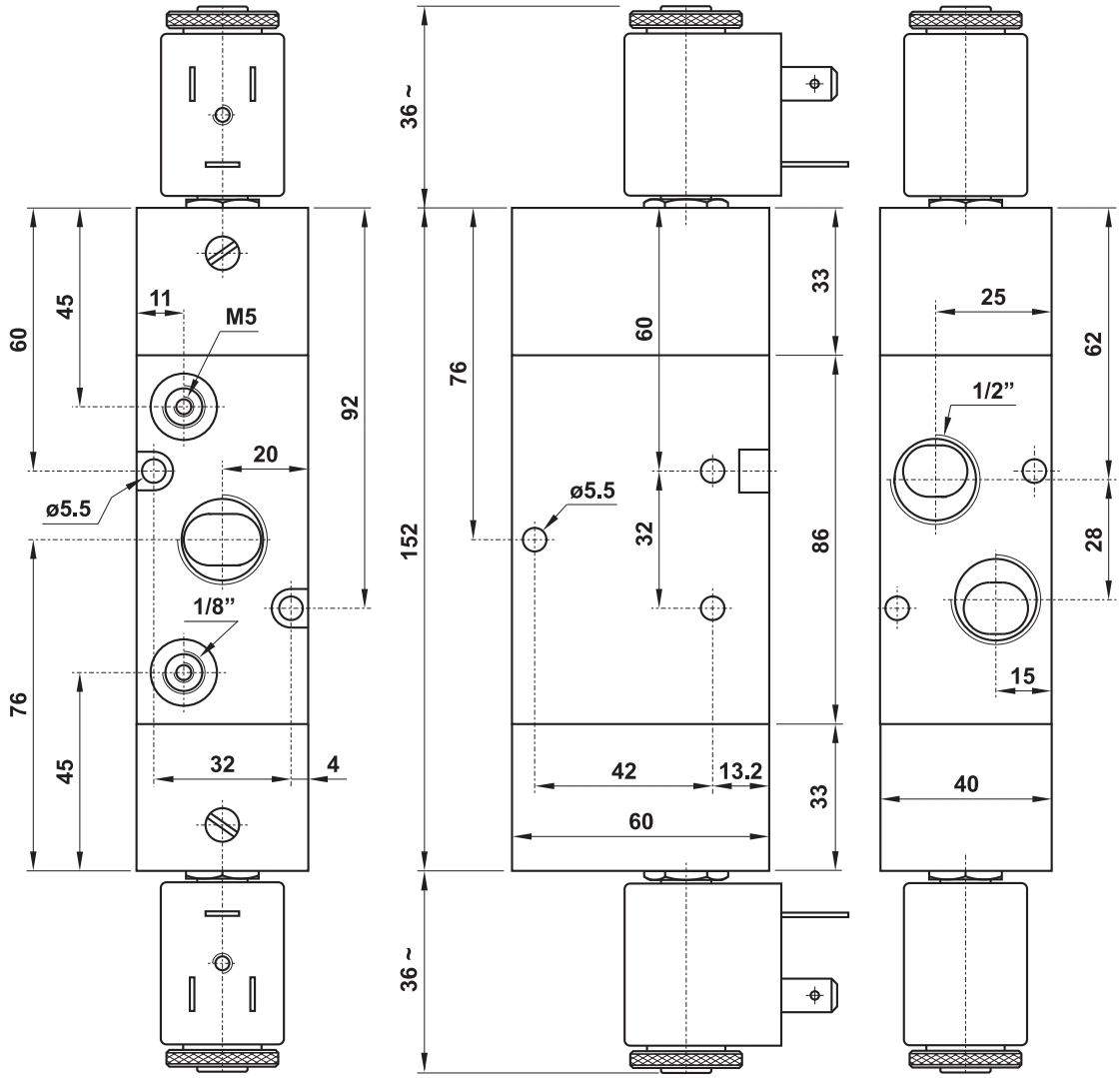
3/2 1/2" NPT double solenoid pilot with separate air supply



US324 EED

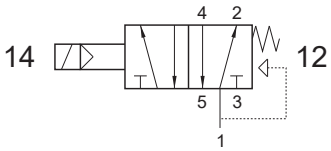
3/2 1/2" NPT double solenoid pilot - with differential





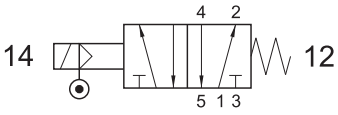
US524 ME

5/2 1/2" NPT solenoid pilot - air and spring return



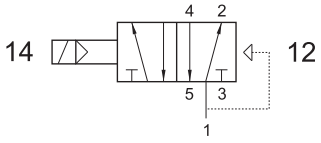
US524 ME AS

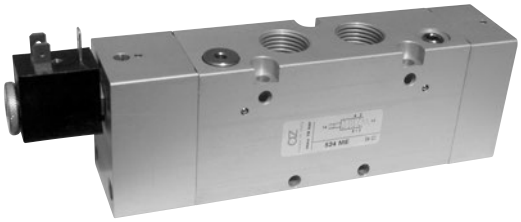
5/2 1/2" NPT solenoid pilot with separate air supply - spring return

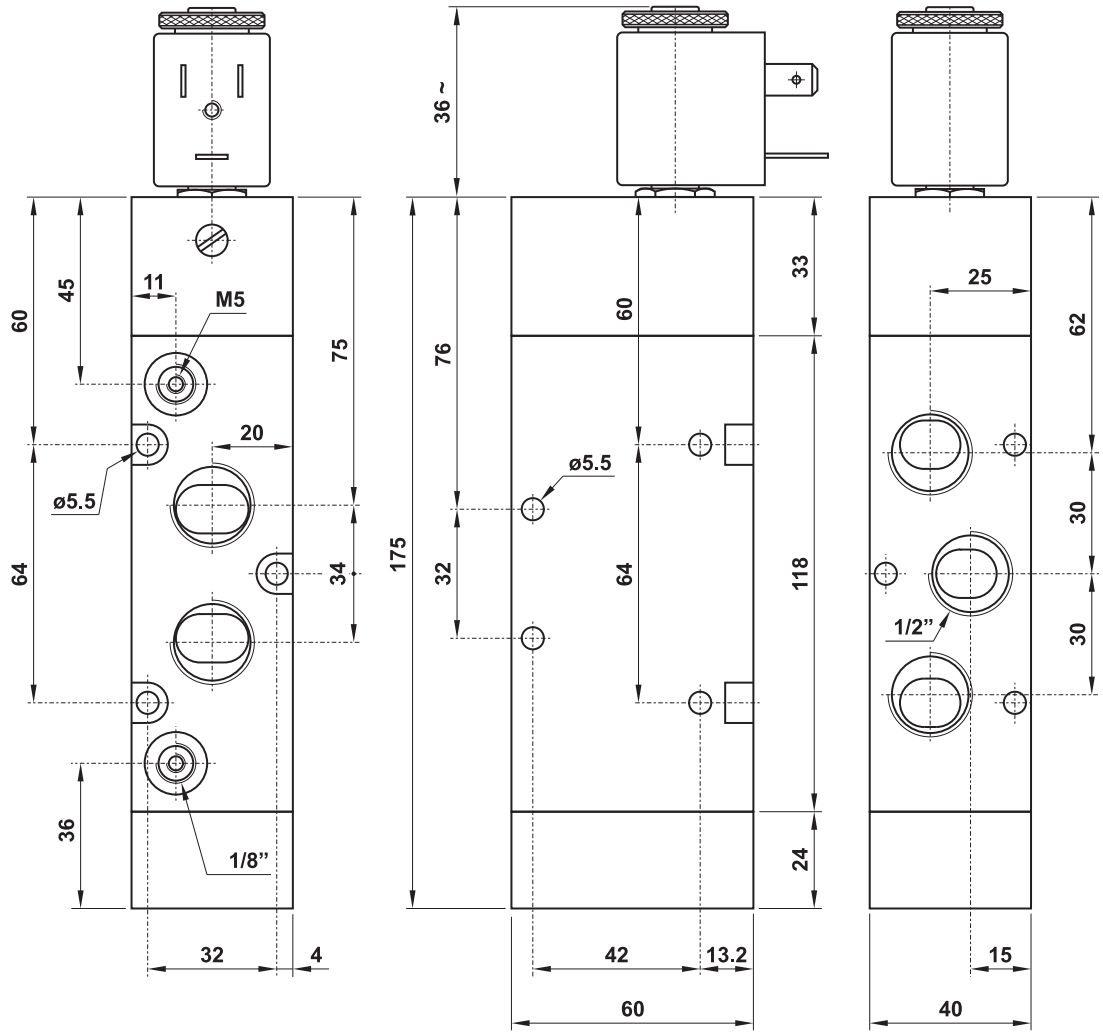


US524 EFP

5/2 1/2" NPT solenoid pilot - pneumatic spring return

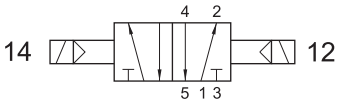






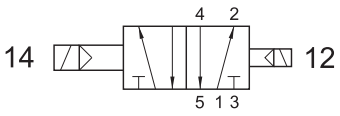
US524 EE

5/2 1/2" NPT double solenoid pilot



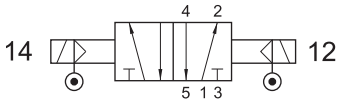
US524 EED

5/2 1/2" NPT double solenoid pilot - with differential



US524 EE AS

5/2 1/2" NPT double solenoid pilot with separate air supply

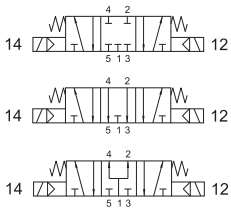


US5243C EE
US5243A EE
US5243P EE

closed centers

open centers

pressurized centers



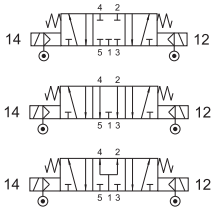
5/3 1/2" NPT double solenoid pilot

US5243C EE AS
US5243A EE AS
US5243P EE AS

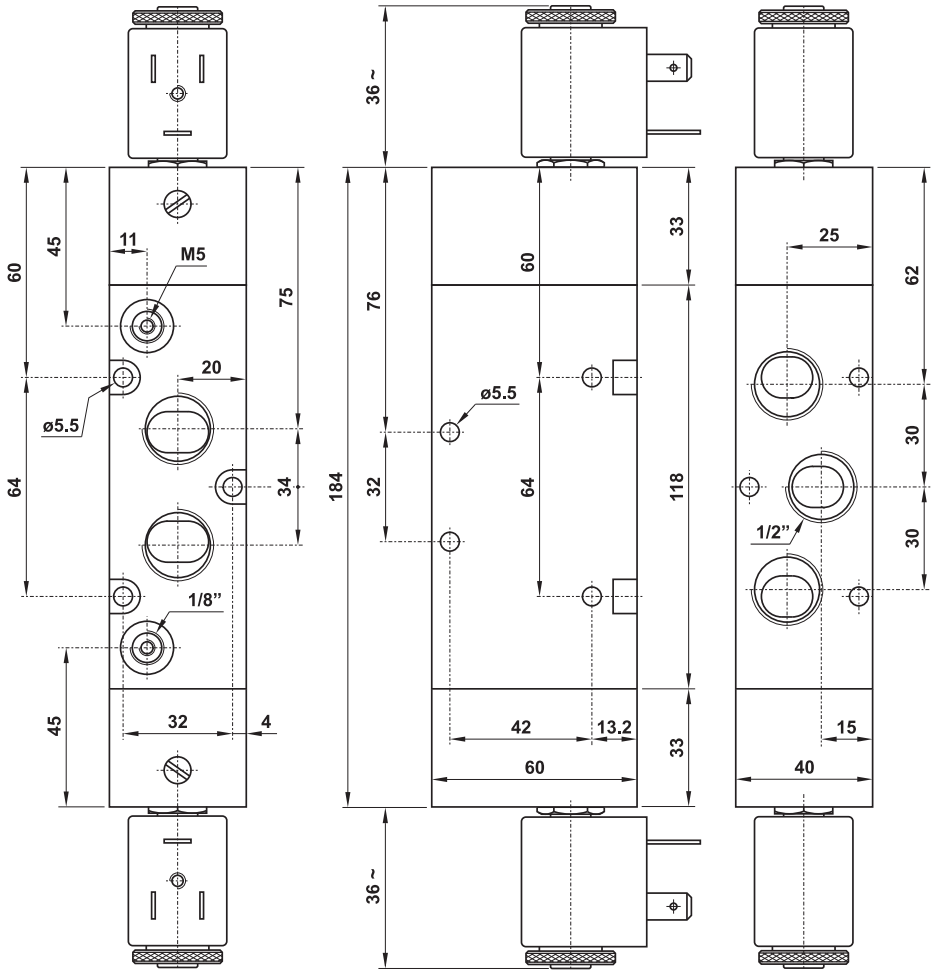
closed centers

open centers

pressurized centers



5/3 1/2" NPT double solenoid pilot with separate air supply



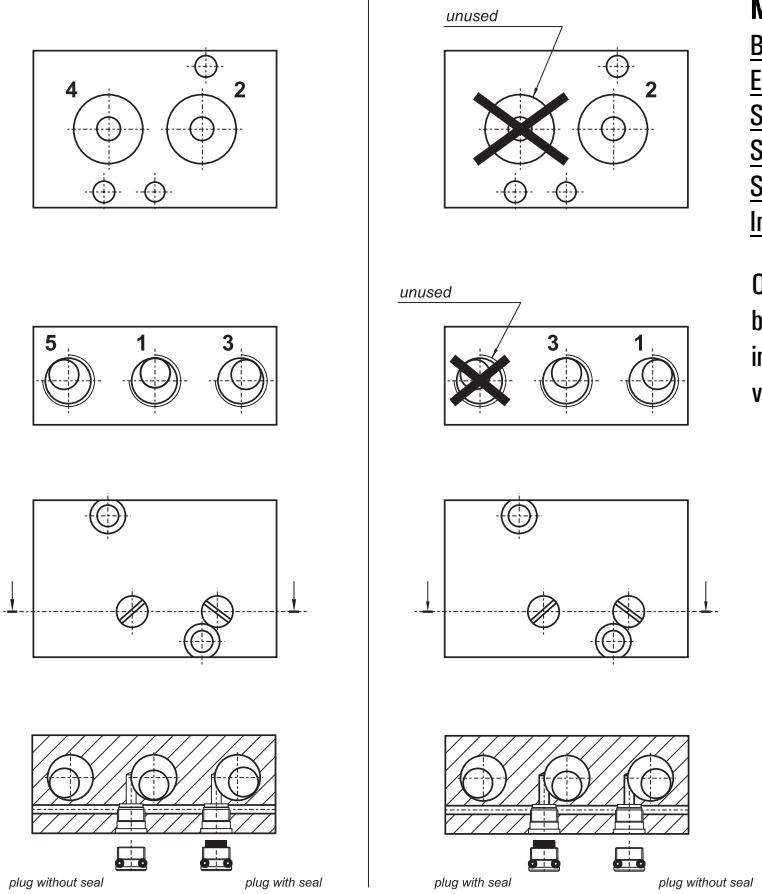
Chapter II - standardized spool valves and solenoid valves

page

Namur valves

The function of the valve can be changed by repositioning the seal situated under one of the two plugs.
Coils sold separately

5 WAYS - *3 WAYS*

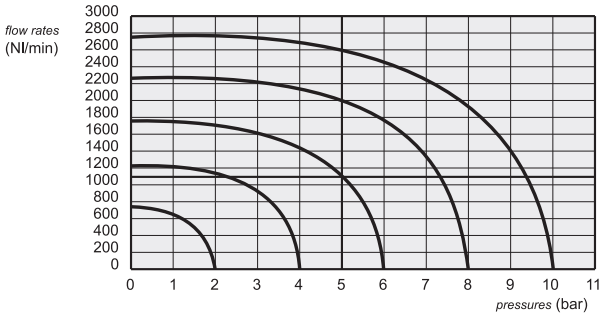


Materials

Body: aluminium 11S
End cups: aluminium 11s
Springs: stainless steel
Seals: NBR
Spool: nickel plated aluminium
Internal parts: brass OT58

On request and upon extra charge, the valves are available also with body and end caps entirely in aluminium. Some valves, as specified in the next pages, are available only in the aluminium version. ATEX valves are only in aluminium.

The following listed products are sold without coils, which are bought separately (refer to pages 248-249).



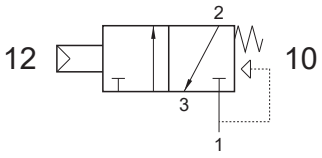
Spare parts

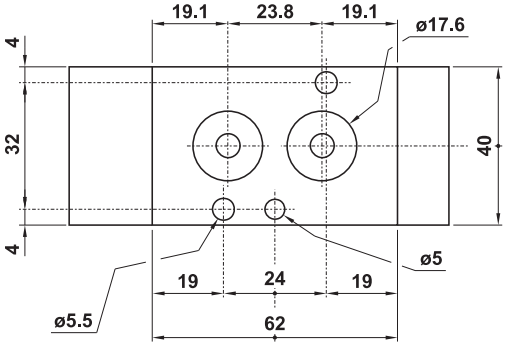
01.065.2 : for valves US382 MC, US382 ME, US582 MC, US582 ME
01.066.2 : for valves US382 CC, US382 EE, US582 CC, US582 EE

Nominal diameter	7.5 mm (0.3 in)			
Ports	1/4" NPT			
Temperature range	**-15** +**60**°C (**5**-**140**°F)			
Operating pressure	electr. mono-stable	electr. bi-stable	pneum. mono-stable	pneum. bi-stable
	2.5 ... 10 bar (36 ... 145 PSI) 0.25 ... 1 MPa	1 ... 10 bar (14 ... 145 PSI) 0.1 ... 1 MPa	0 ... 10 bar (0 ... 145 PSI) 0 ... 1 MPa	0 ... 10 bar (0 ... 145 PSI) 0.1 ... MPa
Actuating pressure			pneum. mono-stable	pneum. bi-stable
			2.5 ... 10 bar (36 ... 145 PSI) 0.25 ... 1 MPa	1 ... 10 bar (14 ... 145 PSI) 0.1 ... 1 MPa
Fluid	50μ filtered, lubricated or non lubricated air			

US382 MC

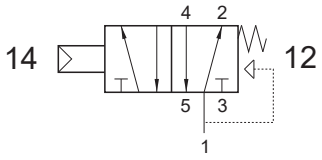
3/2 NC pneumatic pilot - air and spring return

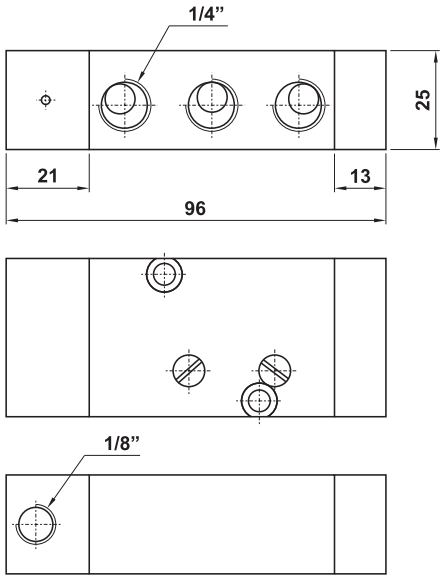




US582 MC

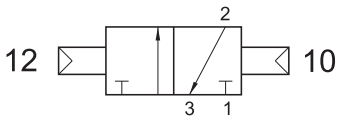
5/2 pneumatic pilot - air and spring return

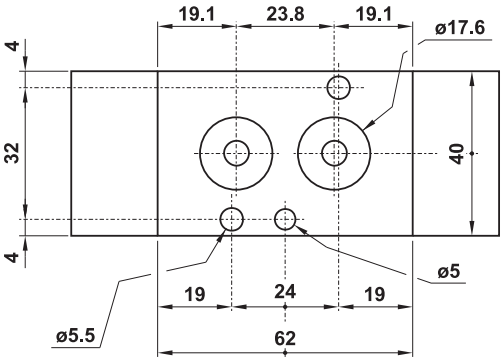




US382 CC

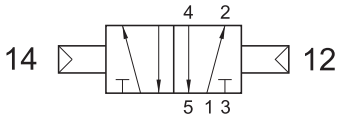
3/2 double pneumatic pilot

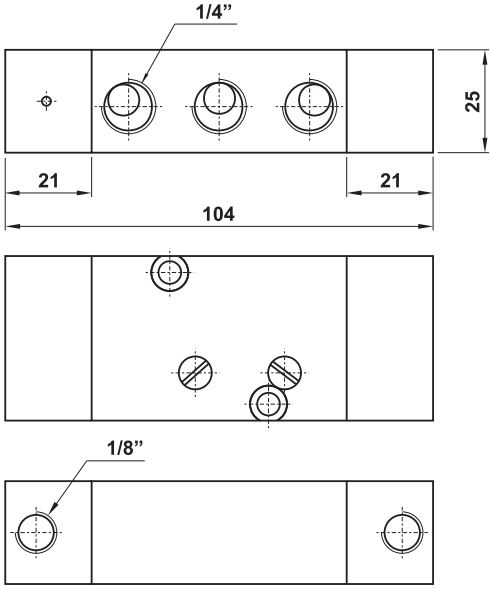




US582 CC

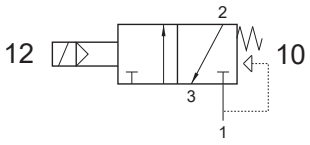
5/2 double pneumatic pilot

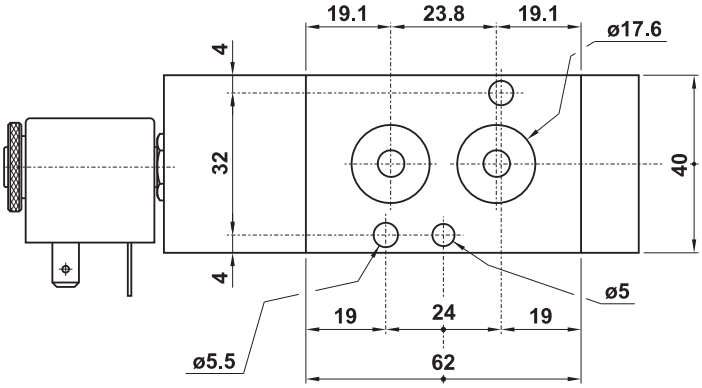




US382 ME

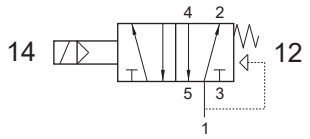
3/2 NC solenoid pilot - air and spring return

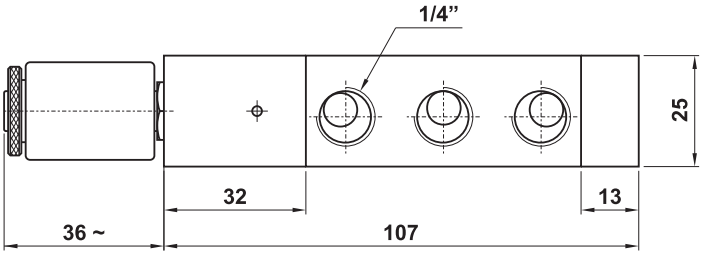


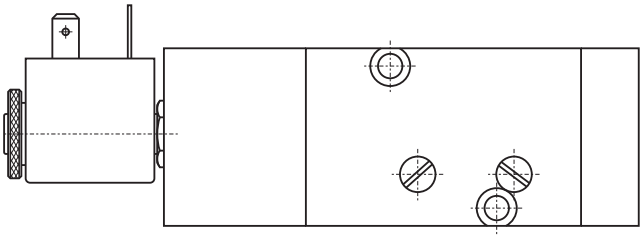


US582 ME

5/2 solenoid pilot - air and spring return

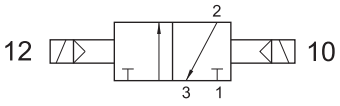


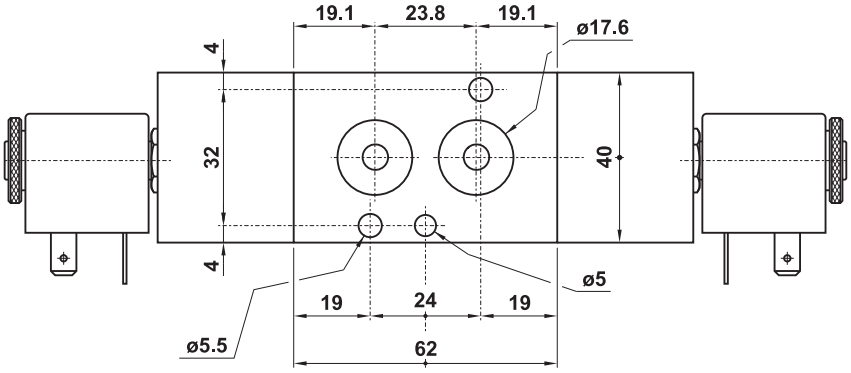




US382 EE

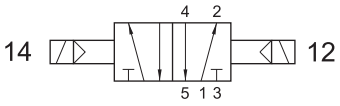
3/2 double solenoid pilot

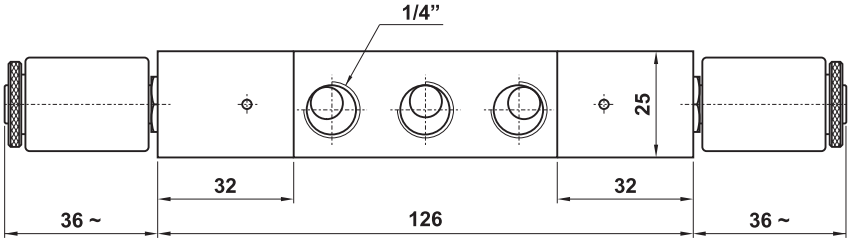


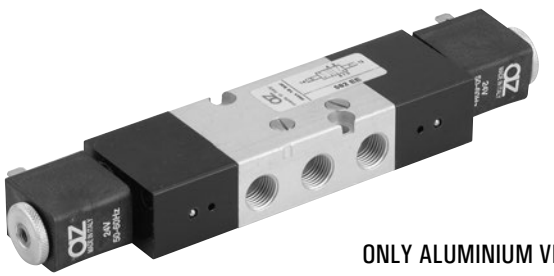


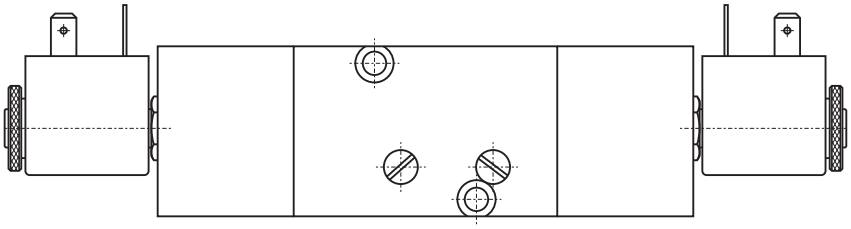
US582 EE

5/2 double solenoid pilot





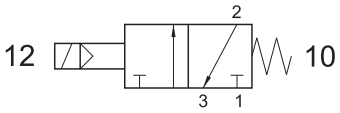




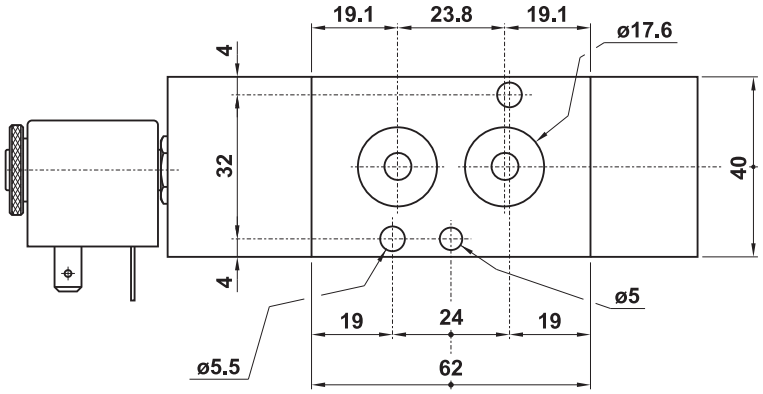
ONLY ALUMINIUM VERSION

US382 MRE

3/2 NC solenoid pilot - REINFORCED spring return

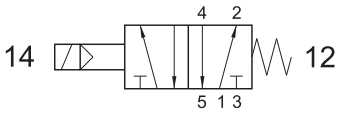


It cannot be used as normally open valve.

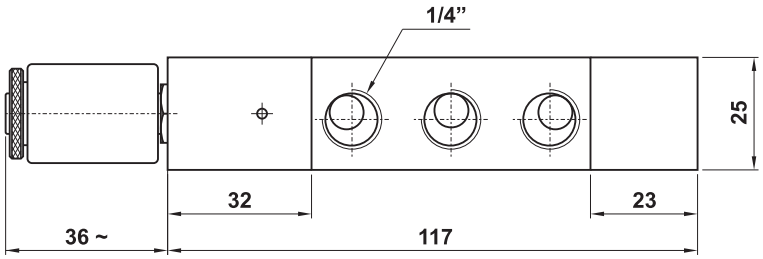


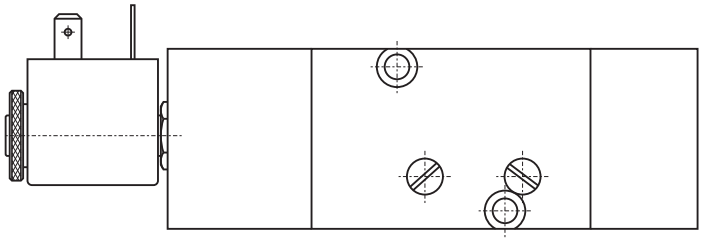
US582 MRE

5/2 solenoid pilot - REINFORCED spring return



Working pressure: 2.5 ... 10 bar (36 ... 145 PSI)
The reinforced spring allows a prompt return of the spool also in lack of air.





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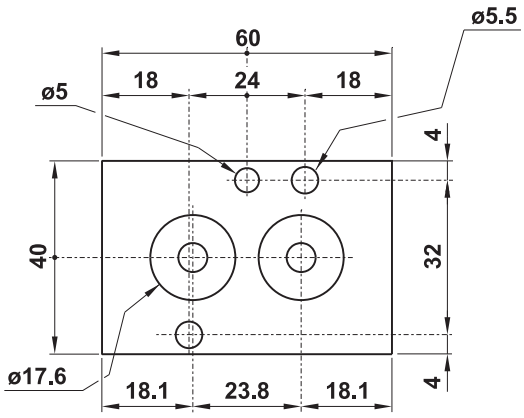
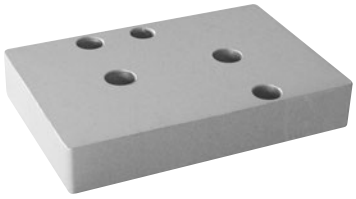
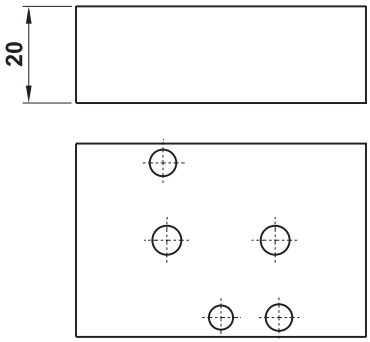
adapter for 30 mm coil and ATEX coil

ORDER CODE

01.055.2



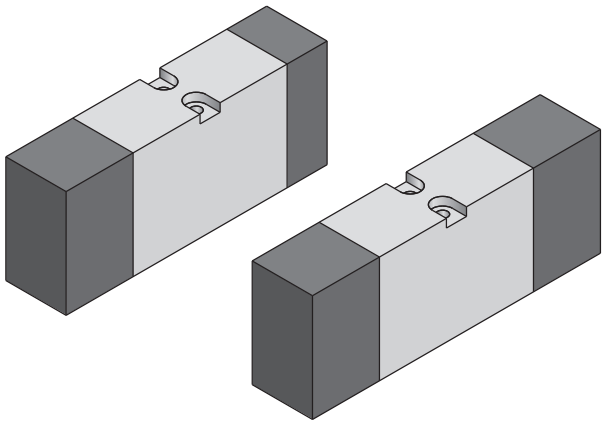




This adaptor must be mounted under a Namur valve to create the installation space for a 30 mm coil.

Pneumatically piloted valves - VDMA 18 mm

- 5/2-5/3 spool valves
- Compliant to norm VDMA 24563 - size 02 (18 mm)
- Installation on multiple sub-bases or manifolds
- Mono-stable or bi-stable pneumatic pilot



Response times

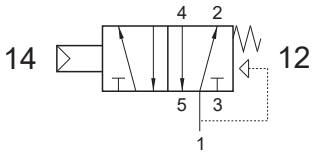
mono-stable	TRA (14): 12 ms TRR (12): 24 ms
bi-stable	TRA (14): 21 ms TRR (12): 21 ms

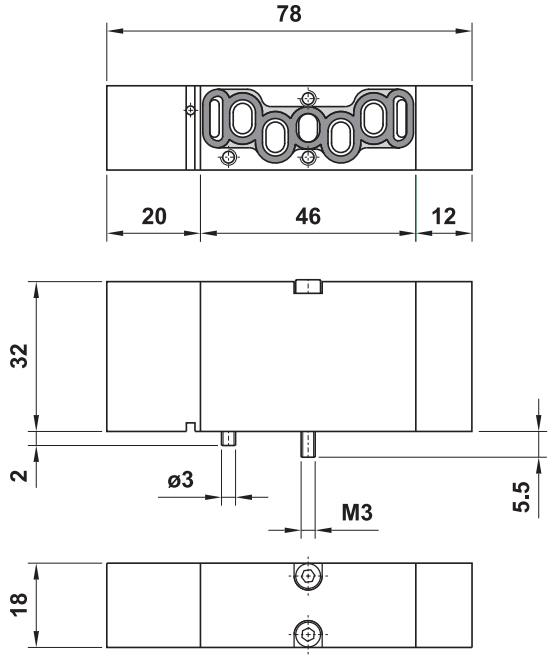
Materials
Body: aluminium 11S
Springs: stainless steel
Seals: NBR
Spool: nickel plated aluminium
Internal parts: brass OT58

Nominal diameter	5 mm (0.2 in)	
Nominal flow rate at 6 bar (87 PSI), Δp 1 bar (14 PSI)	550 Nl/min (0.58 Cv)	
Temperature range	**-15** +**60**°C (**5** - **140**°F)	
Operating pressure	mono-stable	bi-stable
	2.5 ... 10 bar (36 ... 145 PSI) 0.25 ... 1 MPa	-0.9 ... 10 bar (Vacuum ... 145 PSI) -0.09 ... 1 MPa
Actuating pressure	mono-stable	bi-stable
	2.5 ... 10 bar (36 ... 145 PSI) 0.25 ... 1 MPa	1 ... 10 bar (14 ... 145 PSI) 0.1 ... 1 MPa
Fluid	50μ filtered, lubricated or non lubricated air	

851 MC

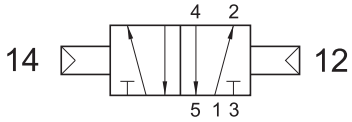
5/2 pneumatic pilot - air and spring return



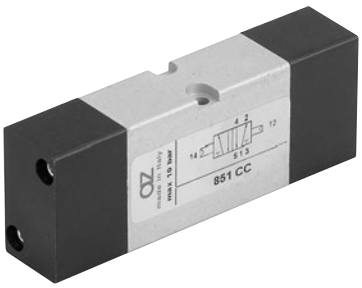


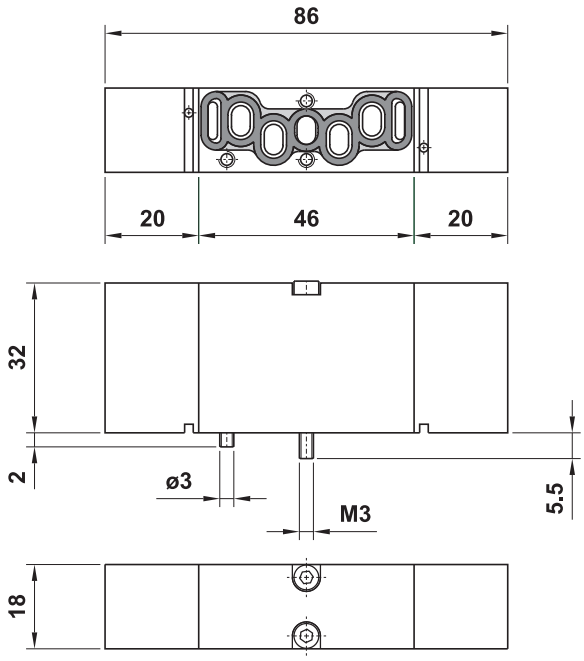
851 CC

5/2 double pneumatic pilot



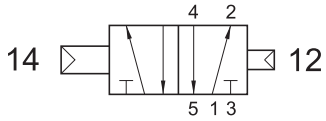
It can be used with vacuum.

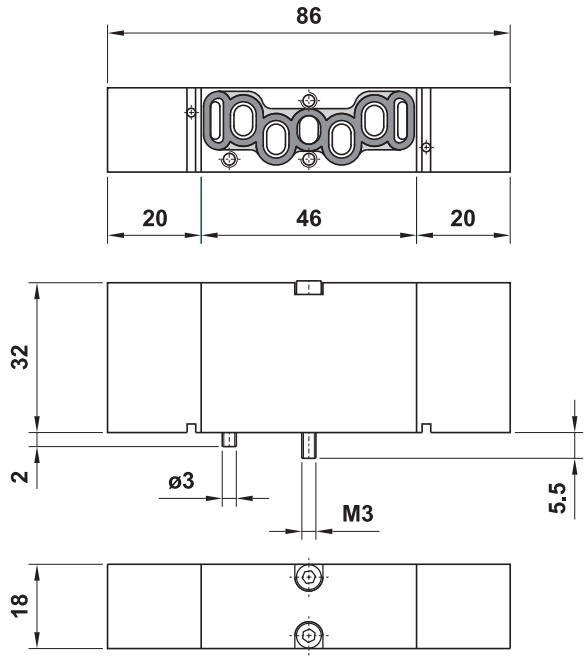




851 CCD

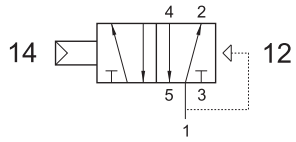
5/2 double pneumatic pilot - with differential

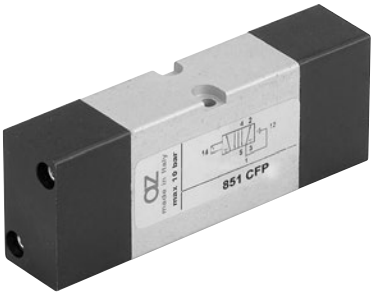


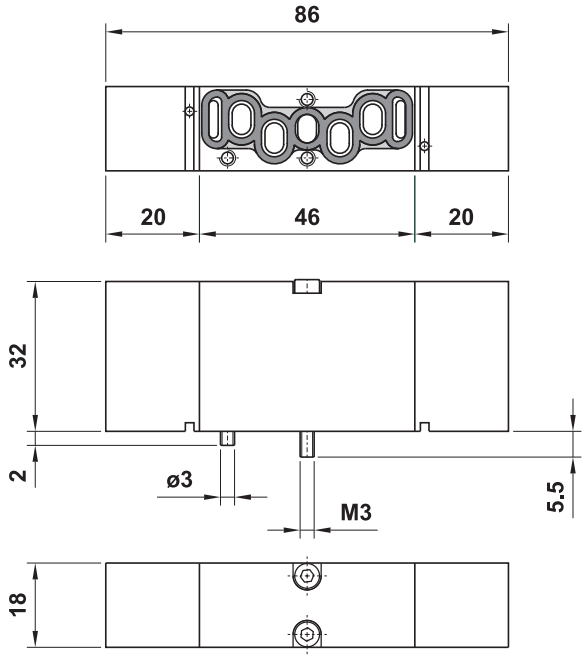


851 CFP

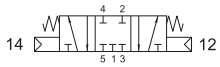
5/2 pneumatic pilot - pneumatic spring return



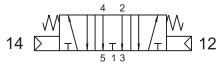




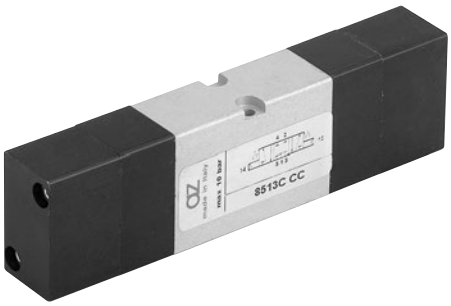
8513C CC closed centers

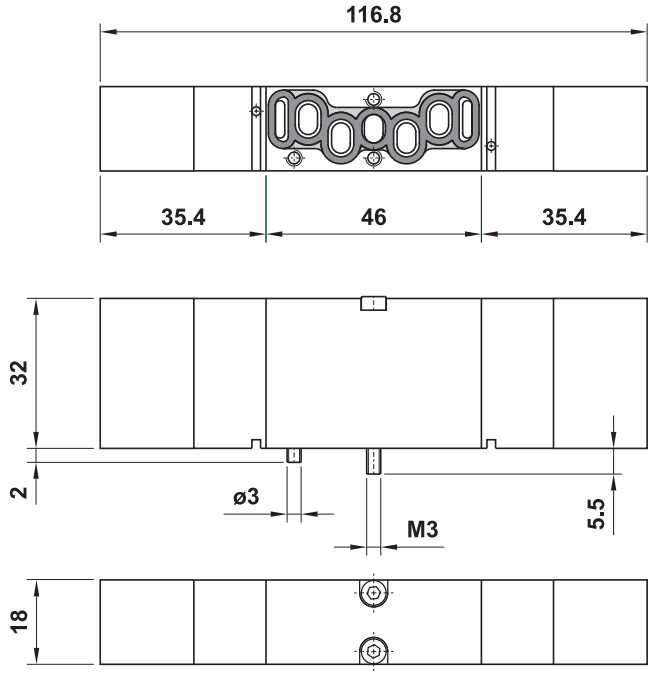


8513A CC open centers



5/3 double pneumatic pilot



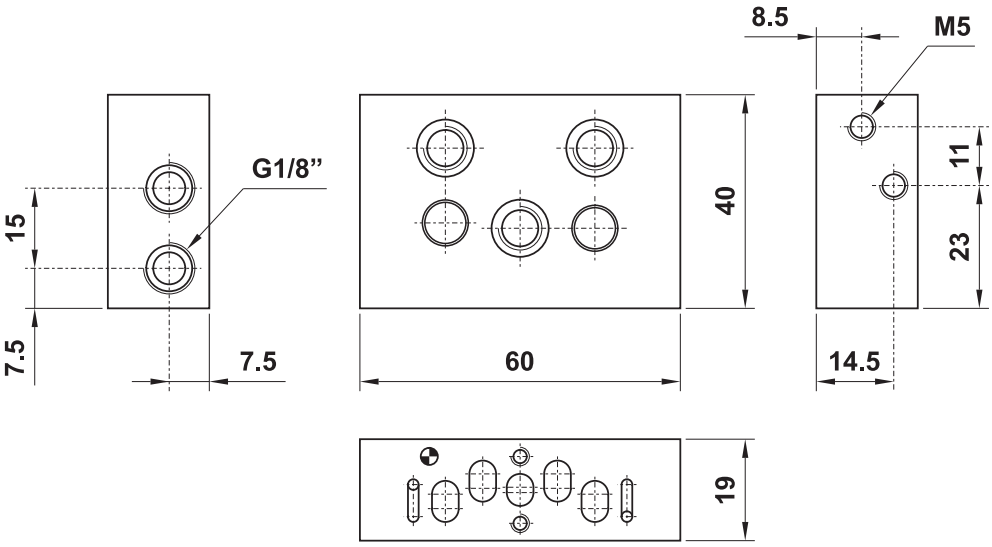


Multiple sub-bases for 18 mm VDMA valves

modular sub-base

ORDER CODE

BM851

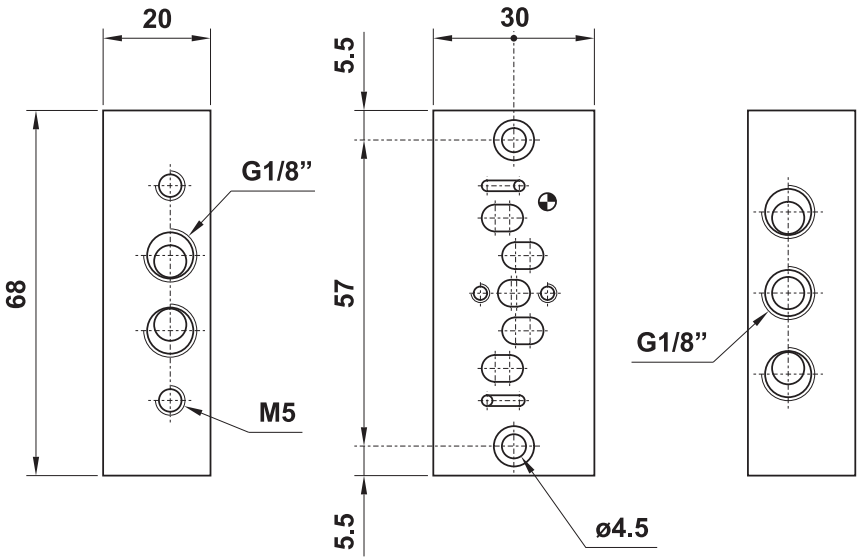


It is sold in kit with all necessary pieces for installation.

individual sub-base

ORDER CODE

BS851



Multiple sub-bases for 18 mm VDMA valves

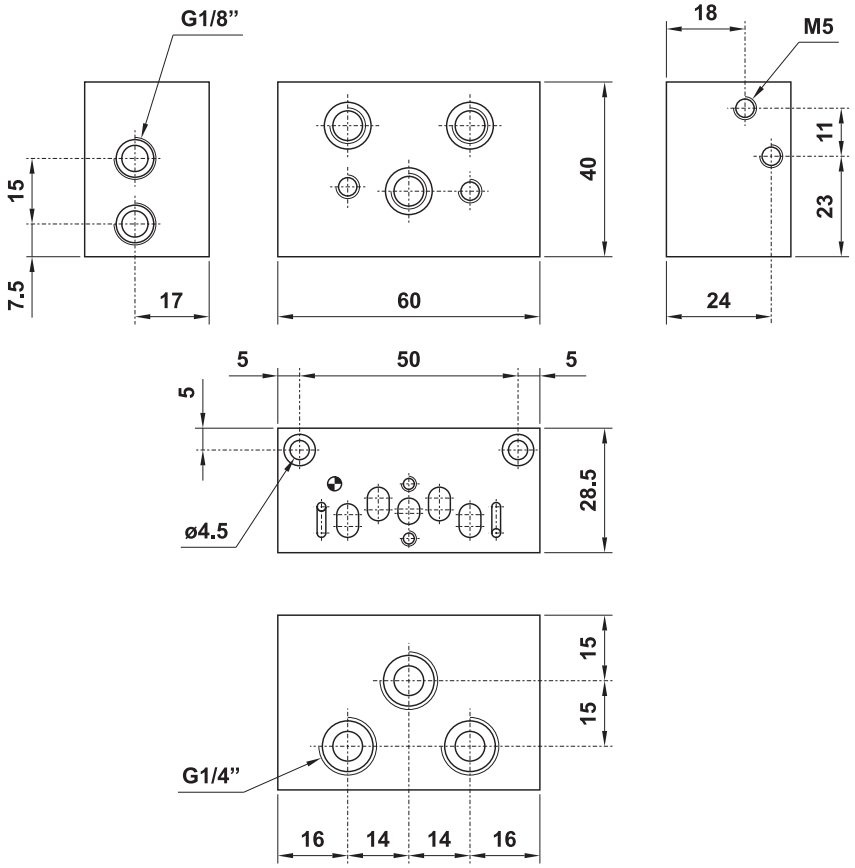
left hand header (with sub-base)

ORDER CODE

TS851

This header includes one sub-base for valve installation.

It is sold in kit with all necessary pieces for installation.



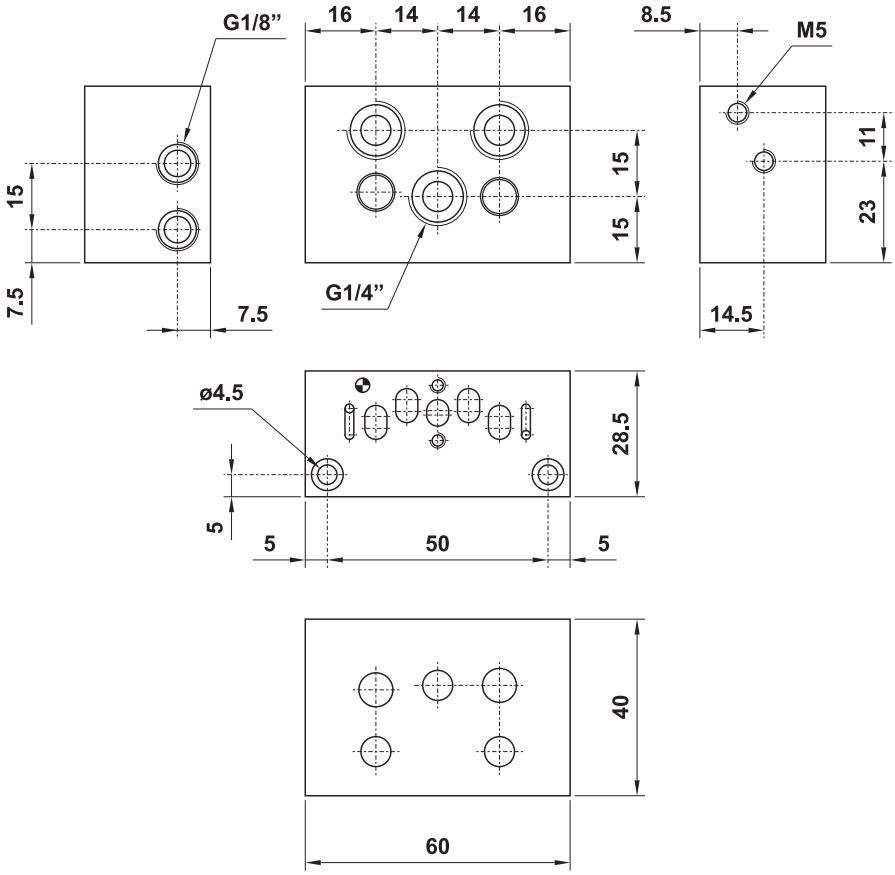
right hand header (with sub-base)

ORDER CODE

TD851

This header includes one sub-base for valve installation.

It is sold in kit with all necessary pieces for installation.

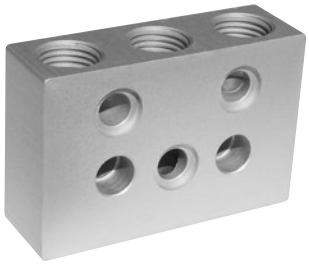


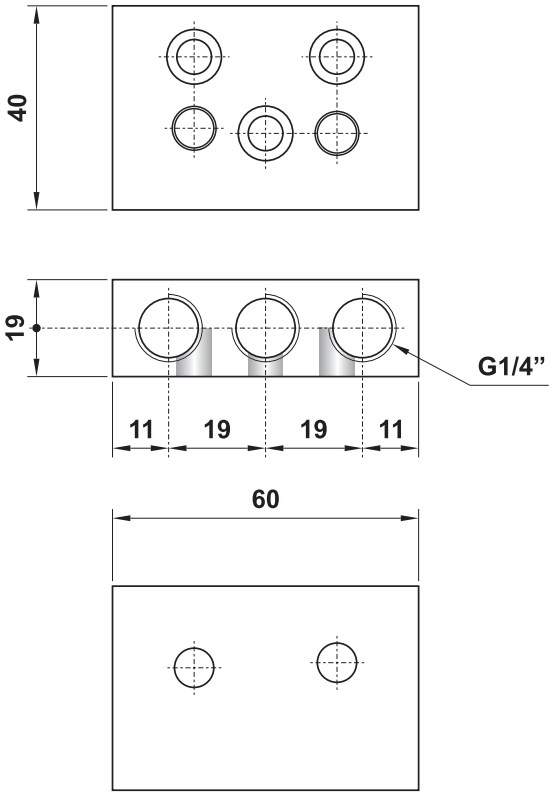
Multiple sub-bases for 18 mm VDMA valves

intermediate header

ORDER CODE

DR851



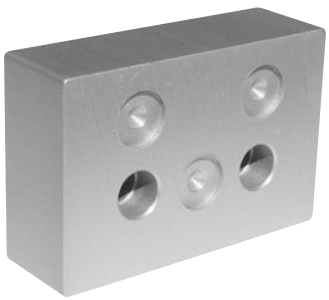


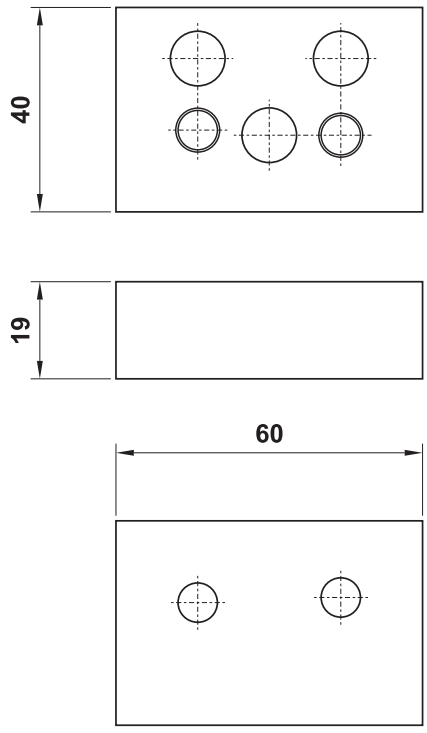
It is sold in kit with all necessary pieces for installation.

blanking piece

ORDER CODE

DC851





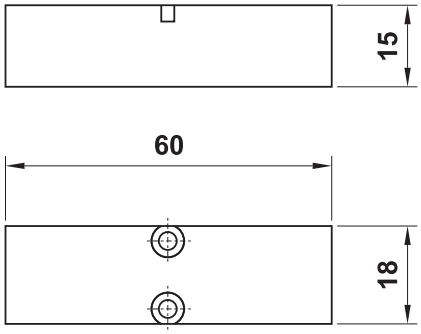
It is sold in kit with all necessary pieces for installation.

Multiple sub-bases for 18 mm VDMA valves

blanking plate

ORDER CODE

CS851

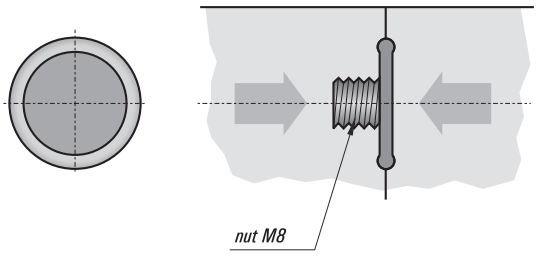


It is sold in kit with all necessary pieces for installation.

diaphragm gasket

ORDER CODE

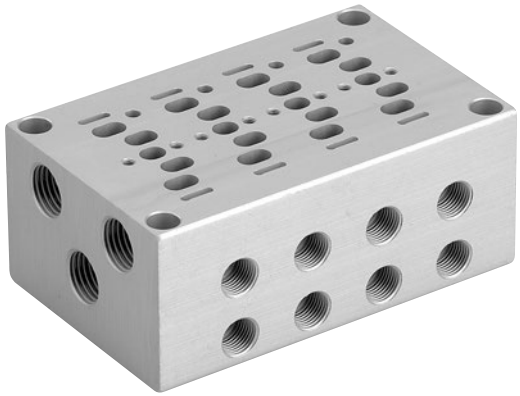
DF851

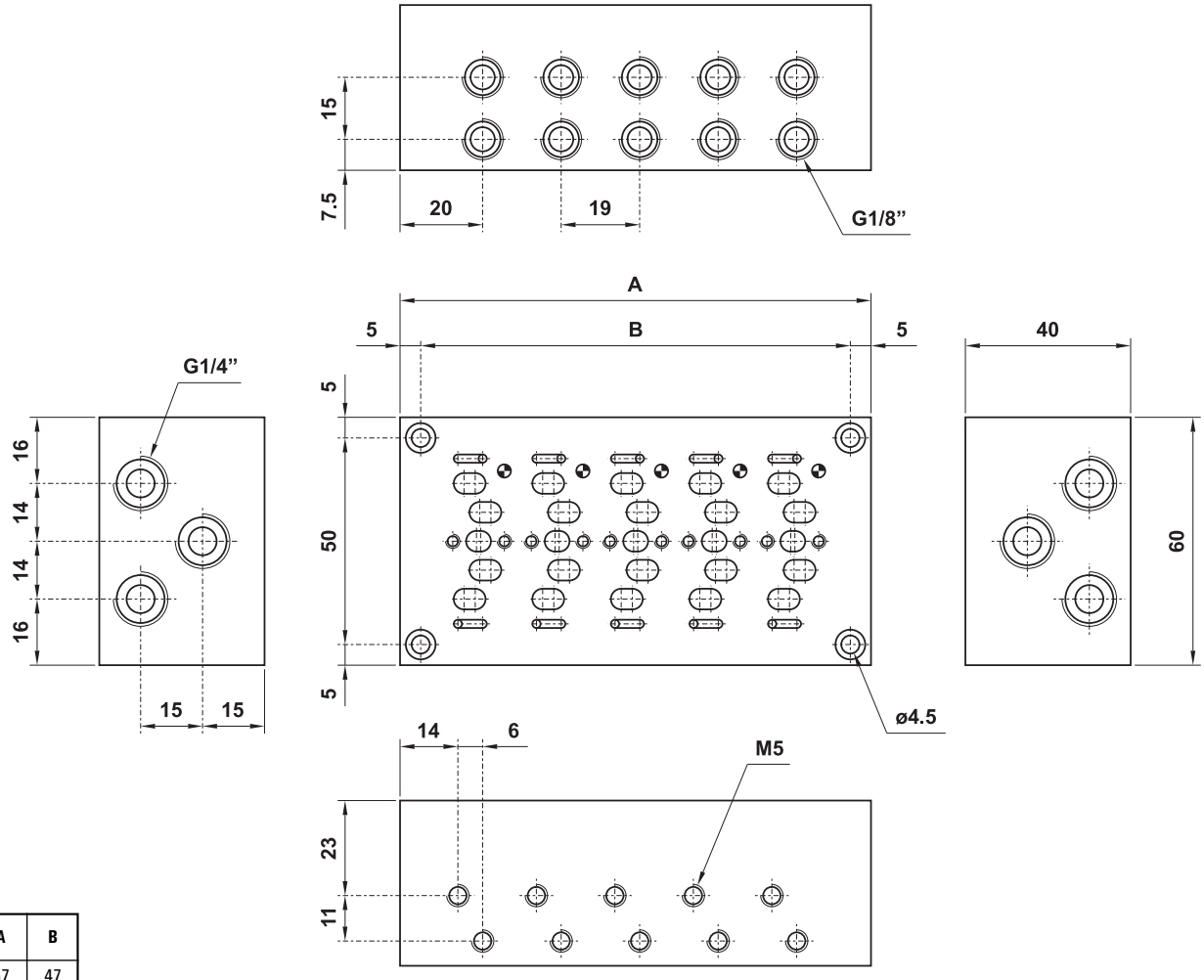


To be inserted between two sub-bases to stop the air flow and divide the manifold into separate zones.

Manifolds for 18 mm VDMA valves

- Common exhaust
- Individual pilot for each valve
- Material: aluminium (anodize treatment)
- Special manifolds on request

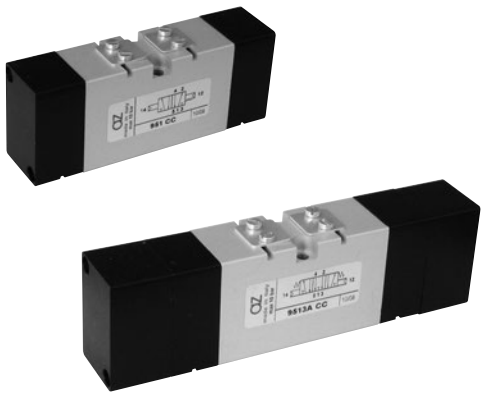




model	no. stations	A	B
05.052.1	2	57	47
05.053.1	3	76	66
05.054.1	4	95	85
05.055.1	5	114	104
05.056.1	6	133	123
05.057.1	7	152	142
05.058.1	8	171	161
05.059.1	9	190	180
05.060.1	10	209	199
05.113.1	11	228	218
05.114.1	12	247	237

Pneumatically piloted valves - VDMA 25 mm

- 5/2-5/3 spool valves
- Compliant to norm VDMA 24563 - size 01 (25 mm)
- Installation on individual sub-bases or manifolds
- Mono-stable or bi-stable pneumatic pilot



Response times

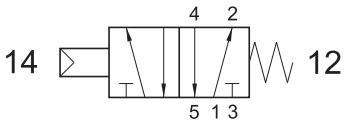
mono-stable	TRA (14): 30 ms TRR (12): 45 ms
bi-stable	TRA (14): 28 ms TRR (12): 28 ms

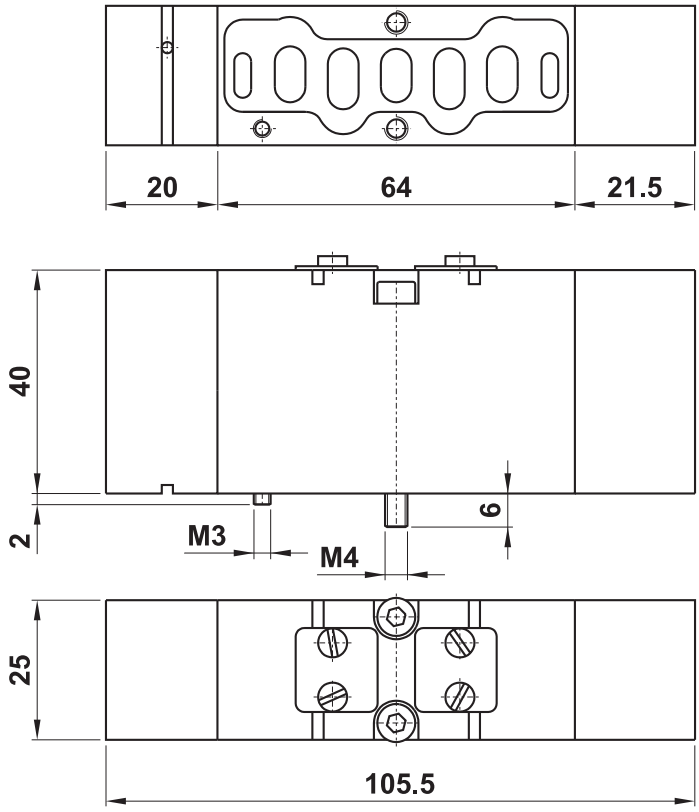
Materials
Body: aluminium 11S
Springs: stainless steel
Seals: NBR
Spool: nickel plated aluminium
Internal parts: brass OT58 and technopolymer

Nominal diameter	7.5 mm (0.3 in)	
Nominal flow rate at 6 bar (87 PSI), Δp 1 bar (14 PSI)	1100 Nl/min (1.16 Cv)	
Temperature range	**-15**+**60**°C (**5**-**140**°F)	
Operating pressure	mono-stable	bi-stable
	2.5 ... 10 bar (36 ... 145 PSI) 0.25 ... 1 MPa	-0.9 ... 10 bar (Vacuum ... 145 PSI) -0.09 ... 1 MPa
Actuating pressure	mono-stable	bi-stable
	2.5 ... 10 bar (36 ... 145 PSI) 0.25 ... 1 MPa	1 ... 10 bar (14 ... 145 PSI) 0.1 ... 1 MPa
Fluid	50μ filtered, lubricated or non lubricated air	

951 MC

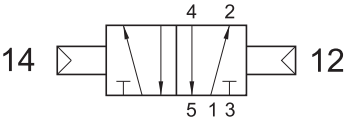
5/2 pneumatic pilot - spring return

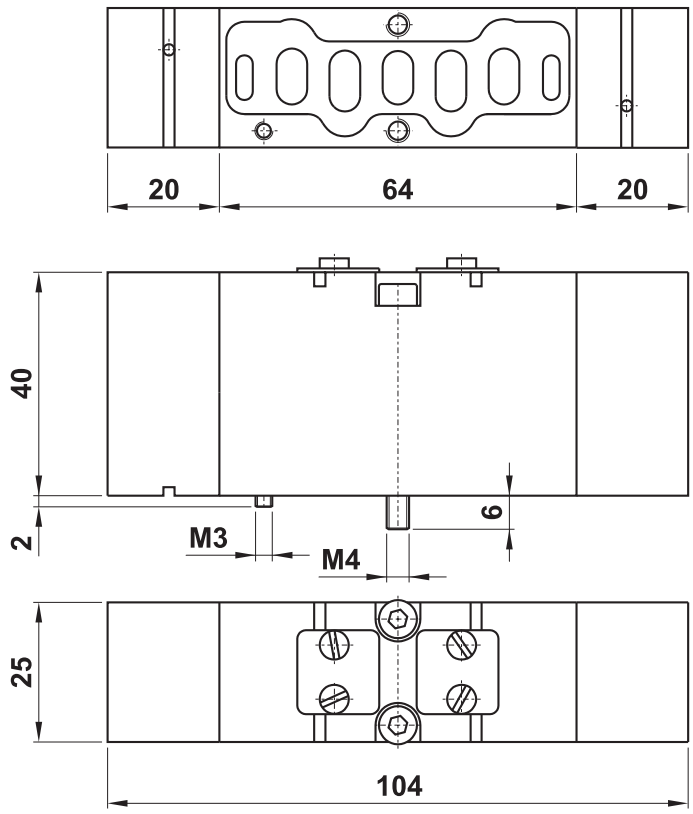




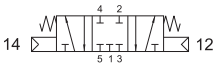
951 CC

5/2 double pneumatic pilot

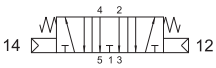




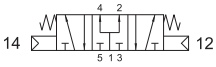
9513C CC closed centers



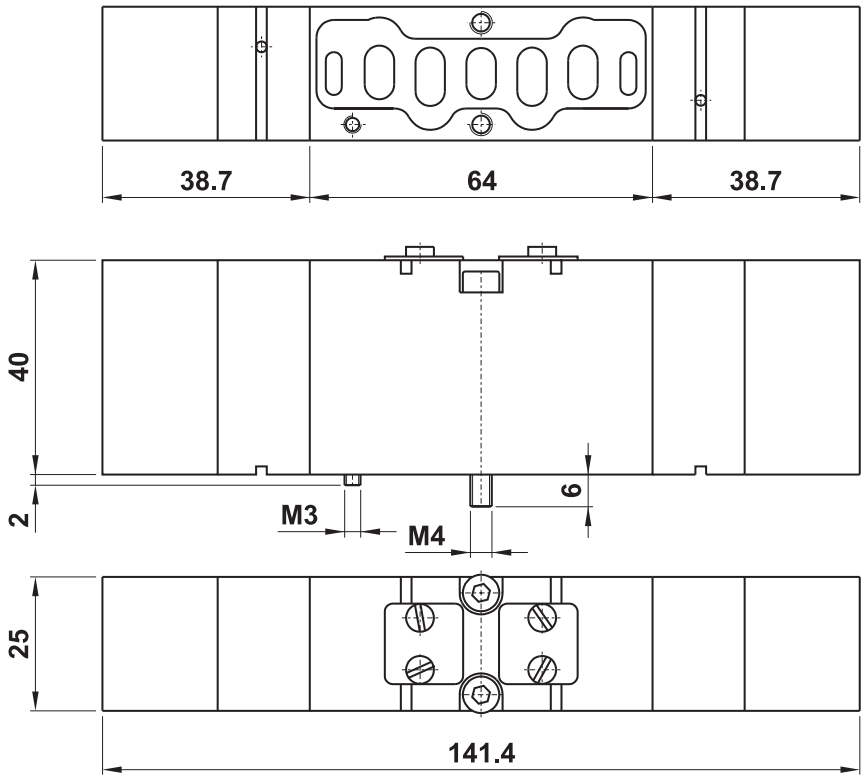
9513A CC open centers



9513P CC pressurized centers

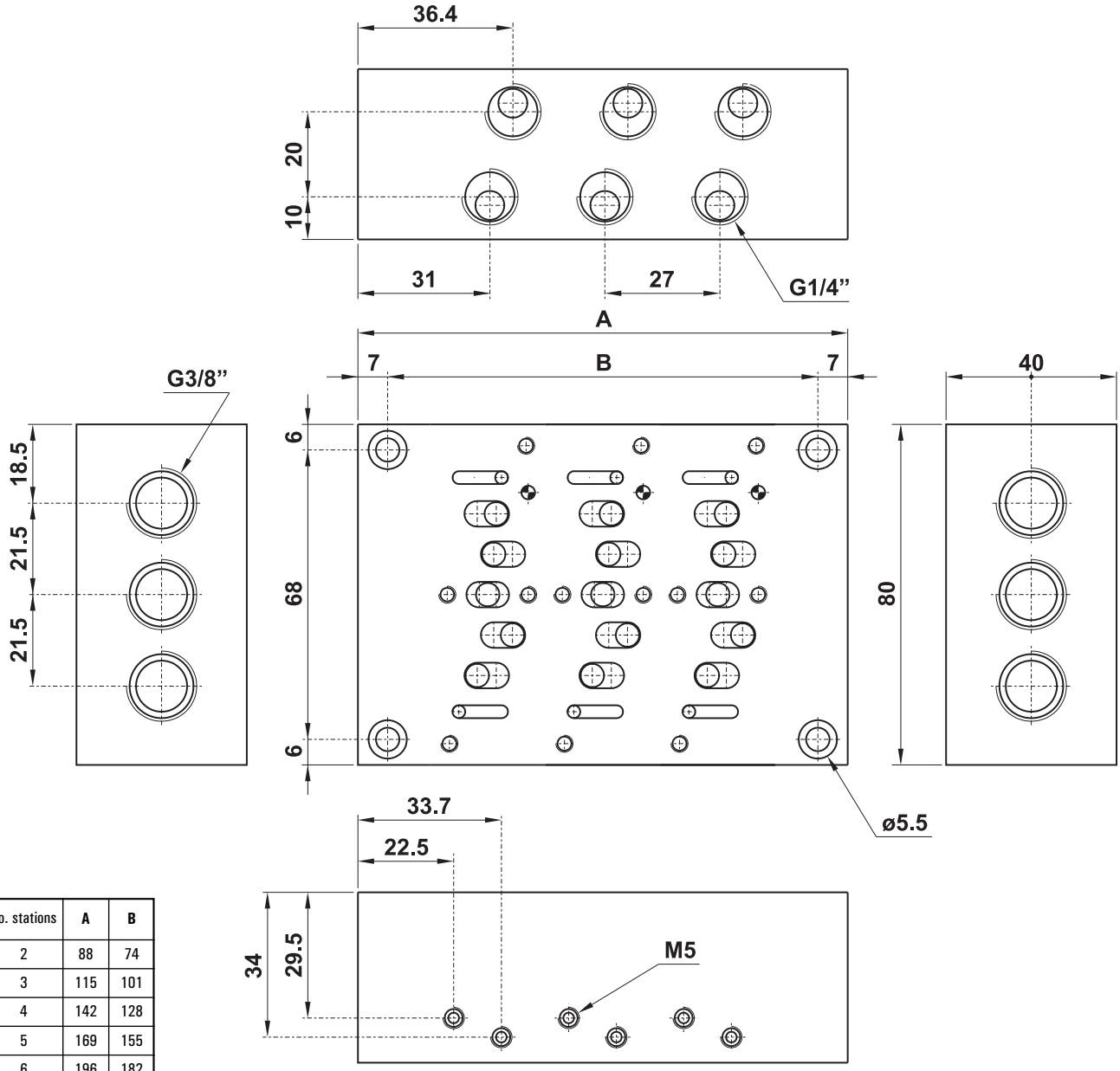


5/3 double pneumatic pilot



Manifolds for 25 mm VDMA valves

- Common exhaust
- Individual pilot for each valve
- Material: aluminium (anodize treatment)
- Special manifolds on request

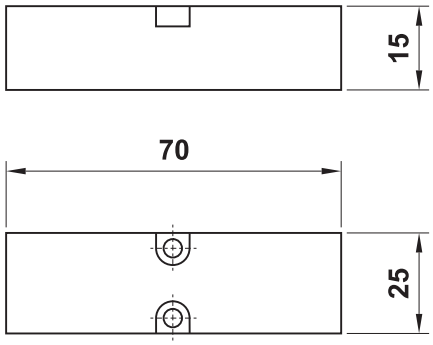


model	no. stations	A	B
05.062.1	2	88	74
05.063.1	3	115	101
05.064.1	4	142	128
05.065.1	5	169	155
05.066.1	6	196	182
05.067.1	7	223	209
05.068.1	8	250	236
05.069.1	9	277	263
05.070.1	10	304	290

blanking plate

ORDER CODE

CS951

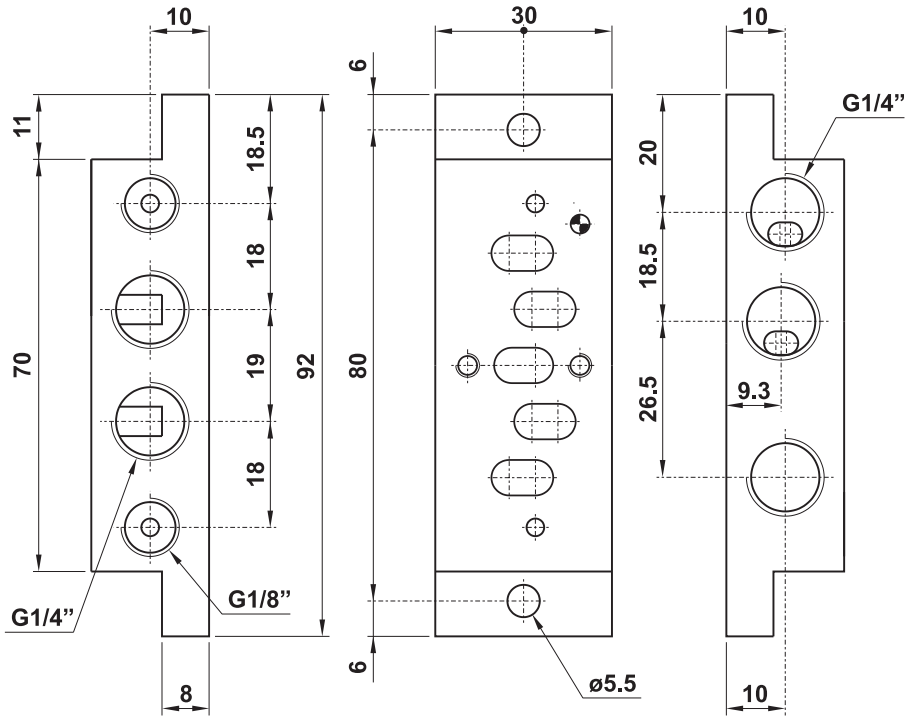


It is sold in kit with all necessary pieces for installation.

individual sub-base

ORDER CODE

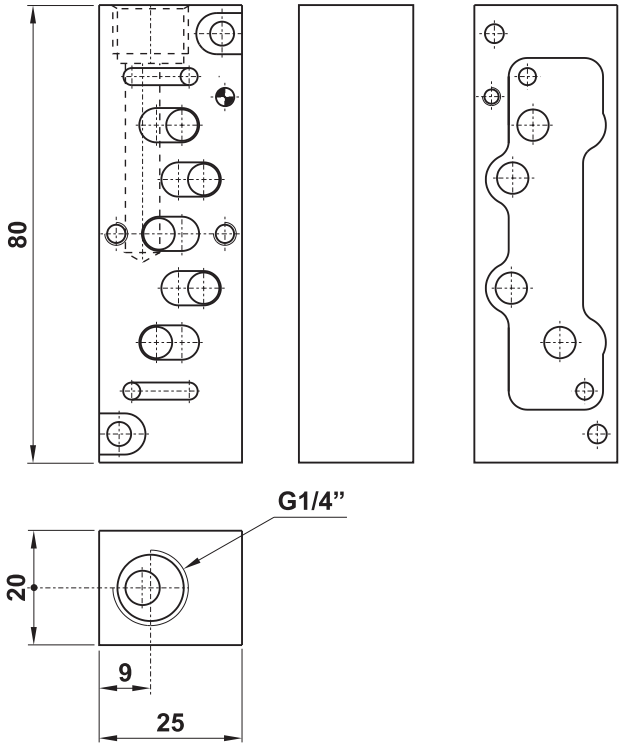
BS951



adapting plate for separate air inlet

ORDER CODE

05.065.2

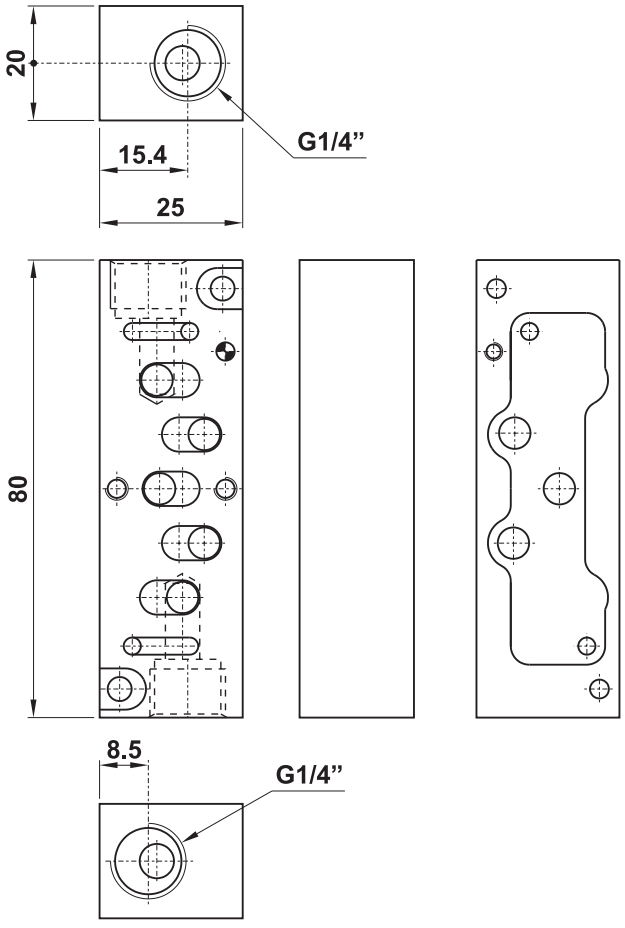


It is sold in kit with all necessary pieces for installation.

adapting plate for separate air exhaust

ORDER CODE

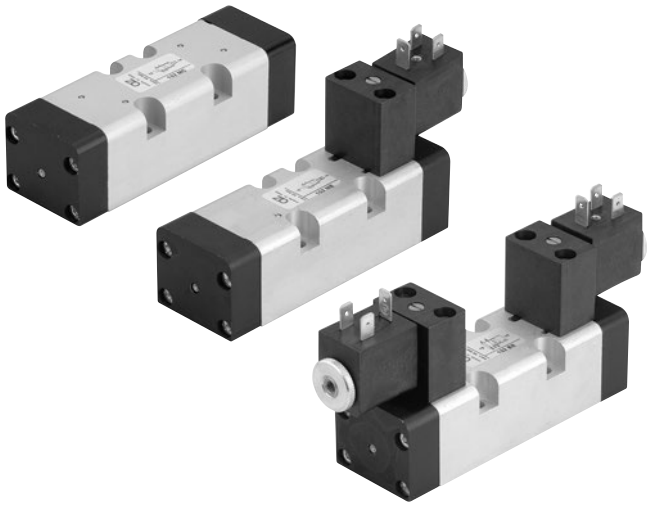
05.066.2

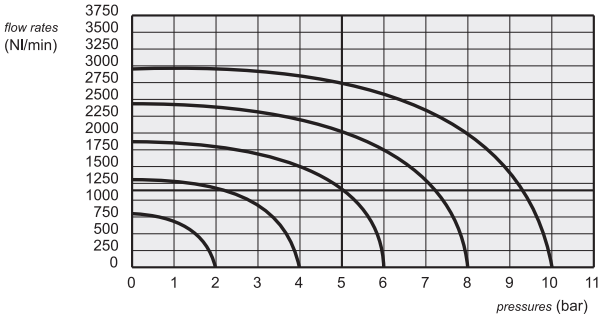


It is sold in kit with all necessary pieces for installation.

ISO 5599/1 valves - size 1

- 5/2-5/3 spool valves
- Installation on manifolds or multiple sub-bases
- Detented manual override on the solenoid pilot
- Manual reset





The following products are sold without coils. These can be bought separately

Response times

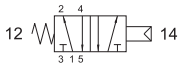
	pneumatic pilot	solenoid pilot
mono-stable	TRA (14): 12 ms TRR (12): 30 ms	TRA (14): 24 ms TRR (12): 50 ms
bi-stable	TRA (14): 20 ms TRR (12): 20 ms	TRA (14): 80 ms TRR (12): 80 ms

Materials

Body: aluminium 11S
End caps: technopolymer
Springs: stainless steel
Seals: NBR
Spool: nickel plated aluminium
Internal parts: brass OT58

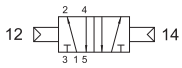
Nominal diameter		7.5 mm (0.3 in)	
Temperature range		**-15** +**60**°C (**5**-**140**°F)	
Operating pressure	mono-stable internal air supply	bi-stable internal air supply	separate air supply
	2.5 ... 10 bar (36 ... 145 PSI) 0.25 ... 1 MPa	1 ... 10 bar (14 ... 145 PSI) 0.1 ... 1 MPa	-0.9 ... 10 bar (Vacuum ... 145 PSI) -0.09 ... 1 MPa
Actuating pressure (for separate air supply)		mono-stable	bi-stable
		2.5 ... 10 bar (36 ... 145 PSI) 0.25 ... 1 MPa	1 ... 10 bar (14 ... 145 PSI) 0.1 ... 1 MPa
Fluid		50μ filtered, lubricated or non lubricated air	

152 MC



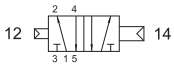
5/2 pneumatic pilot - spring return

152 CC



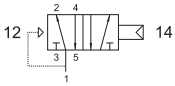
5/2 double pneumatic pilot

152 CCD



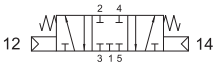
5/2 double pneumatic pilot - with differential

152 CFP

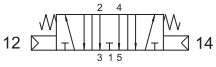


5/2 pneumatic pilot - pneumatic spring return

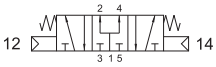
153C CC closed centers



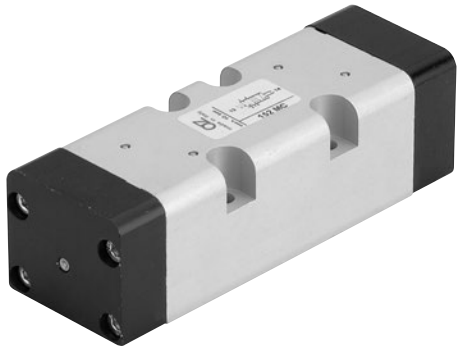
153A CC open centers

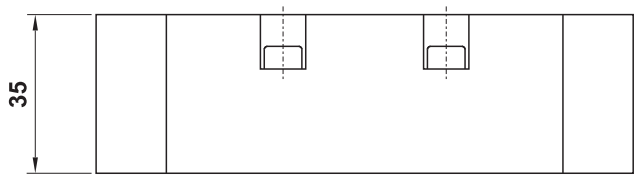


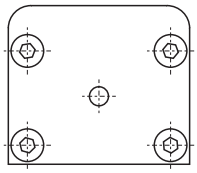
153P CC pressurized centers

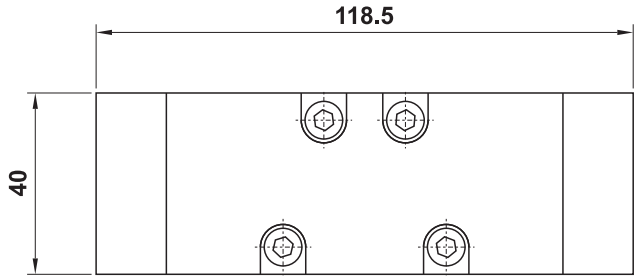


5/3 double pneumatic pilot

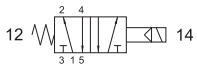






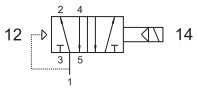


152 ME



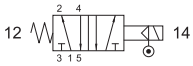
5/2 solenoid pilot - spring return

152 EFP



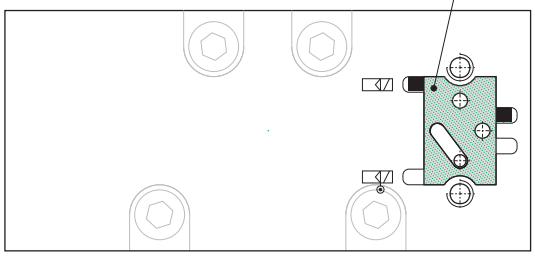
5/2 solenoid pilot - pneumatic spring return

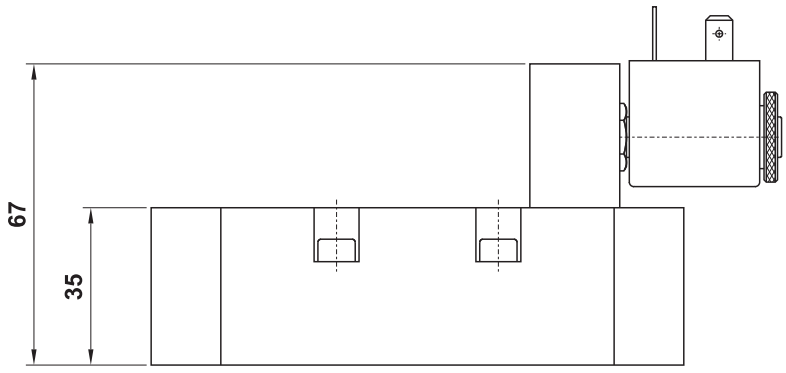
152 ME AS

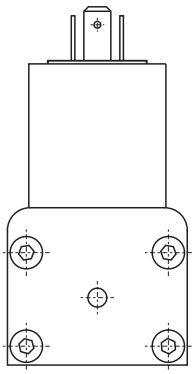


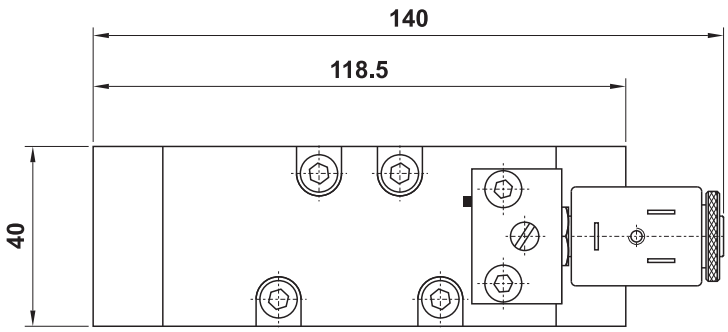
5/2 solenoid pilot with separate air supply - spring return

To change between internal and external air supply it is necessary to align the seal end marked in black with the correct symbol.

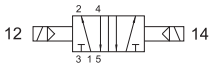




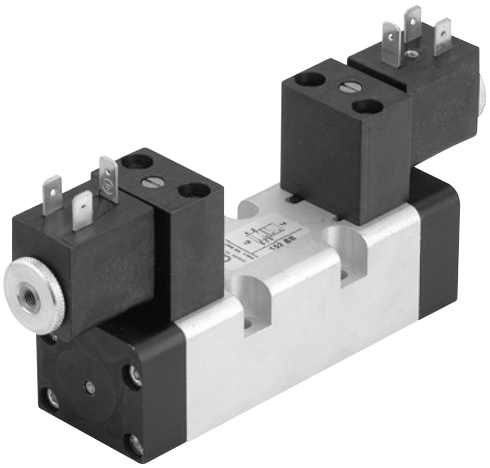




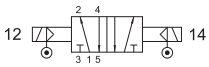
152 EE



5/2 double solenoid pilot

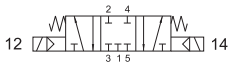


152 EE AS

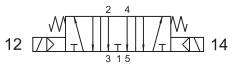


5/2 double solenoid pilot with separate air supply

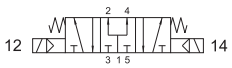
153C EE closed centers



153A EE open centers

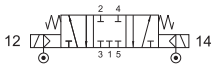


153P EE pressurized centers

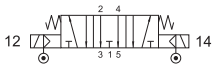


5/3 double solenoid pilot

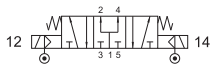
153C EE AS closed centers



153A EE AS open centers

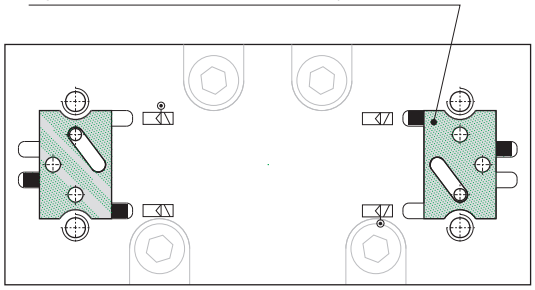


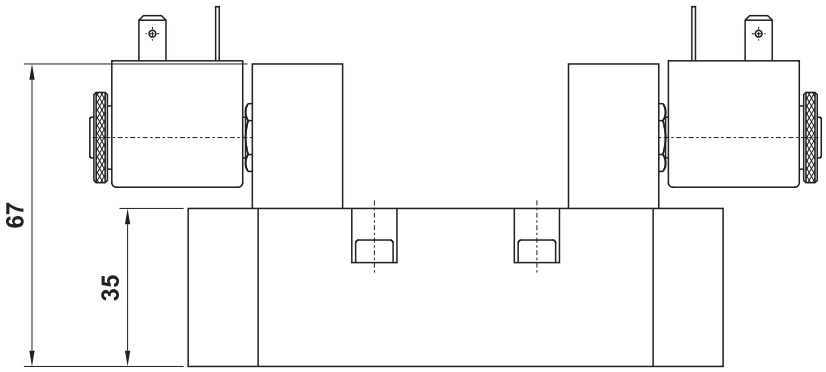
153P EE AS pressurized centers

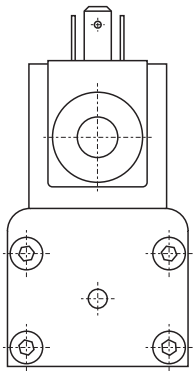


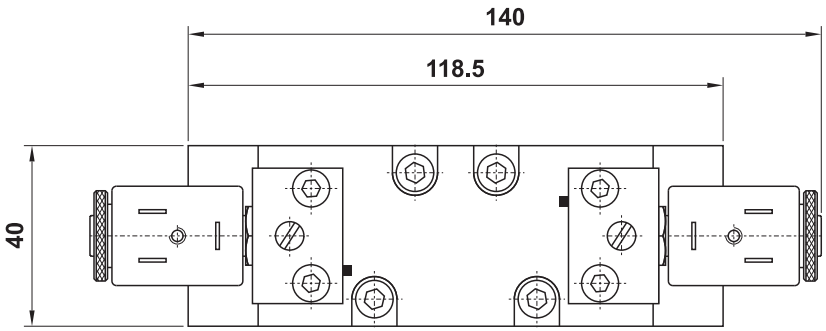
5/3 double solenoid pilot with separate air supply

To change between internal and external air supply it is necessary to align the seal end marked in black with the correct symbol.

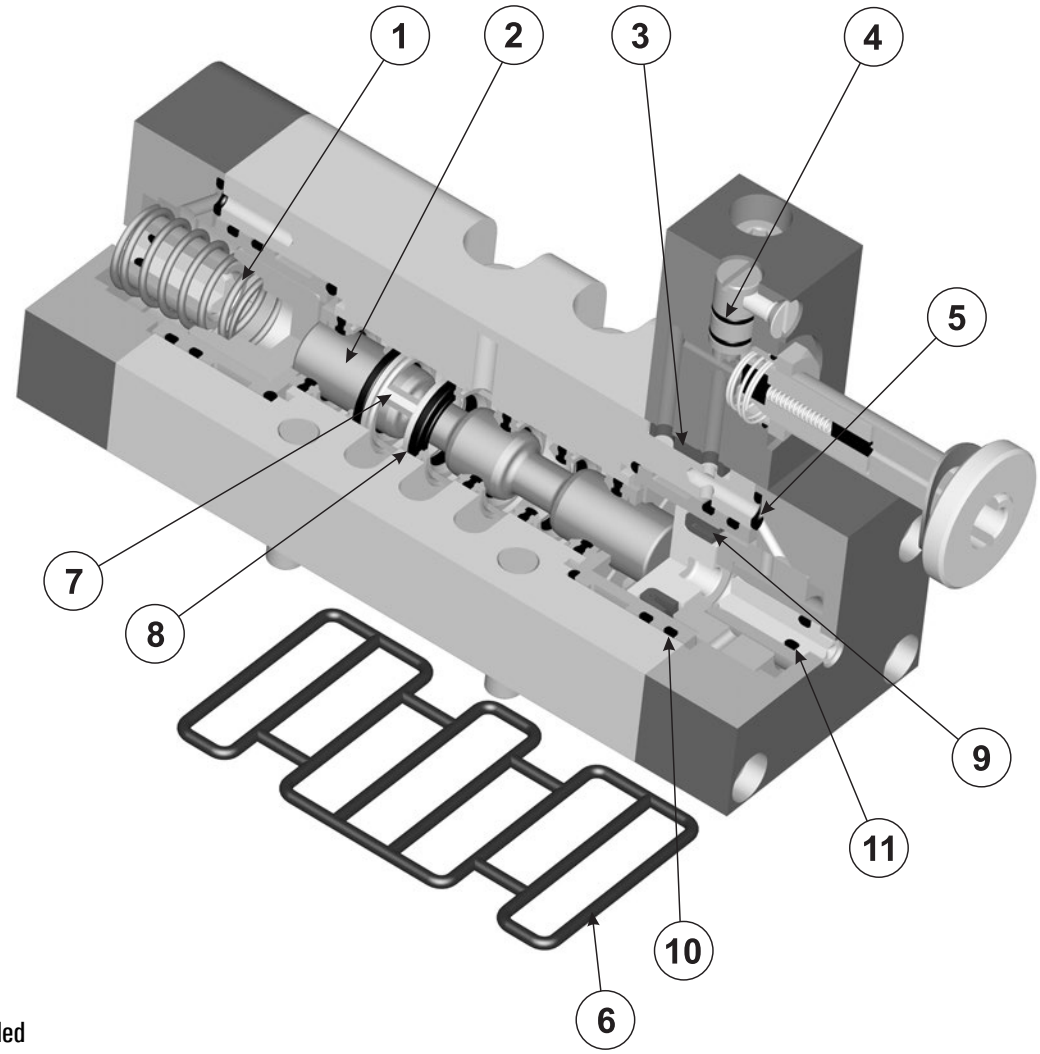








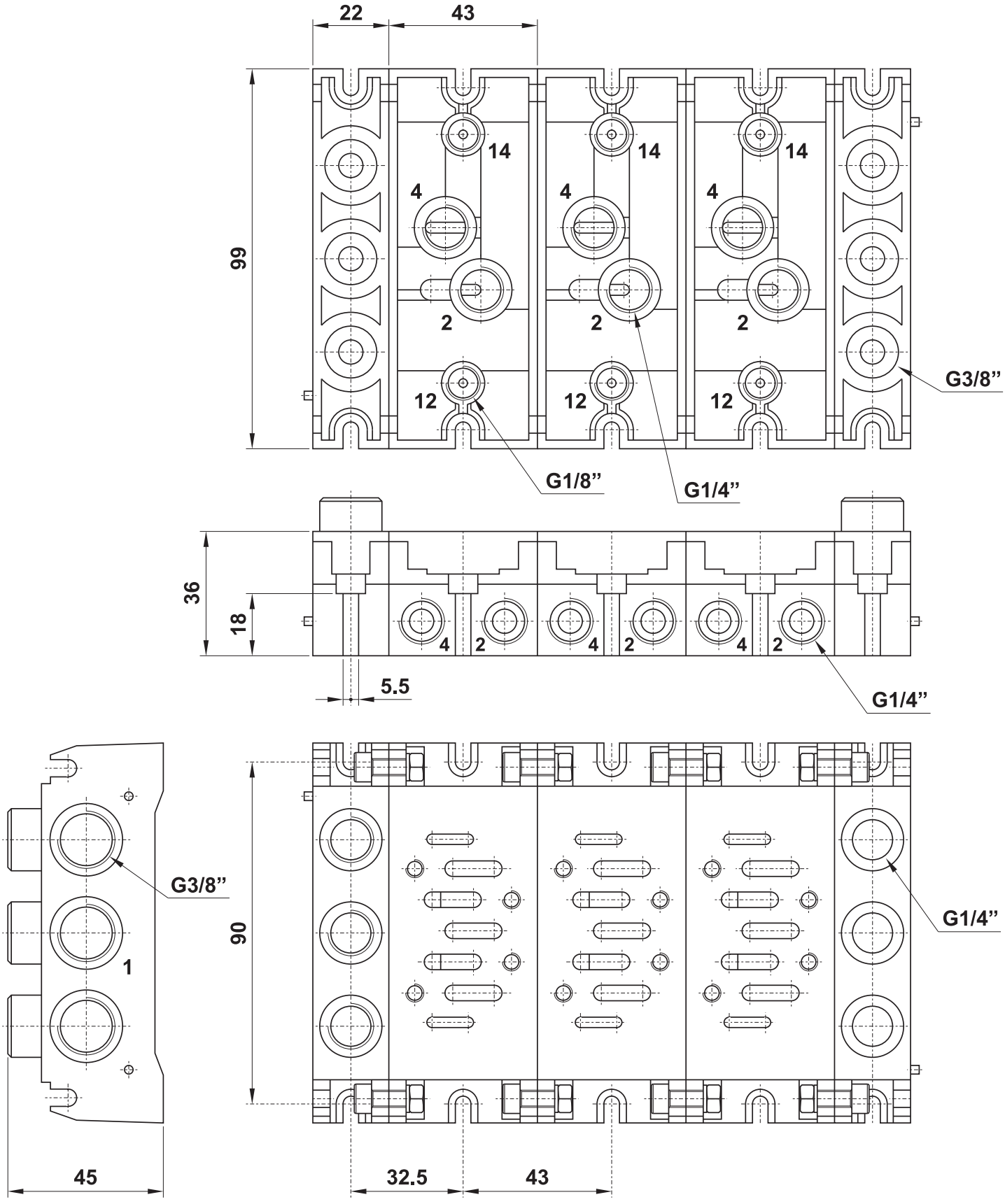
Spare parts for ISO 1 spool valves



1. Spring: steel
2. Spool: aluminium 11S, nickeled
3. Multifunction seal: NBR
4. O-Ring seal 4x1: NBR
5. O-Ring seal: NBR
6. Seal for valve body ISO 1: NBR
7. Spacer for spool: brass
8. Seal for spool: NBR
9. DE seal for piston: NBR
10. O-Ring seal: NBR
11. O-Ring seal: NBR

code of kit	suitable for		
00.048.2	152 CC	152 EE	152 EE AS
	153C CC	153A CC	153P CC
	153C EE	153A EE	153P EE
	153C EE AS	153A EE AS	153P EE AS
00.047.2	152 MC	152 ME	152 ME AS
00.049.2	152 CCD	152 CFP	152 EFP

Multiple sub-bases for ISO 1 valves

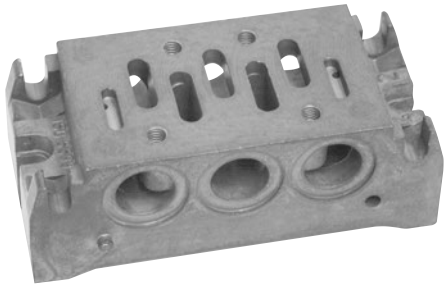


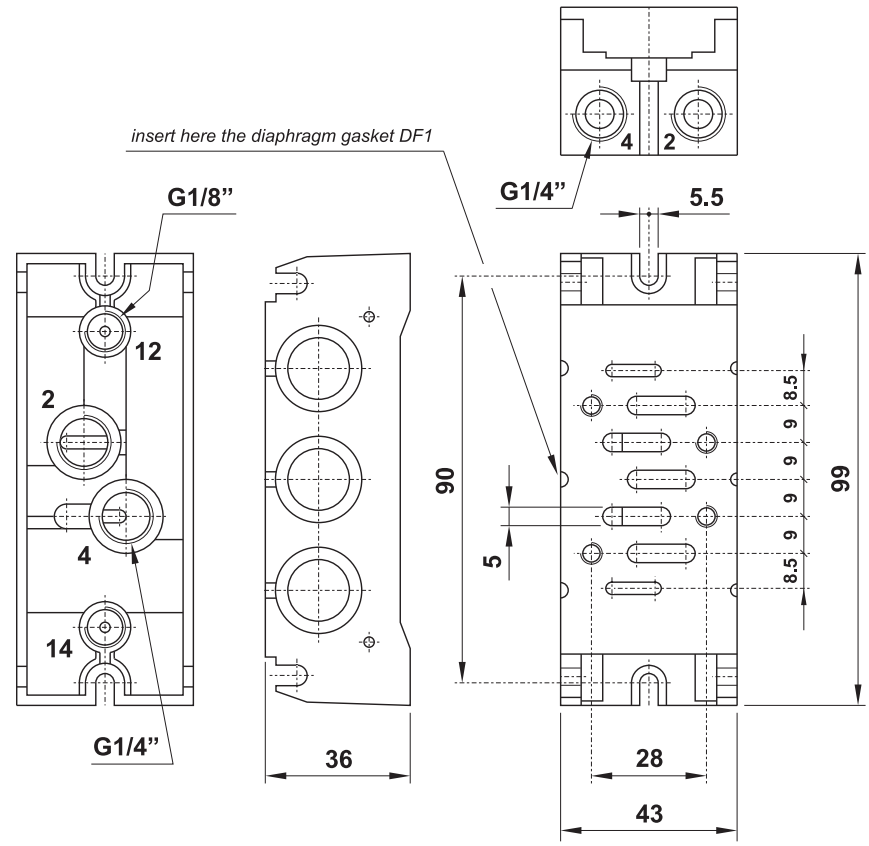
Multiple sub-bases for ISO 1 valves

modular sub-base

ORDER CODE

MLD1



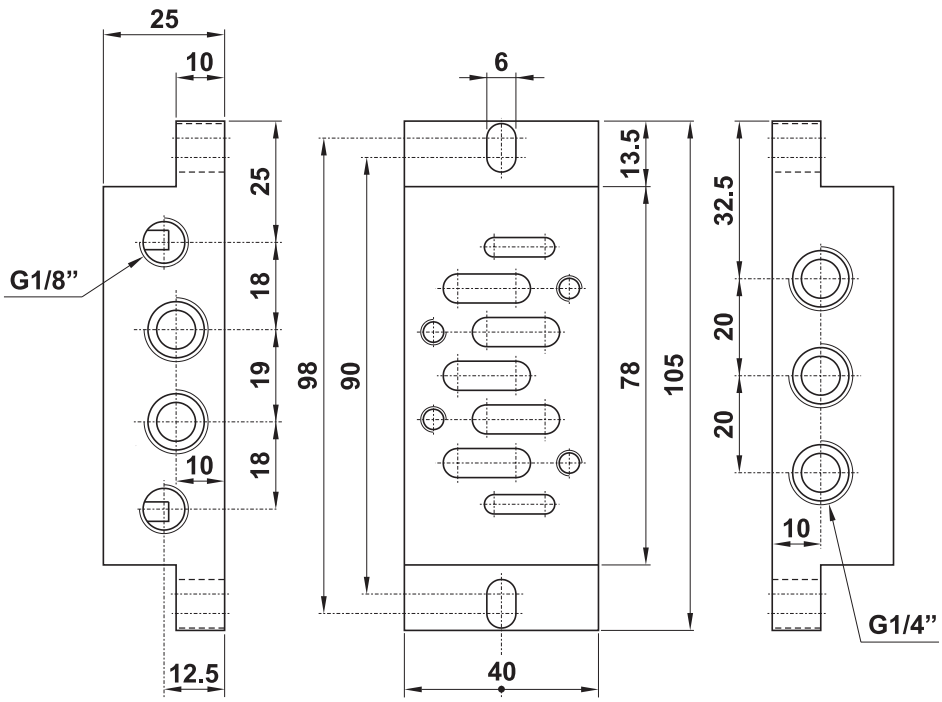


It is sold in kit with all necessary pieces for installation.

individual sub-base with side entry

ORDER CODE

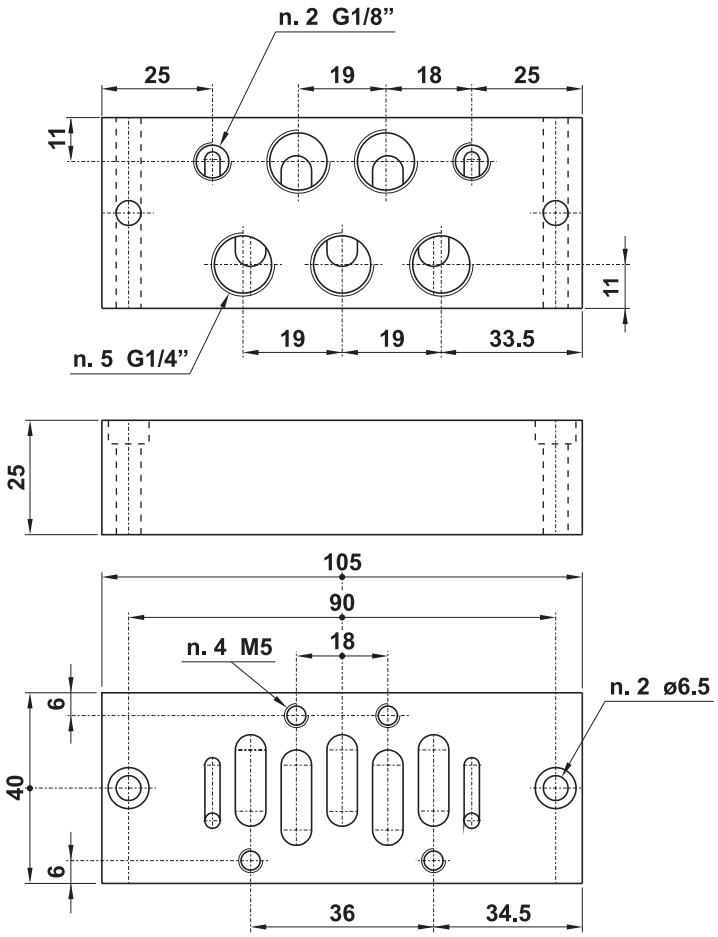
SL1



individual sub-base with bottom entry

ORDER CODE

SLB1

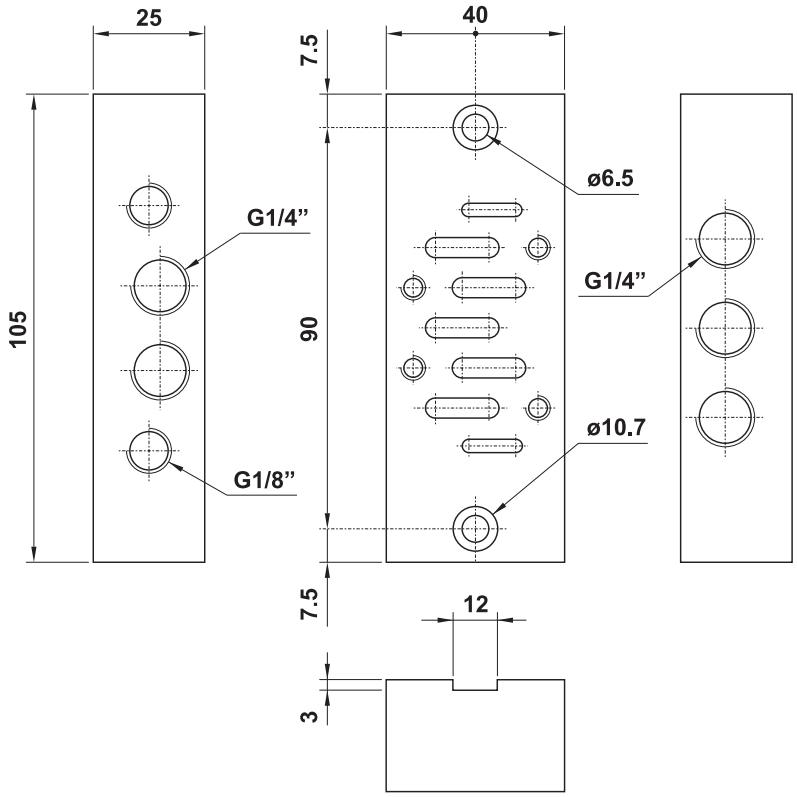


individual sub-base with side entry, for assembling on cylinder

ORDER CODE

06.001.2

Version for installation on cylinder ISO 6431. It is sold in kit with all necessary pieces for installation.

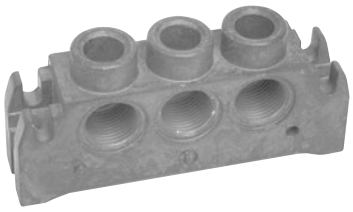


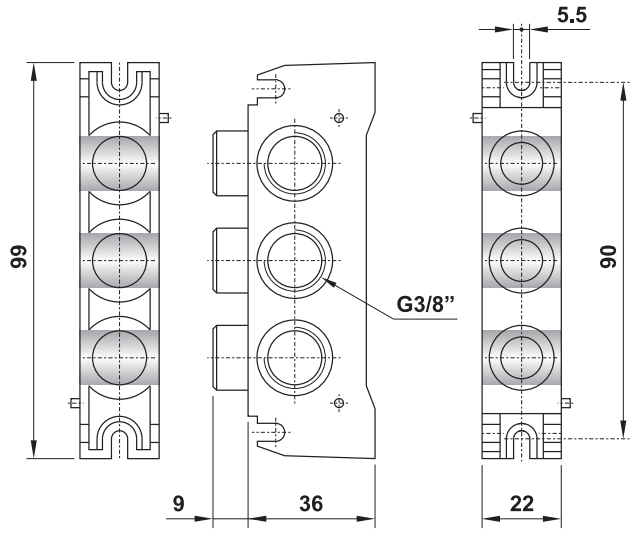
Multiple sub-bases for ISO 1 valves

side entry header

ORDER CODE

TL1



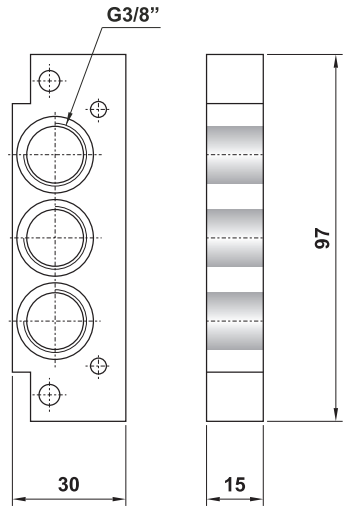


It is sold in kit with all necessary pieces for installation.

side entry header

ORDER CODE

TP1



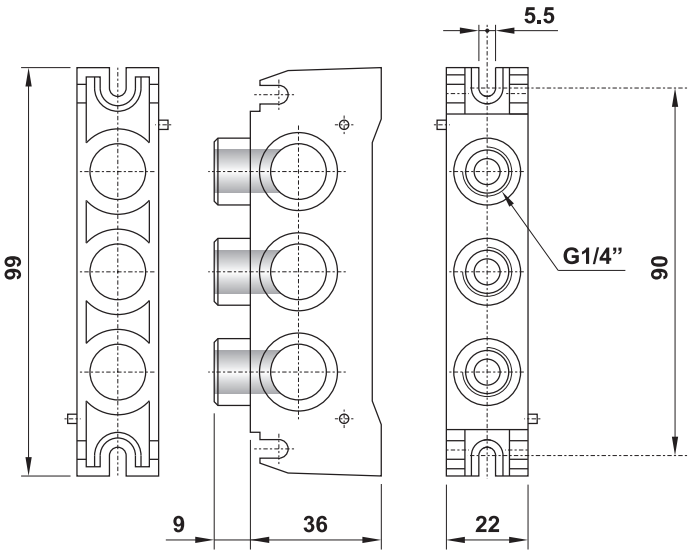
It is sold in kit with all necessary pieces for installation.

top entry header

ORDER CODE

TA1

it can be used also as intermediate header



It is sold in kit with all necessary pieces for installation.

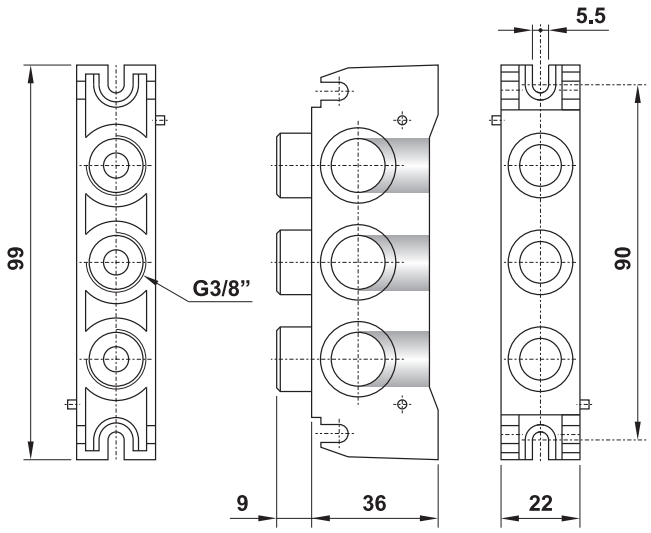
Multiple sub-bases for ISO 1 valves

bottom entry header

ORDER CODE

TB1

it can be used also as intermediate header

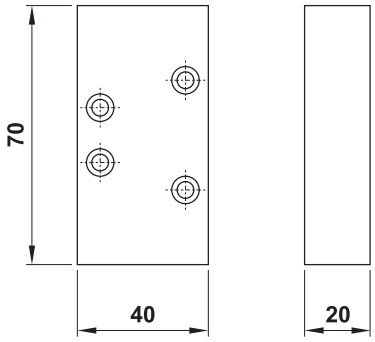


It is sold in kit with all necessary pieces for installation.

blanking plate

ORDER CODE

TC1

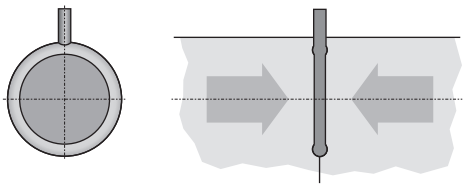


It is sold in kit with all necessary pieces for installation.

diaphragm gasket

ORDER CODE

DF1

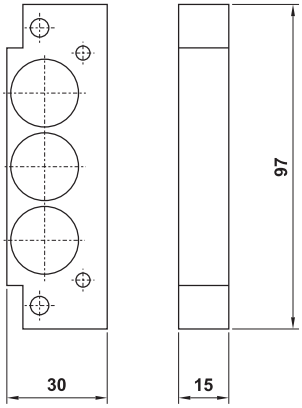


To be inserted between two sub-bases to stop the air flow and divide the manifold into separate zones.

blind header

ORDER CODE

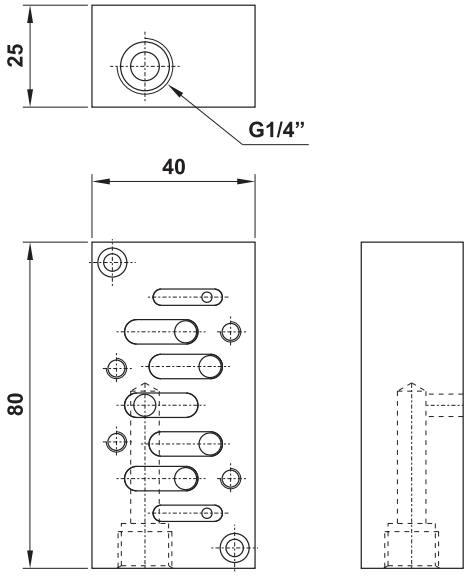
TPC1



It is sold in kit with all necessary pieces for installation.

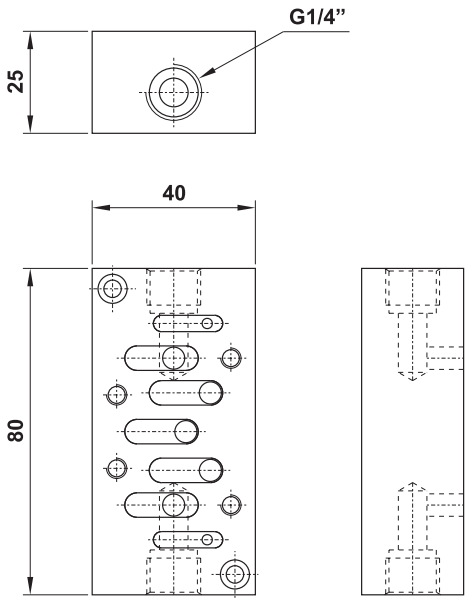
adapting plate for separate air inlet

00.085.2



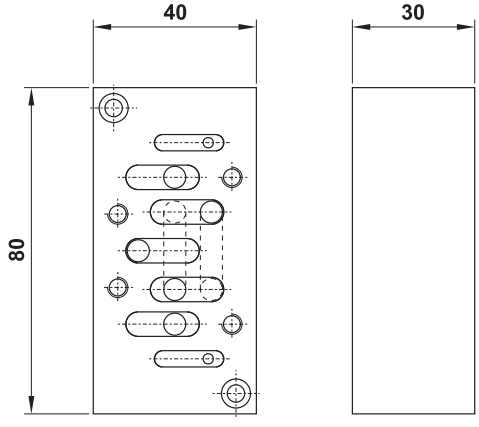
adapting plate for separate air exhaust

00.086.2



adapting plate for swapped air outlets

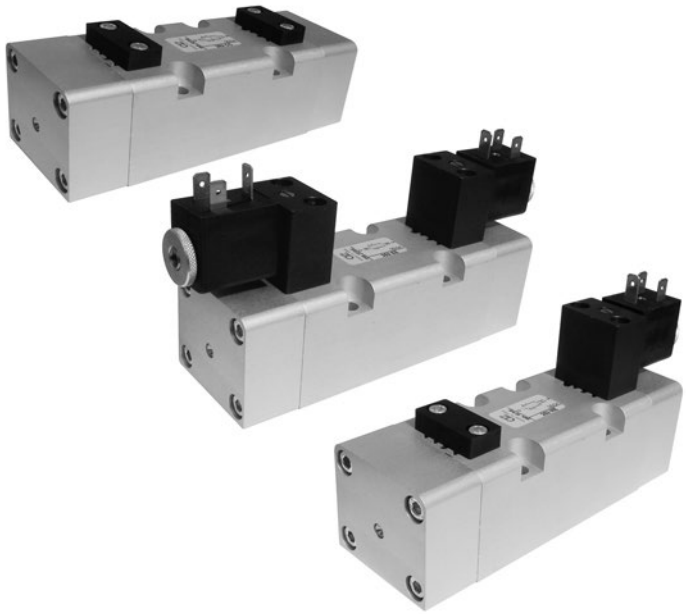
00.087.2

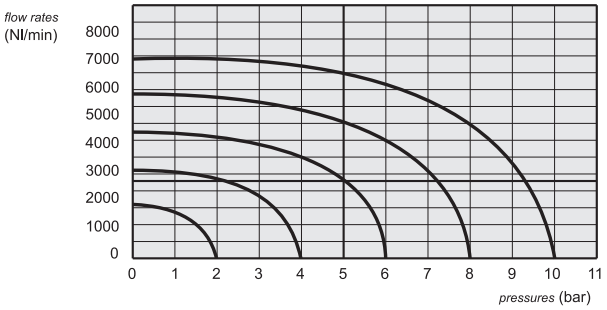


Each element is sold in kit with all necessary pieces for installation.

ISO 5599/1 valves - size 2

- 5/2-5/3 spool valves
- Installation on multiple sub-bases
- Detented manual override on the solenoid pilot
- Manual reset
- **Coils sold separately upon request**





The following products are sold without coils. These can be bought separately

Response times

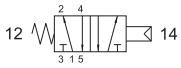
	pneumatic pilot	solenoid pilot
mono-stable	TRA (14): 24 ms TRR (12): 43 ms	TRA (14): 39 ms TRR (12): 60 ms
bi-stable	TRA (14): 30 ms TRR (12): 30 ms	TRA (14): 90 ms TRR (12): 90 ms

Materials

Body: aluminium 11S
Springs: stainless steel
Seals: NBR
Spool: nickel plated aluminium
Internal parts: brass OT58

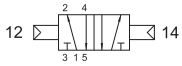
Nominal diameter		9 mm (0.4 in)	
Temperature range		**-15** +**60**°C (**5**-**140**°F)	
Operating pressure	mono-stable internal air supply	bi-stable internal air supply	separate air supply
	2.5 ... 10 bar (36 ... 145 PSI) 0.25 ... 1 MPa	1 ... 10 bar (14 ... 145 PSI) 0.1 ... 1 MPa	-0.9 ... 10 bar (Vacuum ... 145 PSI) -0.09 ... 1 MPa
Actuating pressure (for separate air supply)		mono-stable	bi-stable
		2.5 ... 10 bar (36 ... 145 PSI) 0.25 ... 1 MPa	1 ... 10 bar (14 ... 145 PSI) 0.1 ... 1 MPa
Fluid		50μ filtered, lubricated or non lubricated air	

252 MC



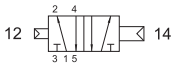
5/2 pneumatic pilot - spring return

252 CC



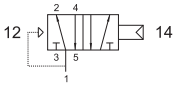
5/2 double pneumatic pilot

252 CCD



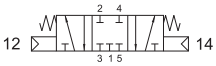
5/2 double pneumatic pilot - with differential

252 CFP

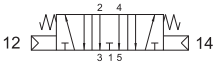


5/2 pneumatic pilot - pneumatic spring return

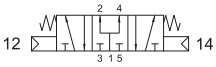
253C CC closed centers



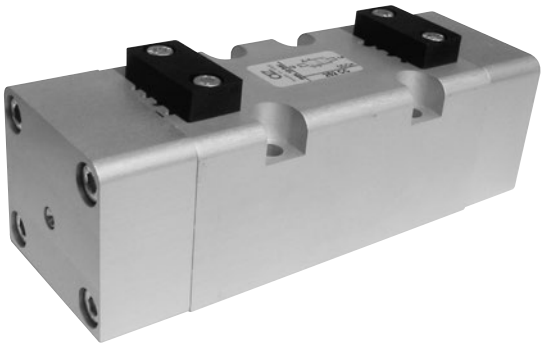
253A CC open centers

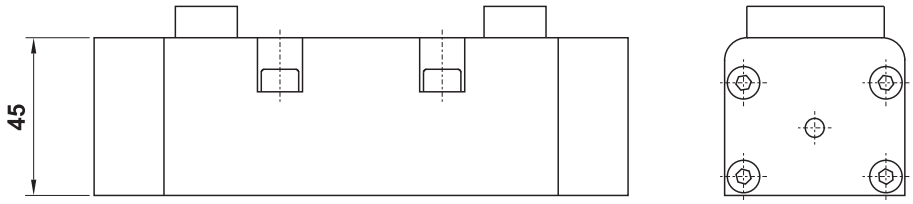


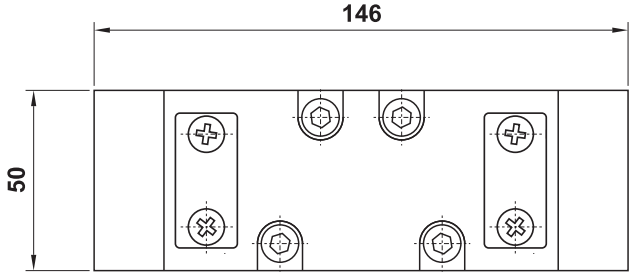
253P CC pressurized centers



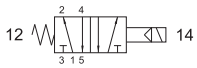
5/3 double pneumatic pilot





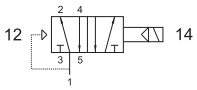


252 ME



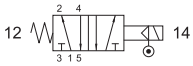
5/2 solenoid pilot - spring return

252 EFP

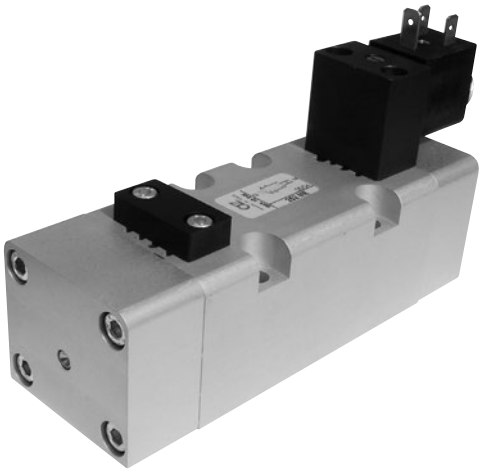


5/2 solenoid pilot - pneumatic spring return

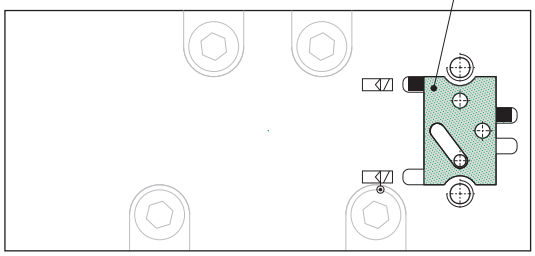
252 ME AS

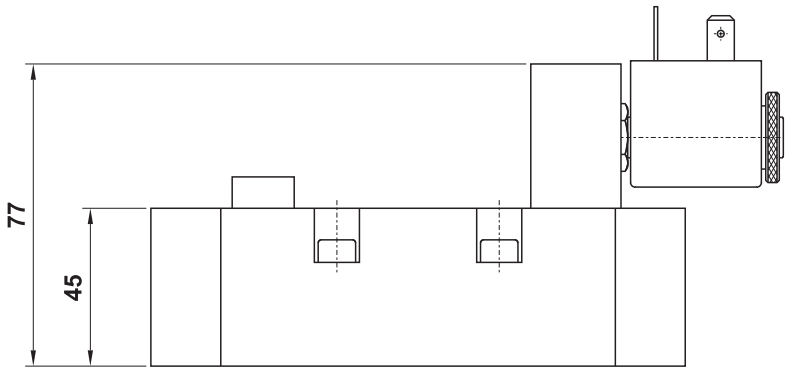


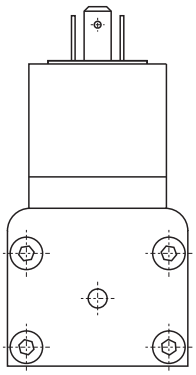
5/2 solenoid pilot with separate air supply - spring return

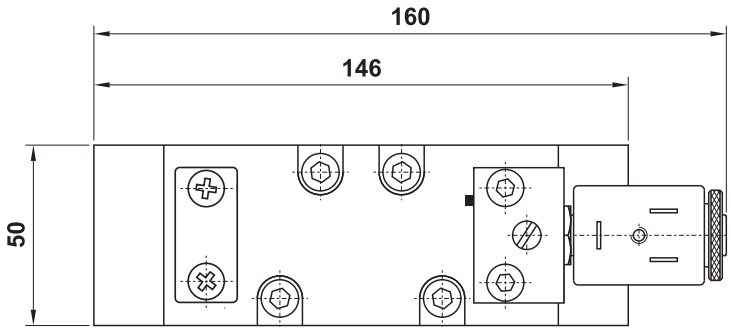


To change between internal and external air supply it is necessary to align the seal end marked in black with the correct symbol.

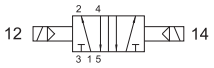




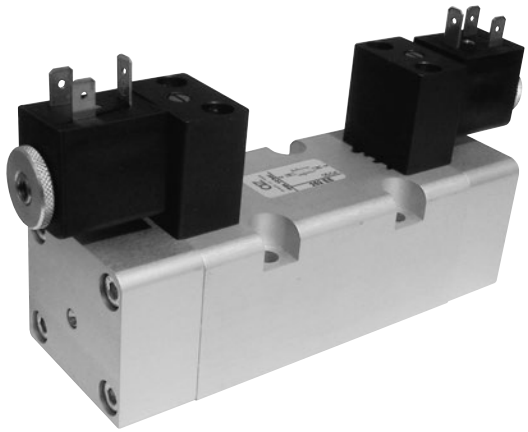




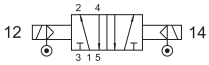
252 EE



5/2 double solenoid pilot

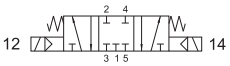


252 EE AS

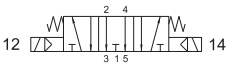


5/2 double solenoid pilot with separate air supply

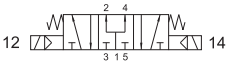
253C EE closed centers



253A EE open centers

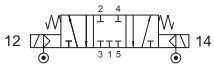


253P EE pressurized centers

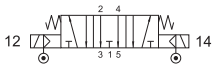


5/3 double solenoid pilot

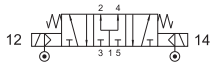
253C EE AS closed centers



253A EE AS open centers

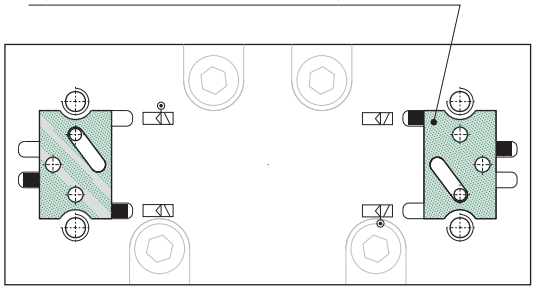


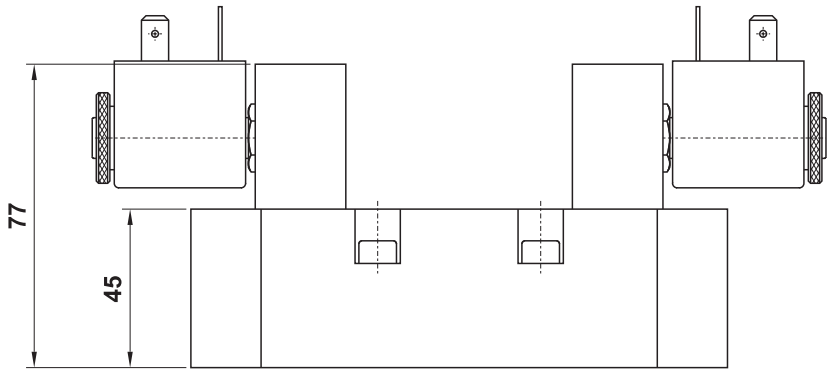
253P EE AS pressurized centers

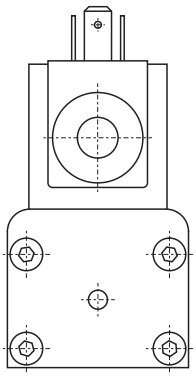


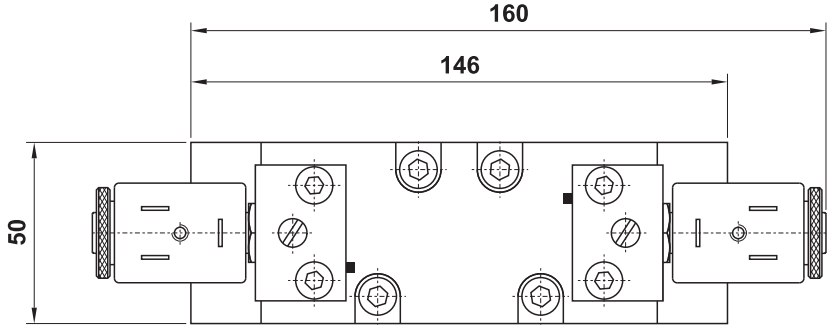
5/3 double solenoid pilot with separate air supply

To change between internal and external air supply it is necessary to align the seal end marked in black with the correct symbol.





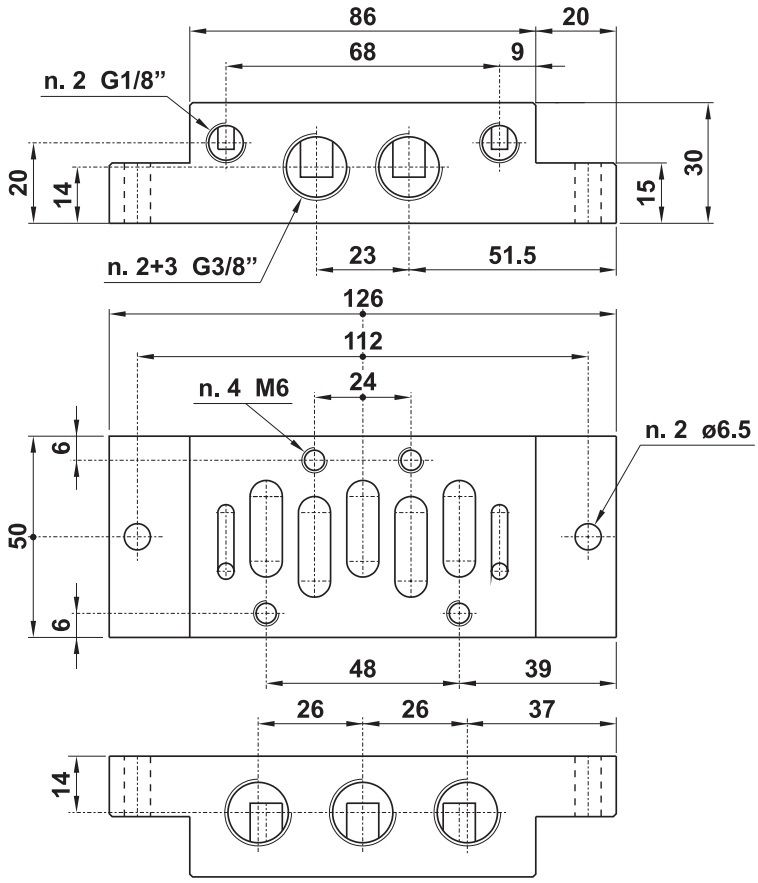




individual sub-base with side entry

ORDER CODE

SL2

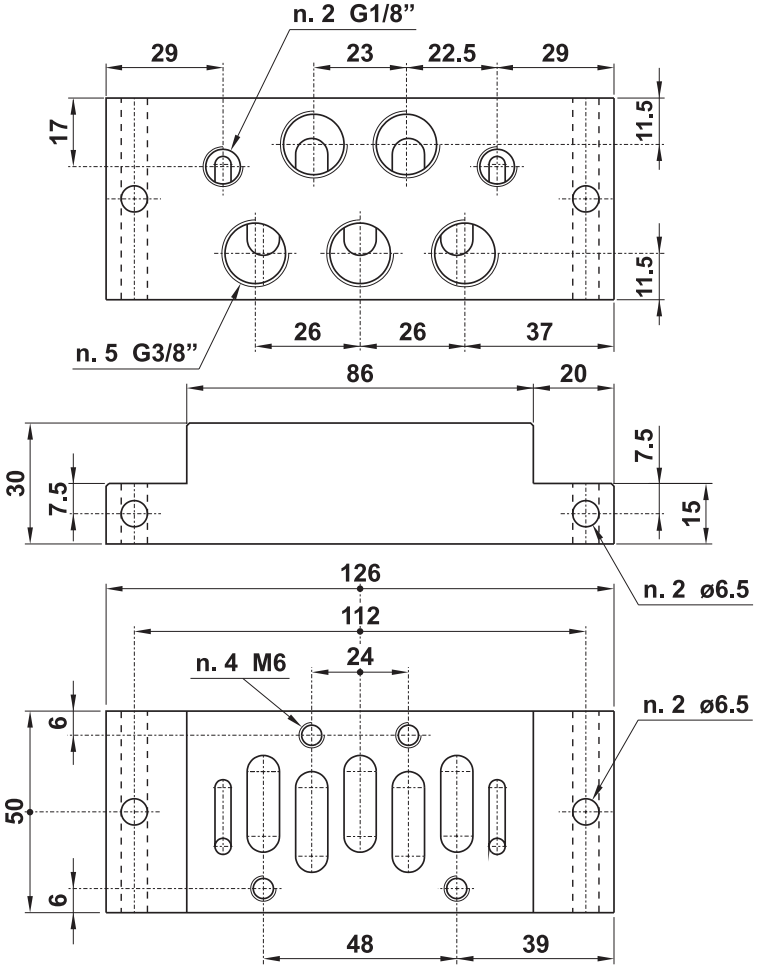


It is sold in kit with all necessary pieces for installation.

individual sub-base with bottom entry

ORDER CODE

SLB2

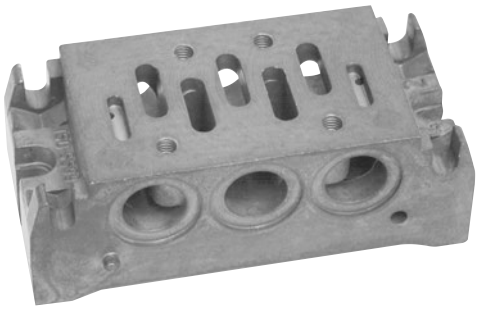


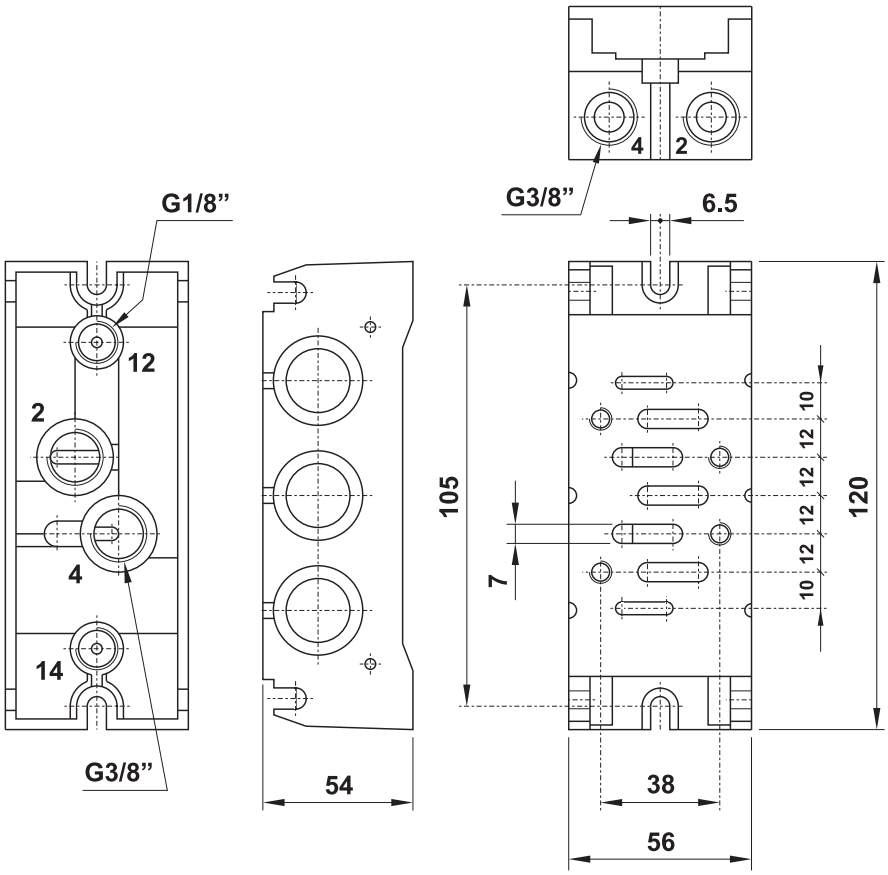
It is sold in kit with all necessary pieces for installation.

modular sub-base

ORDER CODE

MLD2



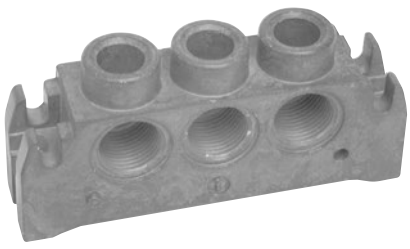


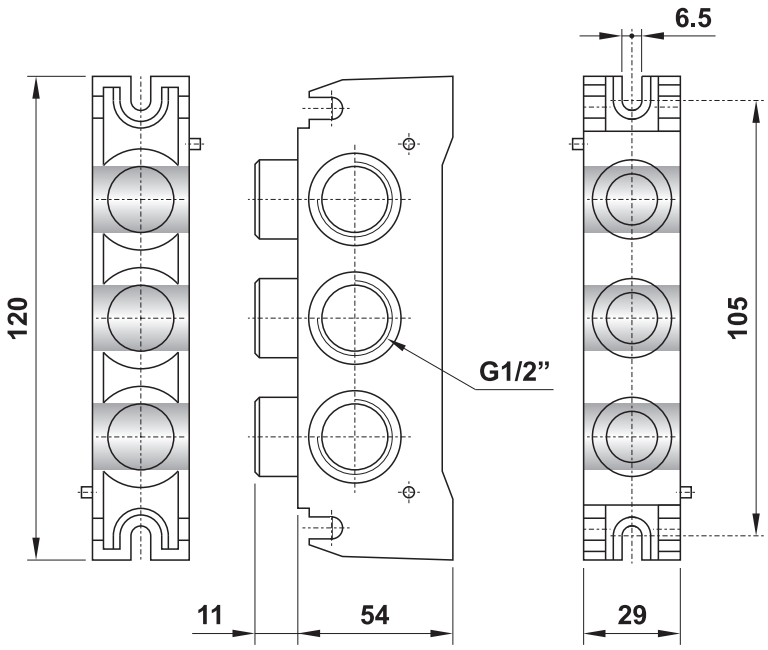
It is sold in kit with all necessary pieces for installation.

side entry header

ORDER CODE

TL2





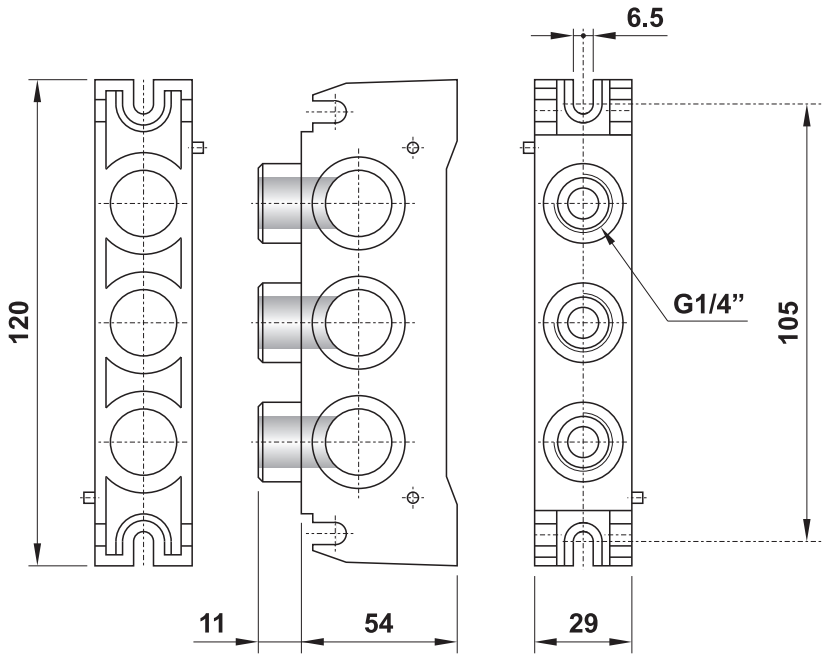
It is sold in kit with all necessary pieces for installation.

top entry header

ORDER CODE

TA2

it can be used also as intermediate header



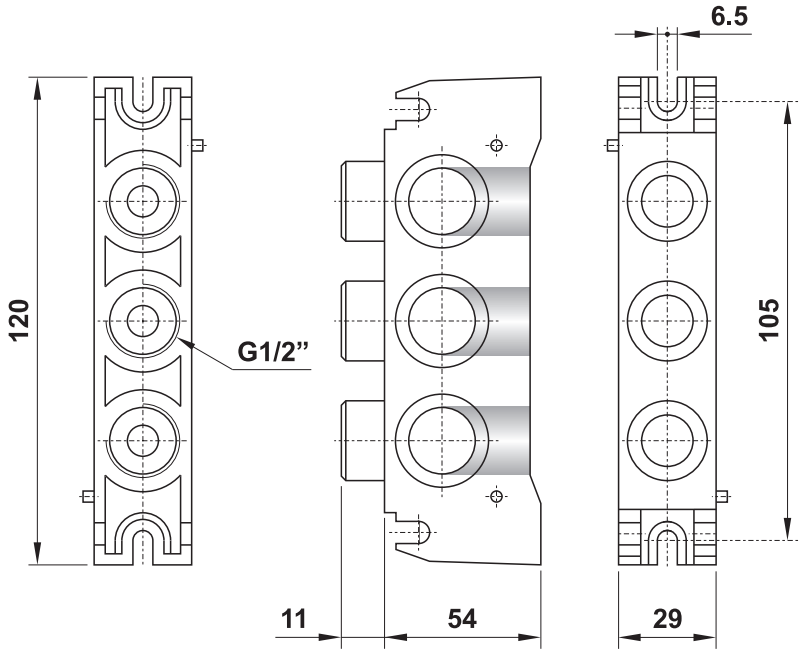
It is sold in kit with all necessary pieces for installation.

bottom entry header

ORDER CODE

TB2

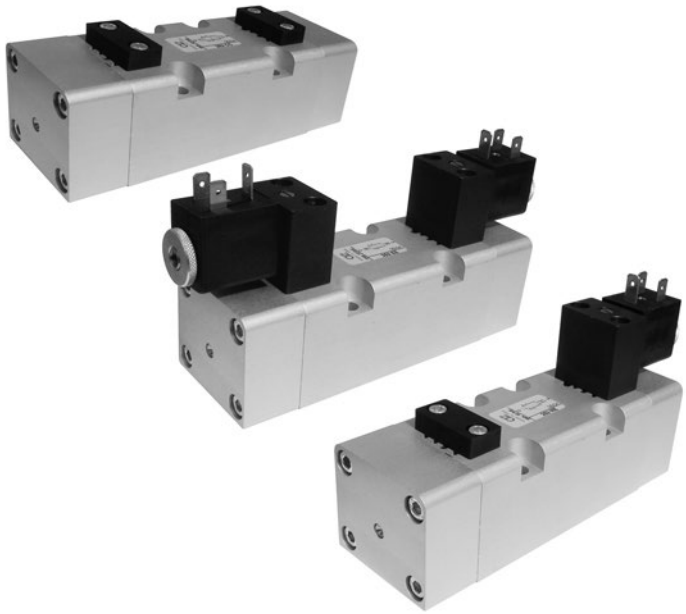
it can be used also as intermediate header

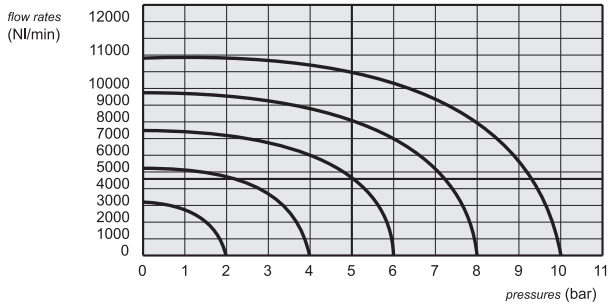


It is sold in kit with all necessary pieces for installation.

ISO 5599/1 valves - size 3

- 5/2-5/3 spool valves
- Installation on multiple sub-bases
- Detented manual override on the solenoid pilot
- Manual reset
- **Coils sold separately upon request**





The following products are sold without coils. These can be bought separately

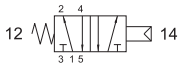
Response times

	pneumatic pilot	solenoid pilot
mono-stable	TRA (14): 24 ms TRR (12): 43 ms	TRA (14): 39 ms TRR (12): 60 ms
bi-stable	TRA (14): 30 ms TRR (12): 30 ms	TRA (14): 90 ms TRR (12): 90 ms

Materials
Body: aluminium 11S
Springs: stainless steel
Seals: NBR
Spool: nickel plated aluminium
Internal parts: brass OT58

Nominal diameter		13 mm (0.5 in)	
Nominal flow rate at 6 bar (87 PSI), Δp 1 bar (14 PSI)		4600 Nl/min (4.87 Cv)	
Temperature range		**-15** +**60**°C (**5**-**140**°F)	
Operating pressure	mono-stable internal air supply	bi-stable internal air supply	separate air supply
	2.5 ... 10 bar (36 ... 145 PSI) 0.25 ... 1 MPa	1 ... 10 bar (14 ... 145 PSI) 0.1 ... 1 MPa	-0.9 ... 10 bar (Vacuum ... 145 PSI) -0.09 ... 1 MPa
Actuating pressure (for separate air supply)		mono-stable	bi-stable
		2.5 ... 10 bar (36 ... 145 PSI) 0.25 ... 1 MPa	1 ... 10 bar (14 ... 145 PSI) 0.1 ... 1 MPa
Fluid		50μ filtered, lubricated or non lubricated air	

352 MC

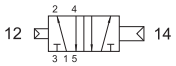


5/2 pneumatic pilot - spring return

352 CC

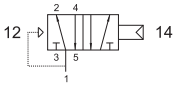
5/2 double pneumatic pilot

352 CCD



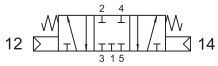
5/2 double pneumatic pilot - with differential

352 CFP

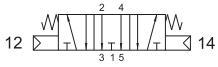


5/2 pneumatic pilot - pneumatic spring return

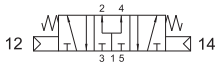
353C CC closed centers



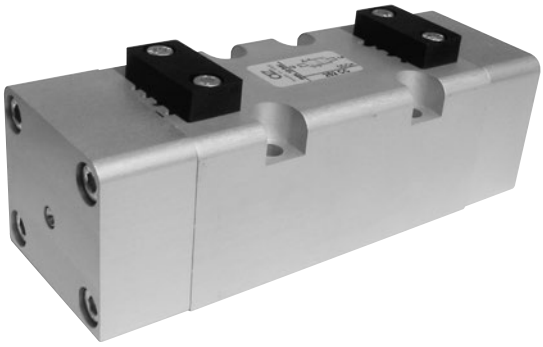
353A CC open centers

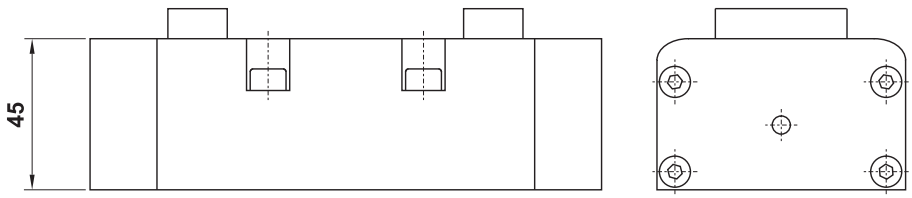


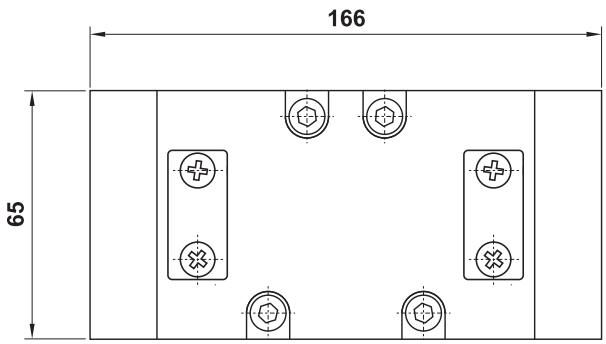
353P CC pressurized centers



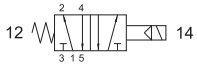
5/3 double pneumatic pilot





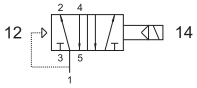


352 ME



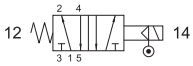
5/2 solenoid pilot - spring return

352 EFP

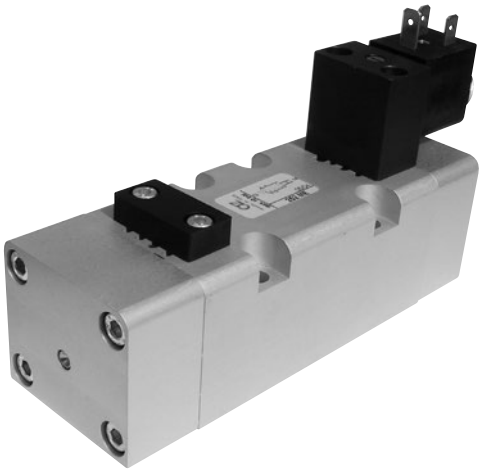


5/2 solenoid pilot - pneumatic spring return

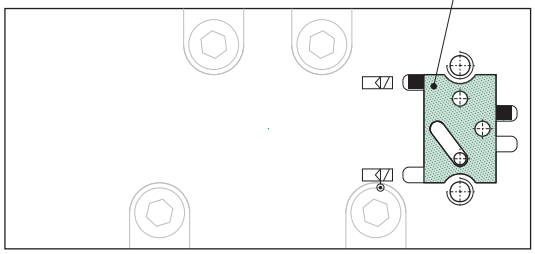
352 ME AS

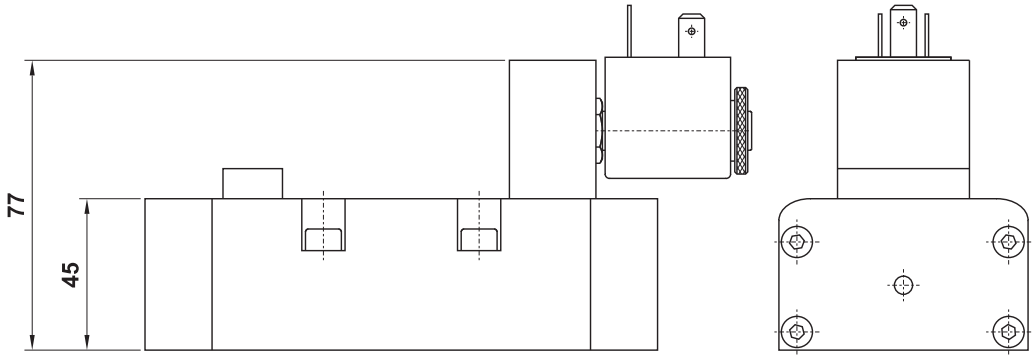


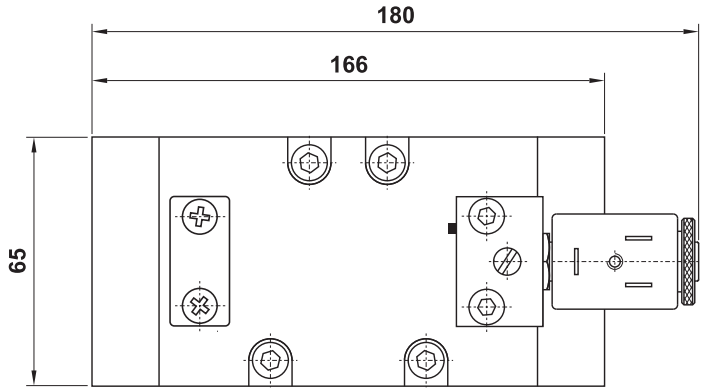
5/2 solenoid pilot with separate air supply - spring return



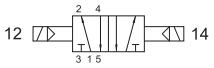
To change between internal and external air supply it is necessary to align the seal end marked in black with the correct symbol.



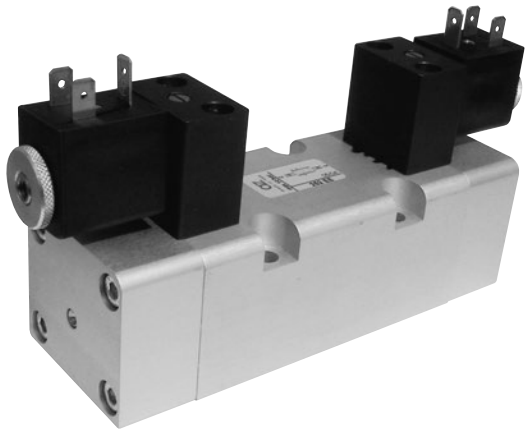




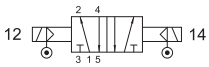
352 EE



5/2 double solenoid pilot

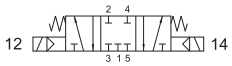


352 EE AS

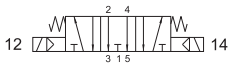


5/2 double solenoid pilot with separate air supply

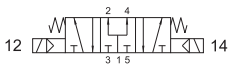
353C EE closed centers



353A EE open centers

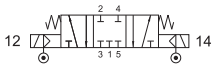


353P EE pressurized centers

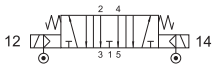


5/3 double solenoid pilot

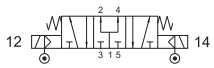
353C EE AS closed centers



353A EE AS open centers

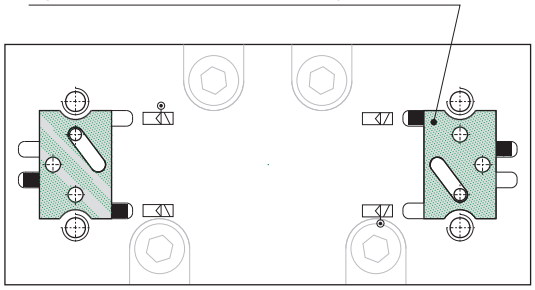


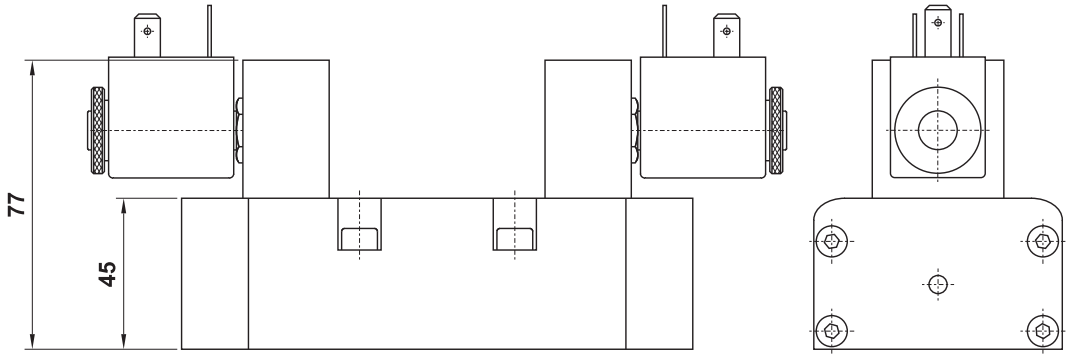
353P EE AS pressurized centers

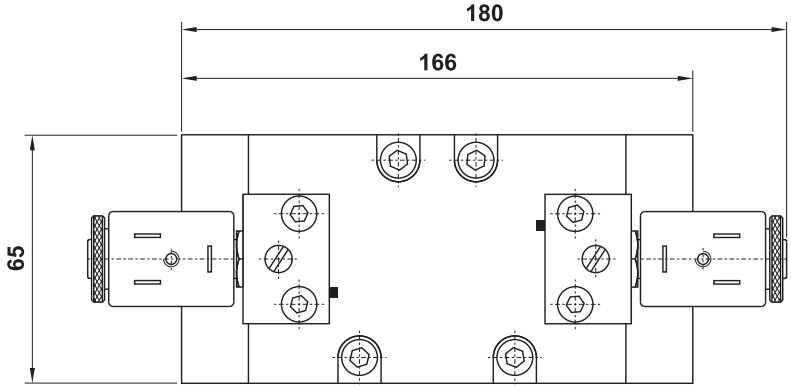


5/3 double solenoid pilot with separate air supply

To change between internal and external air supply it is necessary to align the seal end marked in black with the correct symbol.

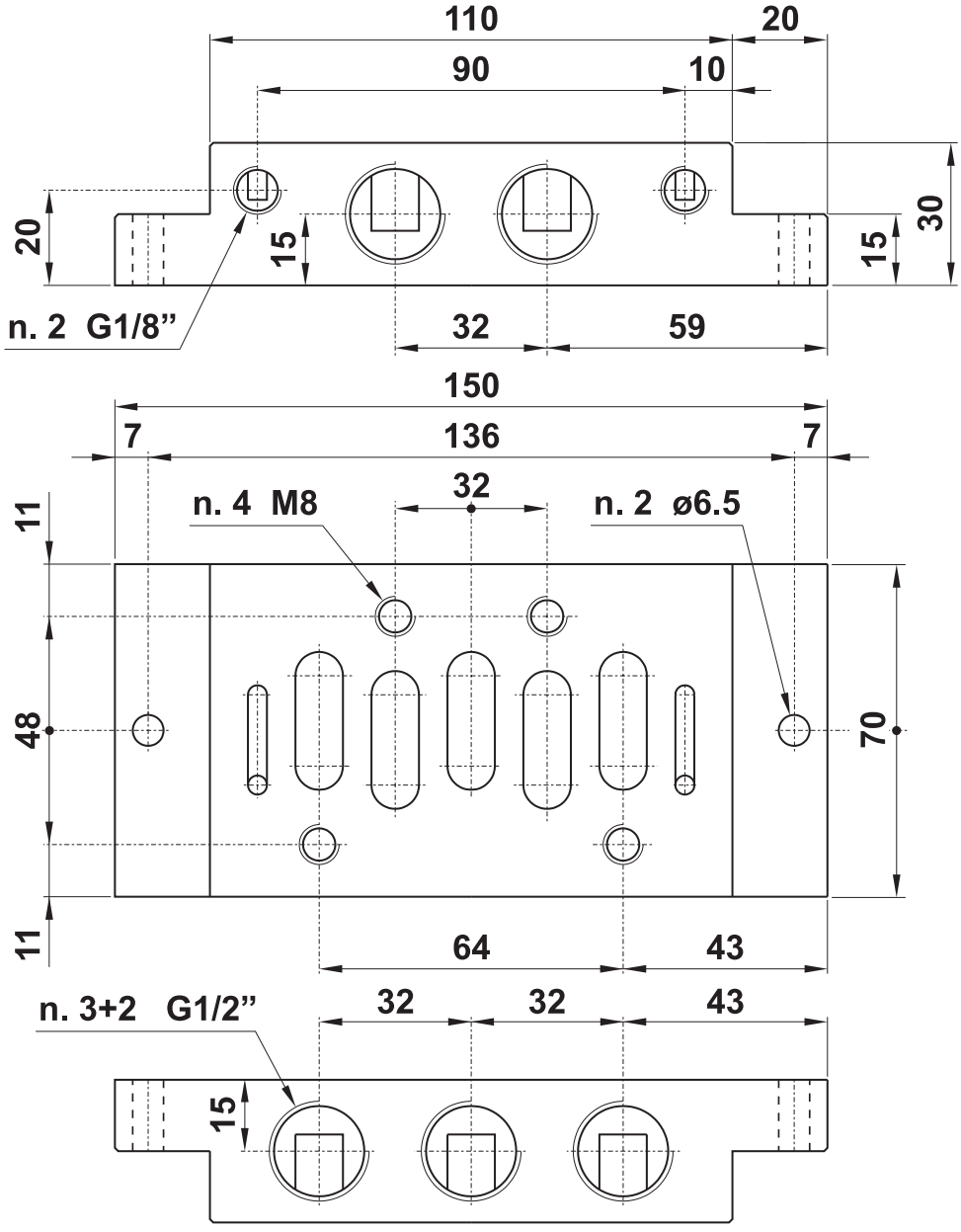






individual sub-base with side entry

ORDER CODE
SL3



It is sold in kit with all necessary pieces for installation.

Notes

Chapter III - ancillary valves and accessories

page

Flow regulators

- Uni-directional and bi-directional flow regulators
- Threaded ports from M5 to 1/2" NPT
- In-line or panel mounting
- Version for precision regulation

Materials
Body: aluminium 11S
Spring: stainless steel
Seals: NBR
Internal parts: brass OT58

Uni-directional flow regulators

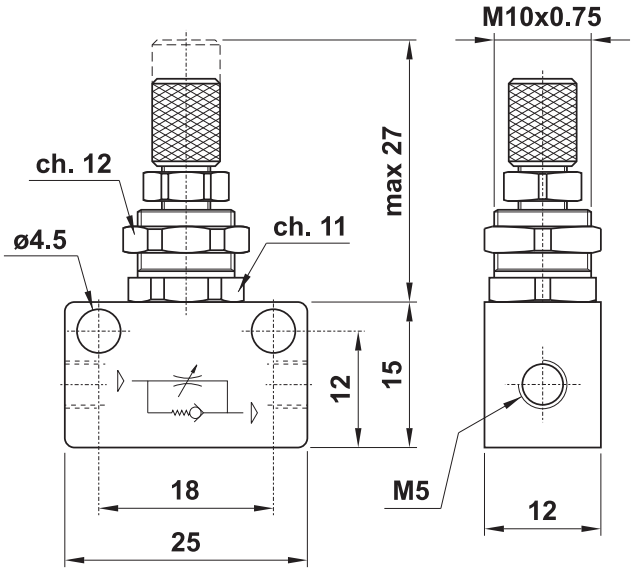
Model		RFU M5	USRFU 1/8.1	USRFU 1/8.2 USRFUM 1/8	USRFU 1/8.3	USRFU 1/4 USRFUM 1/4	USRFU 3/8	USRFU 1/2	USRFP 1/8.2
Ports		M5	1/8" NPT	1/8" NPT	1/8" NPT	1/4" NPT	3/8" NPT	1/2" NPT	1/8" NPT
Nominal diameter	1-2 2-1	1.2 mm 2.2 mm	1.2 mm 4.2 mm	2 mm 4.2 mm	3.2 mm 4.2 mm	3.5 mm 6.5 mm	7 mm 10 mm	7 mm 11 mm	2 mm 4.2 mm
Nominal flow rate at 6 bar (87 PSI)	1-2 2-1	60 Nl/min (0.06 Cv) 130 Nl/min (0.14 Cv)	60 Nl/min (0.06 Cv) 450 Nl/min (0.48 Cv)	120 Nl/min (0.13 Cv) 450 Nl/min (0.48 Cv)	210 Nl/min (0.22 Cv) 450 Nl/min (0.48 Cv)	300 Nl/min (0.32 Cv) 600 Nl/min (0.63 Cv)	600 Nl/min (0.63 Cv) 1100 Nl/min (1.16 Cv)	600 Nl/min (0.63 Cv) 1400 Nl/min (1.48 Cv)	120 Nl/min (0.13 Cv) 450 Nl/min (0.48 Cv)
Temperature range		-15+60°C (5-140°F)							
Working pressure		2 ... 10 bar (30 ... 145 PSI) 0.2 ... 1 MPa							0.5 ... 10 bar (7 ... 145 PSI) 0.05 ... 1 MPa
Fluid		50μ filtered, lubricated or non lubricated air							

Bi-directional flow regulators

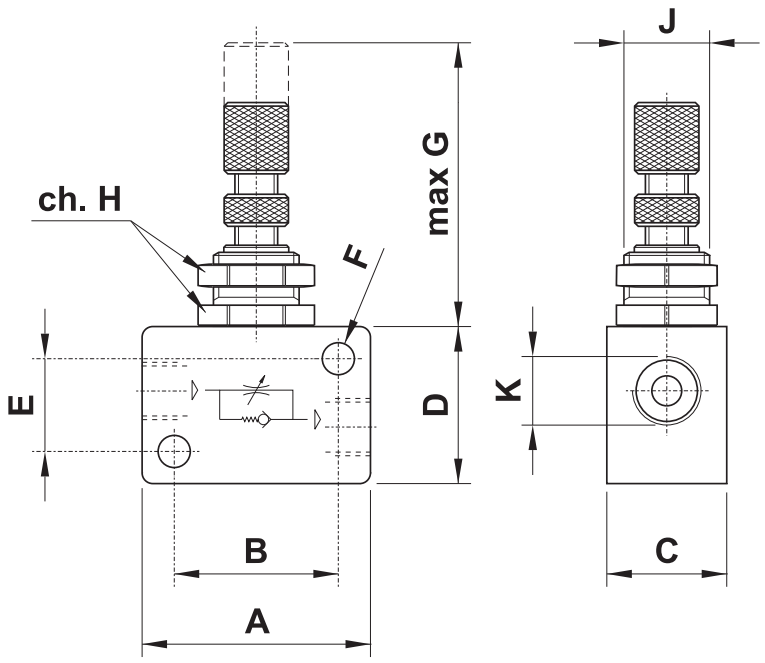
Model	RFB M5	USRFB 1/8	USRFB 1/4	USRFB 3/8	USRFB 1/2
Ports	M5	1/8" NPT	1/4" NPT	3/8" NPT	1/2" NPT
Nominal diameter	1.2 mm	3.2 mm	3.5 mm	7 mm	7 mm
Nominal flow rate at 6 bar (87 PSI)	60 Nl/min (0.06 Cv)	210 Nl/min (0.22 Cv)	300 Nl/min (0.32 Cv)	500 Nl/min (0.53 Cv)	500 Nl/min (0.53 Cv)
Temperature range	-15+60°C (5-140°F)				
Operating pressure	max 10 bar (145 PSI) max 1 MPa				
Fluid	50μ filtered, lubricated or non lubricated air				

M5

RFU M5



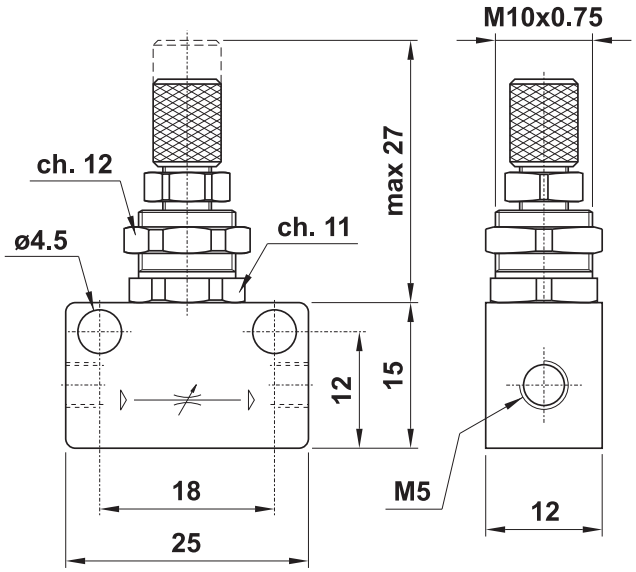
1/8″ NPT
1/4″ NPT
3/8″ NPT
1/2″ NPT



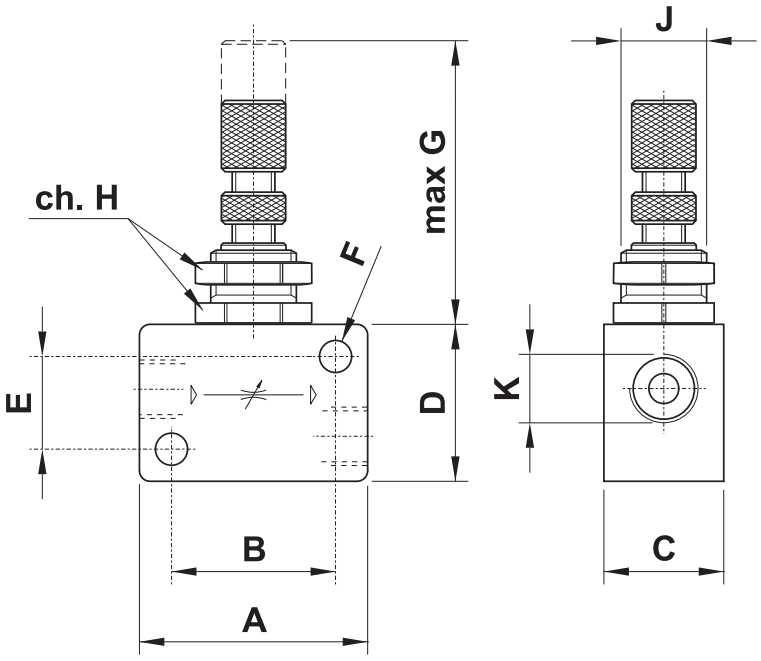
Model	A	B	C	D	E	F	G	H	J	K
USRFU 1/8.1 **USRFU 1/8.2** **USRFU 1/8.3**	32	23	16.8	22	13	ø4.5	35	15	M12x0.75	1/8″ NPT
USRFU 1/4	40	30	22	32	22	ø4.5	35	15	M12x0.75	1/4″ NPT
USRFU 3/8	56	43	27	42	27	ø6.5	43	24	M18x1	3/8″ NPT
USRFU 1/2	56	43	27	42	27	ø6.5	43	24	M18x1	1/2″ NPT

M5

USRFB M5



1/8″ NPT
1/4″ NPT
3/8″ NPT
1/2″ NPT



Model	A	B	C	D	E	F	G	H	J	K
USRFB 1/8	32	23	16.8	22	13	ø4.5	35	15	M12x0.75	1/8″ NPT
USRFB 1/4	40	30	22	32	22	ø4.5	35	15	M12x0.75	1/4″ NPT
USRFB 3/8	56	43	27	42	27	ø6.5	43	24	M18x1	3/8″ NPT
USRFB 1/2	56	43	27	42	27	ø6.5	43	24	M18x1	1/2″ NPT

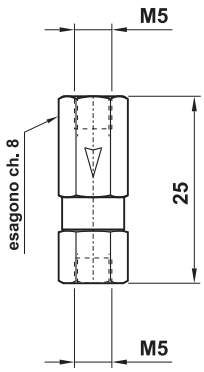
- Threaded ports female-female and male-female
- From M5 to 1/4" NPT
- Nickel plated valve body on request
- Viton seals for higher temperatures

Materials
Body: brass OT58
Spring: stainless steel
Seals: NBR
Internal parts: brass OT58

Model	USVNR 1/8 FF	USVNR 1/4 FF	VNR M5 FF	
Ports	1/8" NPT	1/4" NPT	M5	
Nominal orifice	5.2 mm	7 mm	2.2 mm	
Nominal flow rate at 6 bar (87 PSI)	500 Nl/min (0.53 Cv)	900 Nl/min (0.95 Cv)	100 Nl/min (0.10 Cv)	
Temperature range	**-15+60°C (5-140°F)** VITON: max +110°C (230°F)			
Operating pressure	2 ... 10 bar (30 ... 145 PSI) 0.2 ... 1 MPa			
Fluid	50μ filtered, lubricated or non lubricated air			

VNR M5 FF

check valve female-female M5

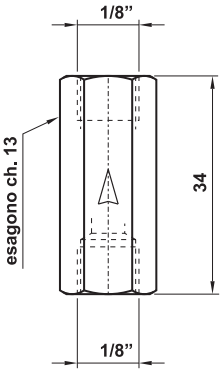


Available versions

code	description
11.010.4	**standard:** valve body in brass, seals in NBR
11.011.4	valve body in brass, seals in NBR, without spring
11.024.4	valve body in nickel plated brass, seals in NBR
11.046.4	valve body in brass, seals in VITON
11.050.4	valve body in nickel plated brass, seals in VITON

USVNR 1/8 FF

check valve female-female 1/8" NPT

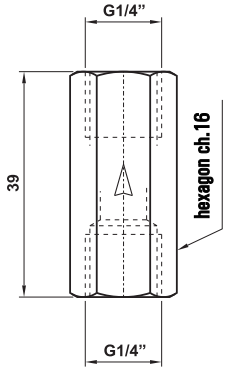


Available versions

code	description
US11.000.4	**standard:** valve body in brass, seals in NBR
US11.002.4	valve body in brass, seals in VITON
US11.004.4	valve body in nickel plated brass, seals in NBR
US11.009.4	valve body in brass, seals in SILICON
US11.027.4	valve body in brass, seals in NBR, without spring
US11.031.4	valve body in nickel plated brass, seals in VITON
US11.035.4	valve body in brass, seals in NBR, light duty spring
US11.034.4	valve body in brass, seals in VITON, light duty spring

USVNR 1/4 FF

non-return valve female-female 1/4" NPT



Available versions

code	description
US11.001.4	**standard:** valve body in brass, seals in NBR
US11.003.4	valve body in brass, seals in VITON
US11.005.4	valve body in nickel plated brass, seals in NBR
US11.030.4	valve body in nickel plated brass, seals in VITON
US11.028.4	valve body in brass, seals in NBR, without spring
US11.037.4	valve body in brass, seals in VITON, without spring
US11.036.4	valve body in brass, seals in NBR, light duty spring
US11.033.4	valve body in brass, seals in VITON, light duty spring
US11.040.4	valve body in brass, seals in VITON, heavy duty spring

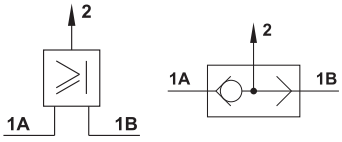
- Wide range
- Small dimensions
- Mountable on bracket
- M5 threaded ports or push-in fittings for 5/32'' or ø4 tube

Materials
Body: aluminium 11S
Springs: stainless steel
Seals: NBR
Internal parts: brass OT58

Nominal diameter	2.5 mm (0.1 in)
Nominal flow rate at 6 bar (87 PSI)	100 Nl/min (0.10 Cv)
Temperature range	**-15** +**60**°C (**5**-**140**°F)
Operating pressure	2 ... 10 bar (30 ... 145 PSI) 0.2 ... 1 MPa
Fluid	50μ filtered, lubricated or non lubricated air

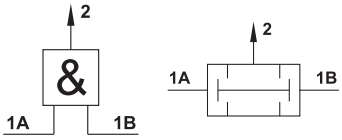
08.021.4 - OR FOR LOGIC

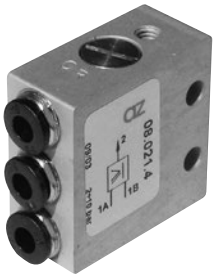
OR element, push-in fittings for 5/32'' or ø4 tube, mountable on bracket

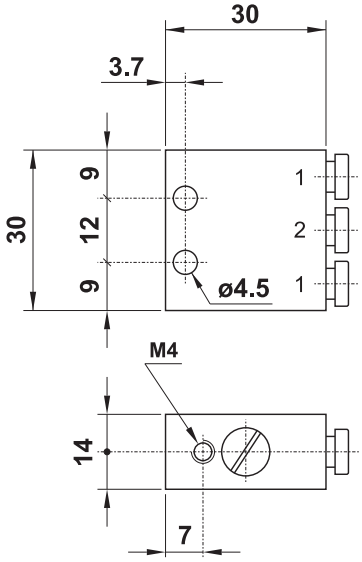


08.025.4 - AND FOR LOGIC

AND element, push-in fittings for 5/32'' or ø4 tube, mountable on bracket





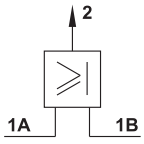


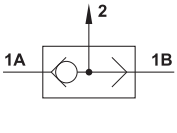
08.022.4 - OR SINGLE M5

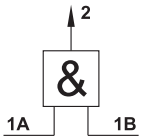
OR element, M5 threaded ports

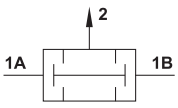
08.026.4 - AND SINGLE M5

AND element, M5 threaded ports

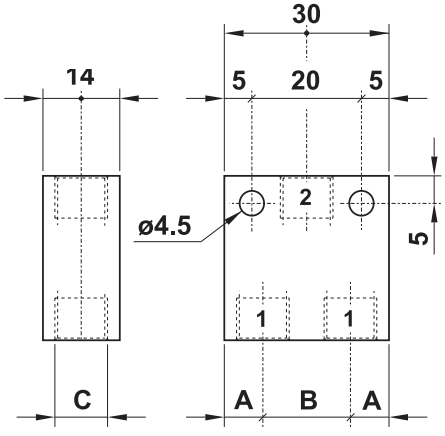






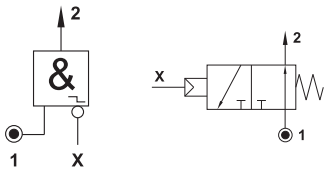


Model	A	B	C
08.022.4	5.2	19.6	M5
08.026.4	5.2	19.6	M5



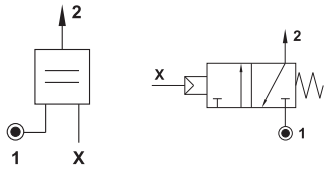
08.039.4 - NOT FOR LOGIC

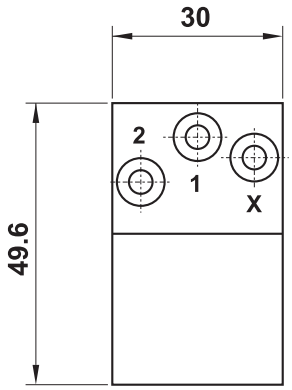
NOT element, push-in fittings for 5/32'' or ø4 tube, mountable on bracket



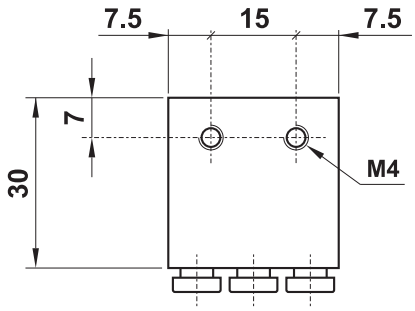
08.049.4 - YES FOR LOGIC

YES element, push-in fittings for 5/32'' or ø4 tube, mountable on bracket



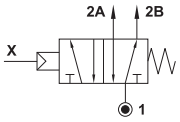


Actuating pressure at 6 bar (87 PSI) **08.039.4** : 1.2 bar (17 PSI)
08.049.4 : 1 bar (14 PSI)



04.003.4 - MEMORY C/M

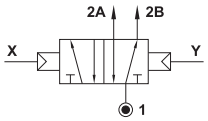
mono-stable MEMORY element, push-in fittings for 5/32'' ø4 tube

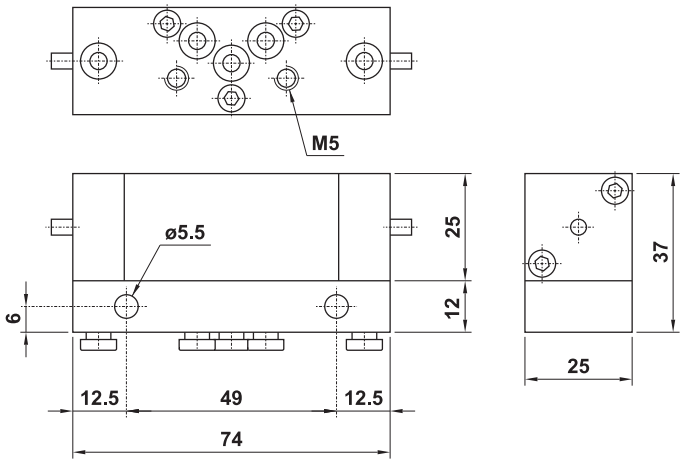


Actuating pressure at 6 bar (87 PSI) **04.002.4** : 1.5 bar (21 PSI)
04.003.4 : 2 bar (30 PSI)

04.002.4 - MEMORY C/C

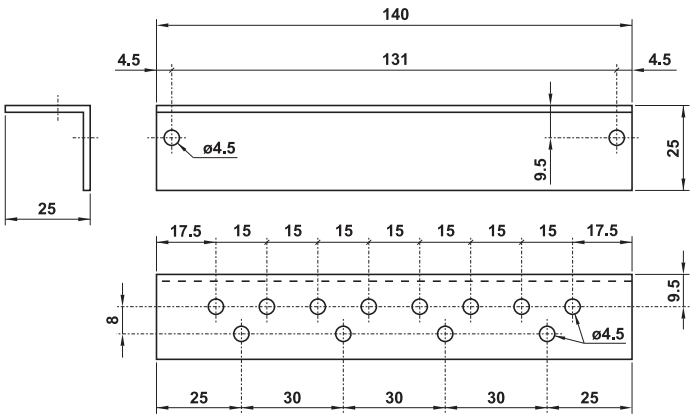
bi-stable MEMORY element, push-in fittings for 5/32'' or ø4 tube



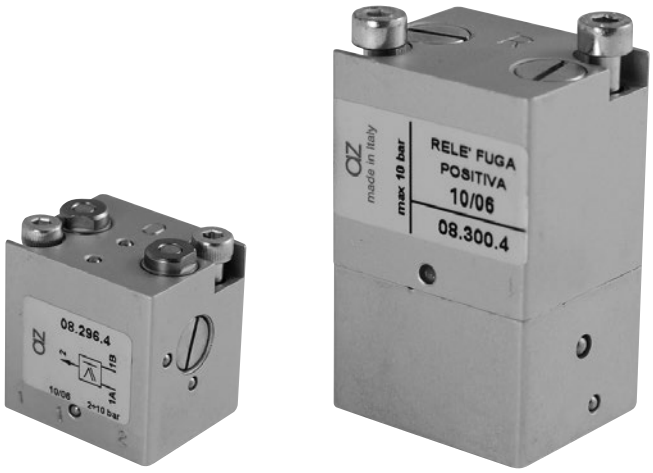


08.092.1 - MOUNTING BRACKET

mounting bracket for logic elements



- Wide range
- Small dimensions
- Mountable on sub-base (single or multiple)

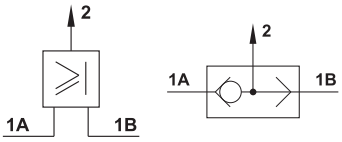


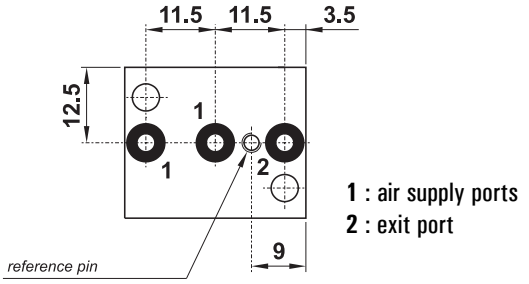
Materials
Body: aluminium 11S
Springs: stainless steel
Seals: NBR
Internal parts: brass OT58

Nominal diameter	2.5 mm (0.1 in)
Nominal flow rate at 6 bar (87 PSI)	100 Nl/min (0.1 Cv)
Temperature range	**-15** +**60**°C (**5**-**140**°F)
Operating pressure	2 ... 10 bar (30 ... 145 PSI) 0.2 ... 1 MPa
Actuating pressure at 6 bar (87 PSI) (NOT and YES)	1.5 bar (22 PSI) 0.15 MPa
Fluid	50μ filtered, lubricated or non lubricated air

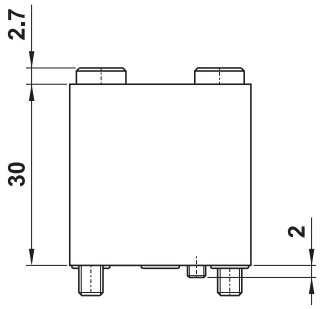
08.296.4 - OR FOR LOGIC CR

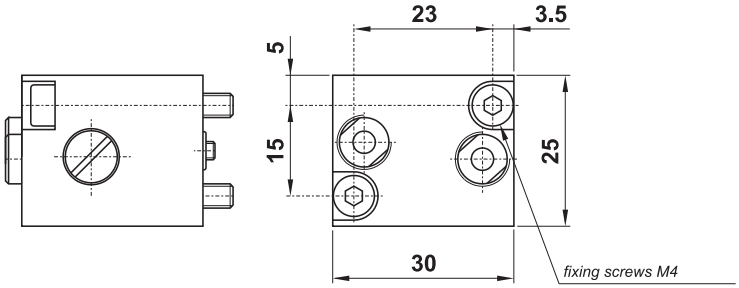
OR element, for assembling on sub-base





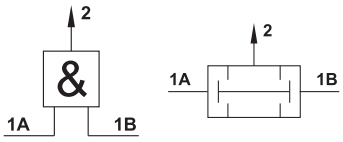
1 : air supply ports
2 : exit port

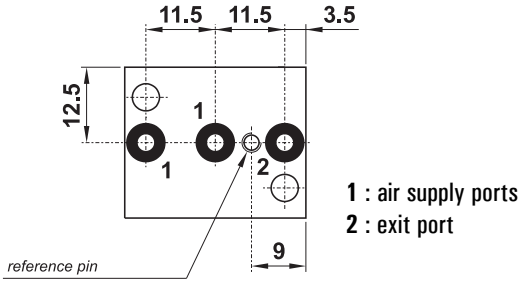




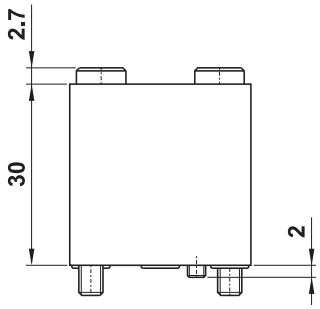
08.297.4 - AND FOR LOGIC CR

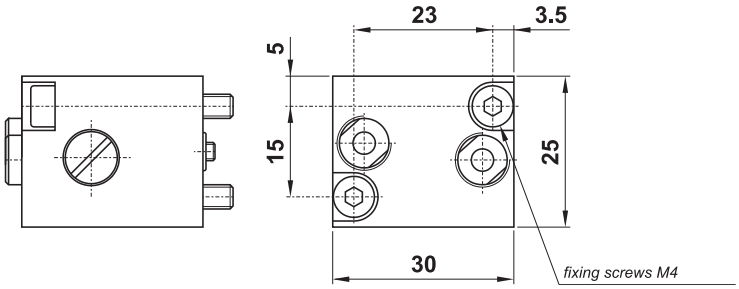
AND element, for assembling on sub-base





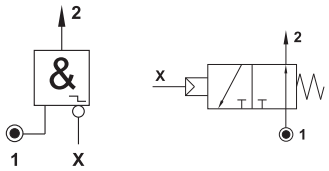
1 : air supply ports
2 : exit port

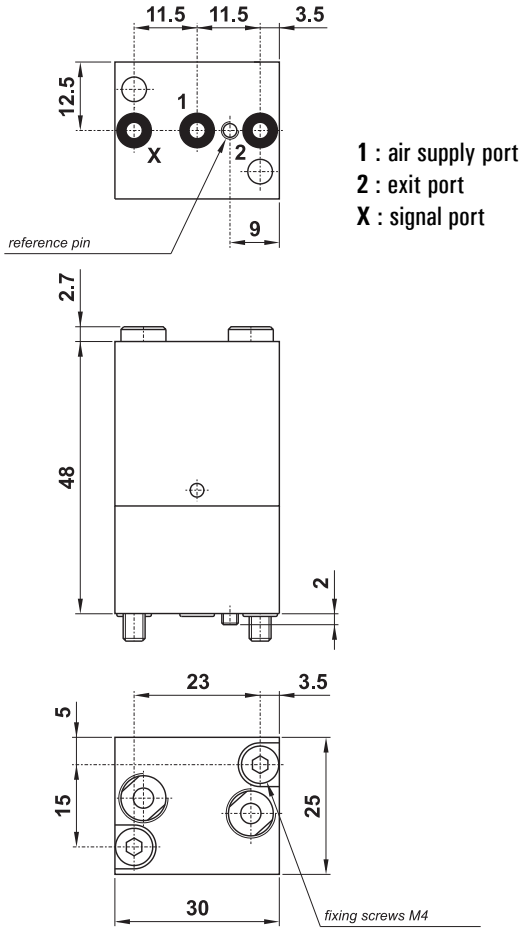




08.298.4 - NOT FOR LOGIC CR

NOT element, for assembling on sub-base

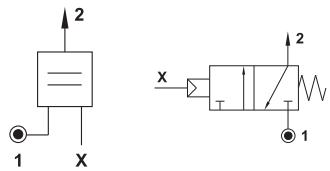


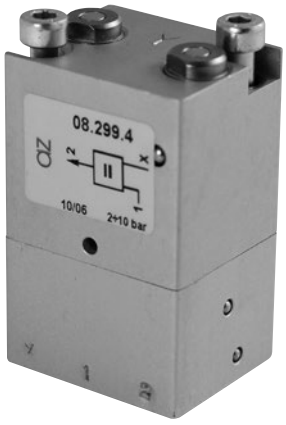


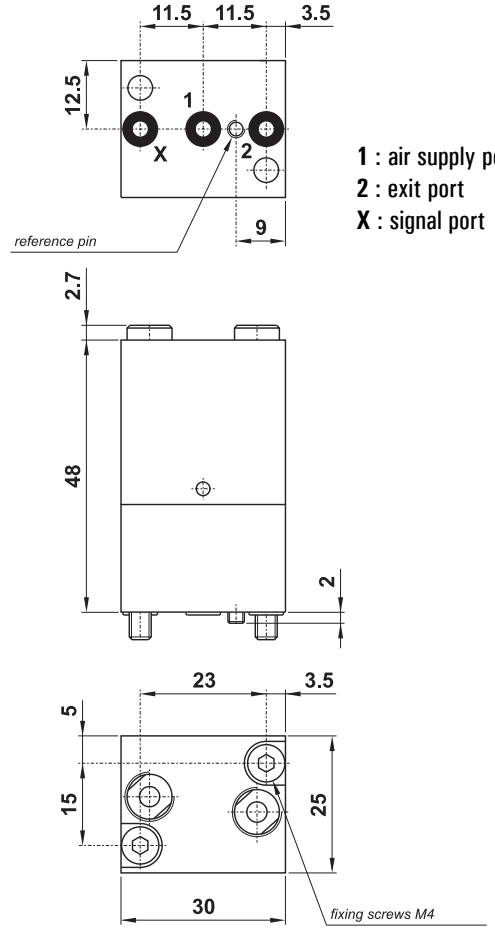
1 : air supply port
2 : exit port
X : signal port

08.299.4 - YES FOR LOGIC CR

YES element, for assembling on sub-base



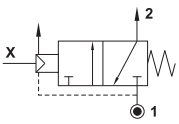




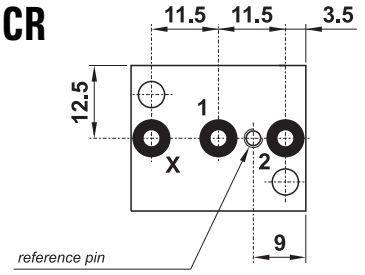
1 : air supply port
2 : exit port
X : signal port

08.300.4 - SWITCH WITH INHIBITION EXHAUST CR

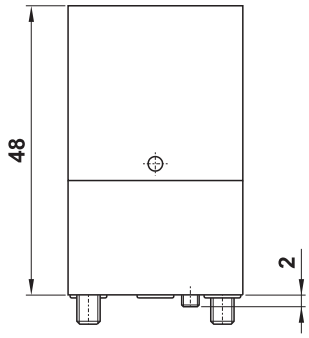
SWITCH WITH INHIBITION EXHAUST, for assembling on sub-base

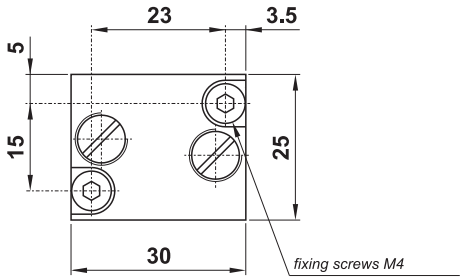


When exhaust is inhibited, the valve switches and air goes out from exit port 2.



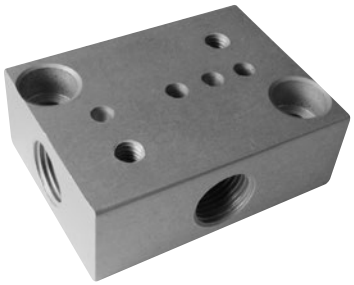
1 : air supply port
2 : exit port
X : exhaust port

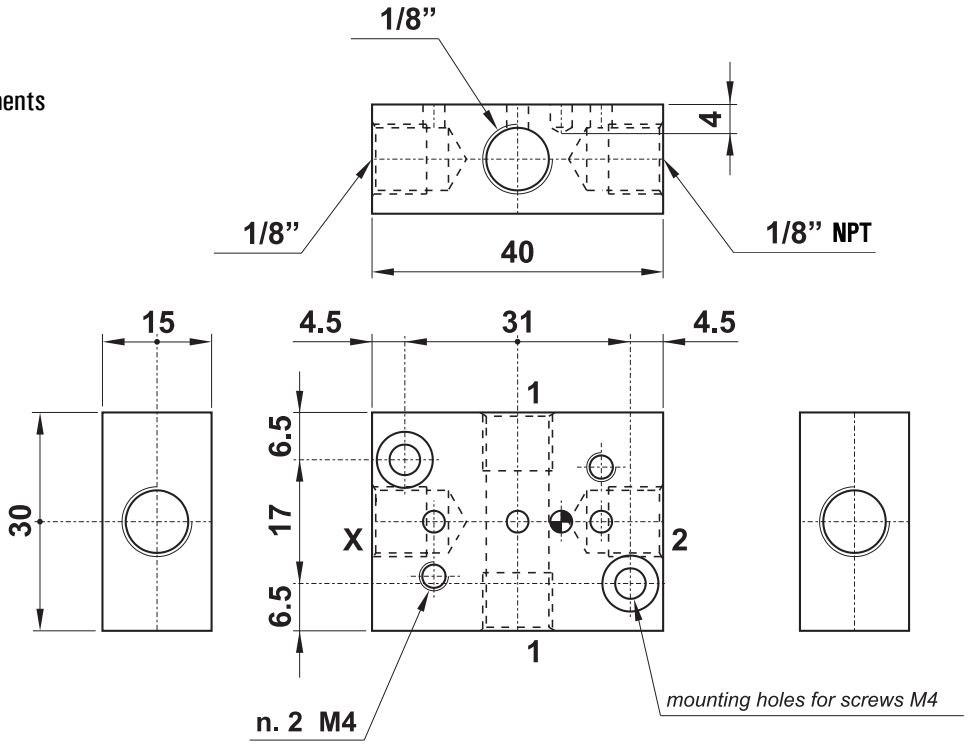




USAQ.015.1

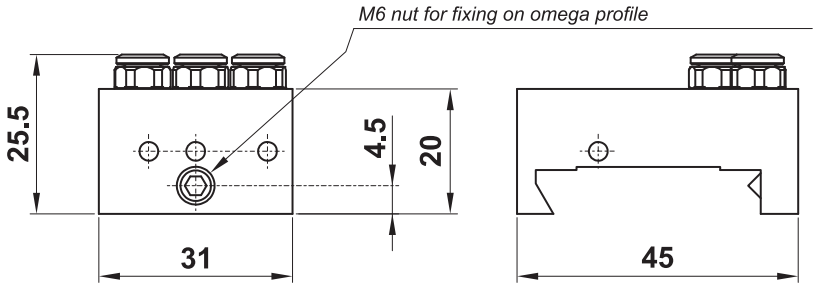
Single sub-base for assembling of CR logic elements

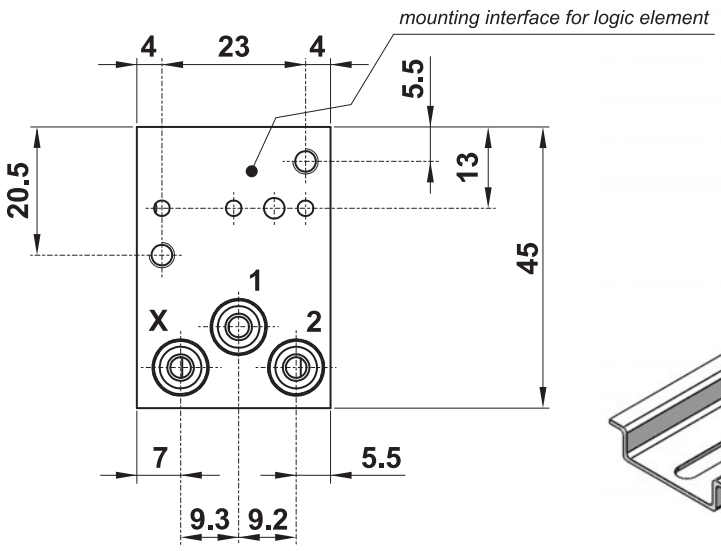


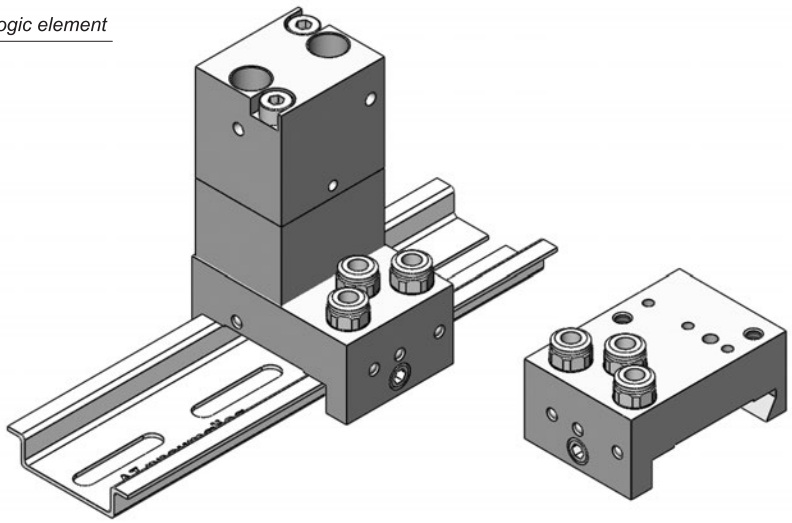


08.039.3

Single sub-base for assembling of CR logic elements on omega profile
push-in fittings for 5/32'' or ø4 tube



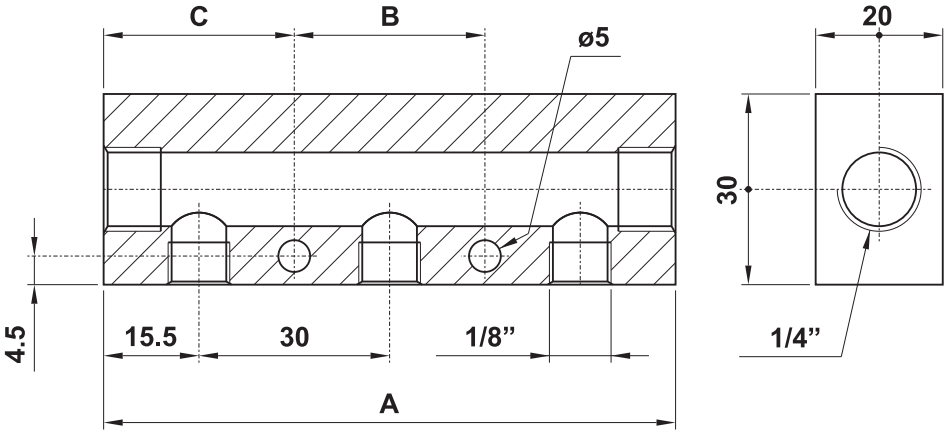




Distribution manifolds

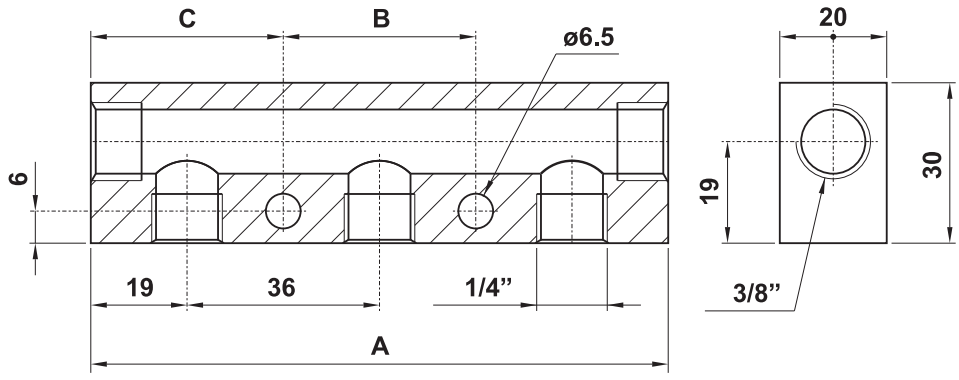
- In-line manifolds with 1/8″ NPT or 1/4″ NPT user ports
- Four port manifolds
- Special manifolds on request
- Material: aluminium (anodize treatment)

In-line manifolds with 1/8″ NPT user ports and 1/4″ NPT feed ports



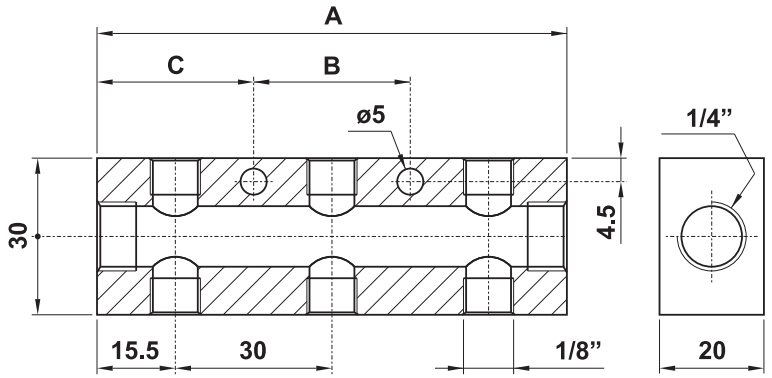
model	no. ports	A	B	C
USAU.002.1	2	61	50	5.5
USAU.003.1	3	91	30	30.5
USAU.004.1	4	121	60	30.5
USAU.005.1	5	151	90	30.5
USAU.006.1	6	181	120	30.5

In-line manifolds with 1/4″ NPT user ports and 3/8″ NPT feed ports



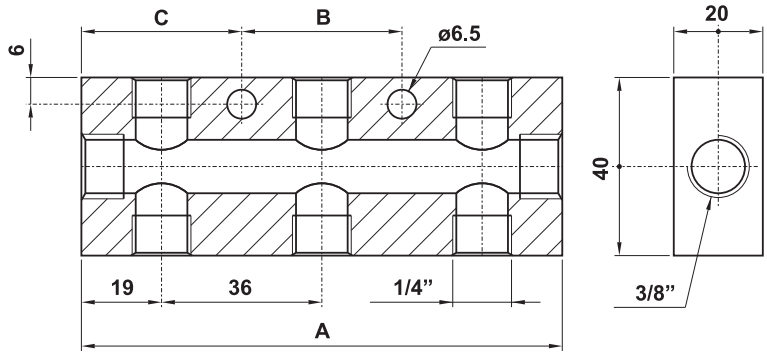
model	no. ports	A	B	C
USAU.011.1	2	74	61	6.5
USAU.013.1	3	110	36	37
USAU.014.1	4	146	72	37
USAU.015.1	5	182	108	37
USAU.016.1	6	218	144	37

In-line double manifolds with 1/8″ NPT user ports and 1/4″ NPT feed ports



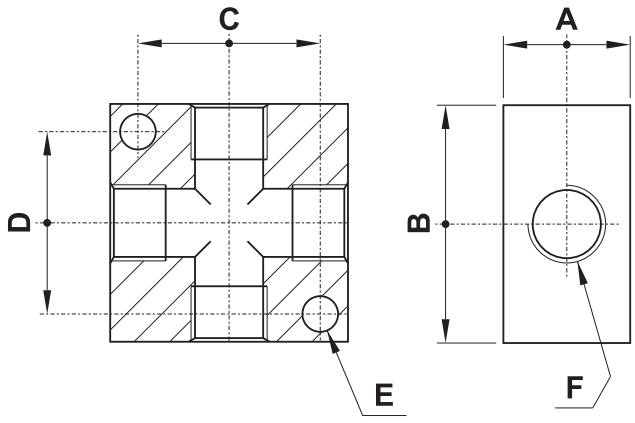
model	no. ports	A	B	C
USAU.000.1	2	61	50	5.5
USAU.001.1	3	91	30	30.5
USAU.008.1	4	121	60	30.5
USAU.009.1	5	151	90	30.5

In-line double manifolds with 1/4″ NPT user ports and 3/8″ NPT feed ports



model	no. ports	A	B	C
USAU.022.1	2	74	61	6.5
USAU.023.1	3	110	36	37
USAU.024.1	4	146	72	37
USAU.025.1	5	182	108	37
USAU.027.1	6	218	144	37

Four Port Manifolds



model	A	B	C	D	E	F
AU.017.1	10	20	12	12	4.5	M5
USAU.018.1	16	30	23	22	4.5	1/8″ NPT
USAU.019.1	20	40	30	27	5.5	1/4″ NPT
USAU.021.1	25	50	38	39	6.5	3/8″ NPT
USAU.020.1	25	50	38	39	6.5	1/2″ NPT

Chapter IV - Integrated Elements

page

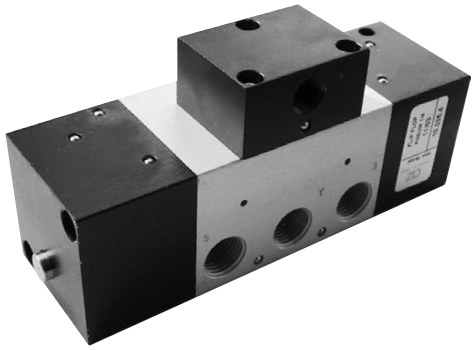
Flip-Flop

Valve operation

This is a high-flow device which, by applying a pilot pressure either pneumatic or electrical to point **X**, will, for example, extend and retract a double acting cylinder. The "flip-flop" valve requires two pilot signals for a complete cycle: one momentary signal to extend the cylinder stroke and one momentary signal to retract. A maintained pilot signal will generate one half of the cycle. The valve will stay in this position until the signal is exhausted and then applied again. In the event of pilot pressure failure or system maintenance a manual override facility is provided.

Two types of flip-flop valves are available:
code **US10.035.4** The valve is actuated by applying a pneumatic signal to point **X**.
The signal pressure can be different to the pressure at port **1**.

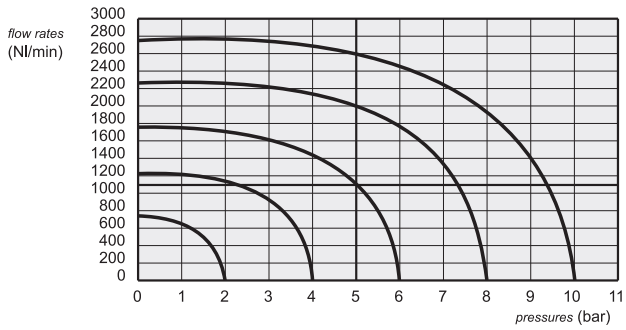
code **US10.018.3** The valve is actuated by an electrical signal.



Materials
Body: aluminium 11S
Springs: stainless steel
Seals: NBR
Spools: nickel plated aluminium
Internal parts: brass OT58

The following listed products are sold without coils, which are bought separately.

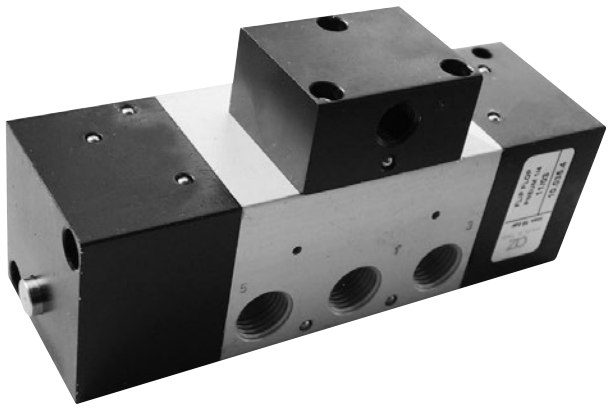
Ports	1/4" NPT
Operating pressure	3 ... 10 bar (43 ... 145 PSI) 0.3 ... 1 MPa
Pneumatic actuating pressure (X)	2 ... 10 bar (30 ... 145 PSI) 0.2 ... 1 MPa
Temperature range	-**15**+**60**°C (**5**-**140**°F)
Fluid	50μ filtered, lubricated or non lubricated air

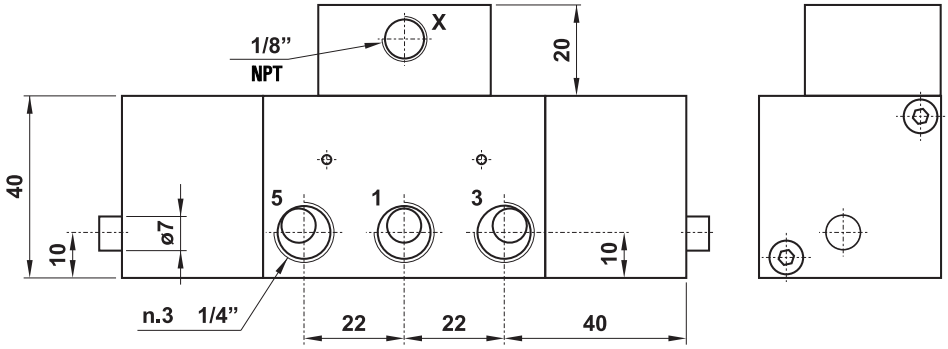


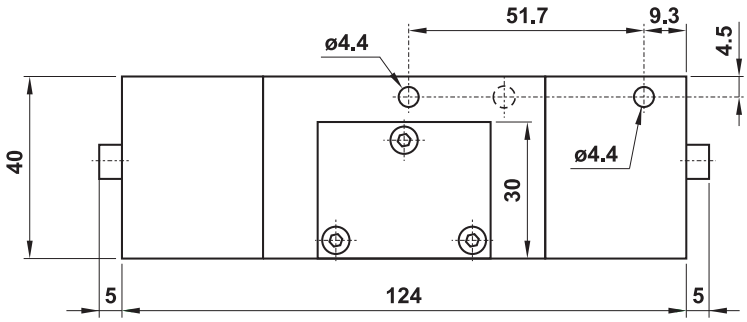
Pneumatically Piloted

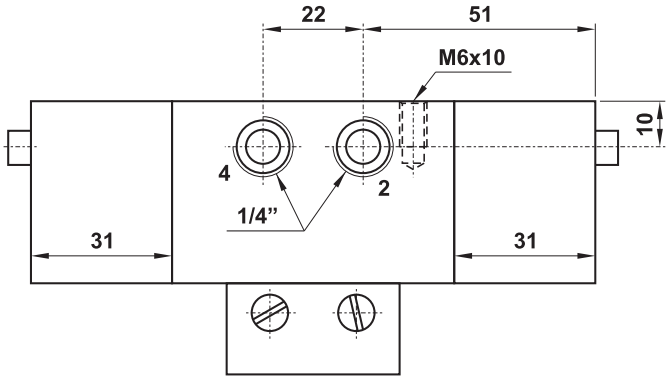
ORDER CODE

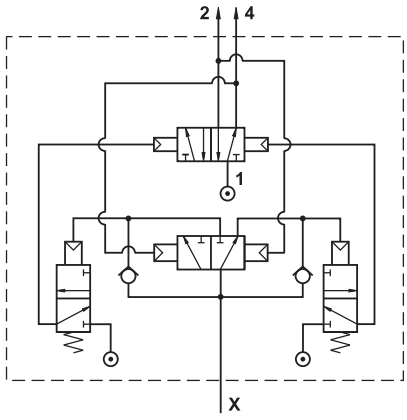
US10.035.4







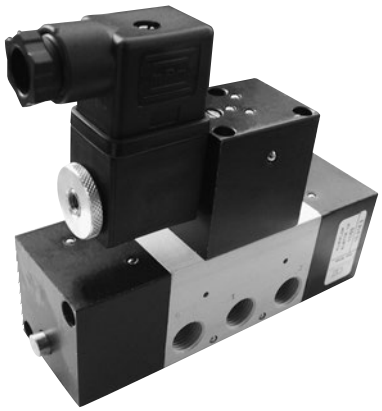


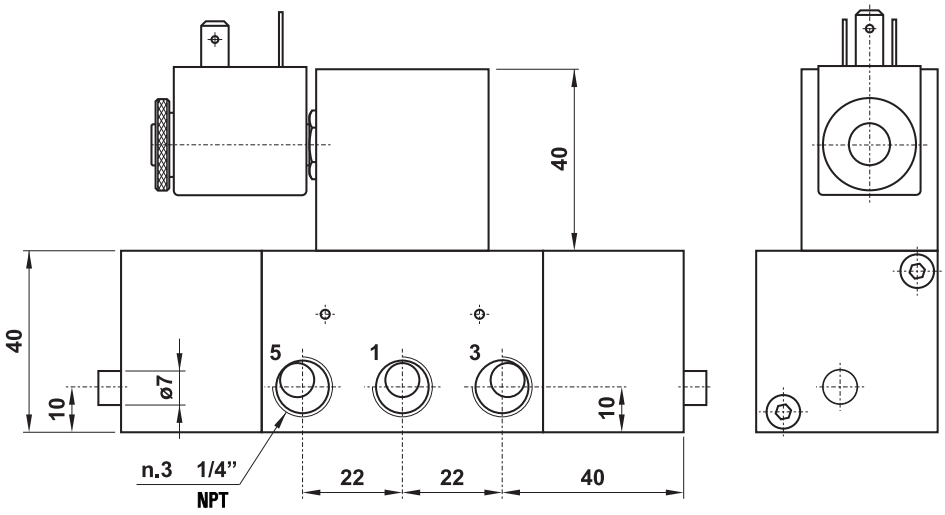


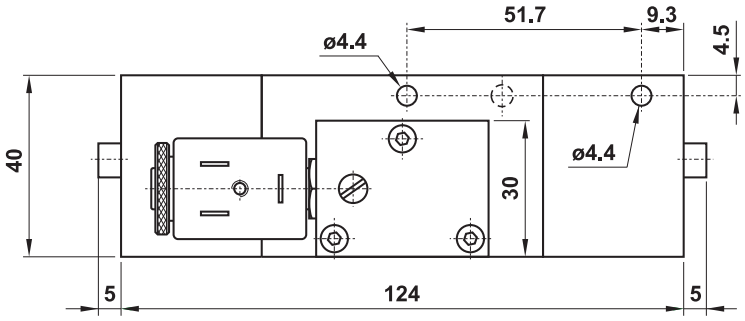
Solenoid Piloted

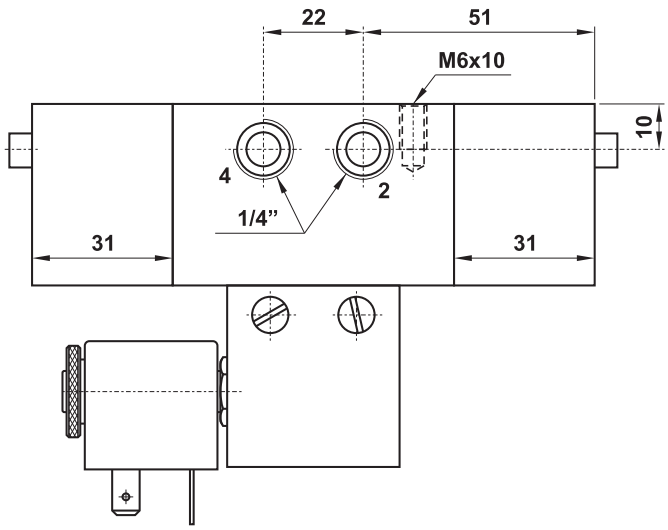
ORDER CODE

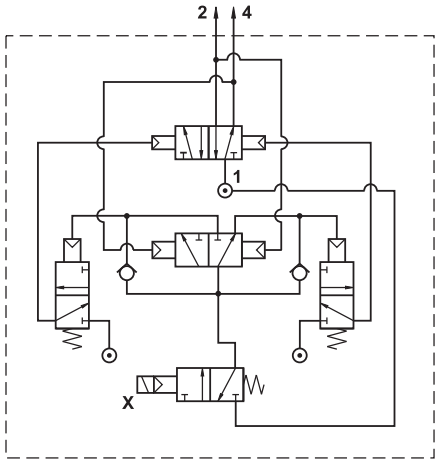
US10.018.3











Oscillating Valve

Valve operation

It is a high-flow device which allows a double acting cylinder or analogue pneumatic equipment to automatically extend and retract without the need for limit switches. The frequency of the phases is set through the two adjusting screws which are placed at the end of the oscillating valve and protected by a cover. One screw is to set the retract dwell time and the other is to set the extend dwell time. On request the adjusting screws can be mounted on a panel in remote position.

Standard version:

code **01.044.4** Oscillations are activated by system pressure only.

code **01.046.4** Oscillations are activated by a constant pilot signal at point **X**.
This pressure can be independent to the pressure at port **1**.

code **01.008.3** Oscillations are activated by an electrical signal with separate air supply.
It is therefore necessary to apply to point X a pilot pressure (that can be of a different value to port 1) and an electrical signal at the solenoid pilot.

Version with re-start feature:

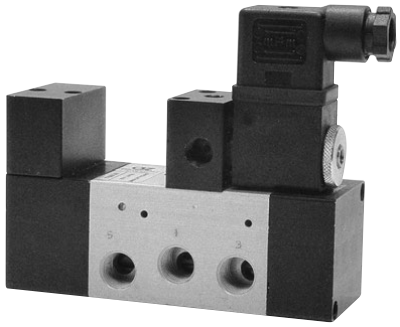
When system pressure is applied or removed, the valve automatically moves to the start position ensuring no device is left in a semi-actuated position.

code **01.089.4** Oscillations are activated by a constant pilot signal at point **X.**

code **01.070.3** Oscillations are activated by an electrical signal with separate air supply.

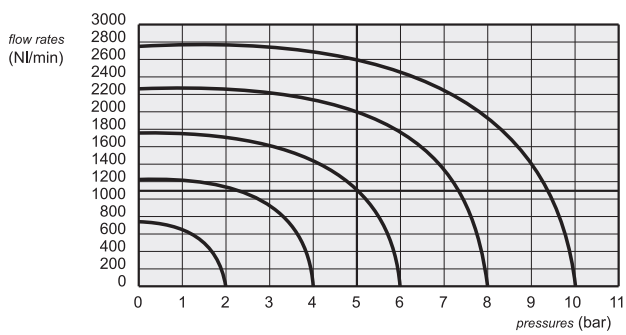
Materials

Body: aluminium 11S
Springs: stainless steel
Seals: NBR
Spools: nickel plated aluminium
Internal parts: brass OT58



The following listed products are sold without coils, which are bought separately (refer to page 372).

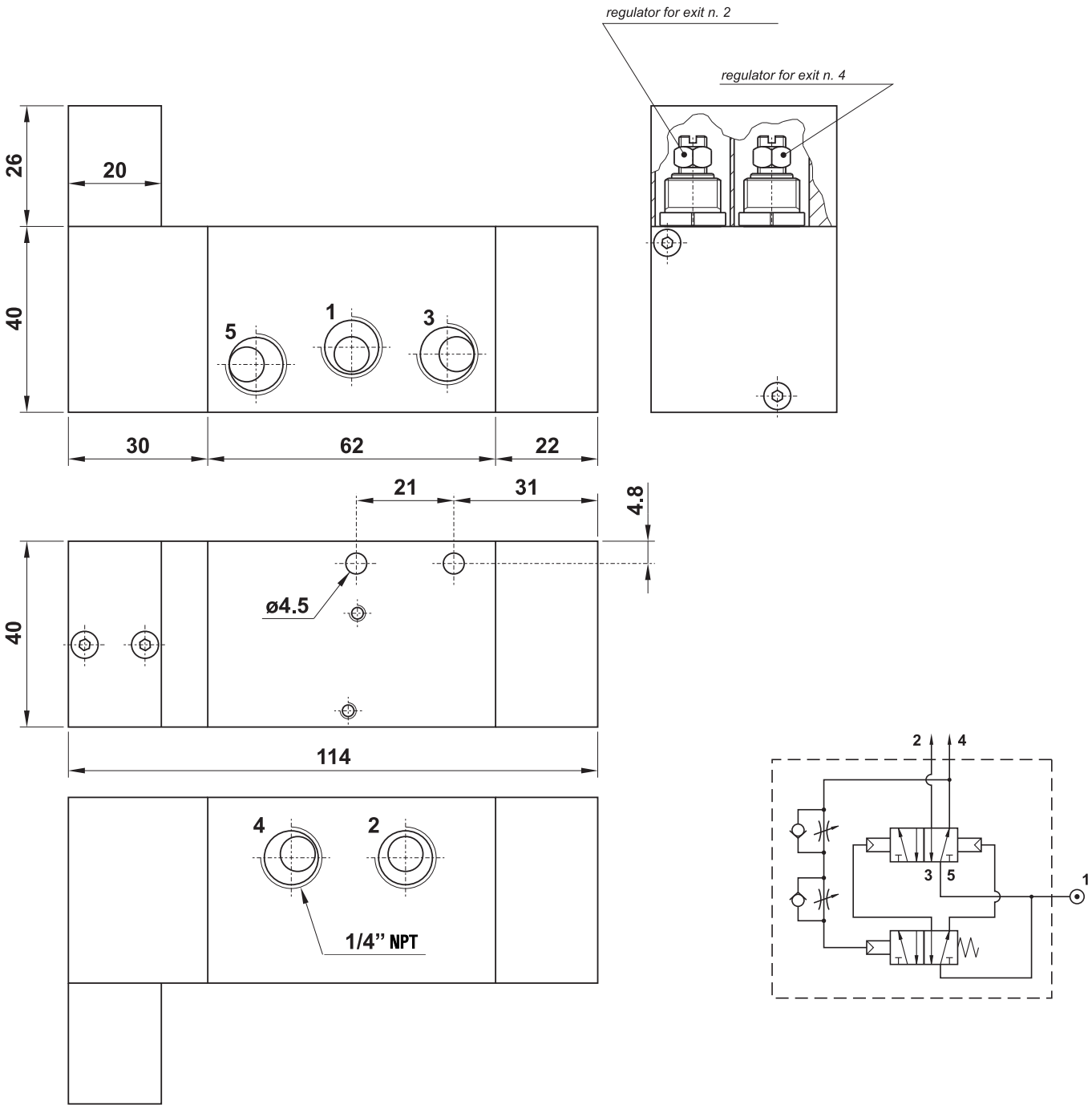
Ports	1/4" NPT
Working pressure	2 ... 10 bar (30 ... 145 PSI) 0.2 ... 1 MPa
Actuating pressure (X)	3 ... 10 bar (43 ... 145 PSI) 0.3 ... 1 MPa
Temperature range	**-15+60°C (5-140°F)**
Time regulation range	0 ... 10 s
Fluid	50μ filtered, lubricated or non lubricated air



continuous cycle

ORDER CODE

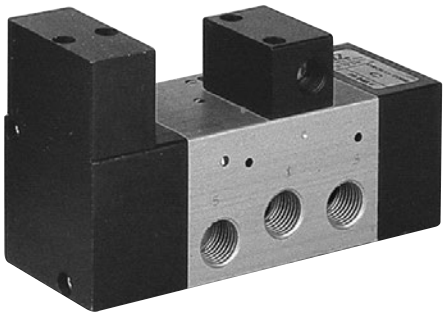
US01.044.4

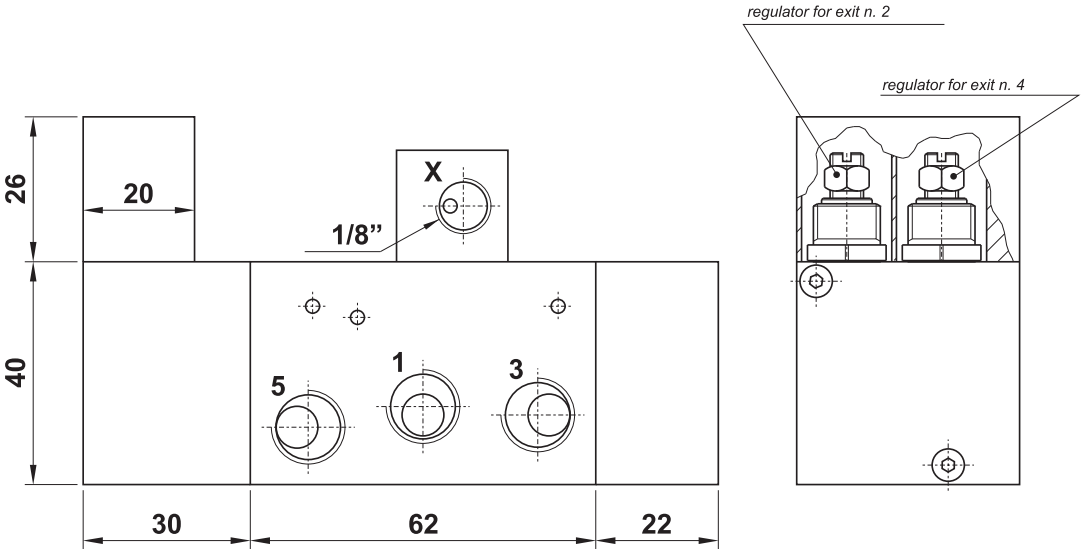


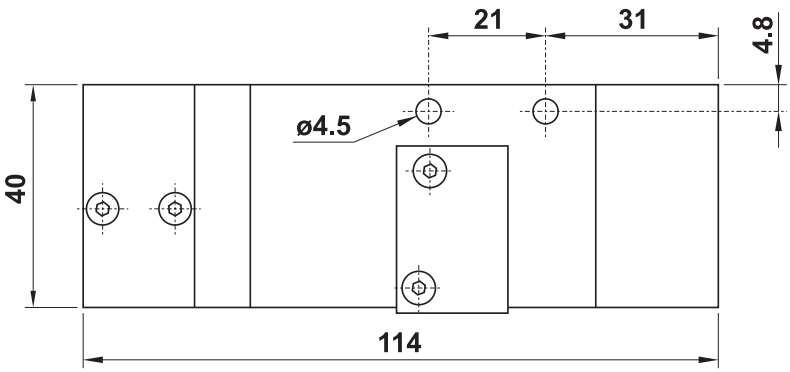
Pneumatically piloted

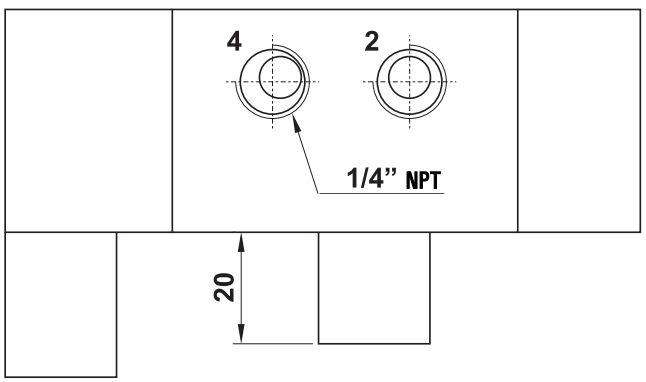
ORDER CODE

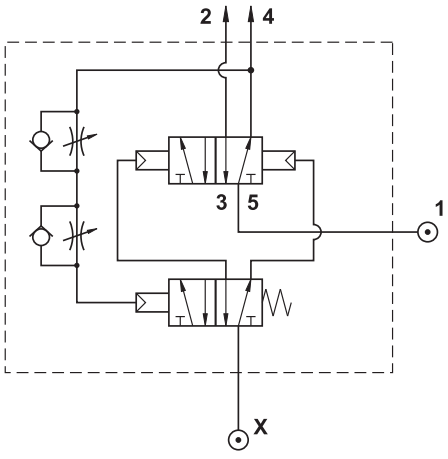
US01.046.4	standard version
US01.089.4	with re-start function







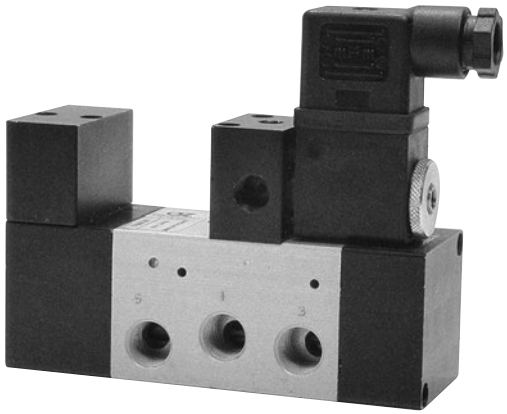


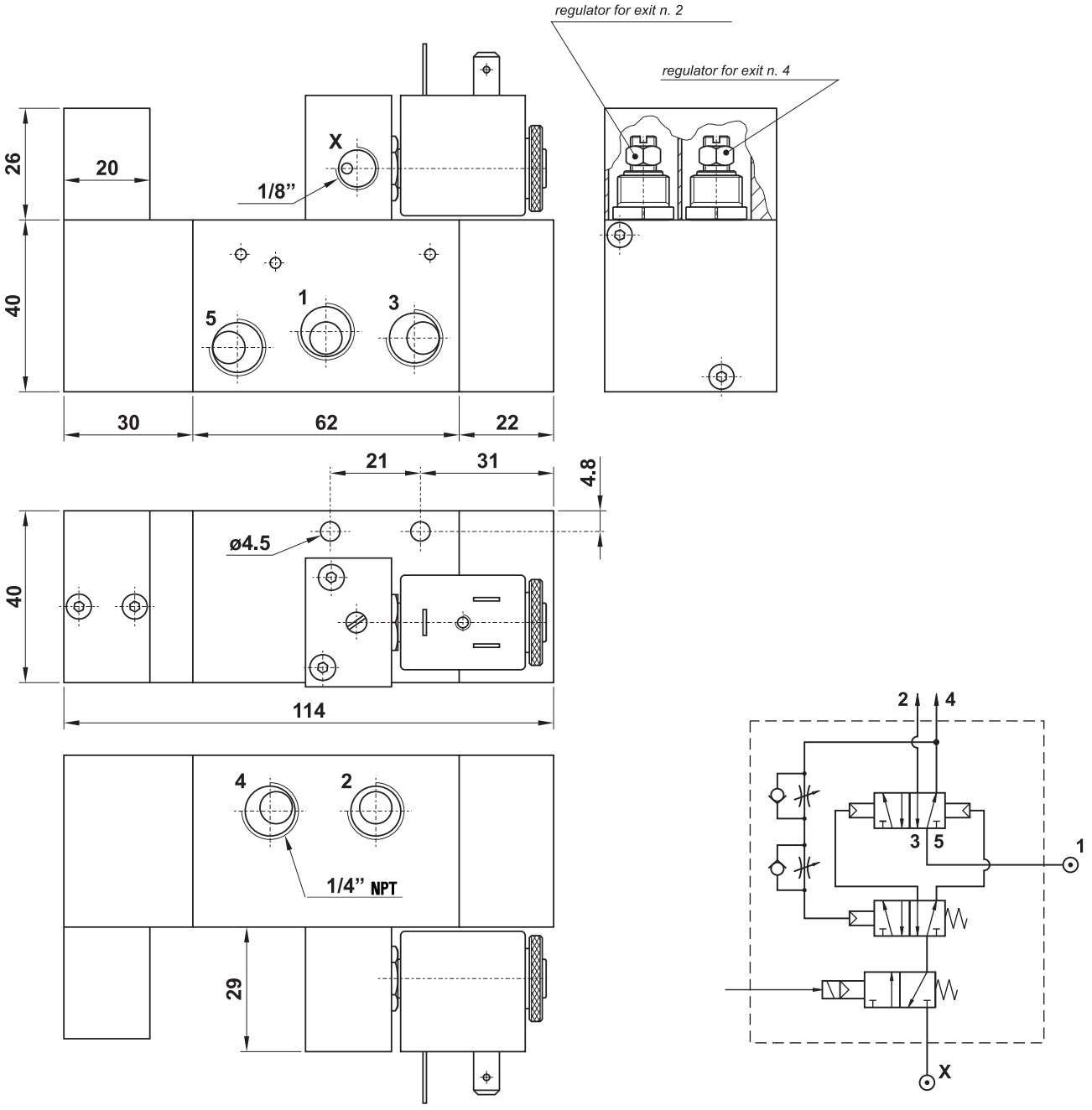


solenoid pilot - separate air supply

ORDER CODE

US01.008.3	standard version
US01.070.3	with re-start function





Oscillating valves with NOT logic elements

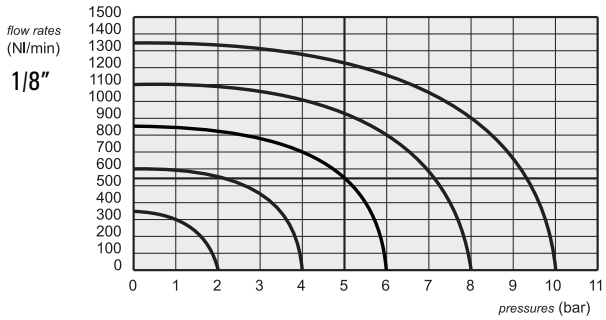
Valve operation

It is a high-flow device which allows a double acting cylinder or analogue pneumatic equipment to automatically extend and retract without the need for limit switches. The frequency of the phases is set by regulation of the exhausts 3 and 5 using RSW 1/8" NPT and RSW 1/4" NPT, which are bought separately. When actuating signal is applied or removed the valve automatically moves to the start position ensuring no device is left in a semi-actuated position. A manual override is integrated to re-activate the oscillator if it gets accidentaly blocked.

Four types of oscillating valve are available:

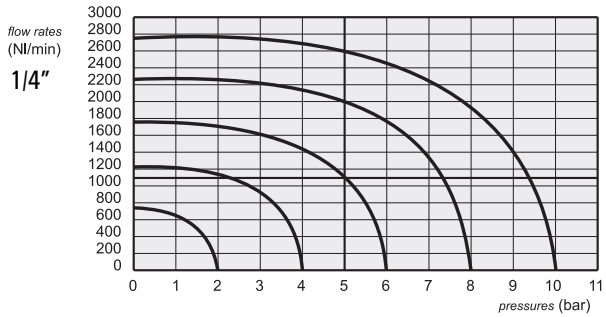
code US10.017.3 1/8" NPT with NOT, solenoid actuated.
It requires a solenoid signal to activate the oscillations.
code US10.019.3 1/4" NPT with NOT, solenoid actuated.
It requires a solenoid signal to activate the oscillations.
code US10.029.4 1/8" NPT with NOT, pneumatically piloted.
It requires a pneumatic signal at point X to activate the oscillations.
code US10.027.4 1/4" NPT with NOT, pneumatically piloted.
It requires a pneumatic signal at point X to activate the oscillations.

Materials
Body: aluminium 11S
Springs: stainless steel
Seals: NBR
Spools: nickel plated aluminium
Internal parts: brass OT58



The following listed products are sold without coils, which are bought separately.

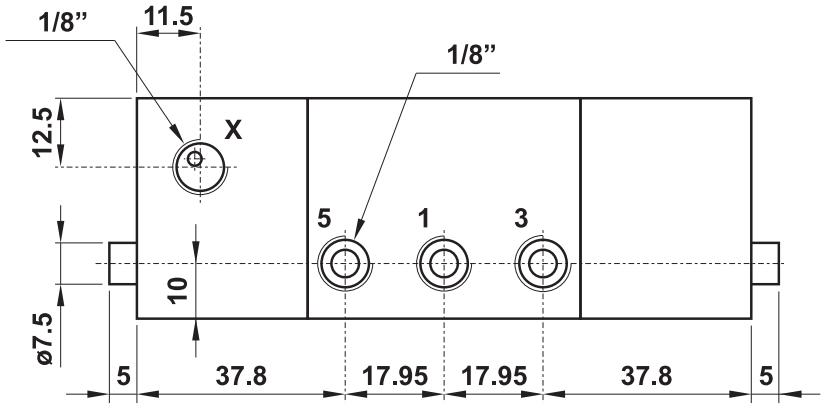
Ports	1/8" NPT - 1/4" NPT
Operating pressure	2 ... 7 bar (30 ... 101 PSI) 0.2 ... 0.7 MPa
Actuating pressure (X)	3 ... 7 bar (43 ... 101 PSI) 0.3 ... 0.7 MPa)
Temperature range	**-15+60°C (5-140°F)**
Fluid	50μ filtered, lubricated or non lubricated air

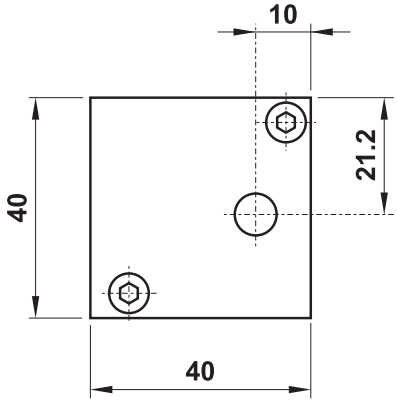


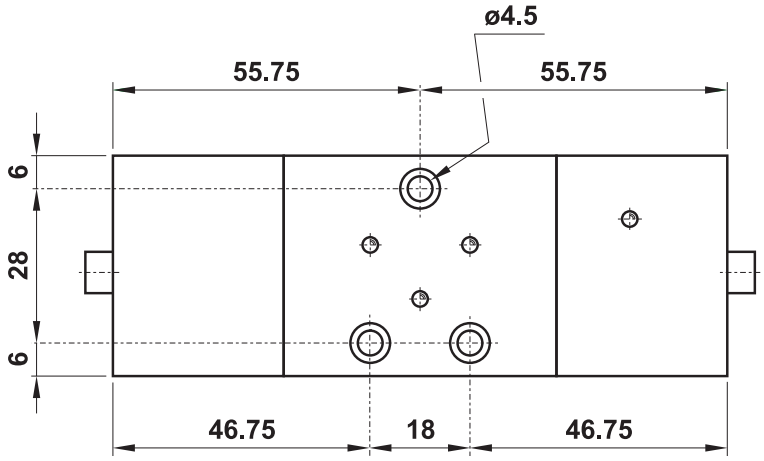
1/8" NPT pneumatically piloted

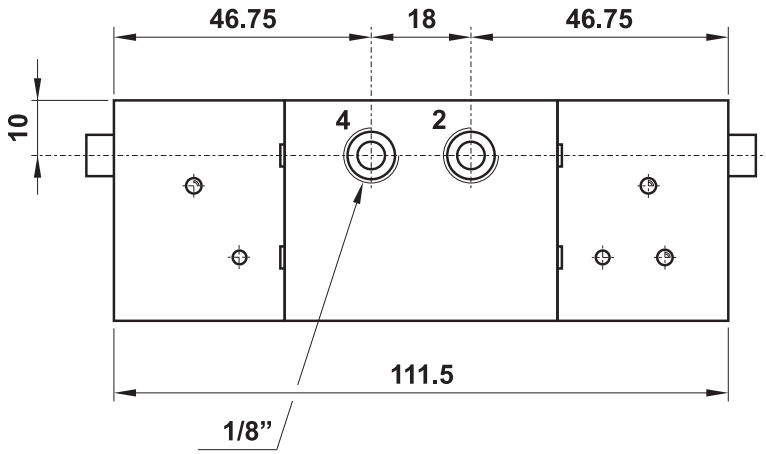
ORDER CODE

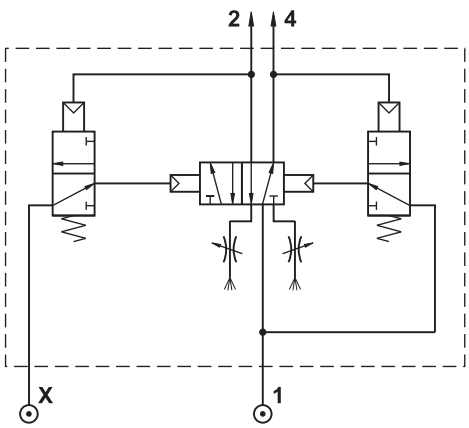
US10.029.4







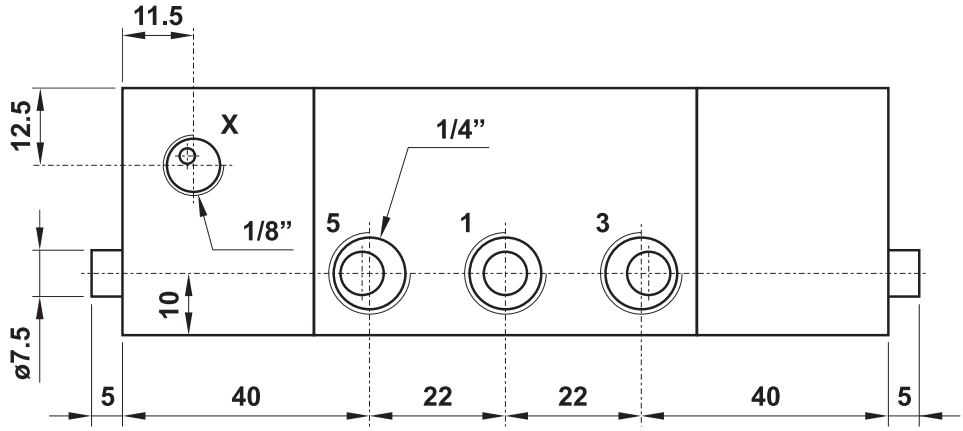


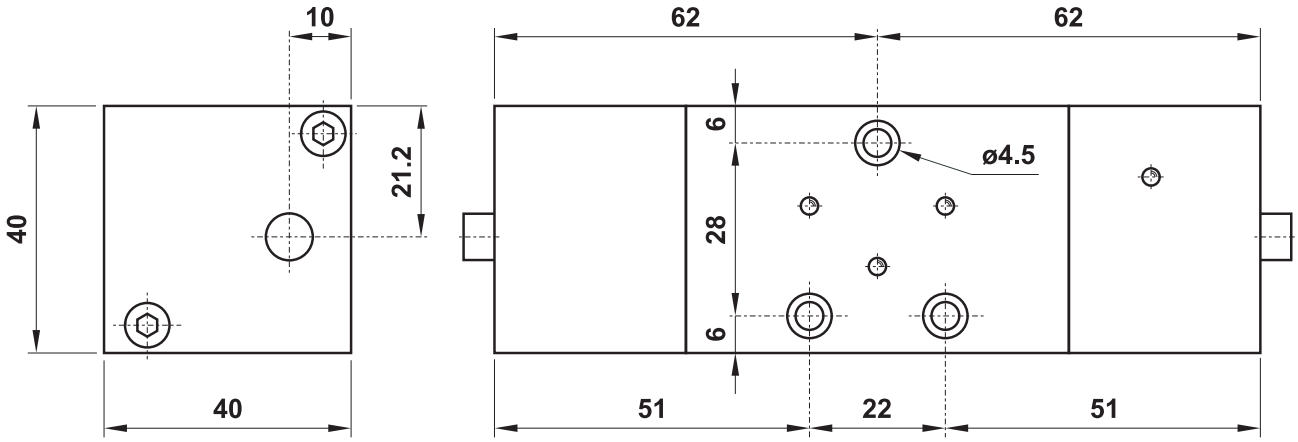


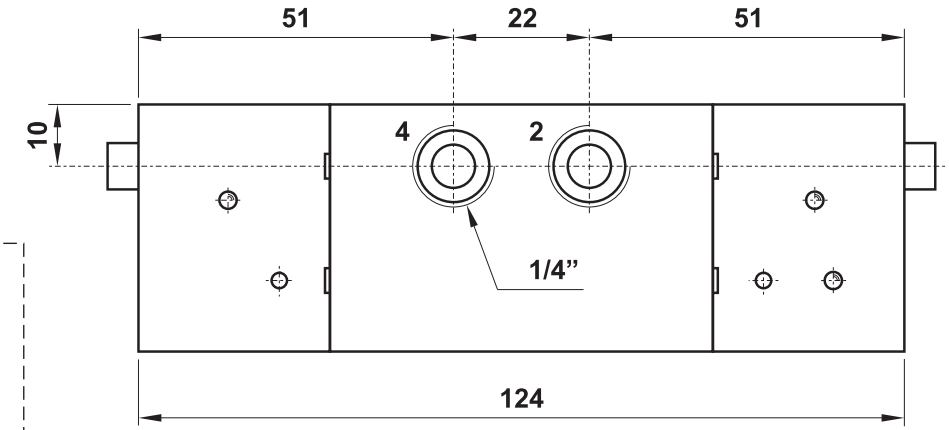
1/4" NPT pneumatically piloted

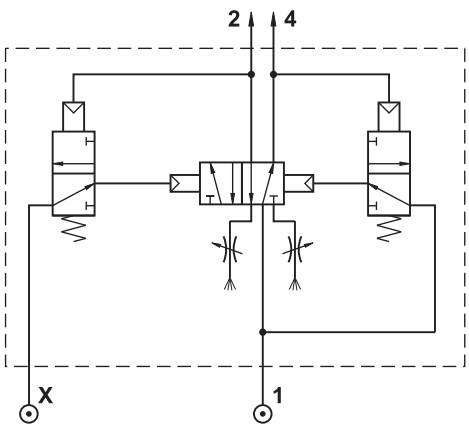
ORDER CODE

US10.027.4





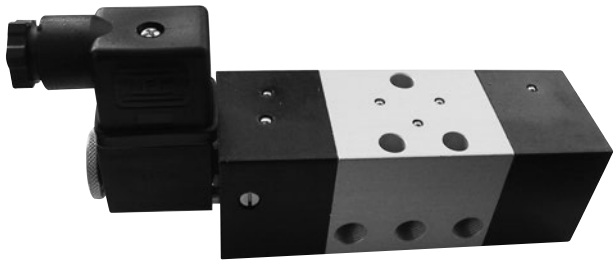


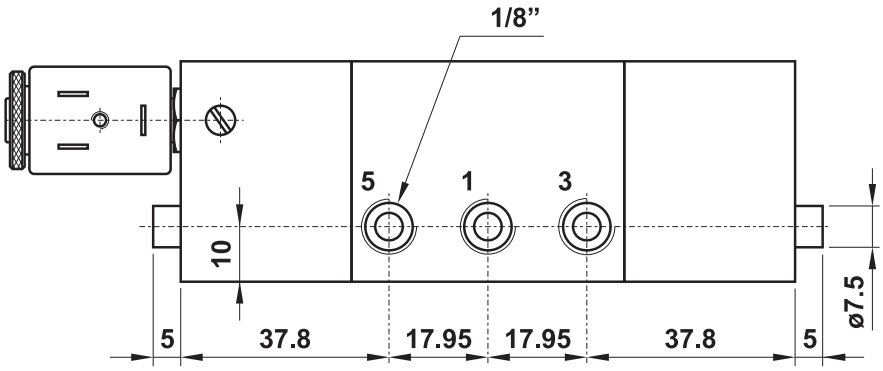


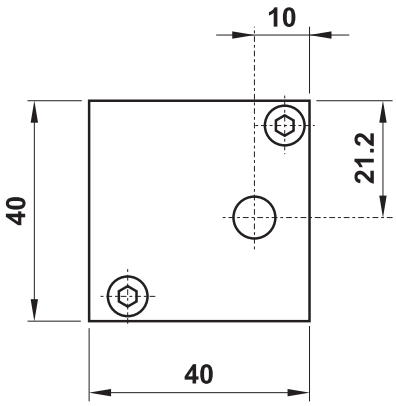
1/8" NPT solenoid actuated

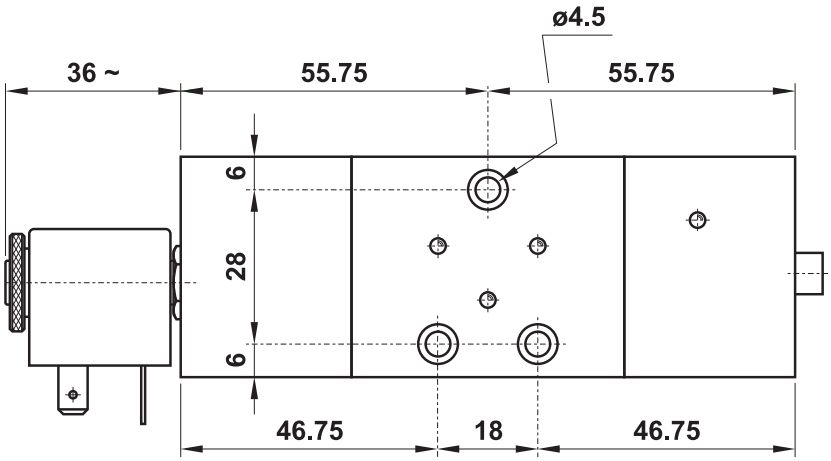
ORDER CODE

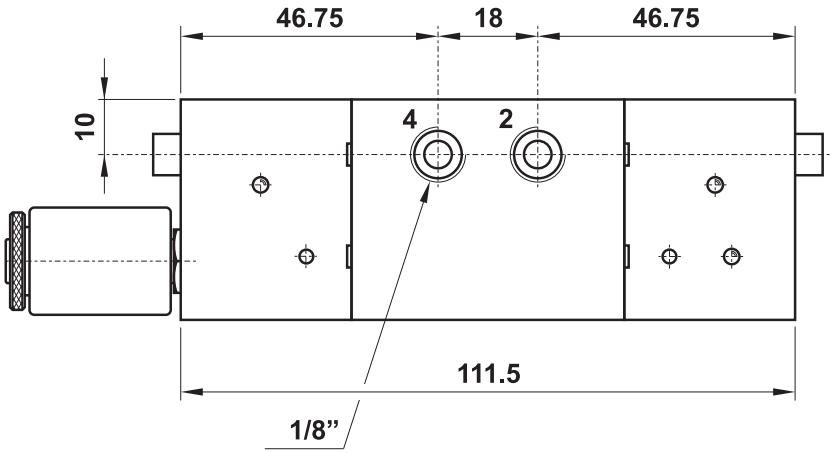
US10.017.3

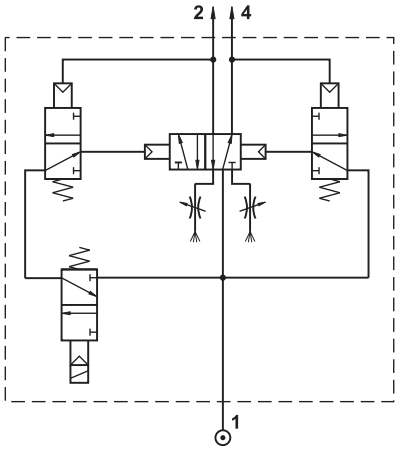








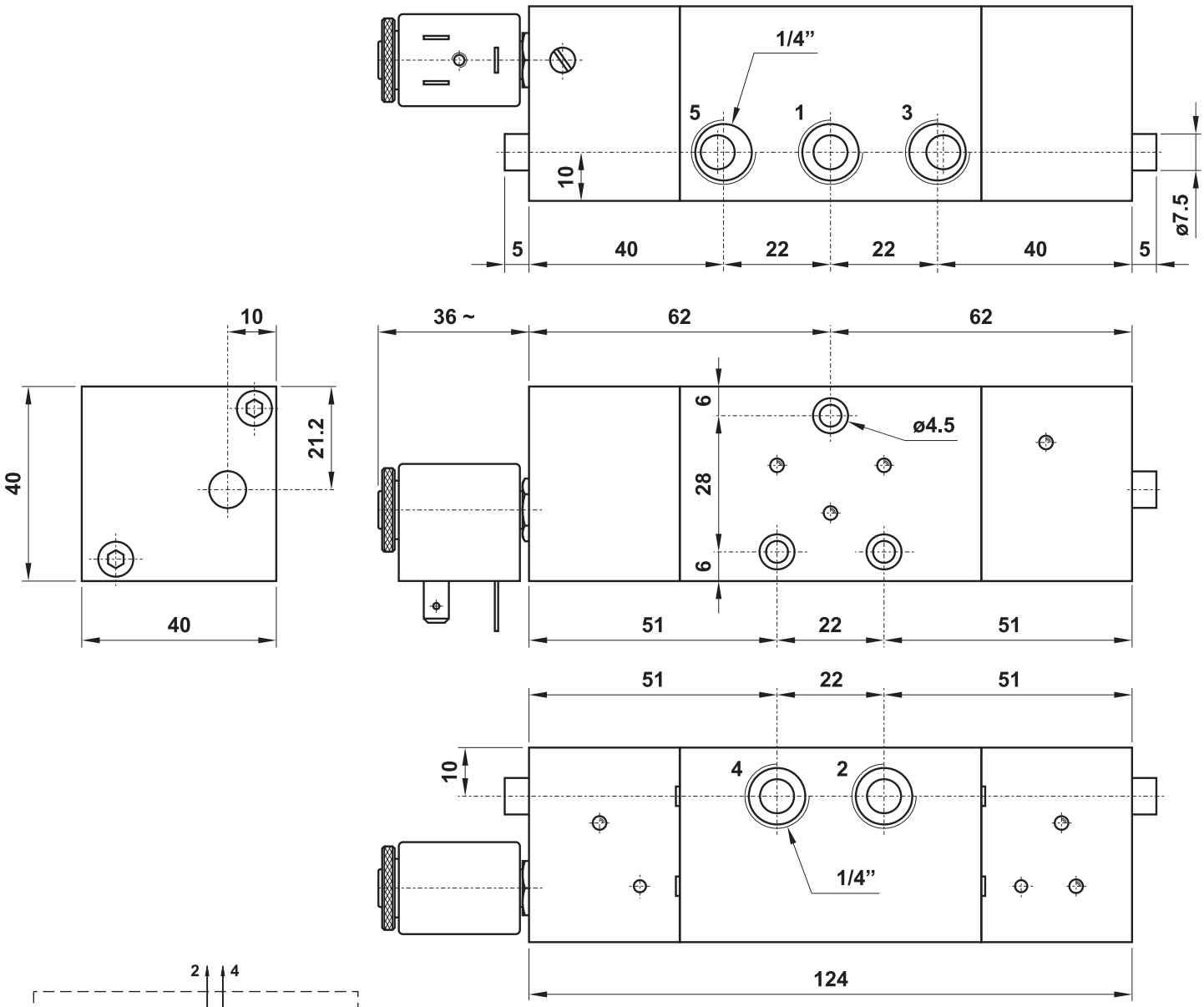


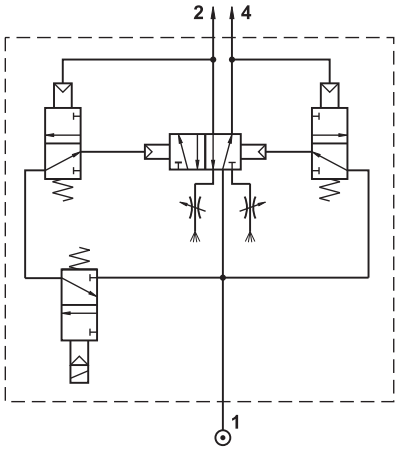


1/4" NPT solenoid actuated

ORDER CODE

US10.019.3





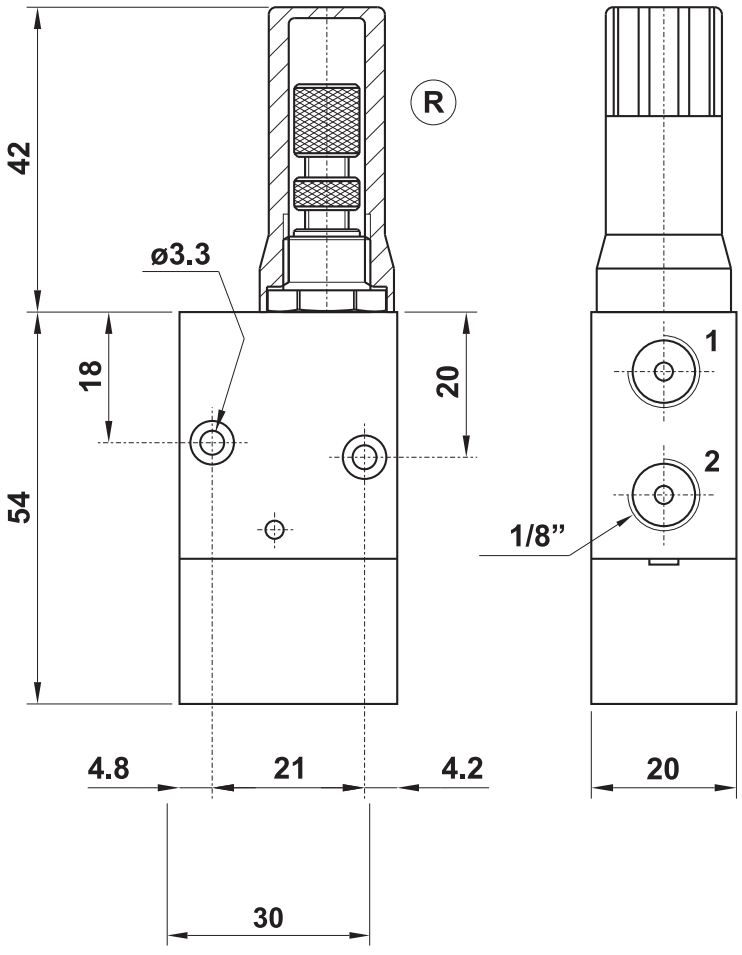
Normally open impulse generator

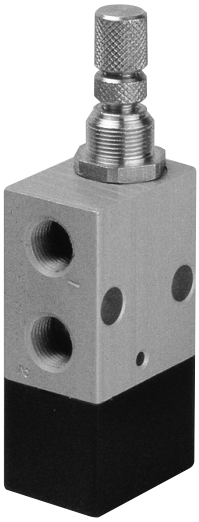
Valve operation

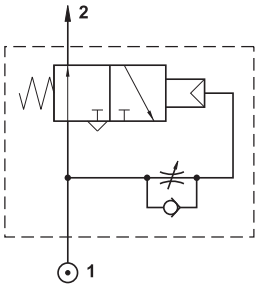
It is a device which produces an adjustable impulse of fixed duration by adjusting screw (**R**).
When a signal is applied from a three way valve and maintained at port **1** the impulse generator is activated and will generate an impulse period which was pre-set by screw **R**.
If the signal is interrupted the duration of the impulse is terminated. To repeat the cycle the pilot signal must be exhausted and applied again.

ORDER CODE

US10.001.4







Ports	1/8” NPT
Operating pressure	2 ... 10 bar (30 ... 145 PSI) 0.2 ... 1 MPa
Temperature range	-15+60°C (5-140°F)
Time regulation range	0 ... 10 s
Fluid	50μ filtered, lubricated or non lubricated air

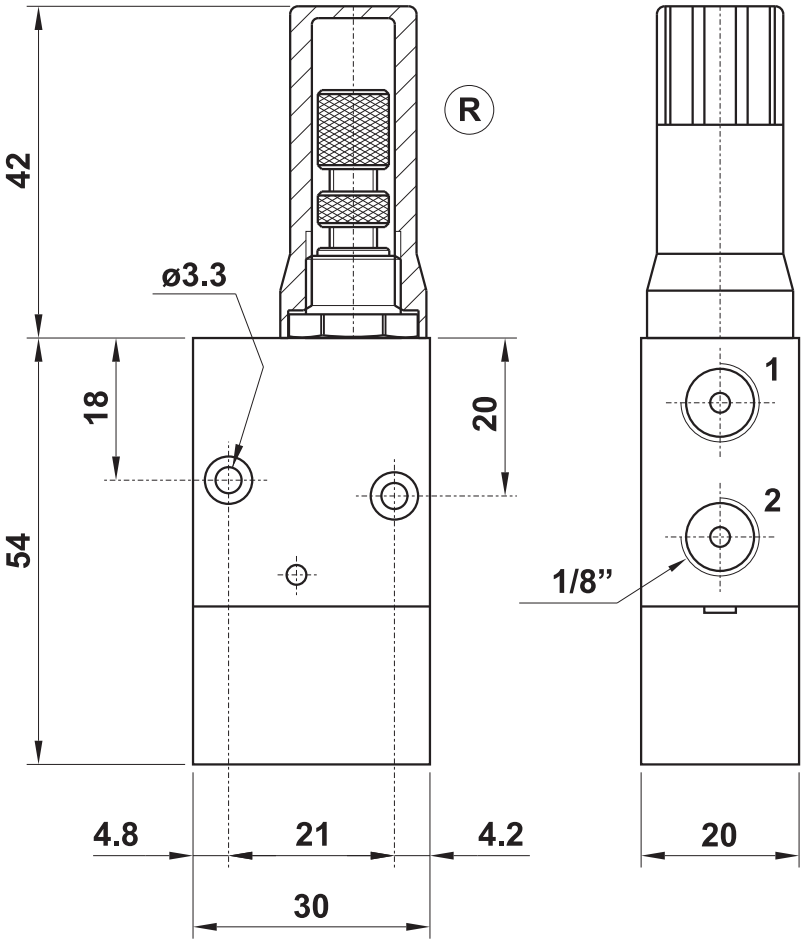
Materials
Body: aluminium 11S
Springs: stainless steel
Seals: NBR
Internal parts: brass OT58

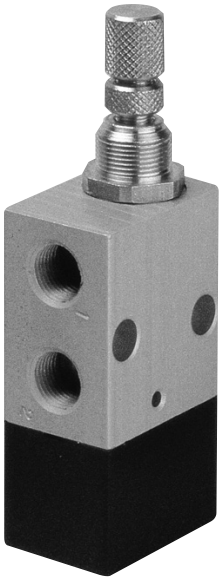
Valve operation

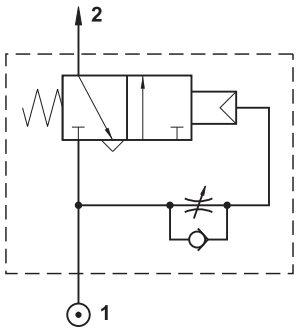
This device, if air is supplied at port **1**, lets the air go out from port **2** when the adjustable dwell time (pre-set by screw **R**) has elapsed. The air flow can then be interrupted by removing the air supply from port **1**. The difference from the normally open version (10.001.4) is that the screw **R** adjusts the dwell time and not the duration of the air impulse.

ORDER CODE

US10.009.4







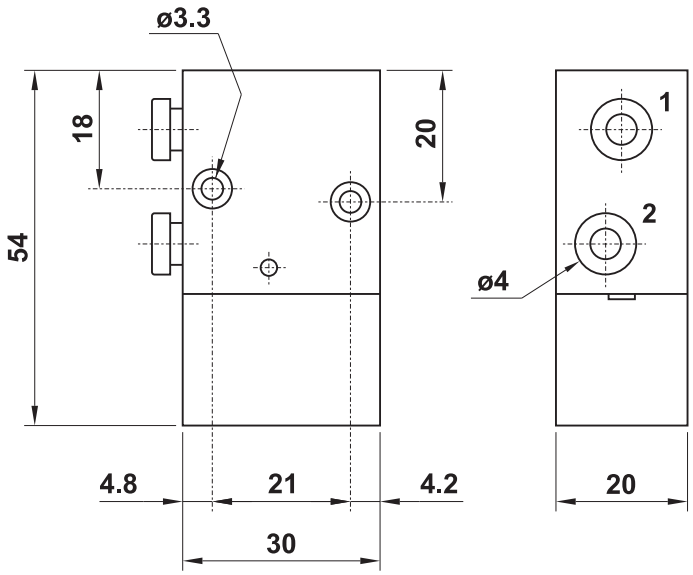
Ports	1/8” NPT
Operating pressure	2 ... 10 bar (30 ... 145 PSI) 0.2 ... 1 MPa
Temperature range	**-15+60°C (5-140°F)**
Time regulation range	0 ... 10 s
Fluid	50μ filtered, lubricated or non lubricated air

Materials
Body: aluminium 11S
Springs: stainless steel
Seals: NBR
Internal parts: brass OT58

Non adjustable impulse generator

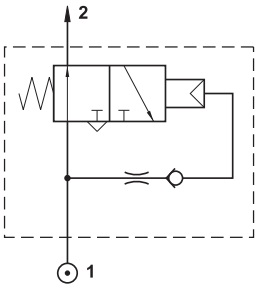
Valve operation

It is a device which produces an impulse of fixed and not adjustable duration (very short, about 0.2 s).
When a signal is applied from a three way valve and maintained at port **1** the impulse generator is activated. To repeat the cycle the pilot signal must be exhausted and applied again.



ORDER CODE

10.003.4



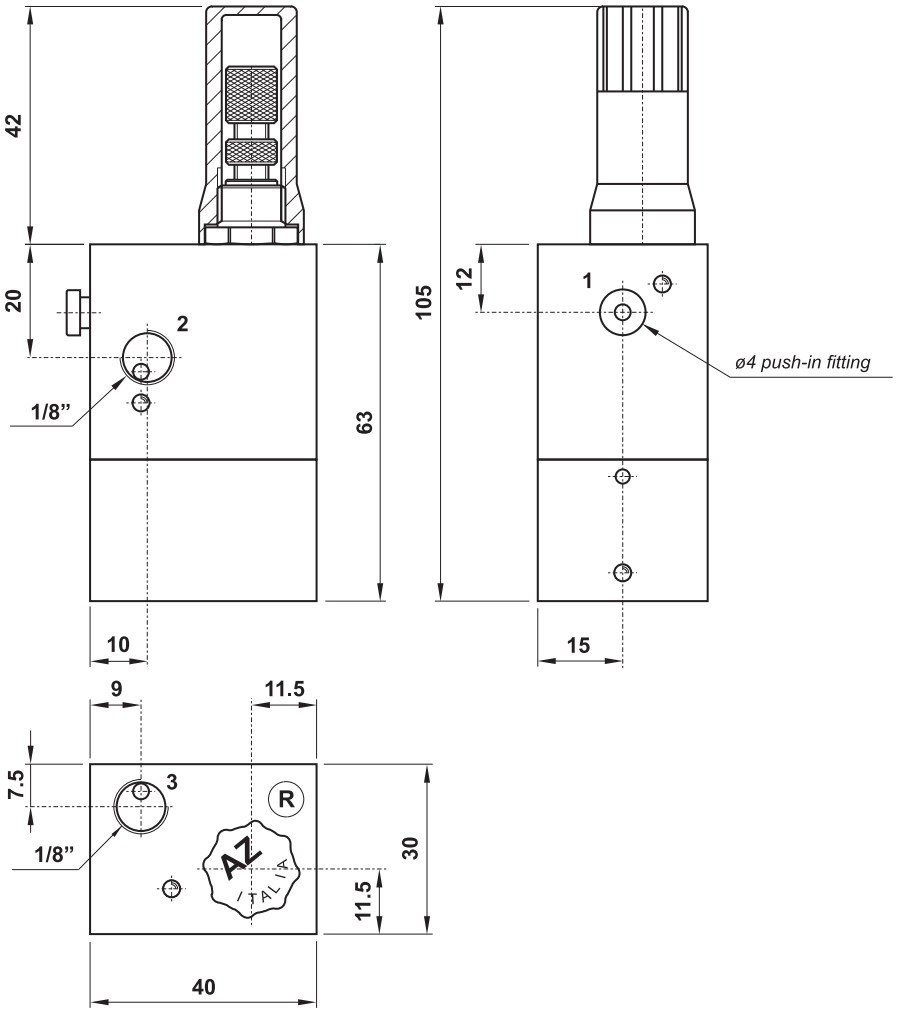
Ports	5/32 '' or ø4 push-in fittings
Operating pressure	2 ... 10 bar (30 ... 145 PSI) 0.2 ... 1 MPa
Temperature range	**-15+60°C (5-140°F)**
Fluid	50μ filtered, lubricated or non lubricated air

Materials
Body: aluminium 11S
Springs: stainless steel
Seals: NBR
Internal parts: brass OT58

Mini oscillating valve 3/2 1/8" NPT

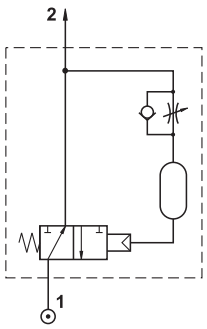
Valve operation

It is a device which, when air is present at port **1**, gives as output impulses with variable frequency.
The frequency can be regulated by the screw **R**.
For a correct operation the minimum main pressure must be 3 bar (43.5 PSI), otherwise the valve can get blocked.



ORDER CODE

USAX.007.4



Ports	5/32'' or ø4 push-in fittings
Working pressure	3 ... 10 bar (43.5 ... 145 PSI) 0.3 ... 1 MPa
Temperature range	-15+60°C (5-140°F)
Time regulation range	0 ... 10 s
Fluid	50μ filtered, lubricated or non lubricated air

Materials
Body: aluminium 11S
Springs: stainless steel
Seals: NBR
Internal parts: brass OT58

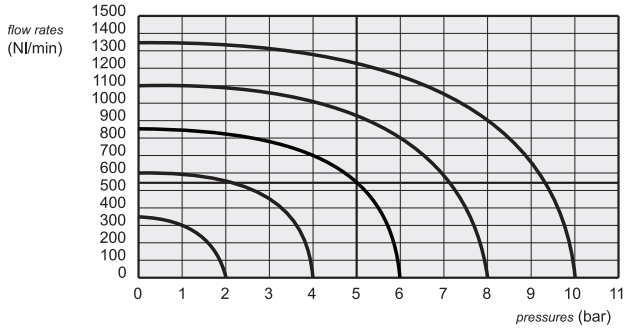
High-flow pneumatic timer for automatic return

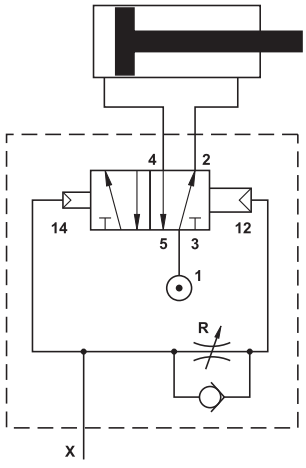
Valve operation

This is a high-flow 5 way valve with a pneumatic timer which allows the automatic return of the valve after a preset time. The time is adjusted by screw (**R**).
When a signal is applied to **X** the valve will stay operated until the time which was set at **R** has elapsed, and then the valve will automatically re-set.
To repeat the cycle the signal must be exhausted and then applied again.
If a momentary signal is applied the valve will operate as a conventional 5 way mono-stable valve without the time delay function. The valve will only operate when pressure signal is applied to **X**.

ORDER CODE

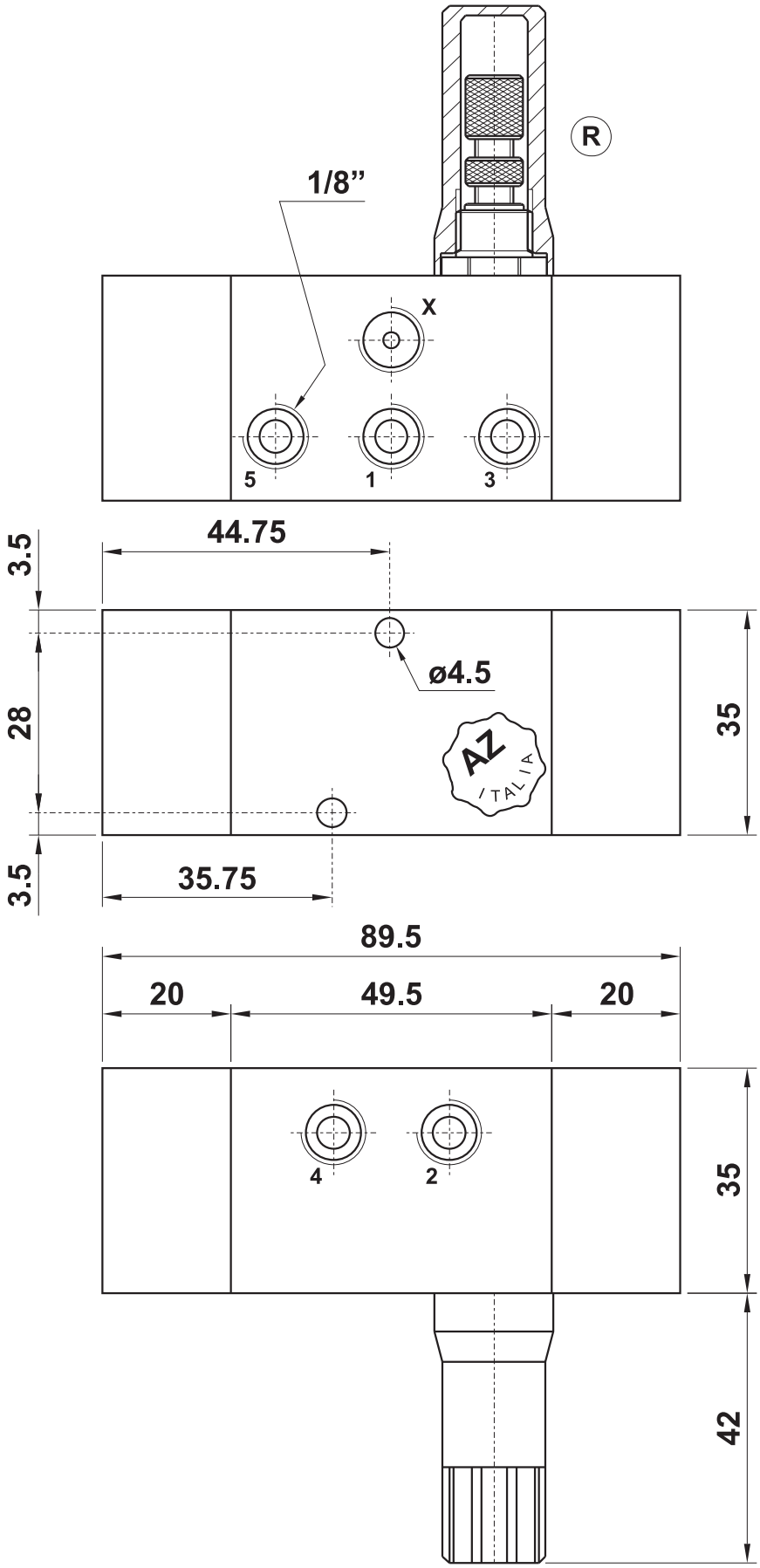
US00.074.4





Ports	1/8" NPT
Working pressure	2 ... 10 bar (30 ... 145 PSI) 0.2 ... 1 MPa
Actuating pressure	3 ... 10 bar (43.5 ... 145 PSI) 0.3 ... 1 MPa
Temperature range	**-15+60°C (5-140°F)**
Time regulation range	0 ... 10 s
Fluid	50μ filtered, lubricated or non lubricated air

Materials
Body: aluminium 11S
Springs: stainless steel
Seals: NBR
Spool: nickel plated aluminium
Internal parts: brass OT58


R
1/8”
X
5
1
3
44.75
3.5
28
3.5
ø4.5
35
35.75
89.5
20
49.5
20
4
2
35
42

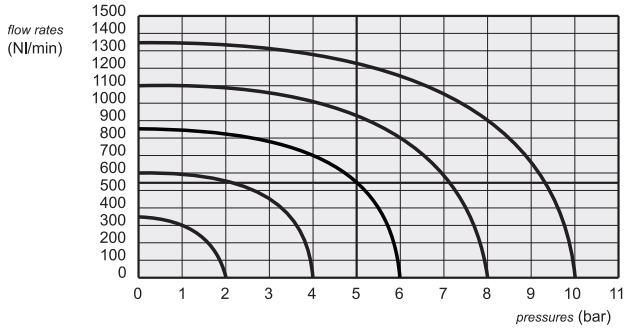
High-flow pneumatic timer for delayed actuation

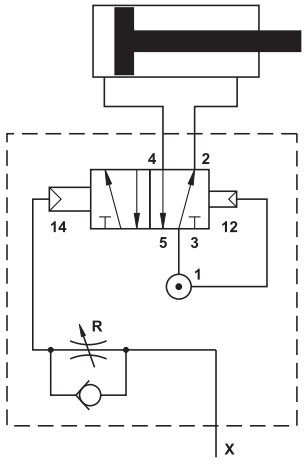
Valve operation

This is a high-flow 5 way valve with a pneumatic timer which delays the effect of the pneumatic pilot after a preset time. The time is adjusted by screw (**R**).
When a signal is applied to **X** the valve will stay in the quiet position until the time which was set at **R** has elapsed, and then the valve will automatically switch to the actuated position.
Then the valve will remain in the actuated position. When the pilot signal stops, the valve returns to the quiet position.
The valve will only operate when pressure signal is applied to **X**.

ORDER CODE

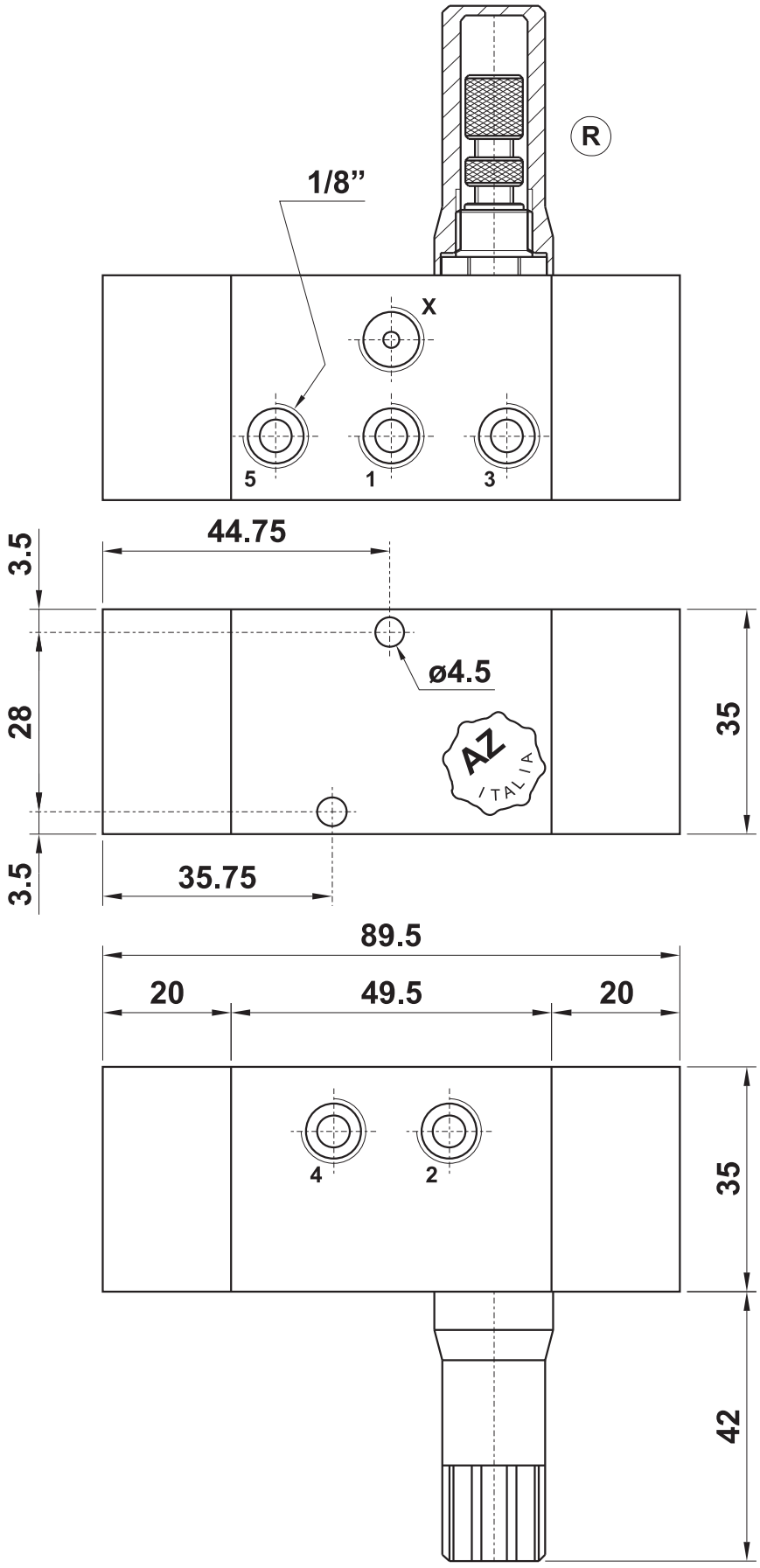
US00.177.4





Ports	1/8" NPT
Operating pressure	2 ... 10 bar (30 ... 145 PSI) 0.2 ... 1 MPa
Actuating pressure	3 ... 10 bar (43.5 ... 145 PSI) 0.3 ... 1 MPa
Temperature range	**-15+60°C (5-140°F)**
Time regulation range	0 ... 10 s
Fluid	50μ filtered, lubricated or non lubricated air

Materials
Body: aluminium 11S
Springs: stainless steel
Seals: NBR
Spool: nickel plated aluminium
Internal parts: brass OT58


R
1/8”
X
5
1
3
44.75
3.5
28
ø4.5
35
AZ
ITALIA
3.5
35.75
89.5
20
49.5
20
4
2
35
42

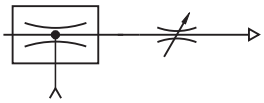
Notes

Chapter V - vacuum generators

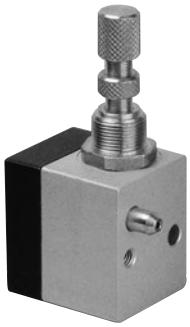
page

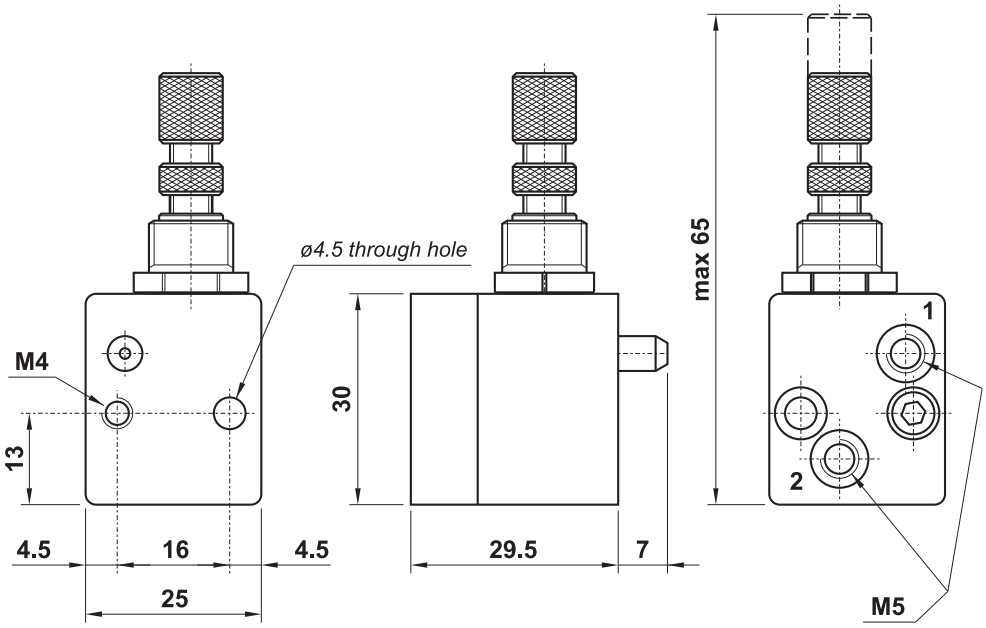
DP 2005 - 03.009.4

vacuum driven liquid sprayer



This valve works on the venturi principial and is primarily used for air driven liquid spraying applications such as conveyor lubrication and sawing machines.





1 = air inlet

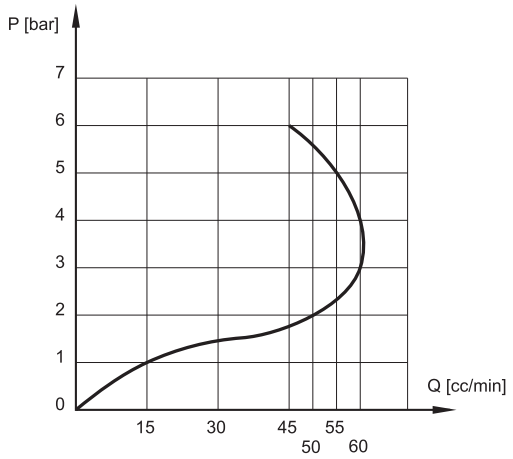
2 = liquid inlet

Air consumption with completely open regulator:
4 bar (58 PSI): 20 Nl/min (0.02 Cv)
5 bar (72 PSI): 27 Nl/min (0.03 Cv)
6 bar (87 PSI): 37 Nl/min (0.04 Cv)

Materials
Body: aluminium 11S
Springs: stainless steel
Seals: NBR
Internal parts: brass OT58

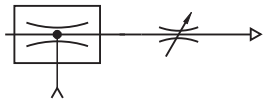
Viscosity of liquid	3°E ... 5°E
Ports	M5
Temperature range	**-15+60°C (5-140°F)**
Operating pressure	3 ... 8 bar (43. 5 ... 116 PSI) 0.3 ... 0.8 MPa
Fluid	50μ filtered, lubricated or non lubricated air

Quantity of liquid in relation to line pressure

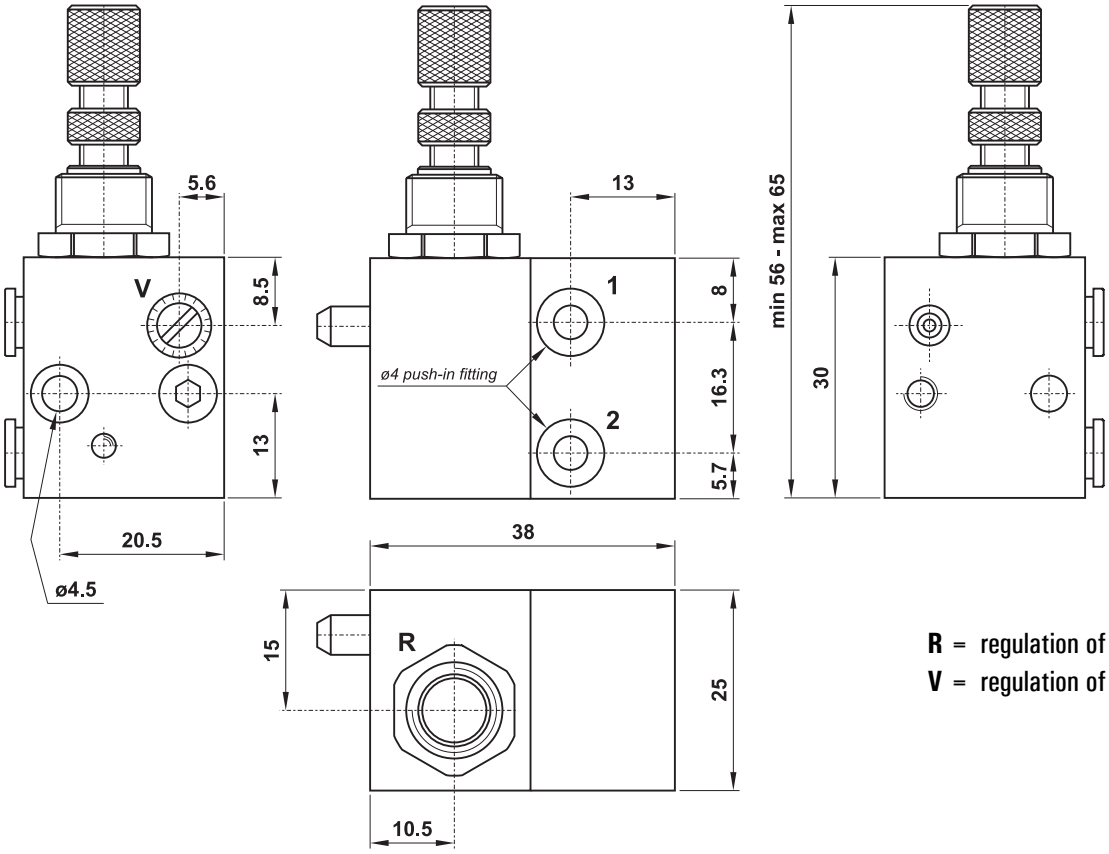


AT.005.4

vacuum driven liquid sprayer with push-in fittings for 5/32'' or ø4 tube



This valve works on the venturi principial and is primarily used for air driven liquid spraying applications such as conveyor lubrication and sawing machines.

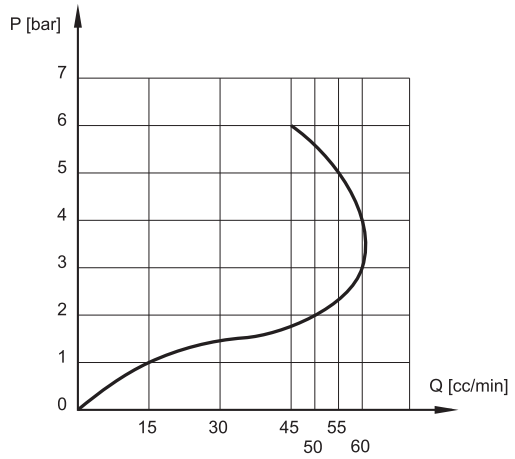


R = regulation of sprayed fluid
V = regulation of inlet air

Materials
Body: aluminium 11S
Springs: stainless steel
Seals: NBR
Internal parts: brass OT58

Viscosity of liquid	3°E ... 5°E
Ports	push-in 5/32'' or ø4
Temperature range	**-15+60°C (5-140°F)**
Working pressure	3 ... 8 bar (43.5 ... 116 PSI) 0.3 ... 0.8 MPa
Fluid	50μ filtered, lubricated or non lubricated air

Quantity of sprayed liquid in relation to line pressure with screw V totally open



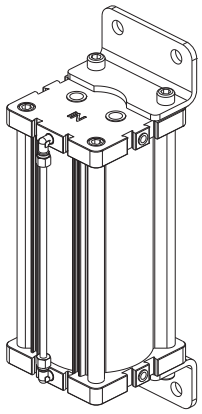
Fluid dispenser

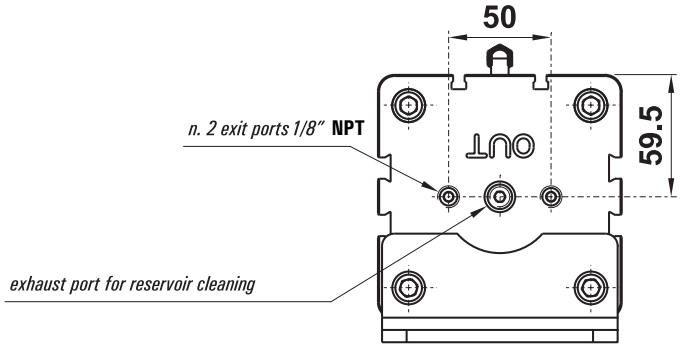
This fluid dispenser, with a volume of 1.6 dm3, can be used with oil at low pressure to feed, for example, the vacuum driven liquid sprayers (refer to pages 379-380). It is possible to top up and clean the dispenser. Vertical installation. Foot mountings included.

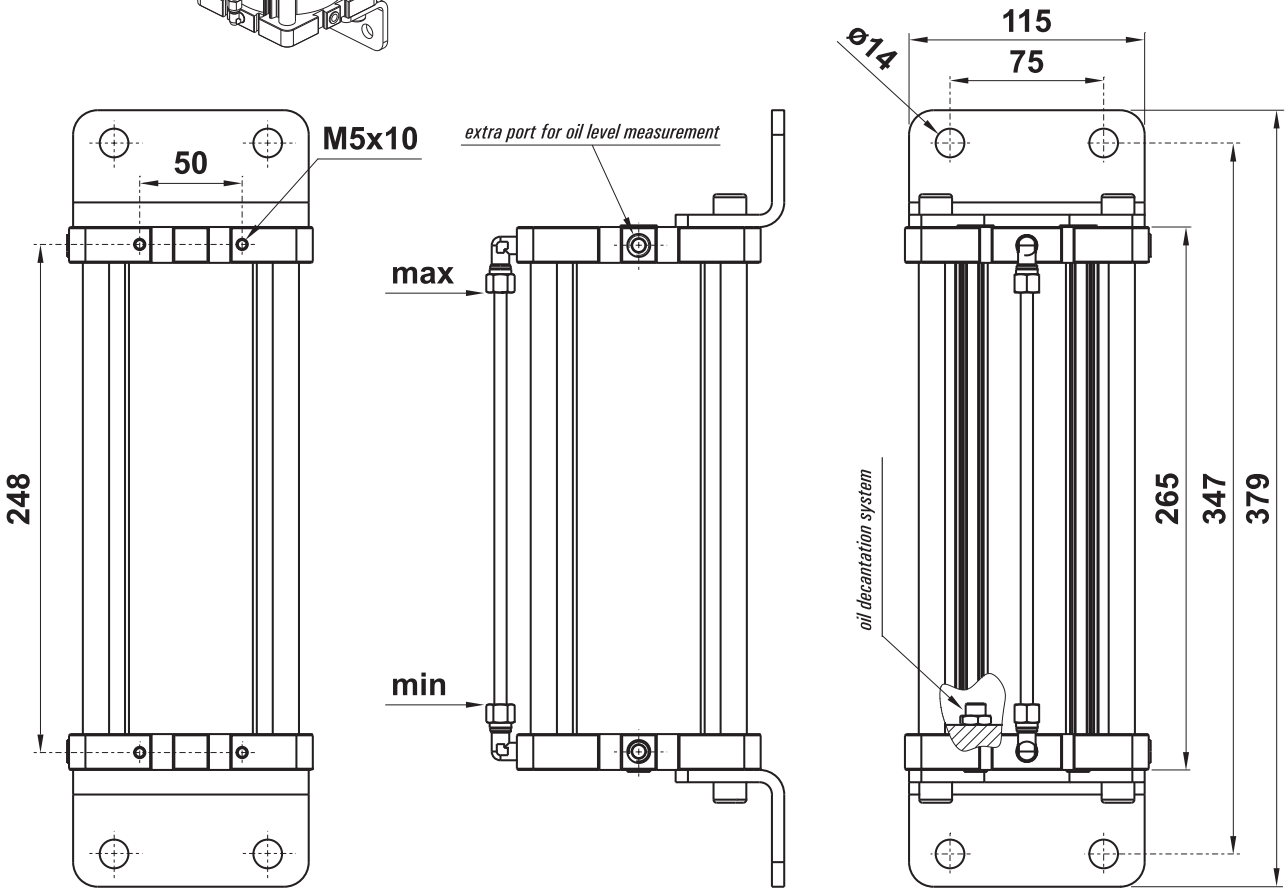
ORDER CODE

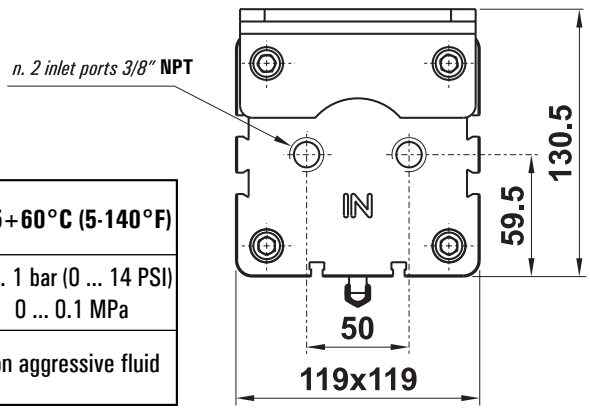
US21.130.4

Materials
Valve body: aluminium
11S Seals: NBR









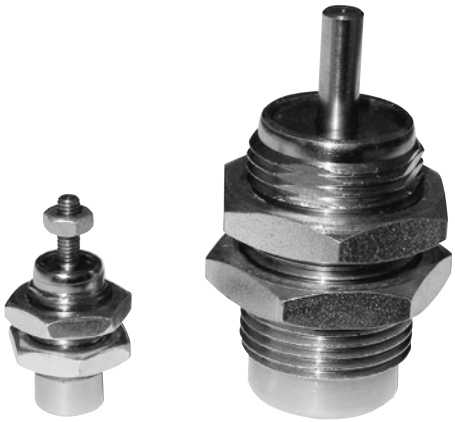
Temperature range	-15+60°C (5-140°F)
Operating pressure	0 ... 1 bar (0 ... 14 PSI) 0 ... 0.1 MPa
Fluid	Hydraulic oil or other non aggressive fluid

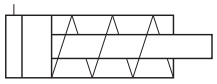
Chapter VI - cylinders and accessories

page

Cartridge Cylinders

- Single acting cylinders with front spring
- Non-magnetic
- Version with threaded or non-threaded piston rod
- High reliability and long lifetime





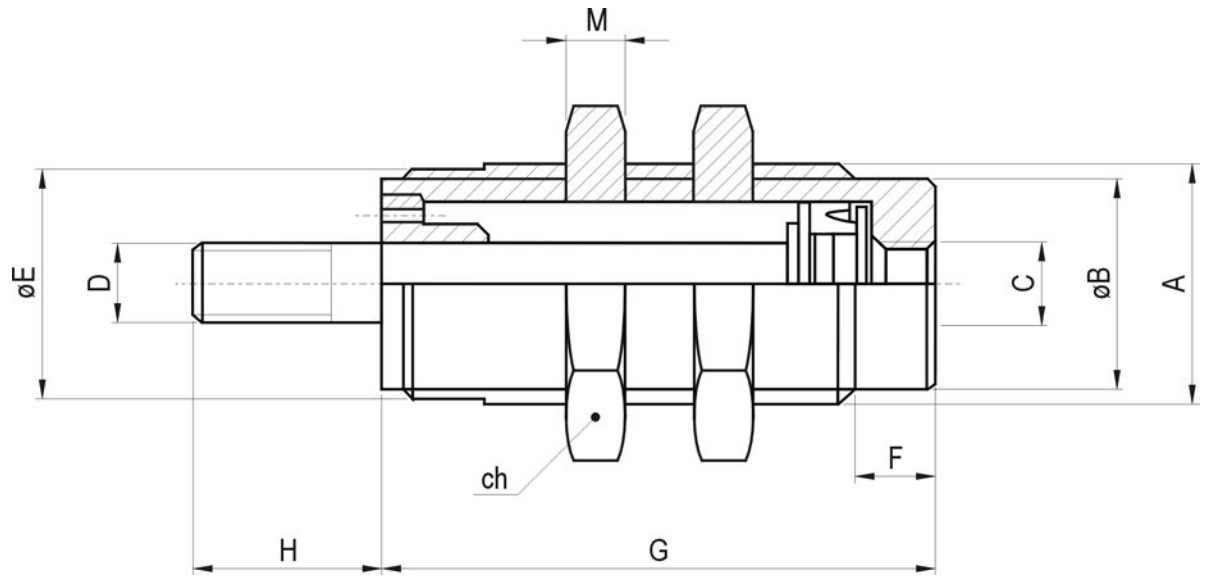
Materials
Barrel: nickel plated brass
Piston-rod: stainless steel
Nuts: zinc coated steel
Seals: polyurethane
Spring: steel

WARNING

- Avoid side loads on piston rod

- Do not load the piston rod during the spring retraction

Operating pressure	2 ... 7 bar (30 ... 101 PSI) 0.2 ... 0.7 MPa
Temperature range	**-15**+**60**°C (**5**-**140**° F)
Bores	6; 10; 16 mm
Strokes	5; 10; 15 mm
Fluid	50μ filtered, lubricated or non lubricated air



bore	A	B	C	D		øE	F	H	M	ch	G		
				threaded piston rod	non-threaded piston rod						cylinder stroke		
											5	10	15
6	M10x1	8.5	M5	M3	ø3	9	5	8	3	14	19.5	25.5	32.5
10	M15x1.5	13	M5	M4	ø5	14	5	11.5	4	19	20.5	27	34
16	M22x1.5	19	M5	M5	ø5	20	6	14	5	27	23.5	29.5	36

FORCES at 6 bar (87 PSI)

bore	press force	return spring force	
		stroke 0	stroke end
6	12 N	1.2 N	3.8 N
10	35 N	2.7 N	7.3 N
16	101 N	3.3 N	6.6 N

WEIGHTS

bore	cylinder stroke		
	5	10	15
6	10 g	13 g	15 g
10	27 g	32 g	36 g
16	71 g	78 g	87 g

ORDER CODES

cylinders with threaded piston rod			
bore	stroke		
	5	10	15
6	20.100.4	20.101.4	20.102.4
10	20.103.4	20.104.4	20.105.4
16	20.106.4	20.107.4	20.108.4

cylinders with non-threaded piston rod			
bore	stroke		
	5	10	15
6	20.109.4	20.110.4	20.111.4
10	20.112.4	20.113.4	20.114.4
16	20.115.4	20.116.4	20.117.4

Minicylinders ISO 6432

- Compliant to norm ISO 6432
- High reliability and long lifetime
- Magnetic or non-magnetic double acting version
- Non-magnetic single acting version
- Special versions on request

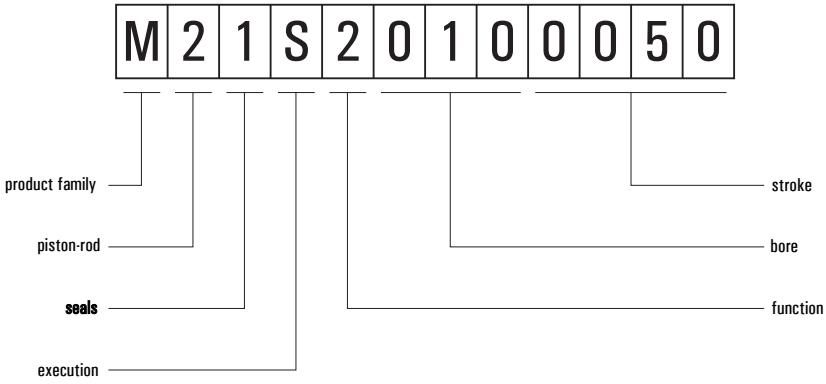
Materials
Barrel: stainless steel
Piston-rod: stainless steel
End-cups: aluminium (anodize treatment)
Seals: NBR or VITON
Magnet: magnetic iron compound (not suitable for temperatures over +60°C)

Return spring forces for single acting cylinders

bore	return spring force			spring status
	stroke 10	stroke 25	stroke 50	
10	4.1 N	3.5 N	2.6 N	at rest
	4.5 N	4.5 N	4.5 N	compressed
12	5.5 N	4.8 N	3.5 N	at rest
	6 N	6 N	6 N	compressed
16	16.5 N	13.7 N	9 N	at rest
	18.3 N	18.3 N	18.3 N	compressed
20	19 N	15.5 N	9.5 N	at rest
	21.5 N	21.5 N	21.5 N	compressed
25	27 N	24 N	13.5 N	at rest
	29 N	29 N	29 N	compressed

Operating pressure	max 10 bar (145 PSI) max 1 MPa
Temperature range	**-15+60°C (5-140° F)**
Bores	10; 12; 16; 20; 25 mm
Strokes	10 ... 320 mm
Mechanical cushioning	Standard on the whole range
Pneumatic cushioning	Available for bore 20 and 25
Fluid	50μ filtered, lubricated or non lubricated air

coding example



Product family
M minicylinders ISO 6432

Piston-rod
2 stainless steel

Seals
1 NBR
2 VITON

Execution
S non-magnetic
M magnetic
A non-magnetic with rod lock adaptor
B magnetic with rod lock adaptor

Function
1 single acting front spring without pneumatic cushioning

2 double acting without pneumatic cushioning

3 double acting with pneumatic cushioning

4 double acting without pneumatic cushioning, with through-rod

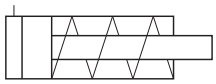
5 double acting with pneumatic cushioning and through-rod

6 single acting back spring without pneumatic cushioning

available versions

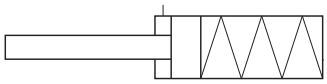
single acting front spring non-magnetic without pneumatic cushioning

stroke \ bore	10	12	16	20	25
10	X	X	X	X	X
25	X	X	X	X	X
50	X	X	X	X	X



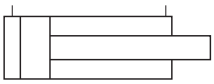
single acting back spring non-magnetic without pneumatic cushioning

stroke \ bore	10	12	16	20	25
10			X	X	X
25			X	X	X
50			X	X	X



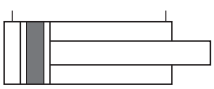
double acting non-magnetic without pneumatic cushioning

stroke \ bore	10	12	16	20	25
10	X	X	X	X	X
25	X	X	X	X	X
50	X	X	X	X	X
80	X	X	X	X	X
100	X	X	X	X	X
125	X	X	X	X	X
160	X	X	X	X	X
200	X	X	X	X	X
250			X	X	X
320			X	X	X



double acting magnetic without pneumatic cushioning

stroke \ bore	10	12	16	20	25
10	X	X	X	X	X
25	X	X	X	X	X
50	X	X	X	X	X
80	X	X	X	X	X
100	X	X	X	X	X
125	X	X	X	X	X
160	X	X	X	X	X
200	X	X	X	X	X
250			X	X	X
320			X	X	X



OPTIONS

The standard is marked with grey background

piston-rod material	
stainless steel	
seals material	
NBR	VITON

rod lock adaptor

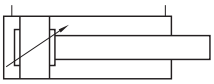
not available for bore 10

available versions

double acting

non-magnetic

with pneumatic cushioning



stroke \ bore	10	12	16	20	25
10					
25				X	X
50				X	X
80				X	X
100				X	X
125				X	X
160				X	X
200				X	X
250				X	X
320				X	X

OPTIONS

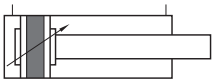
The standard is marked with grey background

piston-rod material	
stainless steel	
seals material	
NBR	VITON
rod lock adaptor	

double acting

magnetic

with pneumatic cushioning



stroke \ bore	10	12	16	20	25
10					
25				X	X
50				X	X
80				X	X
100				X	X
125				X	X
160				X	X
200				X	X
250				X	X
320				X	X

OPTIONS

The standard is marked with grey background

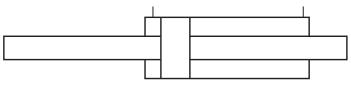
piston-rod material	
stainless steel	
seals material	
NBR	VITON
rod lock adaptor	

double acting

non-magnetic

without pneumatic cushioning

through-rod



stroke \ bore	10	12	16	20	25
10			X	X	X
25			X	X	X
50			X	X	X
80			X	X	X
100			X	X	X
125			X	X	X
160			X	X	X
200			X	X	X
250			X	X	X
320			X	X	X

OPTIONS

The standard is marked with grey background

piston-rod material	
stainless steel	
seals material	
NBR	VITON
rod lock adaptor	

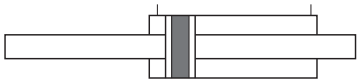
available versions

double acting

magnetic

without pneumatic cushioning

through-rod



stroke \ bore	10	12	16	20	25
10			X	X	X
25			X	X	X
50			X	X	X
80			X	X	X
100			X	X	X
125			X	X	X
160			X	X	X
200			X	X	X
250			X	X	X
320			X	X	X

OPTIONS

The standard is marked with grey background

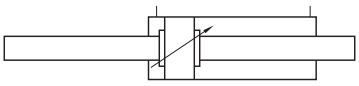
piston-rod material	
stainless steel	
seals material	
NBR	VITON
rod lock adaptor	

double acting

non-magnetic

with pneumatic cushioning

through-rod



stroke \ bore	10	12	16	20	25
10					
25				X	X
50				X	X
80				X	X
100				X	X
125				X	X
160				X	X
200				X	X
250				X	X
320				X	X

OPTIONS

The standard is marked with grey background

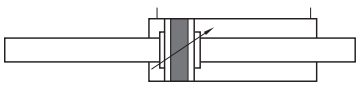
piston-rod material	
stainless steel	
seals material	
NBR	VITON
rod lock adaptor	

double acting

magnetic

with pneumatic cushioning

through-rod

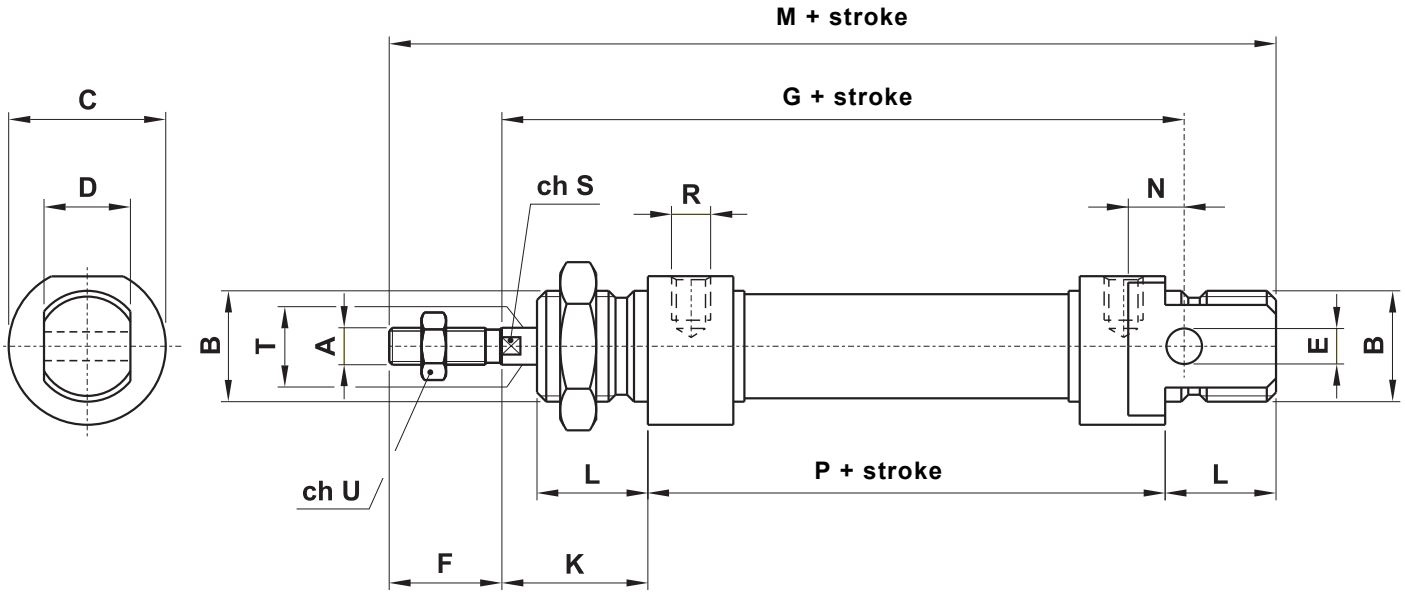


stroke \ bore	10	12	16	20	25
10					
25				X	X
50				X	X
80				X	X
100				X	X
125				X	X
160				X	X
200				X	X
250				X	X
320				X	X

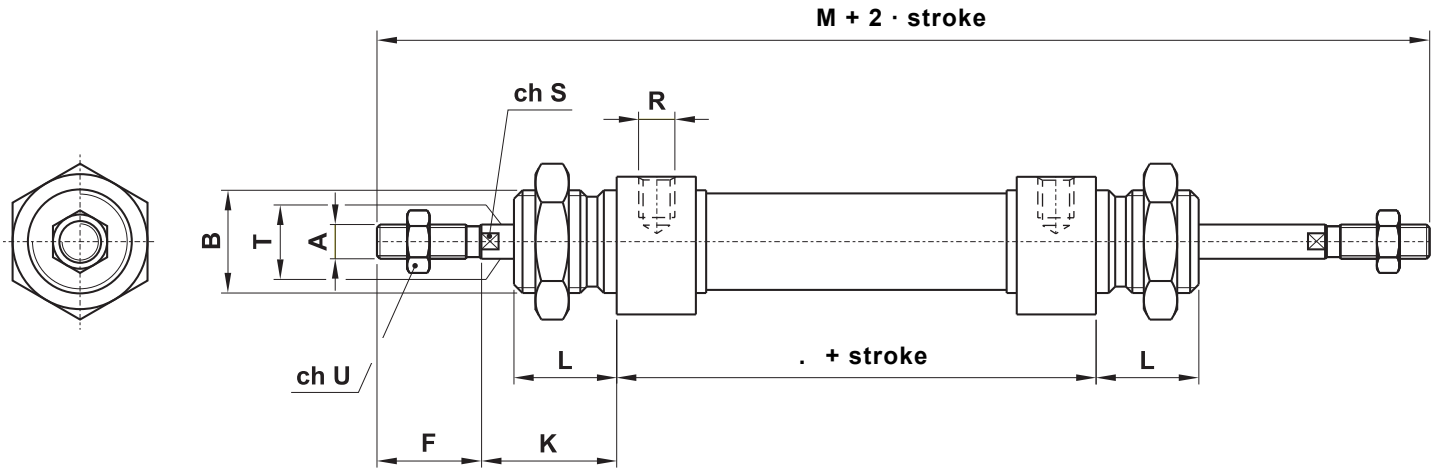
OPTIONS

The standard is marked with grey background

piston-rod material	
stainless steel	
seals material	
NBR	VITON
rod lock adaptor	

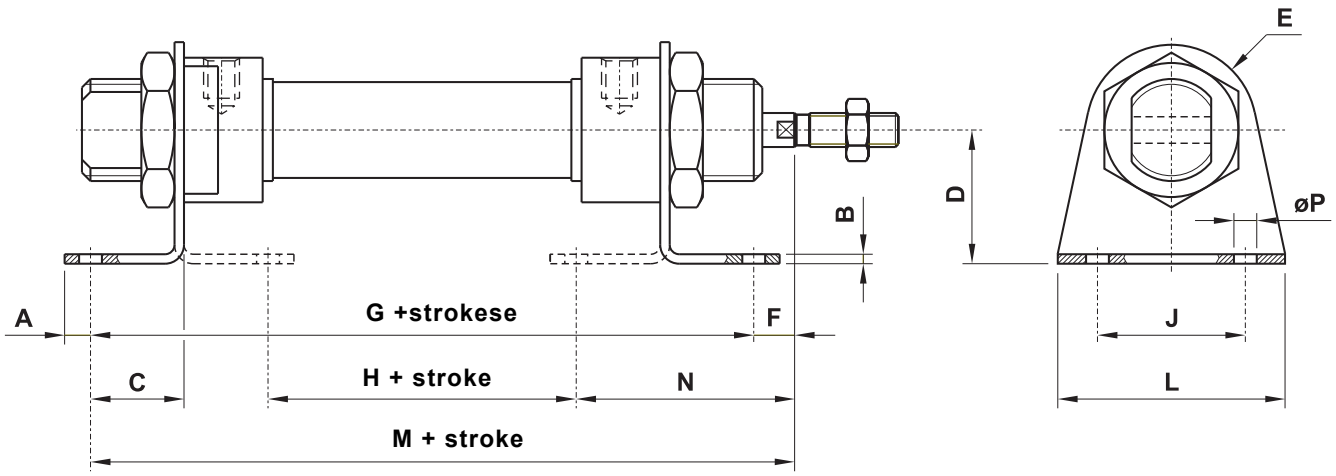


ø	A	B	C	D	E	F	G	K	L	M	N	P	R	S	T	U
10	M4	M12x1.25	ø16	8	ø4	12	64	16	12	86	6	46	M5	-	ø4	7
12	M6	M16x1.5	ø19	12	ø6	16	75	22	18	104	9	48	M5	5	ø6	10
16	M6	M16x1.5	ø19	12	ø6	16	82	22	18	109	9	53	M5	5	ø6	10
20	M8	M22x1.5	ø27	16	ø8	20	95	24	20	131	12	67	G1/8"	7	ø8	13
25	M10x1.25	M22x1.5	ø30	16	ø8	22	104	28	22	140	12	68	G1/8"	9	ø10	17



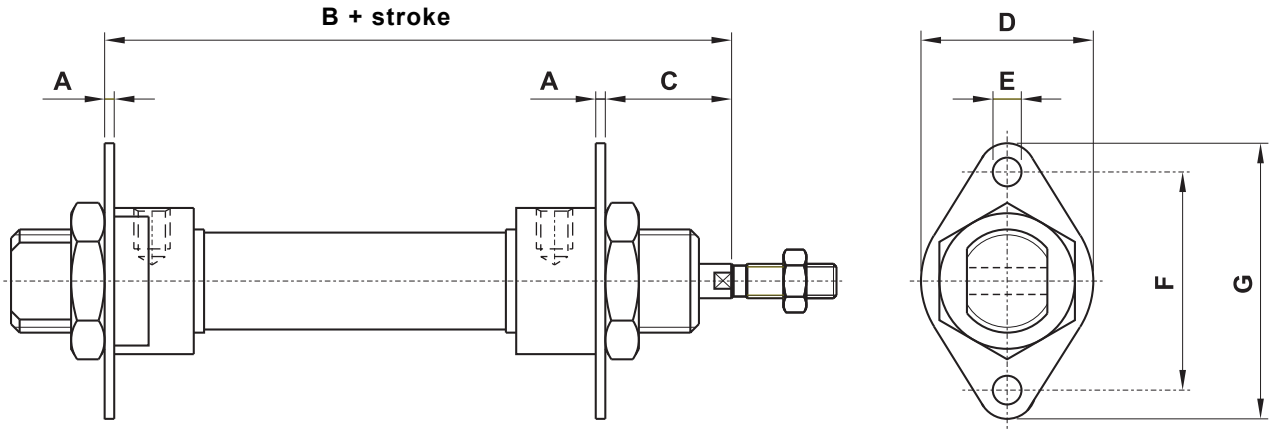
ø	A	B	F	K	L	M	P	R	S	T	U
16	M6	M16x1.5	16	22	18	129	53	M5	5	ø6	10
20	M8	M22x1.5	20	24	20	155	67	G1/8"	7	ø8	13
25	M10x1.25	M22x1.5	22	28	22	168	68	G1/8"	9	ø10	17

FOOT MOUNTING



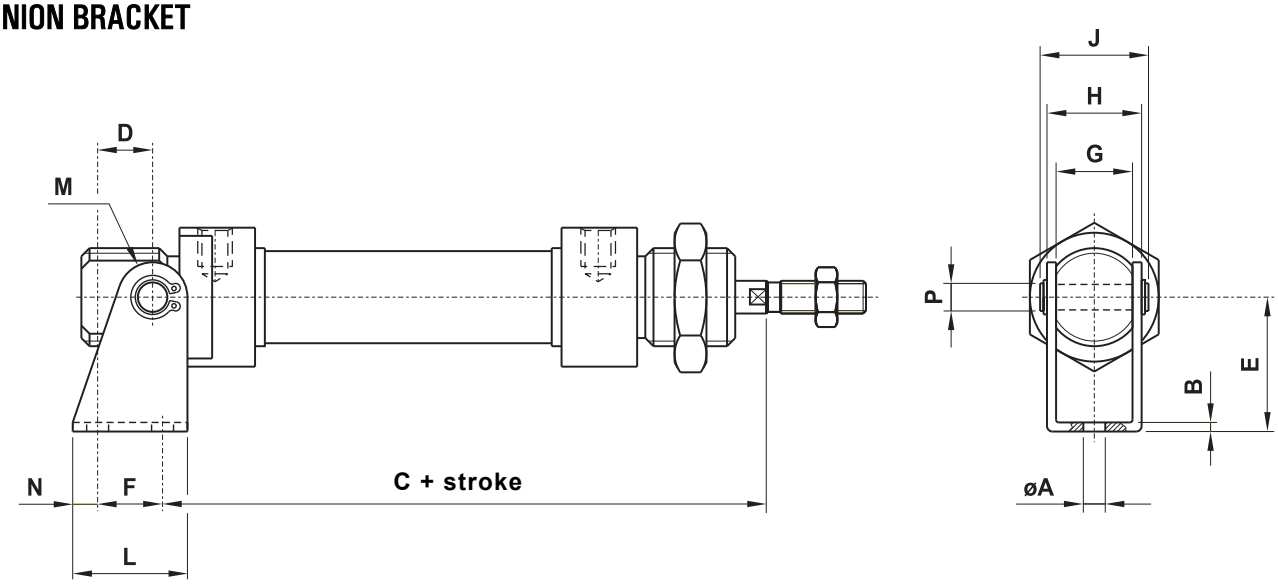
ø	A	B	C	D	E	F	G	H	J	L	M	N	P
10	5	3	11	16	10	5	68	30	25	32	73	24	4.5
12	6	4	14	20	12.5	8	76	28	32	42	84	32	5.5
16	6	4	14	20	12.5	8	81	33	32	42	89	32	5.5
20	8	5	17	25	20	7	101	43	40	54	108	36	6.6
25	8	5	17	25	20	11	102	44	40	54	113	40	6.6

FLANGE



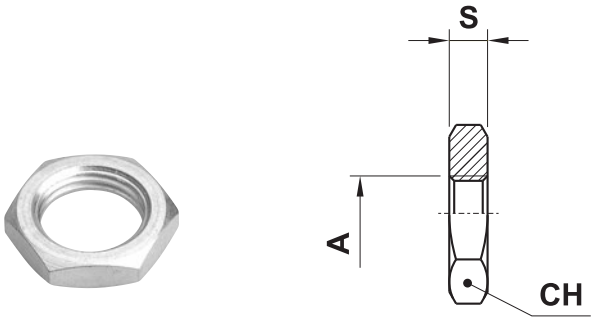
ø	A	B	C	D	E	F	G
10	3	65	13	22	ø4.5	30	40
12	4	74	18	30	ø5.5	40	52
16	4	79	18	30	ø5.5	40	52
20	5	96	19	40	ø6.6	50	66
25	5	101	23	40	ø6.6	50	66

TRUNNION BRACKET



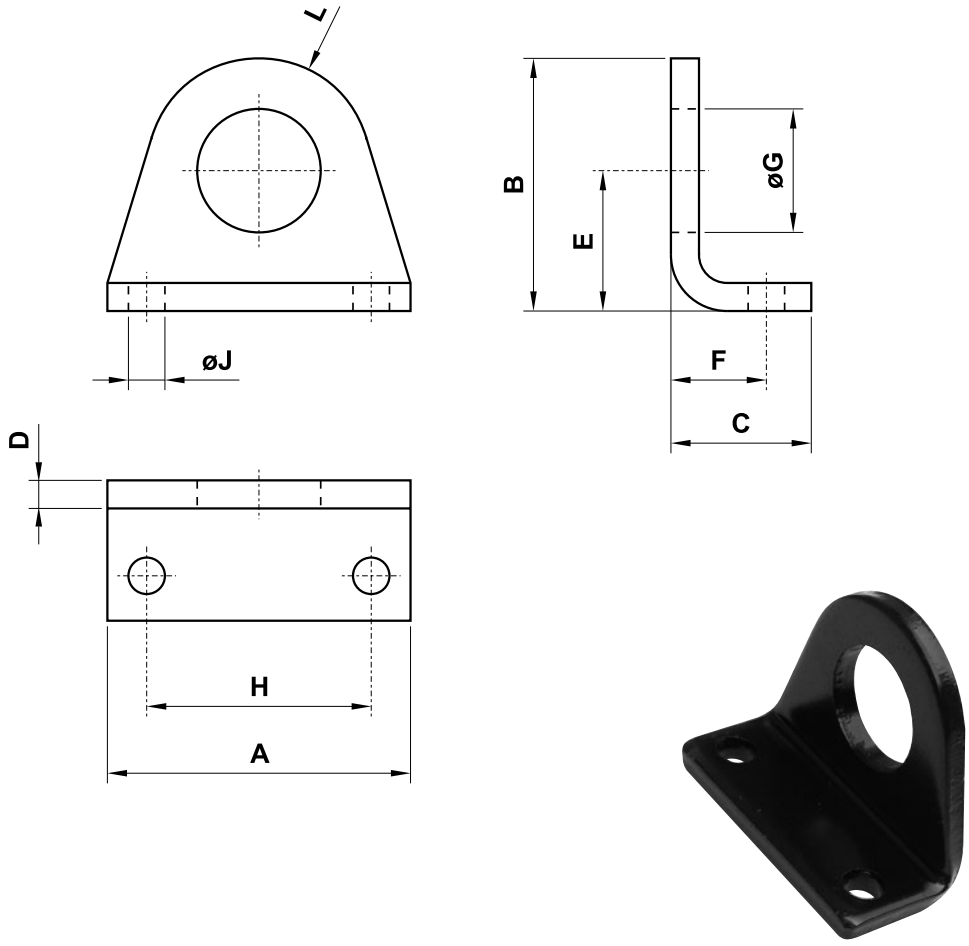
ø	A	B	C	D	E	F	G	H	J	L	M	N	P
10	4.5	2.5	62.5	12.25	24	12.5	8.1	13	17	20	5	4.75	ø4
12	5.5	3	73	13	27	15	12.1	18	23	25	7	5	ø6
16	5.5	3	80	13	27	15	12.1	18	23	25	7	5	ø6
20	6.6	4	91	16	30	20	16.1	24	29.5	32	10	6	ø8
25	6.6	4	100	16	30	20	16.1	24	29.5	32	10	6	ø8

NUT FOR CYLINDER HEAD



part number	for bore	A	CH	S
GPM010	10	M12x1.25	19	7
GPM12-16	12-16	M16x1.5	22	6
GPM20-25	20-25	M22x1.5	27	8

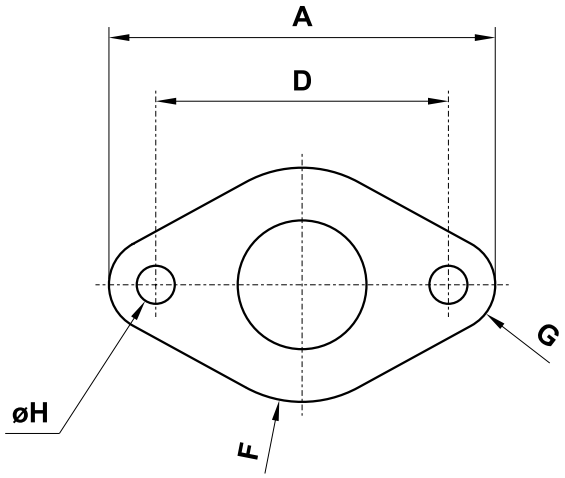
FOOT MOUNTING



part number*	for bore	A	B	C	D	E	F	G	H	J	L
PDMC08-10	8-10	35	26	16	3	16	11	12	25	4.5	10
PDMC12-16	12-16	42	32.5	20	4	20	14	16	32	5.5	12.5
PDMC20-25	20-25	54	45	25	5	25	17	22	40	6.6	20

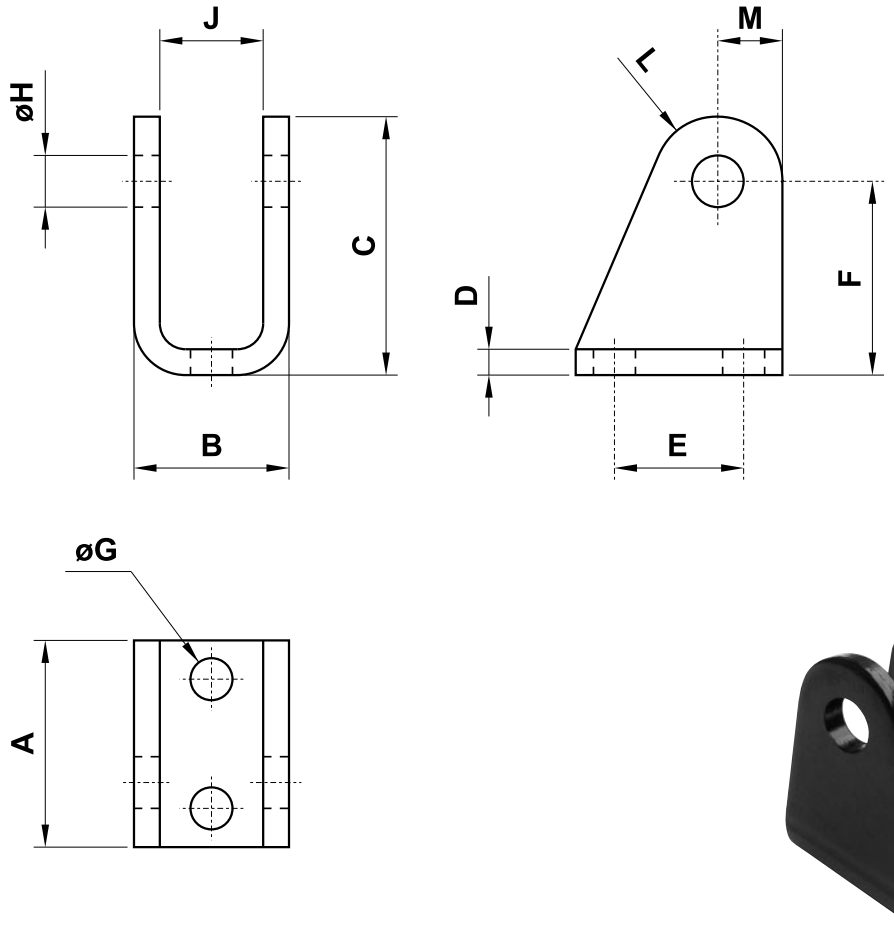
* Part number refers to a single element, not to the couple

FLANGE



part number	for bore	A	B	C	D	E	F	G	H
FLMC08-10	8-10	40	22	3	30	12	11	5	4.5
FLMC12-16	12-16	52	30	4	40	16	15	6	5.5
FLMC20-25	20-25	66	40	5	50	22	20	8	6.6

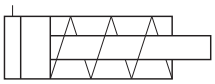
TRUNNION BRACKET



part number	for bore	A	B	C	D	E	F	G	H	J	L	M
CCMC08-10	8-10	20	13	29	2.5	12.5	24	4.5	4	8.1	5	5
CCMC12-16	12-16	25	18	34	3	15	27	5.5	6	12.1	7	7
CCMC20-25	20-25	32	24	40	4	20	30	6.6	8	16.1	10	10

Clamping cylinders

- Single acting front spring cylinders, anti-rotation
- Non magnetic
- Very good cylinders to clamp the pieces in sawing machines for aluminium or wood

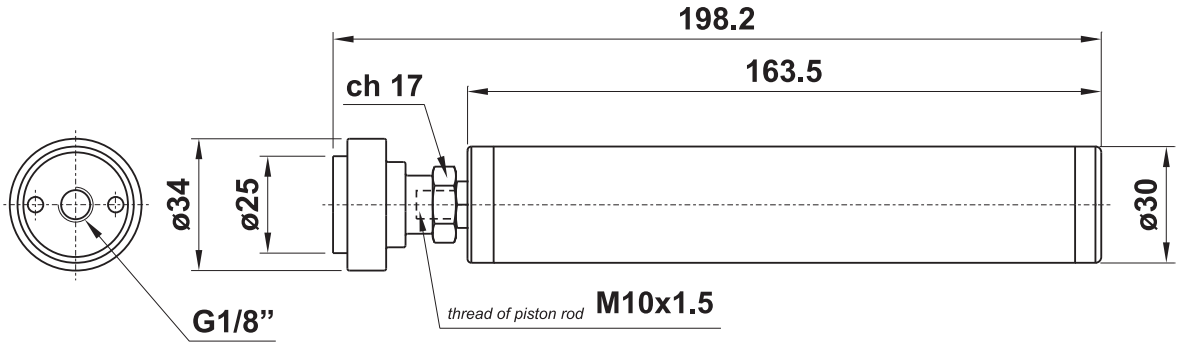


model	internal bore	stroke	execution
17.066.0	25 mm	8 mm	with pushing pad
17.062.0	25 mm	75 mm	with pushing pad
17.067.0	25 mm	110 mm	with pushing pad
17.068.0	35 mm	8 mm	with pushing pad
17.060.0	35 mm	75 mm	with pushing pad
17.061.0	35 mm	110 mm	with pushing pad
17.069.0	35 mm	75 mm	with pushing pad and threaded front end cap

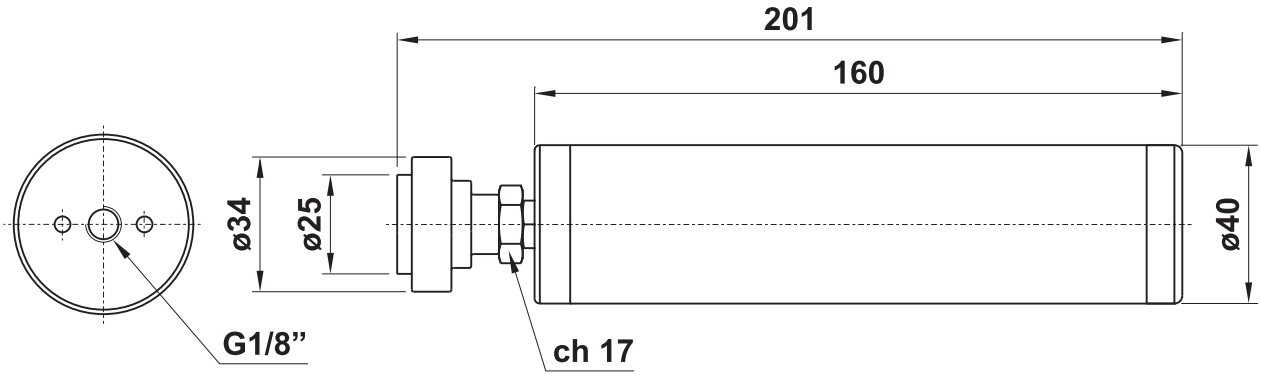
Materials
Body: aluminium (anodize treatment)
Piston-rod: zinc plated AVP iron
Seals: NBR and polyurethane

Operating pressure	2 ... 10 bar (30 ... 145 PSI) 0.2 ... 1 MPa
Temperature range	**-15+60°C (5-140° F)**
Internal bores	25; 35 mm
Strokes	8; 75; 110 mm
Fluid	50μ filtered, lubricated or non lubricated air

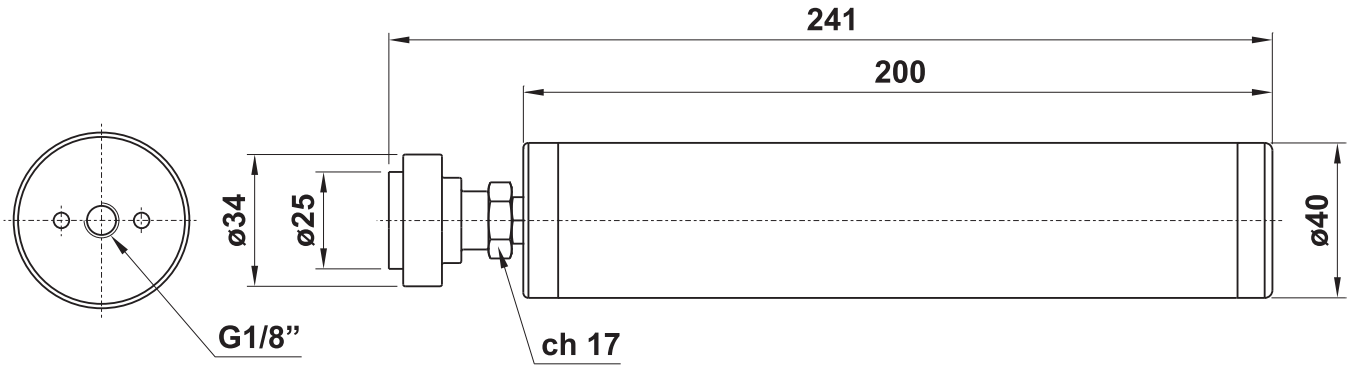
internal bore 25 mm; all strokes



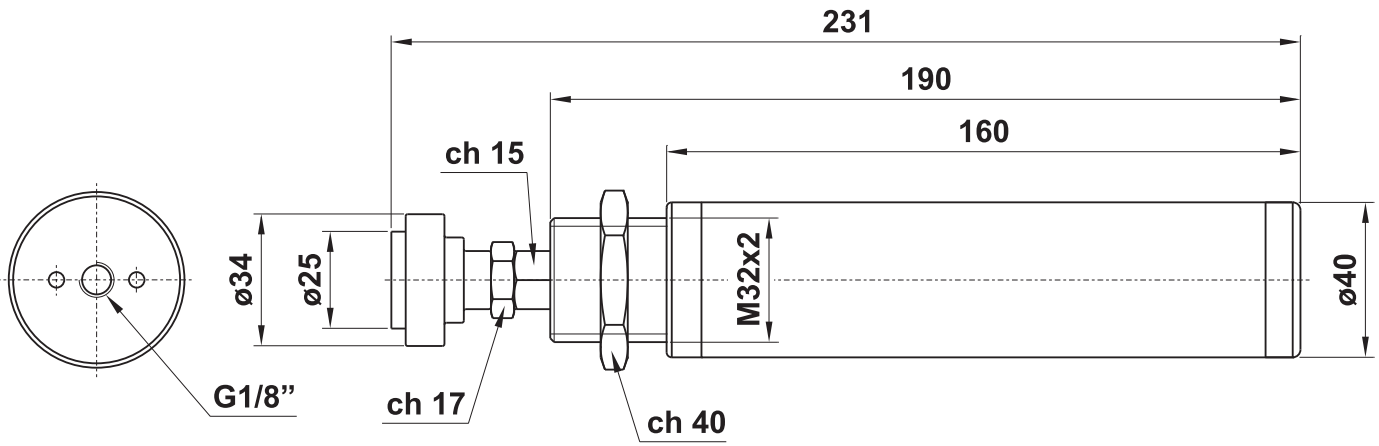
internal bore 35 mm; stroke 8 mm and 75 mm



internal bore 35 mm; stroke 110 mm

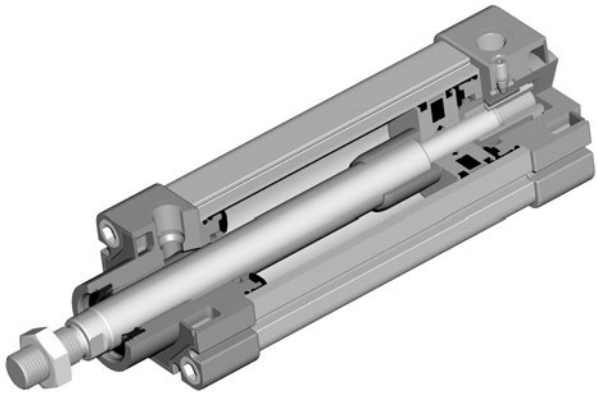


internal bore 35 mm; stroke 75 mm; threaded front end cup



Cylinders ISO 6431 VDMA

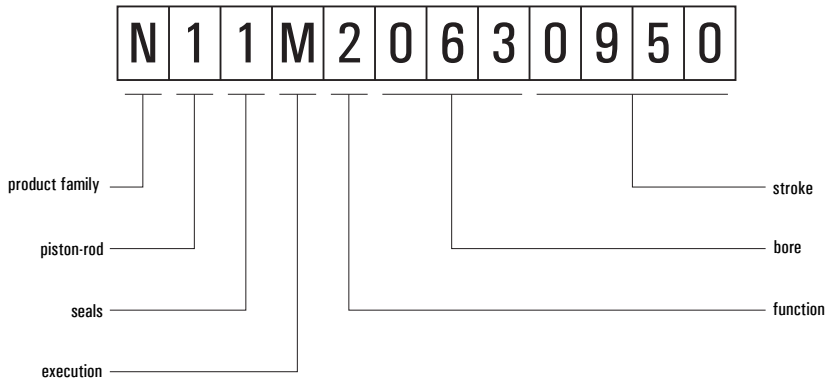
- Compliant to norm ISO 6431 VDMA
- High reliability and long lifetime
- Standard magnetic version
- With square profile (N series) or “easy” profile (E series)
- Special versions and strokes on request



Materials
Barrel: aluminium
Piston-rod: C45 (chromium plated) or stainless steel
End-cups: aluminium
Piston: technopolymer (standard) or aluminium (on request) - see table on next page
Seals: polyurethane or VITON
Piston-rod seals: polyurethane or VITON
Magnet: magnetic iron compound (not suitable for temperatures over +60°C)

Operating pressure	max 10 bar (145 PSI) max 1 MPa
Temperature range	standard (poliuretano/NBR): **-15+60°C (5-140° F)** VITON: max +110°C (230° F)
Bores	32; 40; 50; 63; 80; 100; 125; 160; 200; 250; 320 mm
Construction type	ø32 ... 125 : square aluminium profile
	ø160-320 : round profile with tie-rods
Strokes	standard: 25 ... 1000 mm; on request up to 3000 mm
Pneumatic cushoning	Standard on the whole range
Fluid	50μ filtered, lubricated or non lubricated air

coding example



Product family
N cylinders ISO 6431 ø32 ... 320 ***Standard Profile***
E cylinders ISO 6431 ø32 ... 125 ***Easy Profile***
K cylinders ISO 6431 ø32 ... 125 ***Tubes & Tirods***

Piston-rod
1 C45 chromium plated
2 stainless steel

Seals
1 polyurethane
2 all seals in VITON
3 rod seals in VITON

Execution
M magnetic
B magnetic with rod lock adaptor

Function
2 double acting with pneumatic cushioning

4 double acting with pneumatic cushioning, with through-rod

bore	maximum stroke (mm)
32	350
40	350
50	500
63	500
80	500
100	350
125	only aluminium
160	only aluminium
200	only aluminium
250	only aluminium
320	only aluminium

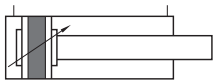
Maximum stroke for cylinders with standard piston in technopolymer. If the stroke is longer, the cylinder can be supplied only with piston in aluminium. The piston in technopolymer is not suitable for ATEX.

available versions

double acting

magnetic

with pneumatic cushioning



stroke \ bore	32	40	50	63	80	100	125	160	200	250 (**)	320 (**)
25	X	X	X	X	X	X	X				
50	X	X	X	X	X	X	X	X	X	X	X
75	X	X	X	X	X	X	X				
80	X	X	X	X	X	X	X	X	X		
100	X	X	X	X	X	X	X	X	X	X	X
125	X	X	X	X	X	X	X				
150	X	X	X	X	X	X	X	X	X		
160	X	X	X	X	X	X	X	X	X		
200	X	X	X	X	X	X	X	X	X	X	X
250	X	X	X	X	X	X	X	X	X		
300	X	X	X	X	X	X	X	X	X	X	X
320	X	X	X	X	X	X	X	X	X		
350	X	X	X	X	X	X	X				
400	X	X	X	X	X	X	X	X	X	X	X
450	X	X	X	X	X	X	X				
500	X	X	X	X	X	X	X	X	X	X	X
550	X	X	X	X	X	X	X				
600	X	X	X	X	X	X	X	X	X	X	X
650	X	X	X	X	X	X	X				
700	X	X	X	X	X	X	X	X	X	X	X
750	X	X	X	X	X	X	X				
800	X	X	X	X	X	X	X	X	X	X	X
850	X	X	X	X	X	X	X				
900	X	X	X	X	X	X	X	X	X	X	X
950	X	X	X	X	X	X	X				
1000	X	X	X	X	X	X	X	X	X	X	X

OPTIONS

The standard is marked with grey background

piston-rod material	
C45 chromium plated	stainless steel

seals material		
polyuret.	all seals in VITON	rod seals in VITON

rod lock adaptor

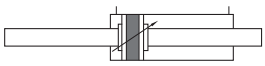
not available for bores 160-320

double acting

magnetic

with pneumatic cushioning

through-rod



stroke \ bore	32	40	50	63	80	100	125	160	200	250	320
25	X	X	X	X	X	X	X				
50	X	X	X	X	X	X	X	X	X		
75	X	X	X	X	X	X	X				
80	X	X	X	X	X	X	X	X	X		
100	X	X	X	X	X	X	X	X	X		
125	X	X	X	X	X	X	X				
150	X	X	X	X	X	X	X	X	X		
160	X	X	X	X	X	X	X	X	X		
200	X	X	X	X	X	X	X	X	X		
250	X	X	X	X	X	X	X	X	X		
300	X	X	X	X	X	X	X	X	X		
320	X	X	X	X	X	X	X	X	X		
350	X	X	X	X	X	X	X				
400	X	X	X	X	X	X	X	X	X		
450	X	X	X	X	X	X	X				
500	X	X	X	X	X	X	X	X	X		
550	X	X	X	X	X	X	X				
600	X	X	X	X	X	X	X	X	X		
650	X	X	X	X	X	X	X				
700	X	X	X	X	X	X	X	X	X		
750	X	X	X	X	X	X	X				
800	X	X	X	X	X	X	X	X	X		
850	X	X	X	X	X	X	X				
900	X	X	X	X	X	X	X	X	X		
950	X	X	X	X	X	X	X				
1000	X	X	X	X	X	X	X	X	X		

OPTIONS

The standard is marked with grey background

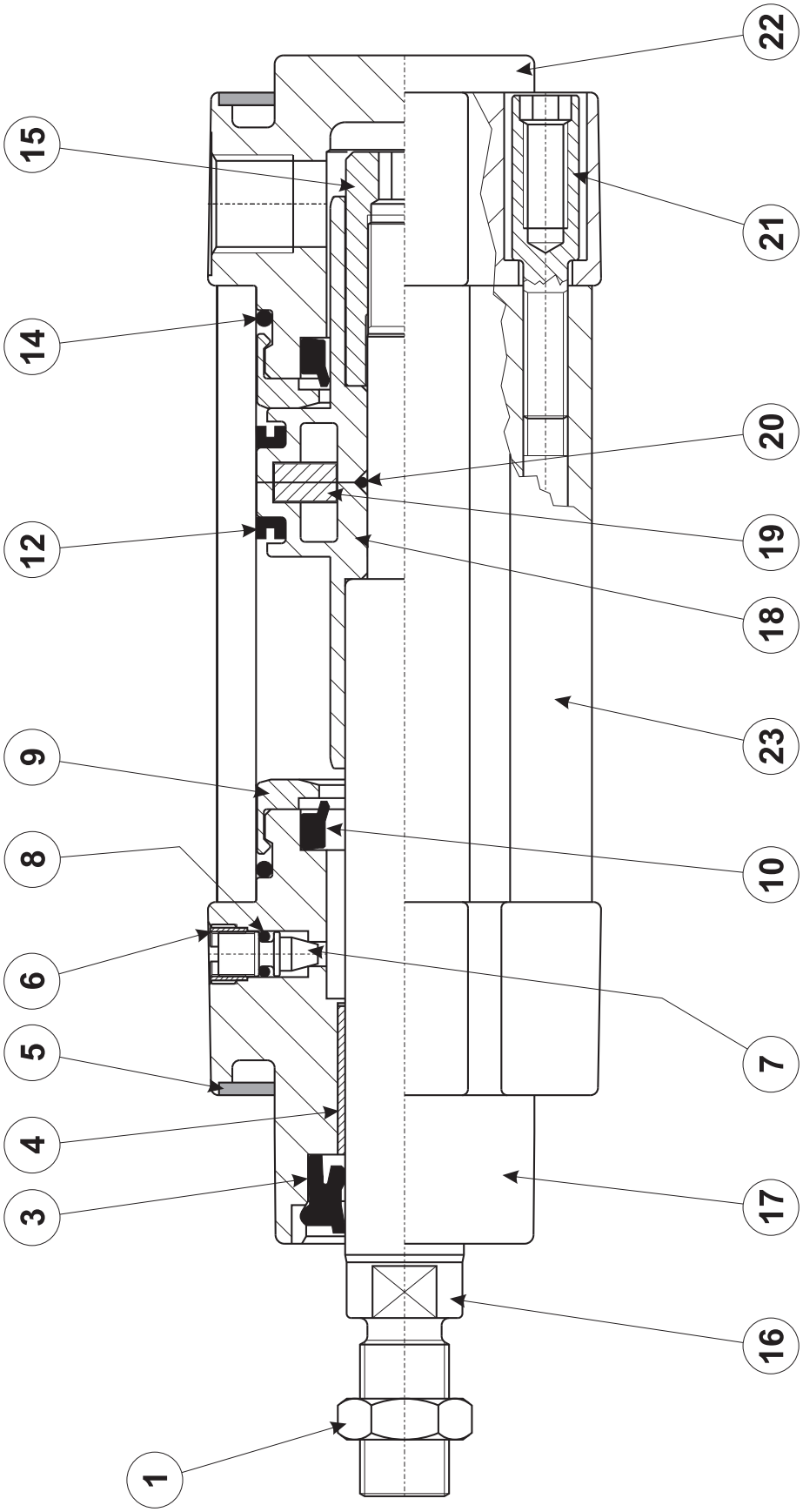
piston-rod material	
C45 chromium plated	stainless steel

seals material		
polyuret.	all seals in VITON	rod seals in VITON

rod lock adaptor

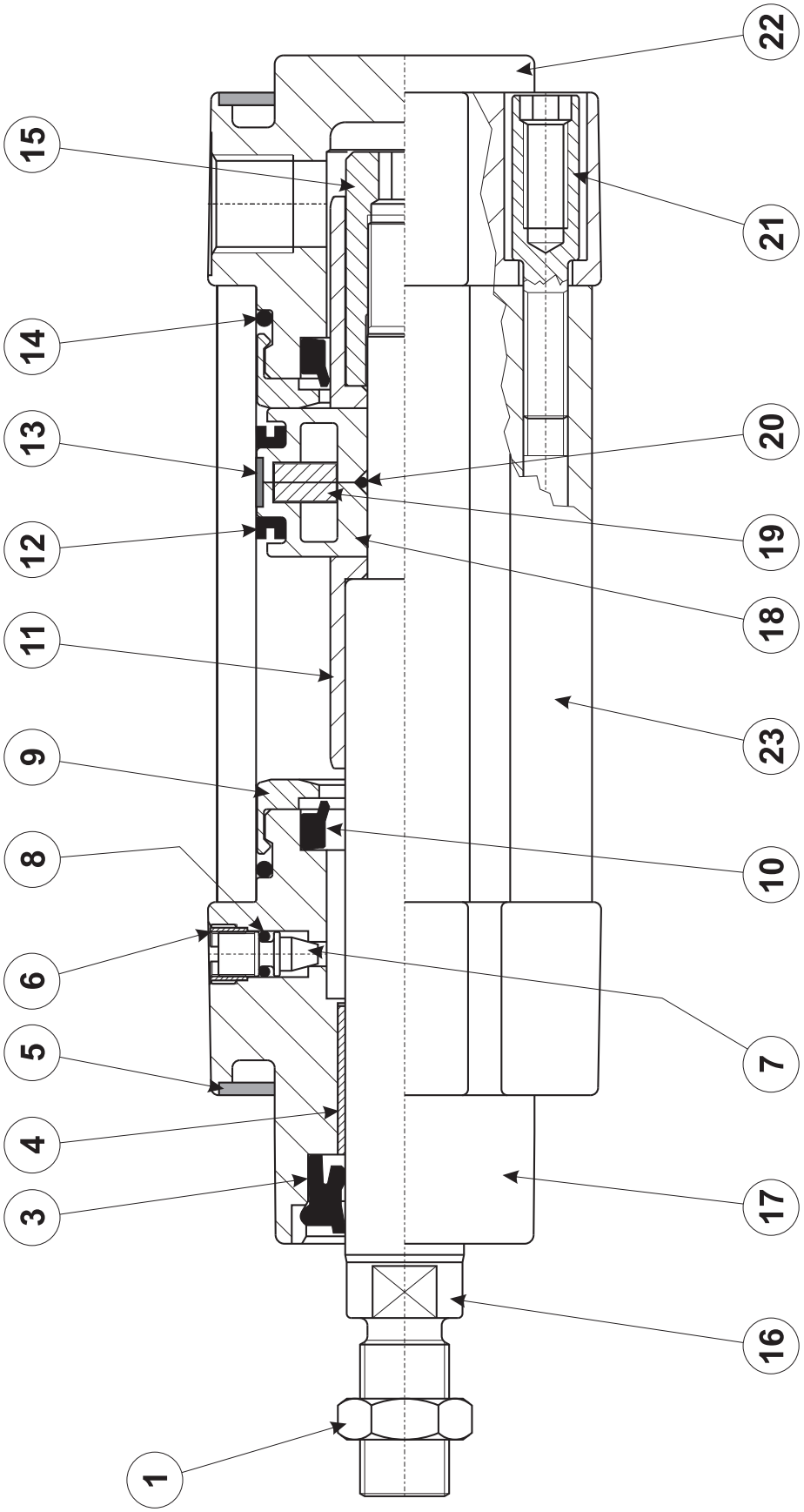
not available for bores 160-320

the drawing is valid from bore 32 to bore 125 - **PISTON IN TECHNOPOLYMER**



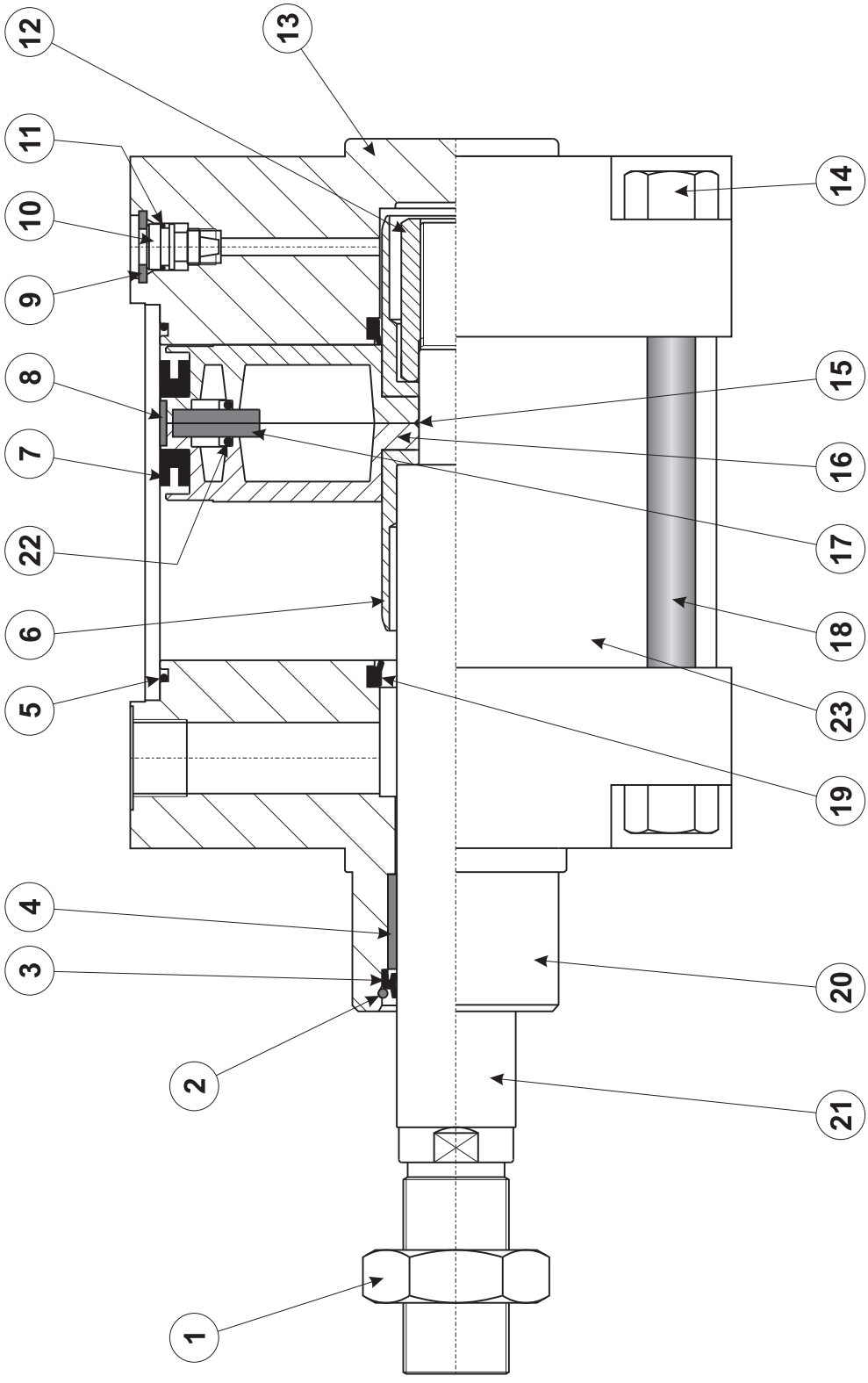
1. Hexagonal rod nut
3. Piston-rod seal: polyurethane or VITON
4. Guide bushing: self-lubricating material
5. Protection plate: MOPLEN
6. Ring for cushioning screw: nickeled brass
7. Cushioning screw: nickeled brass
8. O-Ring seal for cushioning screw: NBR or VITON
9. Bumper: HYTREL
10. Seal for cushioning: polyurethane or VITON
12. Piston lip seal: polyurethane or VITON
14. O-Ring head seal: NBR o VITON
15. Compass rod locking: UNI 5105 material 35S Mn Pb 10, zinc plated
16. Rod: C45 chromium plated steel or stainless steel AISI 304
17. Front head: aluminium alloy die-casting
18. Piston with ogive: technopolymer
19. Magnet: magnetic iron compound
20. O-Ring piston seal: NBR or VITON
21. Head assembling screw: self-threading till bore 63, then normal to tap
22. Rear head: aluminium alloy die-casting
23. Barrel: profiled, calibrated, anodized aluminium

the drawing is valid from bore 32 to bore 125 - **PISTON IN ALUMINIUM**



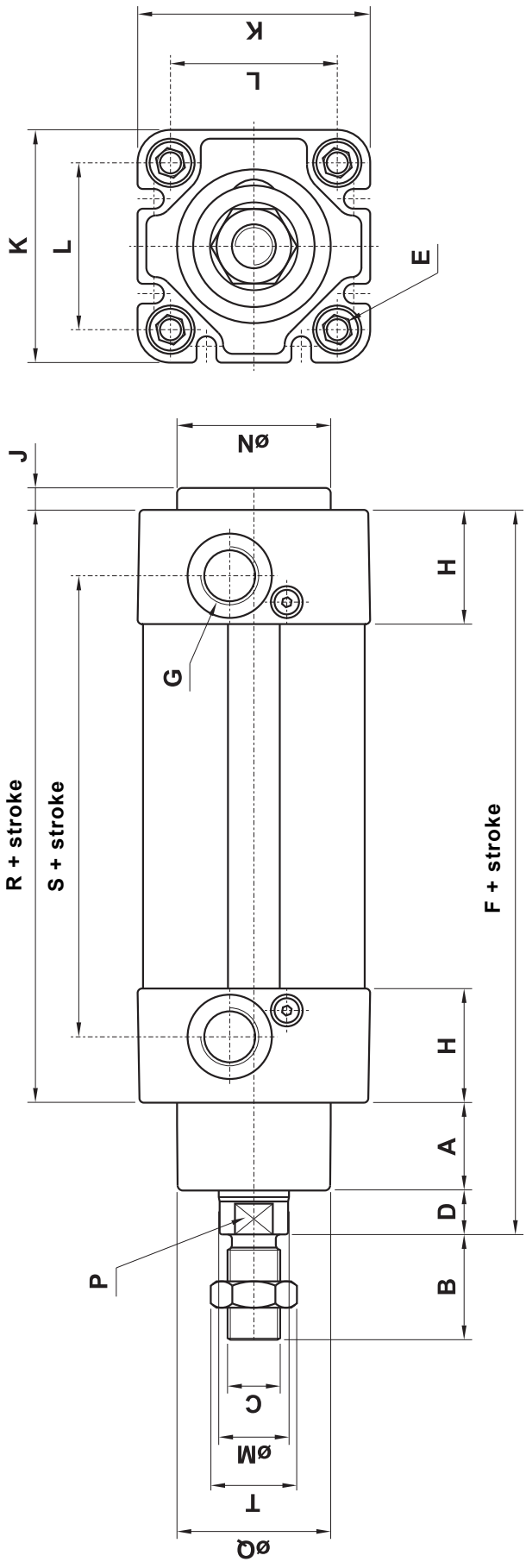
1. Hexagonal rod nut
3. Piston rod seal: polyurethane or VITON
4. Guide bushing: self-lubricating material
5. Protection plate: MOPLEN
6. Ring for cushioning screw: nickeled brass
7. Cushioning screw: nickeled brass
8. O-Ring seal for cushioning screw: NBR or VITON
9. Bumper: HYTREL
10. Seal for cushioning: polyurethane or VITON
11. Ogive: aluminium
12. Piston lip seal: polyurethane or VITON
13. Piston guide ring: bronze PTFE
14. O-Ring head seal: NBR or VITON
15. Compass rod locking: UNI 5105 material 35S Mn Pb 10, zinc plated
16. Rod: C45 chromium plated steel or stainless steel AISI 304
17. Front head: aluminium alloy die-casting
18. Piston: aluminium
19. Magnet: magnetic iron compound
20. O-Ring piston seal: NBR or VITON
21. Head assembling screw: self-threading till bore 63, then normal
22. Rear head: aluminium alloy die-casting
23. Barrel: profiled, calibrated, anodized aluminium

the drawing is valid for bore 160 and 200



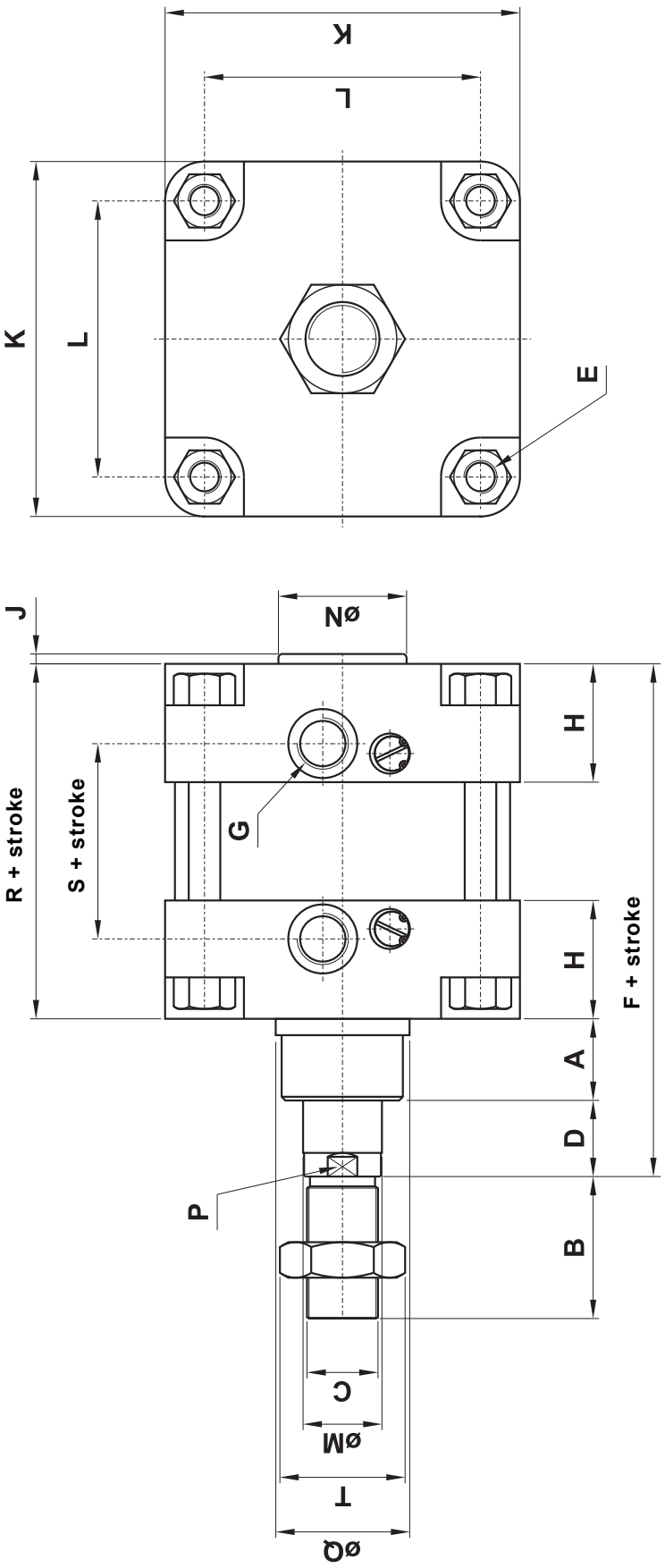
1. Hexagonal rod nut
2. Stainless steel ring for seal fixing
3. Piston rod seal: polyurethane or VITON
4. Guide bushing: sintered bronze
5. O-Ring head seal: NBR or VITON
6. Ogiva: aluminium
7. Piston lip seal: polyurethane or VITON
8. Piston guide ring
9. Safety cushioning ring
10. Cushioning screw: brass OT58
11. O-Ring seal for cushioning screw: NBR or VITON
12. Compass rod locking
13. Rear head: aluminium alloy shell casting
14. Head assembling screw
15. O-Ring piston seal: NBR or VITON
16. Piston: aluminium
17. Magnet: magnetic iron compound
18. Tie rod: stainless steel
19. Cushioning seal: polyurethane or VITON
20. Front head: aluminium alloy shell casting
21. Rod: C45 cromium plated steel or stainless steel AISI 304
22. O-Ring piston keeping seal: NBR or VITON
23. Barrel: aluminium, round tube

ø32 ... 125



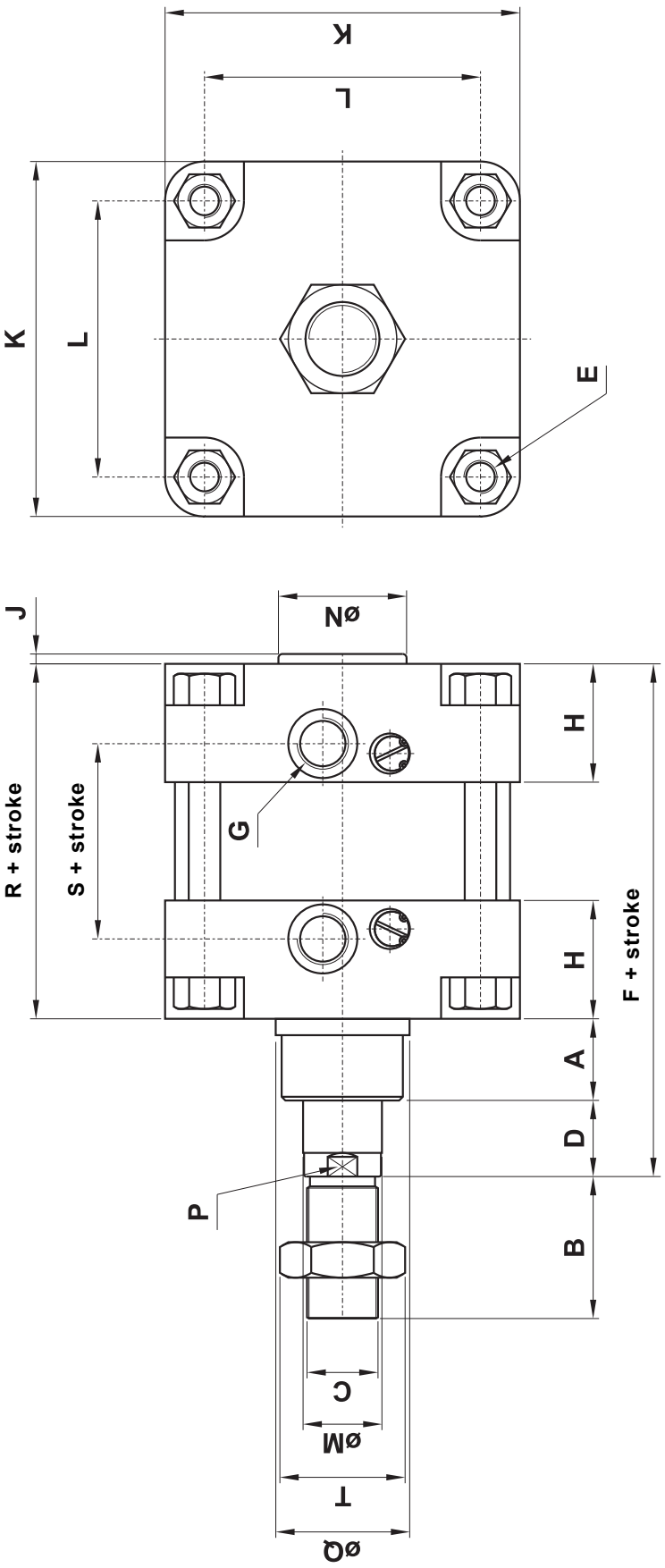
ø	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
32	16	22	M10x1.25	10	M6	120	G1/8"	25.5	5	47	32.5	12	30	CH 10	30	94	63.6	CH 17
40	20	24	M12x1.25	10	M6	135	G1/4"	28	5	53	38	16	35	CH 13	35	105	76	CH 19
50	25	32	M16x1.5	12	M8	143	G1/4"	30	5	64	46.5	20	40	CH 17	40	106	69.4	CH 24
63	25	32	M16x1.5	12	M8	158	G3/8"	31	5	74	56.5	20	45	CH 17	45	121	85.2	CH 24
80	32.5	40	M20x1.5	13.5	M10	174	G3/8"	34	5	94	72	25	45	CH 22	45	128	90	CH 30
100	35	40	M20x1.5	16	M10	189	G1/2"	35	5	112	89	25	55	CH 22	55	138	104	CH 30
125	40	54	M27x2	25	M12	225	G1/2"	41	5	136	110	32	60	CH 27	60	160	112	CH 41

ø160-200



ø	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
160	50	72	M36x2	30	M16	260	G3/4"	50	6	180	140	40	65	CH 36	65	180	119	CH 55
200	55	72	M36x2	40	M16	275	G3/4"	50	6	220	175	40	75	CH 36	75	180	119	CH 55

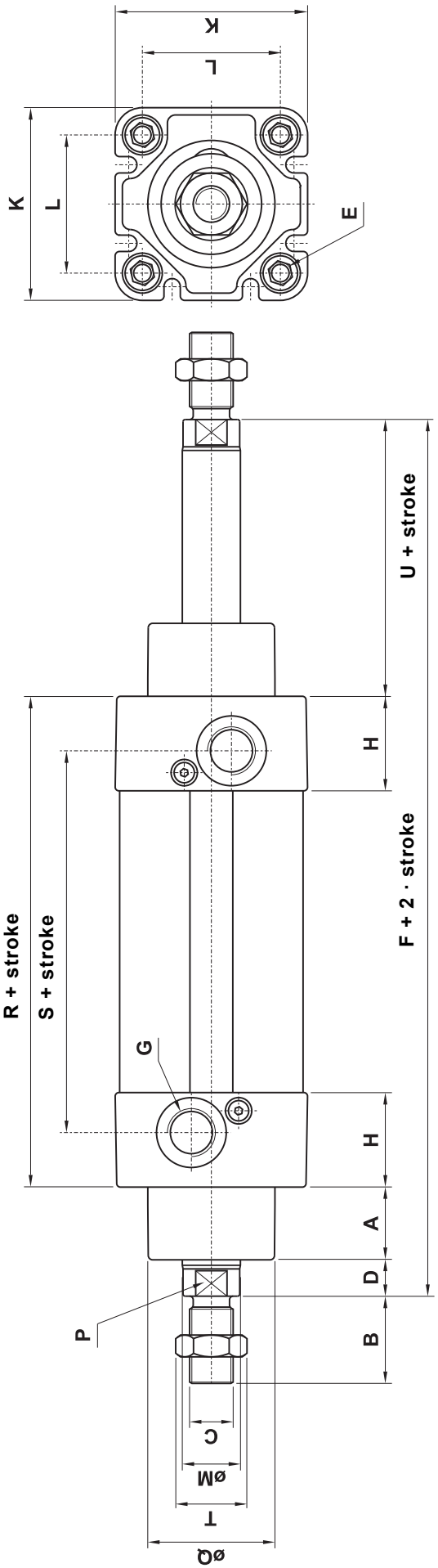
ø250-320



ø	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
250	76	84	M42x2	29	M20	305	G1"	54	10	270	220	50	90	CH 46	90	200	136	CH 65
320	85	96	M48x2	35	M24	340	G1"	57	10	350	270	63	110	CH 55	110	220	156	CH 75

ø32 ... 125

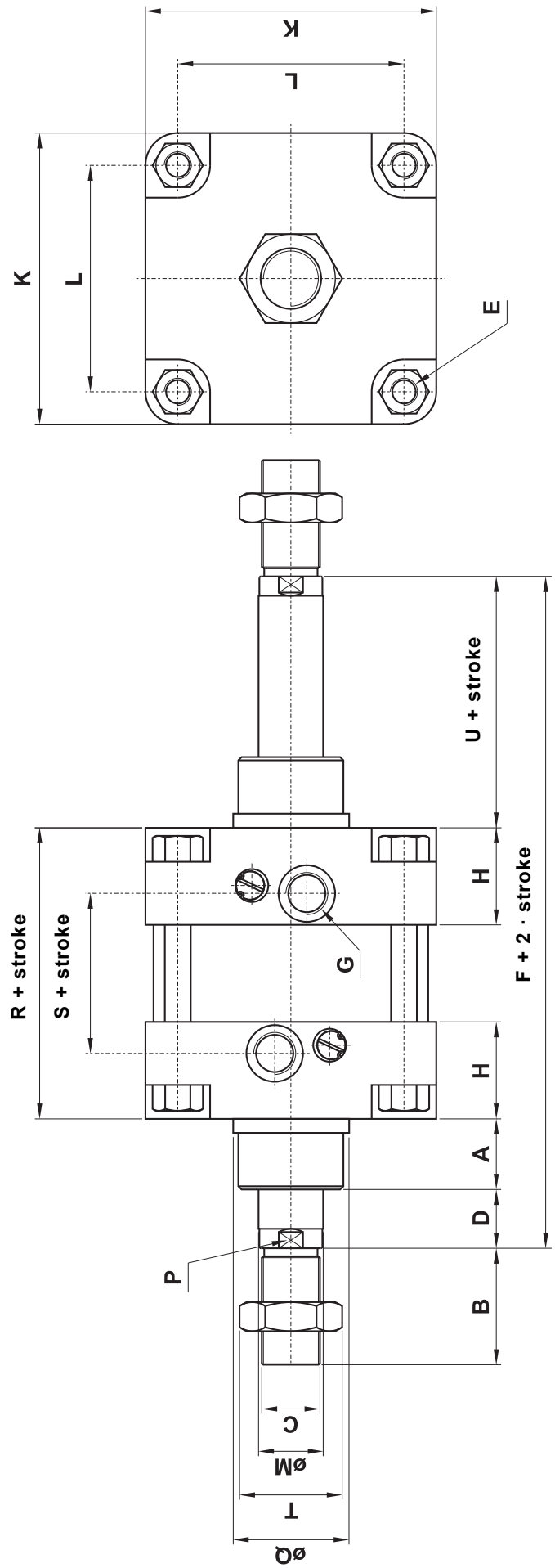
VERSION WITH THROUGH-ROD



ø	A	B	C	D	E	F	G	H	K	L	M	P	Q	R	S	T	U
32	16	22	M10x1.25	10	M6	146	G1/8″	25.5	47	32.5	12	CH 10	30	94	63.6	CH 17	26
40	20	24	M12x1.25	10	M6	165	G1/4″	28	53	38	16	CH 13	35	105	75	CH 19	30
50	25	32	M16x1.5	12	M8	180	G1/4″	30	64	46.5	20	CH 17	40	106	69.4	CH 24	37
63	25	32	M16x1.5	12	M8	195	G3/8″	31	74	56.5	20	CH 17	45	121	85.2	CH 24	37
80	32.5	40	M20x1.5	13.5	M10	220	G3/8″	34	94	72	25	CH 22	45	128	90	CH 30	46
100	35	40	M20x1.5	16	M10	240	G1/2″	35	112	89	25	CH 22	55	138	104	CH 30	51
125	40	54	M27x2	25	M12	290	G1/2″	41	136	110	32	CH 27	60	160	112	CH 41	65

ø160-200

VERSION WITH THROUGH-ROD



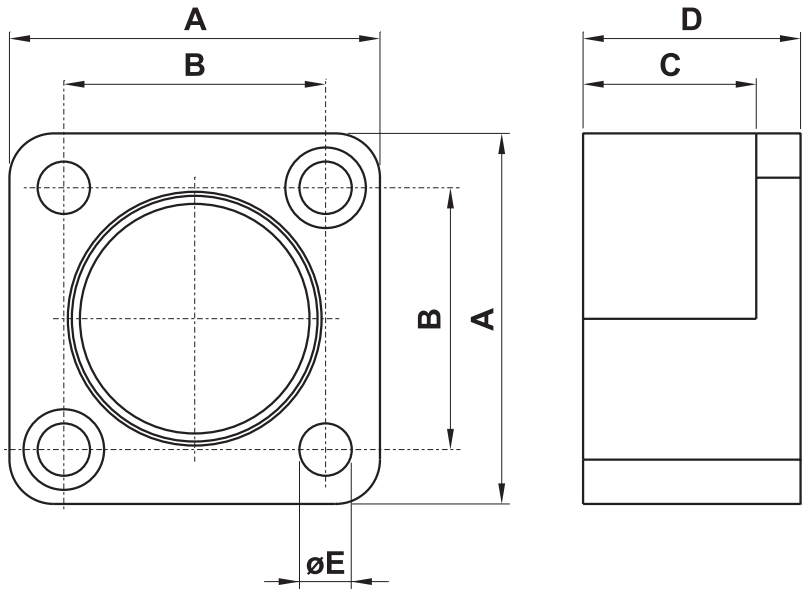
ø	A	B	C	D	E	F	G	H	K	L	M	P	Q	R	S	T	U
160	50	72	M36x2	30	M16	340	G3/4"	50	180	140	40	CH 36	65	180	119	CH 55	80
200	55	72	M36x2	40	M16	370	G3/4"	50	220	175	40	CH 36	75	180	119	CH 55	95

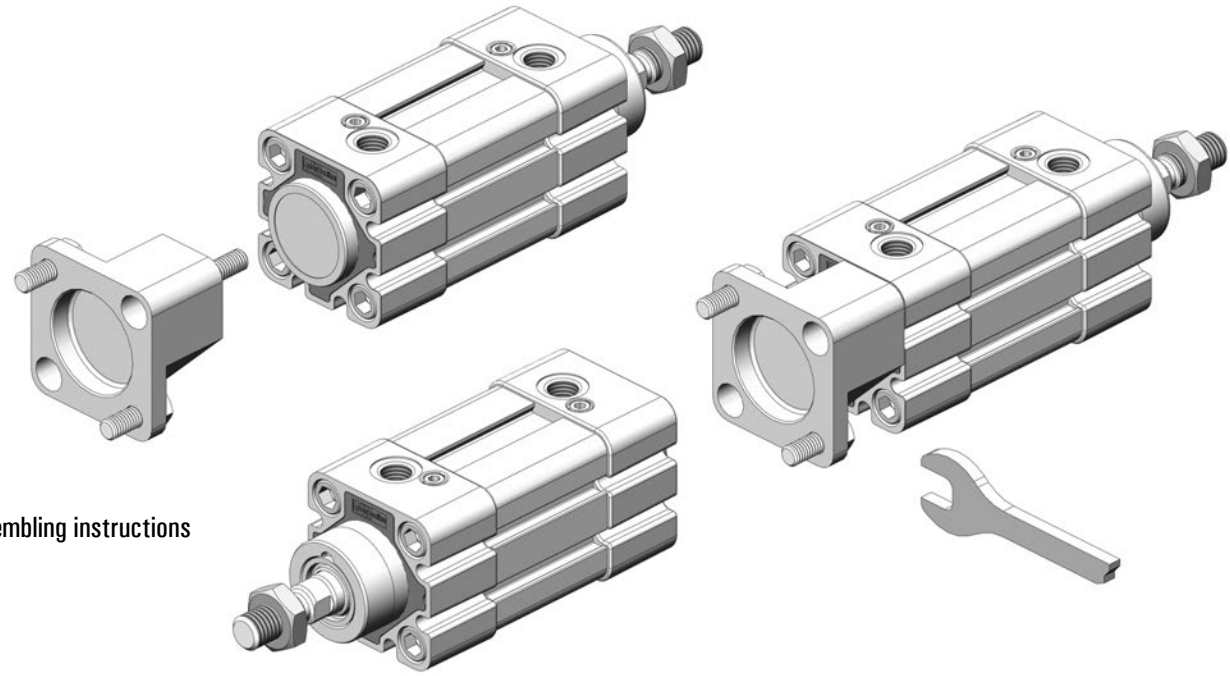
Seals Kit

MAGNETIC, standard seals					
normal			passing-through rod		
for bore	part number	code	for bore	part number	code
32	**SGM032**	21.100.2	32	**SGM032P**	21.110.2
40	**SGM040**	21.101.2	40	**SGM040P**	21.111.2
50	**SGM050**	21.102.2	50	**SGM050P**	21.112.2
63	**SGM063**	21.103.2	63	**SGM063P**	21.113.2
80	**SGM080**	21.104.2	80	**SGM080P**	21.114.2
100	**SGM100**	21.105.2	100	**SGM100P**	21.115.2
125	**SGM125**	21.106.2	125	**SGM125P**	21.116.2
160	**SGM160**	21.107.2	160	**SGM160P**	21.117.2
200	**SGM200**	21.108.2	200	**SGM200P**	21.118.2
MAGNETIC, VITON seals					
normal			passing-through rod		
for bore	part number	code	for bore	part number	code
32	**SGM032V**	21.120.2	32	**SGM032PV**	21.130.2
40	**SGM040V**	21.121.2	40	**SGM040PV**	21.131.2
50	**SGM050V**	21.122.2	50	**SGM050PV**	21.132.2
63	**SGM063V**	21.123.2	63	**SGM063PV**	21.133.2
80	**SGM080V**	21.124.2	80	**SGM080PV**	21.134.2
100	**SGM100V**	21.125.2	100	**SGM100PV**	21.135.2
125	**SGM125V**	21.126.2	125	**SGM125PV**	21.136.2
160	**SGM160V**	21.127.2	160	**SGM160PV**	21.137.2
200	**SGM200V**	21.128.2	200	**SGM200PV**	21.138.2

Intermediate flange for opposite ISO 6431 cylinders

This intermediate flange has to be inserted between two ISO 6431 VDMA cylinders to form an opposite cylinder. It is sold in kit with all necessary pieces for installation.





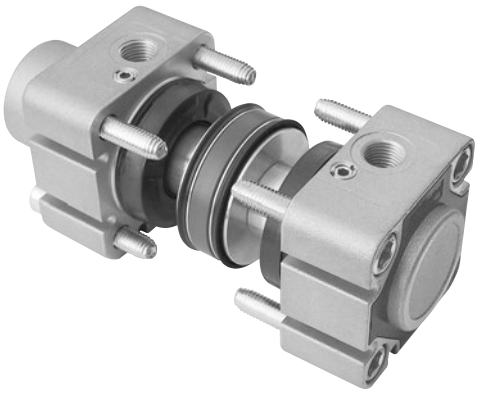
Assembling instructions

code	for bore	A	B	C	D	E
21.190.2	32	46	32.5	21.5	27	6.5
21.191.2	40	52	38	20.5	27	6.5
21.192.2	50	63	46.5	25.5	32	8.5
21.193.2	63	73	56.5	21.5	28	8.5
21.194.2	80	92	72	31	38	10.5
21.195.2	100	110	89	31	38	10.5
21.196.2	125	134	110	33	44	12.5

cylinder kit

The kit contains:

- Pre mounted heads with bushing, bumper and cushioning
- Piston with magnet, seals and guide ring (for aluminium piston)
- Ogive
- Screws
- Protection plates
- All necessary seals



MAGNETIC, standard seals					
normal			through-rod		
for bore	part number	code	for bore	part number	code
32	**KSM032**	21.001.3	32	**KSM032P**	21.011.3
40	**KSM040**	21.002.3	40	**KSM040P**	21.012.3
50	**KSM050**	21.003.3	50	**KSM050P**	21.013.3
63	**KSM063**	21.004.3	63	**KSM063P**	21.014.3
80	**KSM080**	21.005.3	80	**KSM080P**	21.015.3
100	**KSM100**	21.006.3	100	**KSM100P**	21.016.3
125	**KSM125**	21.007.3	125	**KSM125P**	21.017.3
160	**KSM160**	21.008.3	160	**KSM160P**	21.018.3
200	**KSM200**	21.009.3	200	**KSM200P**	21.019.3
MAGNETIC, VITON seals					
normal			through-rod		
for bore	part number	code	for bore	part number	code
32	**KSM032V**	21.021.3	32	**KSM032PV**	21.031.3
40	**KSM040V**	21.022.3	40	**KSM040PV**	21.032.3
50	**KSM050V**	21.023.3	50	**KSM050PV**	21.033.3
63	**KSM063V**	21.024.3	63	**KSM063PV**	21.034.3
80	**KSM080V**	21.025.3	80	**KSM080PV**	21.035.3
100	**KSM100V**	21.026.3	100	**KSM100PV**	21.036.3
125	**KSM125V**	21.027.3	125	**KSM125PV**	21.037.3
160	**KSM160V**	21.028.3	160	**KSM160PV**	21.038.3
200	**KSM200V**	21.029.3	200	**KSM200PV**	21.039.3

cylinder kit assembly instructions

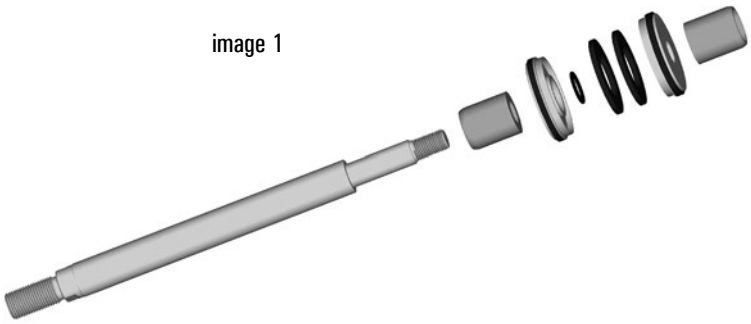
INSTRUCTIONS TO USE ISO 6431 ASSEMBLING CYLINDER KIT

All components contained in this ISO 6431 assembling pneumatic cylinder kit are manufactured with first quality materials. In order to ensure consistent quality and to respect accurate dimensional tolerances, die-cast heads and all internal components are lathes' and numerical control work centres' machine worked. The cylinder is designed and built to offer high performances also in the hardest work conditions. To ensure constant quality, the assembly has to be executed according to the instructions reported below. All safety standards have to be respected during installation and cylinder testing.

1. PRELIMINARY OPERATIONS

Before assembling, blow with compressed air and clean accurately surfaces, all components and the barrel previously cut to the desired length. The cylinder has to be installed in a clean and dustless work environment.

image 1

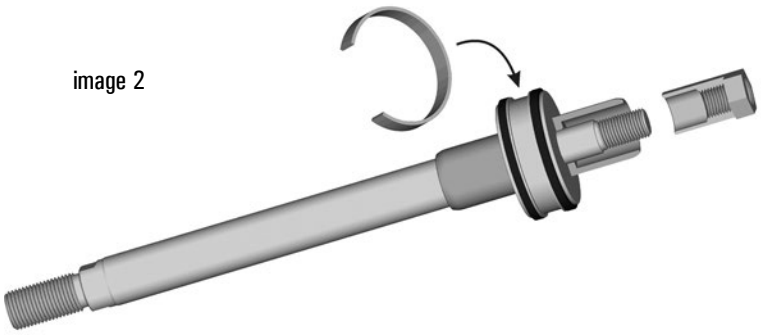


2. ASSEMBLE PISTON ON THE ROD

Insert the following components in this order on the rod (Refer to image 1): ogive, semi-piston, O-Ring seal, attracting magnets , semi-piston, ogive.
Before screwing, put on the rod thread one or two drops of threadlocker. Screw the nut on the rod respecting the torque given in the following table:

bore	torque	
	aluminium piston	technopolymer piston
32	10 Nm	7 Nm
40	20 Nm	9 Nm
50	30 Nm	15 Nm
63	45 Nm	19 Nm
80	60 Nm	27 Nm
100	60 Nm	35 Nm
125	70 Nm	-
160-200	80 Nm	-

image 2



3. INSERT THE LOCK ROD-PISTON IN THE BARREL

With an appropriate grease (eventually purchasable from AZ Pneumatica) lubricate lightly the barrel inside, piston seals and heads seals. Position the guide ring in teflon-copper (available only for aluminium pistons), lubricated with grease, around the piston (see image 2); insert the lock rod-piston, previously assembled, in the barrel paying attention to not damage the piston seals (see image 3). To simplify this operation, it is possible to purchase a specific adaptor from AZ Pneumatica.

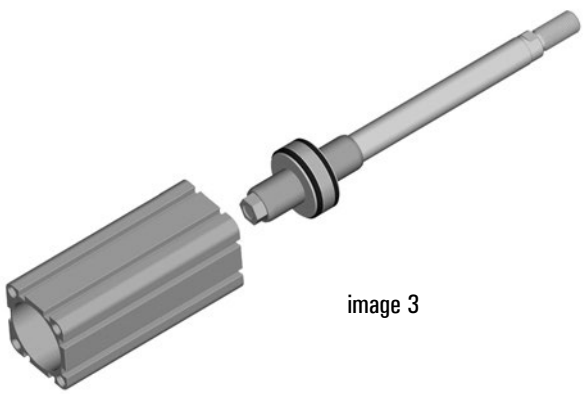


image 3

4. ASSEMBLE HEADS

Insert front and rear head in the tube, paying attention to not damage the O-Ring seals.
Head lock screws are self-tapping till the M8 thread (bore 63). For larger diameter screws is recommended to thread the barrel, even if is possibile use them ,with effort, as they were self-tapping. In any case, before tightening the screws is necessary to lubricate the threading with some drops of hydraulic oil. Screw manually or with a pneumatic utensil almost till the end. To tighten definitely the screws is necessary to use a torque wrench or a pneumatic utensil with torque indication. Act progressively till the torque given in the following table:

TORQUE FOR MOUNTING HEAD SCREW

bore	torque
32	10 Nm
40	10 Nm
50	22 Nm
63	22 Nm
80	40 Nm
100	40 Nm
125	50 Nm
160-200	60 Nm

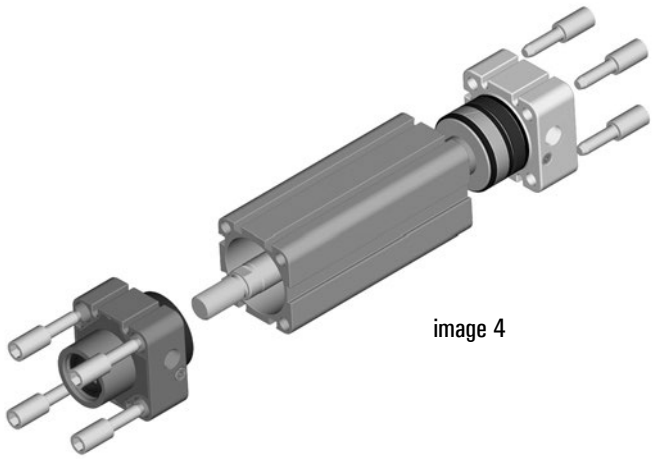


image 4

Screw the nut on the front part of the rod, now the cylinder is assembled.

5. TESTING

Connect the cylinder to a five way valve and activate it a few times to verify the correct operation.

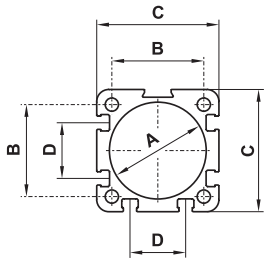
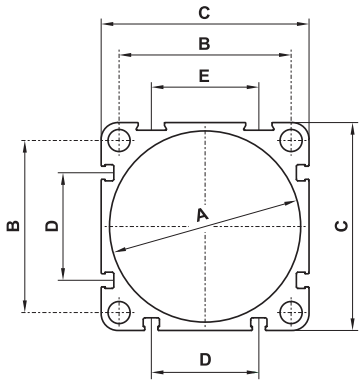
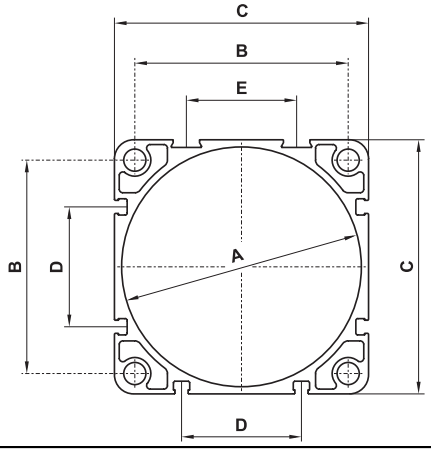
Do the following operations at 2 bar (30 PSI) pressure and at 7 bar (101 PSI) pressure or more .
- verify the perfect holding of front head and of location of cushioning screw;
- verify the perfect holding of rear head and of location of cushioning screw;
- verify the perfect holding of scraper ring;
- verify the perfect piston holding between the two chambers.

For obvious reasons, these operations have to be executed with air supply.

Once verified the perfect holding of cylinder in all parts, regulate the dampings as needed and eventually insert the caps in the feed opening. Now the cylinder is ready to be used.

Contact AZ Pneumatica in case of doubts.

STANDARD profile for N series

	order code	dimensions [mm]					weight [kg/m]
		A	B	C	D	E	
	**000.510.7**	ø32 H11	32.5	44.5	17	-	2.198
	000.511.7	ø40 H11	38	50.5	23	-	2.506
	000.512.7	ø50 H11	46.5	60.3	26	-	3.394
	**000.513.7**	ø63 H11	56.5	70	37	35	3.452
	000.514.7	ø80 H11	72	87	45	45	5.214
	**000.515.7**	ø100 H12	89	106	50	46	5.619
	000.516.7	ø125 H12	110	132	56	50	7.788

chemical composition	Cu	Fe	Mn	Mg	Si	Zn	Cr	Ti	Al
	≤ 0.10	≤ 0.35	≤ 0.10	0.45÷0.90	0.20÷0.60	≤ 0.10	≤ 0.10	≤ 0.10	rest

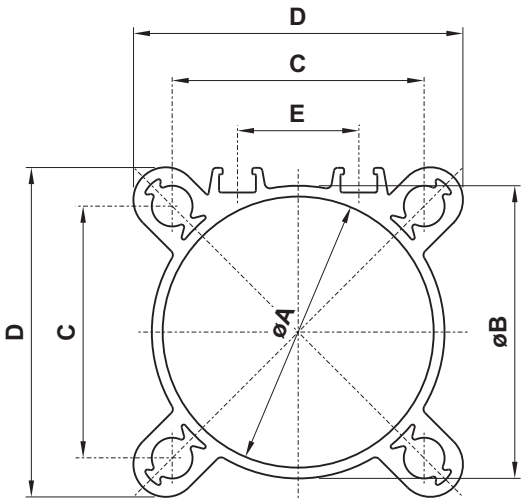
Fixing holes

from ø32 to ø63 : prepared for metric thread through rolling or self-tapping screws

from ø80 to ø125 : prepared for metric thread through rolling

Round profile for cylinders
ø160: **000.517.7**
ø200: **000.518.7**

EASY profile for E series

	order code	dimensions [mm]					weight [kg/m]
		A	B	C	D	E	
	**000.530.7**	ø32 H11	36	32.5	44.4	13 ±0.2	1.407
	000.531.7	ø40 H11	44	38	51	18.8 ±0.2	1.644
	000.532.7	ø50 H11	54	46.5	60.8	22.4 ±0.25	2.035
	000.533.7	ø63 H11	67	56.5	70.9	32.6 ±0.3	2.312
	000.534.7	ø80 H11	84	72	87	41 ±0.3	2.877
	000.535.7	ø100 H12	104.5	89	105.5	53 ±0.3	3.873
	000.536.7	ø125 H12	130	110	131	64 ±0.35	5.316

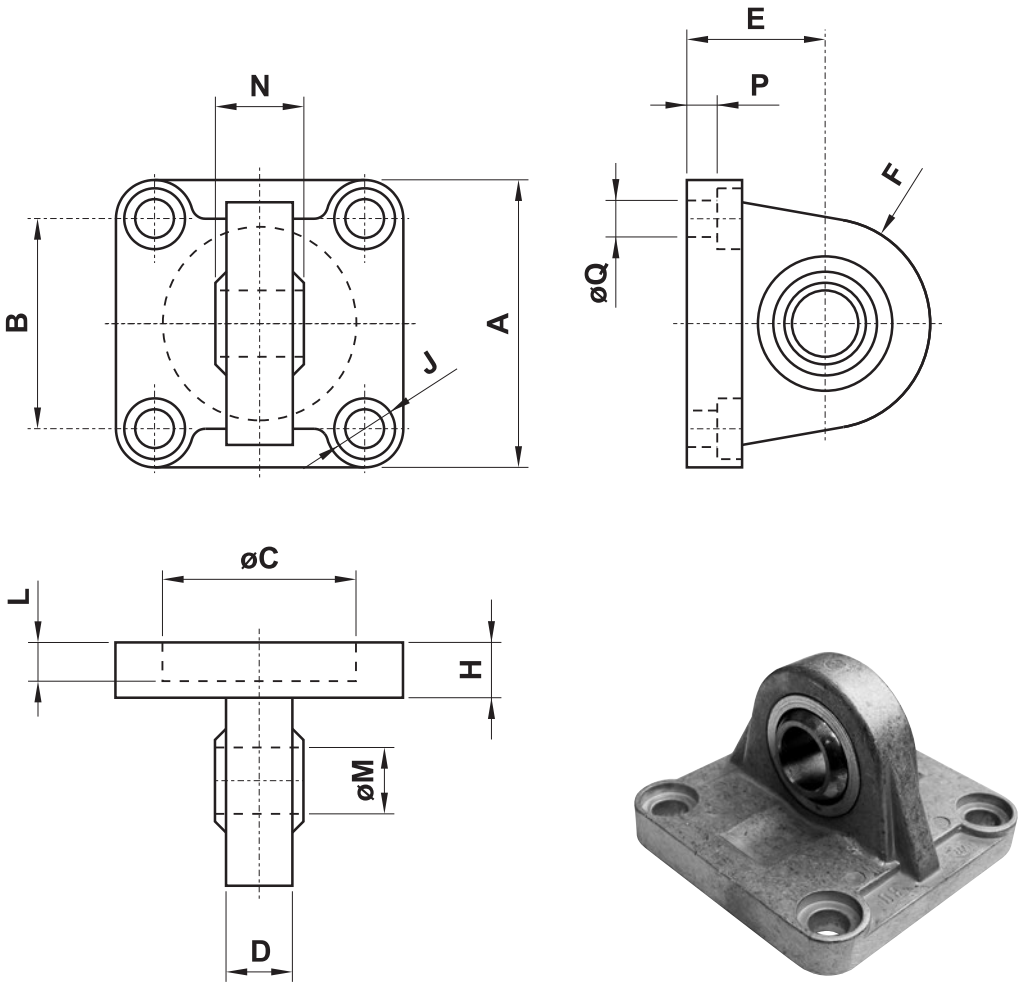
chemical composition	Cu	Fe	Mn	Mg	Si	Zn	Cr	Ti	Al
	≤ 0.10	≤ 0.35	≤ 0.10	0.45 ÷ 0.90	0.20 ÷ 0.60	≤ 0.10	≤ 0.10	≤ 0.10	rest

Fixing holes

from ø32 to ø63 : prepared for metric thread through rolling or self-tapping screws

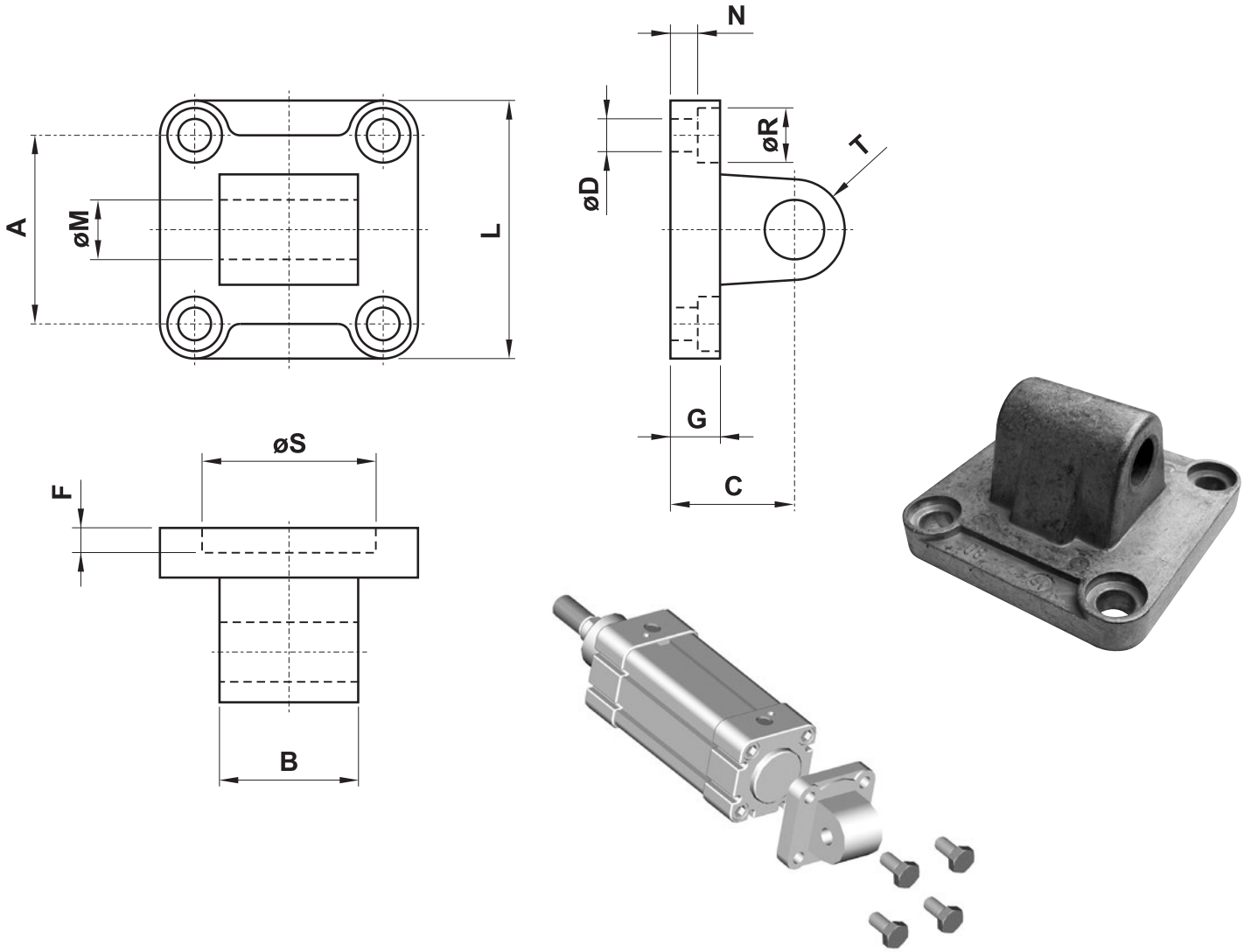
from ø80 to ø125 : prepared for metric thread through rolling

NARROW MALE HINGE WITH ARTICULATED HEAD DIN 648K



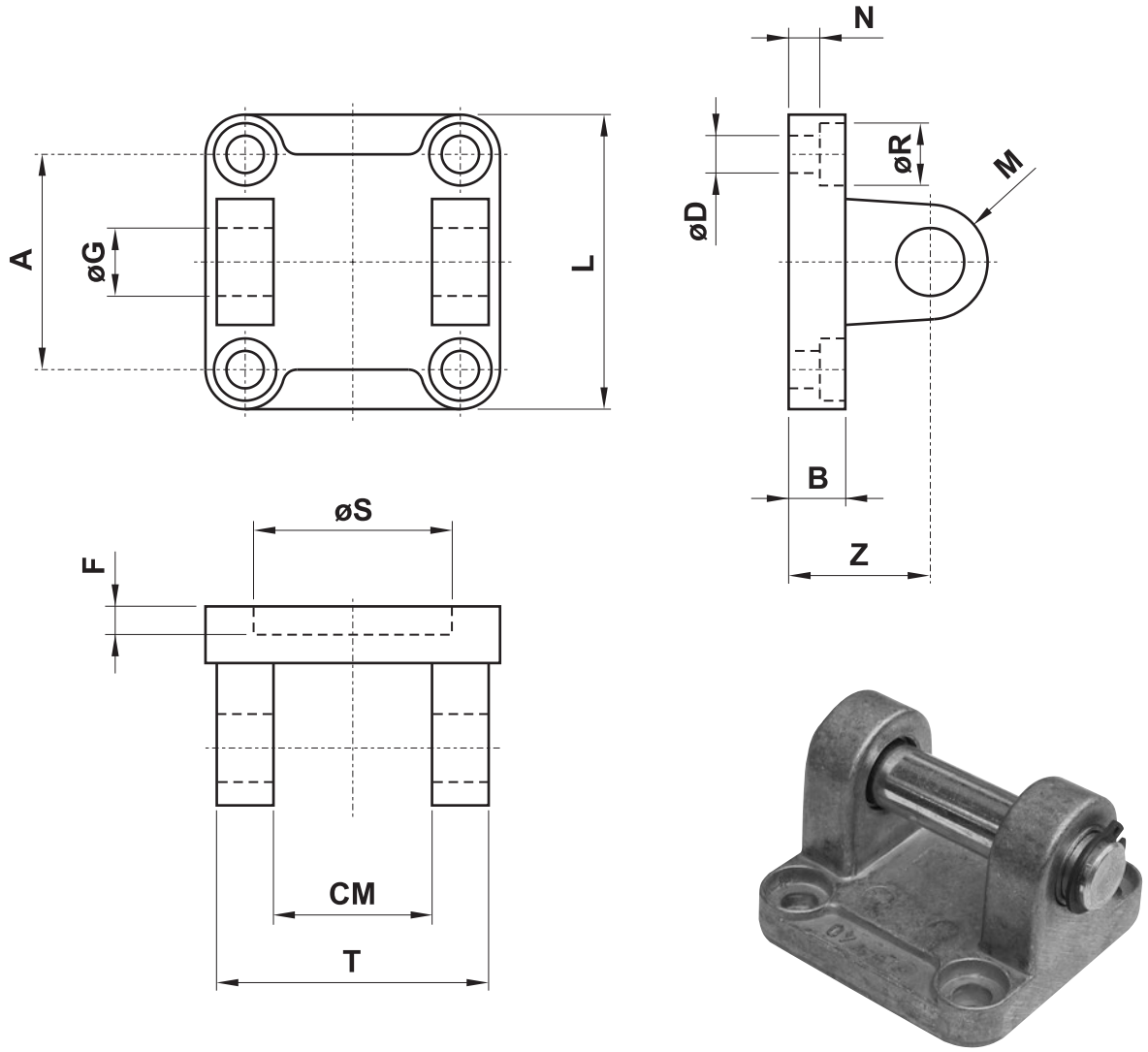
part number	for bore	A	B	C	D	E	F	H	J	L	M	N	P	Q
CMSS032	32	45	32.5	30	10.5	22	16	9	ø11	5	10	14	5.5	6.6
CMSS040	40	52	38	35	12	25	19	9	ø11	5	12	16	5.5	6.6
CMSS050	50	65	46.5	40	15	27	21	11	ø15	5	16	21	6.5	9
CMSS063	63	75	56.5	45	15	32	24	11	ø15	5	16	21	6.5	9
CMSS080	80	95	72	45	18	36	28.5	14	ø18	5	20	25	10	11
CMSS100	100	115	89	55	18	41	30	14	ø18	5	20	25	10	11
CMSS125	125	140	110	60	25	50	40	20	ø20	7	30	37	10	13.5
CMSS160	160	180	140	65	28	55	45	20	ø26	7	35	43	10	18
CMSS200	200	220	175	75	28	60	48	25	ø26	7	35	43	11	18

MALE HINGE MP4



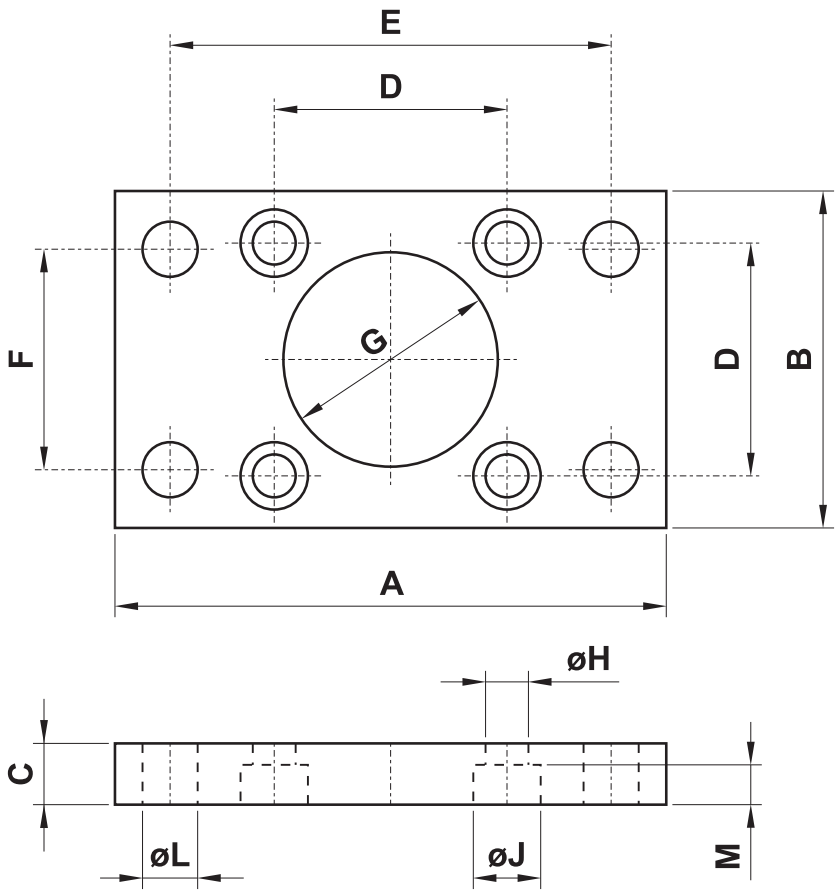
part number	part number	for bore	A	B	C	D	F	G	L	M	N	R	S	T
standard	with bronze bushing													
CMIS032	**CMKS032**	32	32.5	26	22	6.6	5	9	45	10	5.5	11	30	10
CMIS040	**CMKS040**	40	38	28	25	6.6	5	9	52	12	5.5	11	35	12
CMIS050	**CMKS050**	50	46.5	32	27	9	5	11	65	12	6.5	15	40	12
CMIS063	**CMKS063**	63	56.5	40	32	9	5	11	75	16	6.5	15	45	16
CMIS080	**CMKS080**	80	72	50	36	11	5	14	95	16	10	18	45	16
CMIS100	**CMKS100**	100	89	60	41	11	5	14	115	20	10	18	55	20
CMIS125	**CMKS125**	125	110	70	50	14	7	20	140	25	10	20	60	25
CMIS160	**CMKS160**	160	140	90	55	18	7	20	180	30	10	26	65	25
CMIS200	**CMKS200**	200	175	90	60	18	7	25	220	30	11	26	75	25

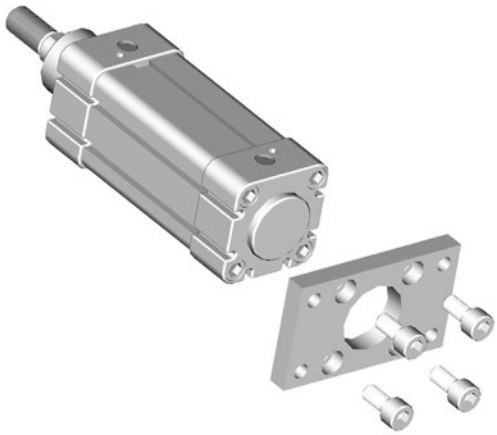
FEMALE HINGE MP2 WITH PIN



part number	part number	for bore	A	B	CM	D	F	G	L	M	N	R	S	T	Z
standard	with bronze bushing														
CFIS032	**CFKS032**	32	32.5	9	26	6.6	5	10	45	10	5.5	11	30	45	22
CFIS040	**CFKS040**	40	38	9	28	6.6	5	12	52	12	5.5	11	35	52	25
CFIS050	**CFKS050**	50	46.5	11	32	9	5	12	65	12	6.5	15	40	60	27
CFIS063	**CFKS063**	63	56.5	11	40	9	5	16	75	16	6.5	15	45	70	32
CFIS080	**CFKS080**	80	72	14	50	11	5	16	95	16	10	18	45	90	36
CFIS100	**CFKS100**	100	89	14	60	11	5	20	115	20	10	18	55	110	41
CFIS125	**CFKS125**	125	110	20	70	14	7	25	140	25	10	20	60	130	50
CFIS160	**CFKS160**	160	140	20	90	18	7	30	180	25	10	26	65	170	55
CFIS200	**CFKS200**	200	175	25	90	18	7	30	220	25	11	26	75	170	60

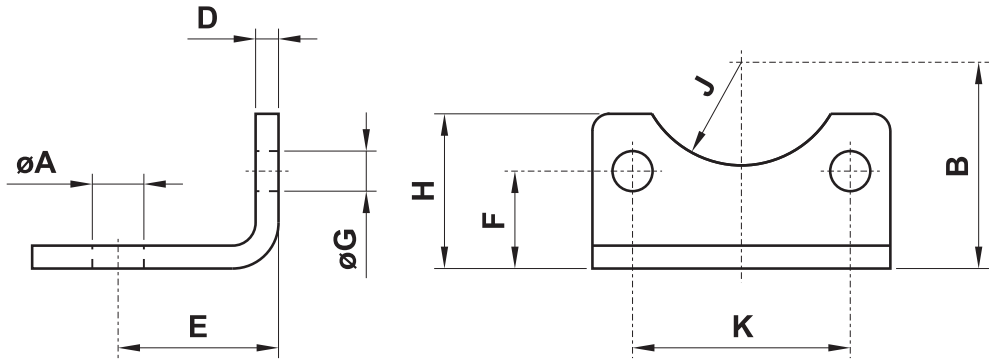
FLANGE

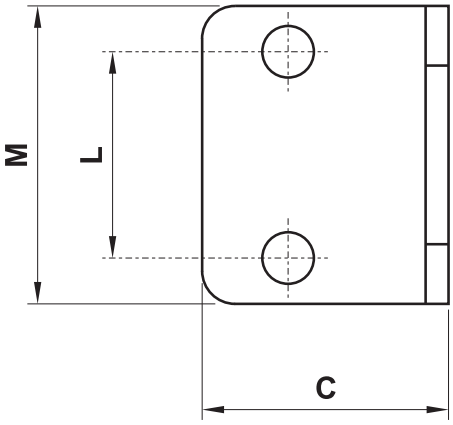


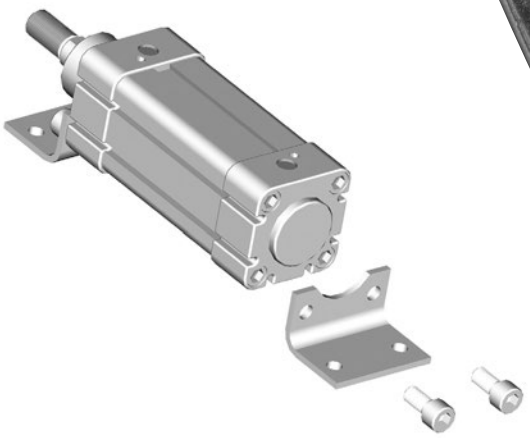


part number	for bore	A	B	C	D	E	F	G	H	J	L	M
FLIS032	32	80	45	10	32.5	64	32	ø30	6.6	10.5	7	6.5
FLIS040	40	90	52	10	38	72	36	ø35	6.6	11	9	6.5
FLIS050	50	110	65	12	46.5	90	45	ø40	9	15	9	8.5
FLIS063	63	120	75	12	56.5	100	50	ø45	9	15	9	8.5
FLIS080	80	150	95	16	72	126	63	ø45	11	18	12	10.5
FLIS100	100	170	115	16	89	150	75	ø55	11	18	14	10.5
FLIS125	125	205	140	20	110	180	90	ø60	13.5	20	16	12.5
FLIS160	160	260	180	20	140	230	115	ø65	18	26	18	16.5
FLIS200	200	300	220	25	175	270	135	ø75	18	26	22	16.5

FOOT MOUNTING





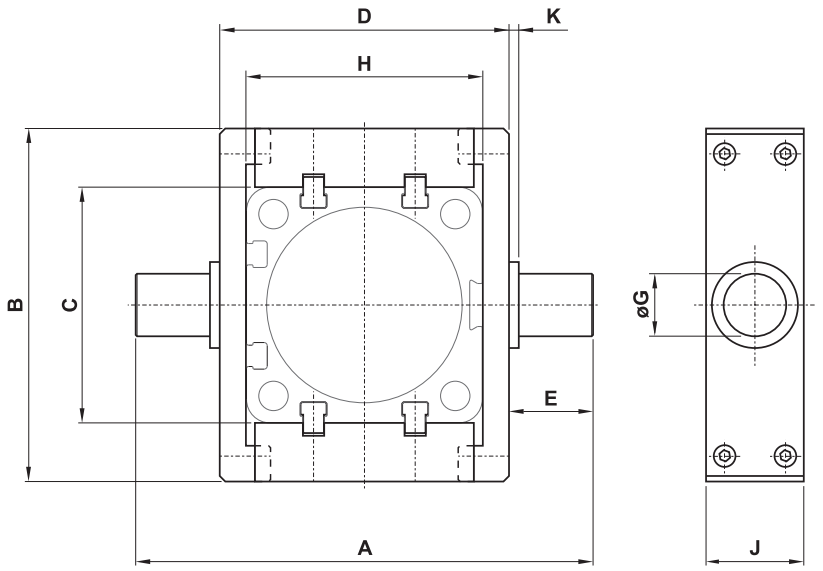


part number*	for bore	A	B	C	D	E	F	G	H	J	K	L	M
PBIS032	32	7	32	35	4	24	15.75	7	30	15	32.5	32	45
PBIS040	40	9	36	36	4	28	17	7	30	17.5	38	36	52
PBIS050	50	9	45	47	5	32	21.75	9	36	20	46.5	45	65
PBIS063	63	9	50	45	5	32	21.75	9	35	22.5	56.5	50	75
PBIS080	80	12	63	55	6	41	27	11	47	22.5	72	63	95
PBIS100	100	14	71	57	6	41	26.5	11	53	27.5	89	75	115
PBIS125	125	16	90	70	8	45	35	14	70	30	110	90	140
PBIS160	160	18	115	75	9	60	45	18	100	32.5	140	115	180
PBIS200	200	22	135	100	12	70	47.5	18	100	37.5	175	135	220

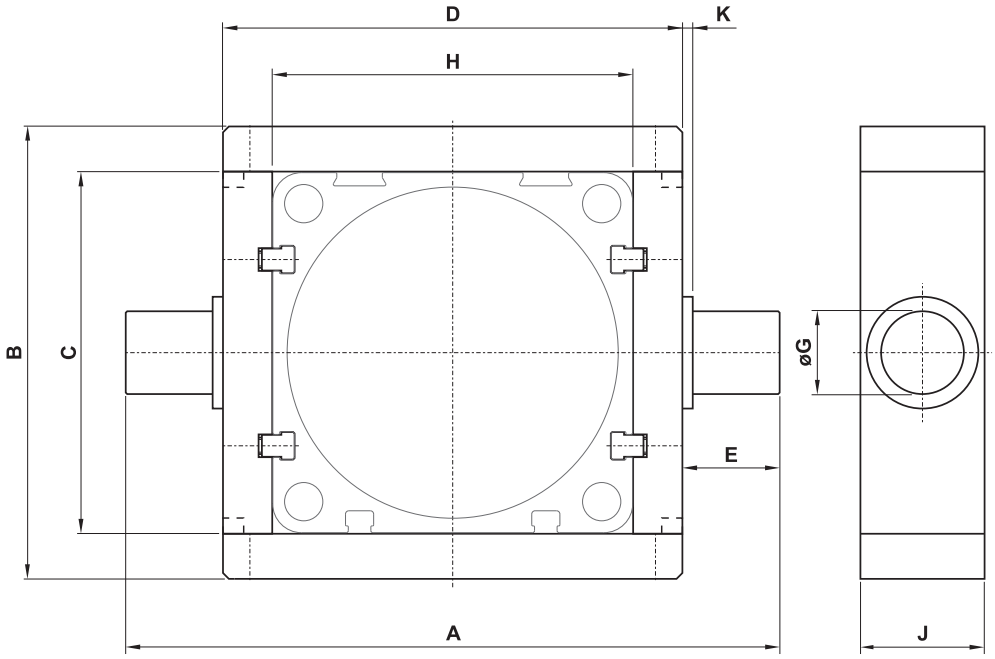
* Part number refers to a single element, not to the couple

INTERMEDIATE TRUNNION - ONLY FOR "N" SERIES

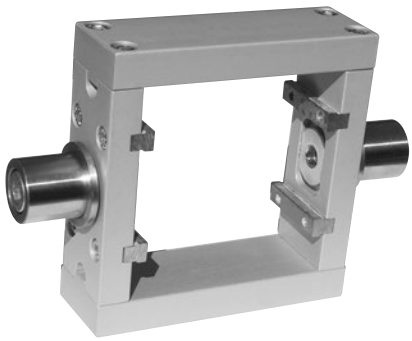
bores: 32, 40, 50



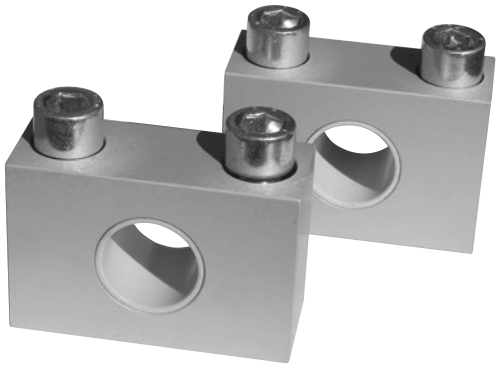
bores: 63, 80, 100, 125

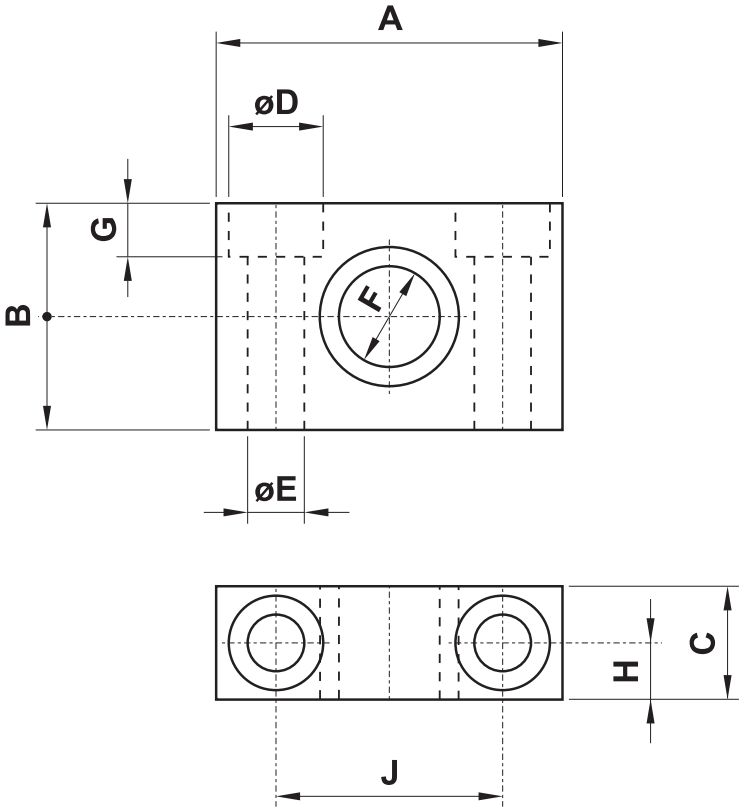


part number	for bore	A	B	C	D	E	G	H	J	K
CIN032	32	87	65	44.5	52	17.5	12	45	25	2
CIN040	40	105	74.8	50.5	62	21.5	16	51	25	2.5
CIN050	50	117	90.3	60.3	74	21.5	16	60.8	25	2.5
CIN063	63	136	94.5	70.5	91	22.5	20	70	30	2.5
CIN080	80	156	109.3	87.5	111	22.5	20	87	30	2.5
CIN100	100	195	134	106.6	129	33	25	106	40	2.5
CIN125	125	223	160	132.6	157	33	25	132	40	2.5



SUPPORT FOR INTERMEDIATE TRUNNION

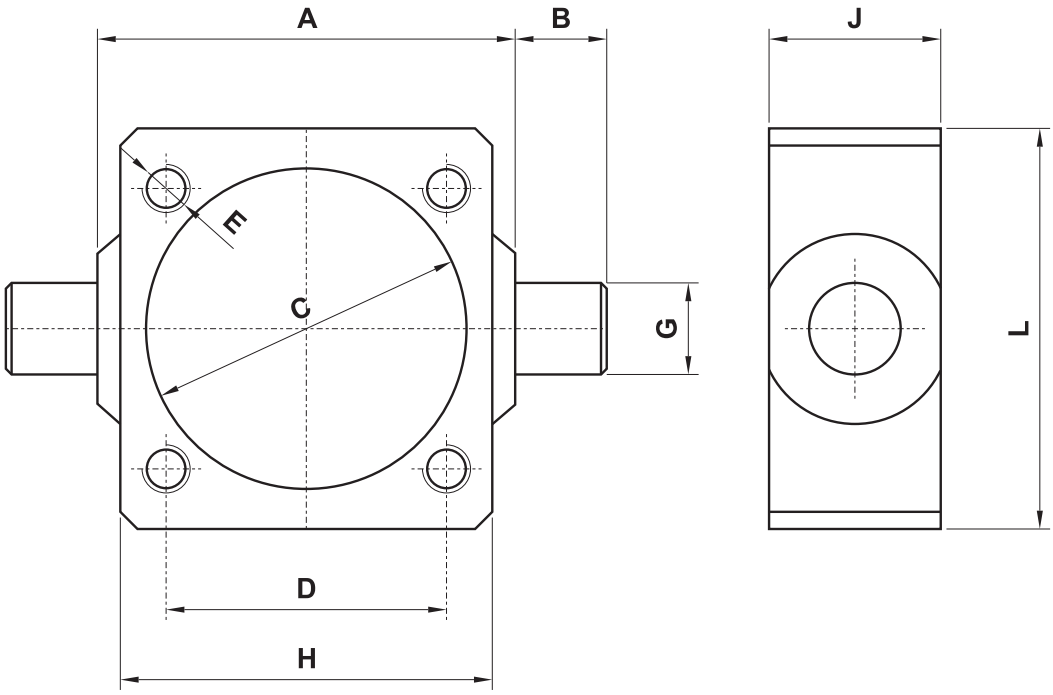




part number*	for bore	A	B	C	D	E	F	G	H	J
SNINT 032 B	32	46	30	15	10.5	6.5	ø12	6.5	7.5	32
SNINT 040-050 B	40-50	55	35	20	14	9	ø16	8	10	36
SNINT 063-080 B	63-80	65	40	20	17	11	ø20	12	10	42
SNINT 100-125 B	100-125	75	50	30	19	14	ø25	10	15	50

* Part number refers to a couple of elements

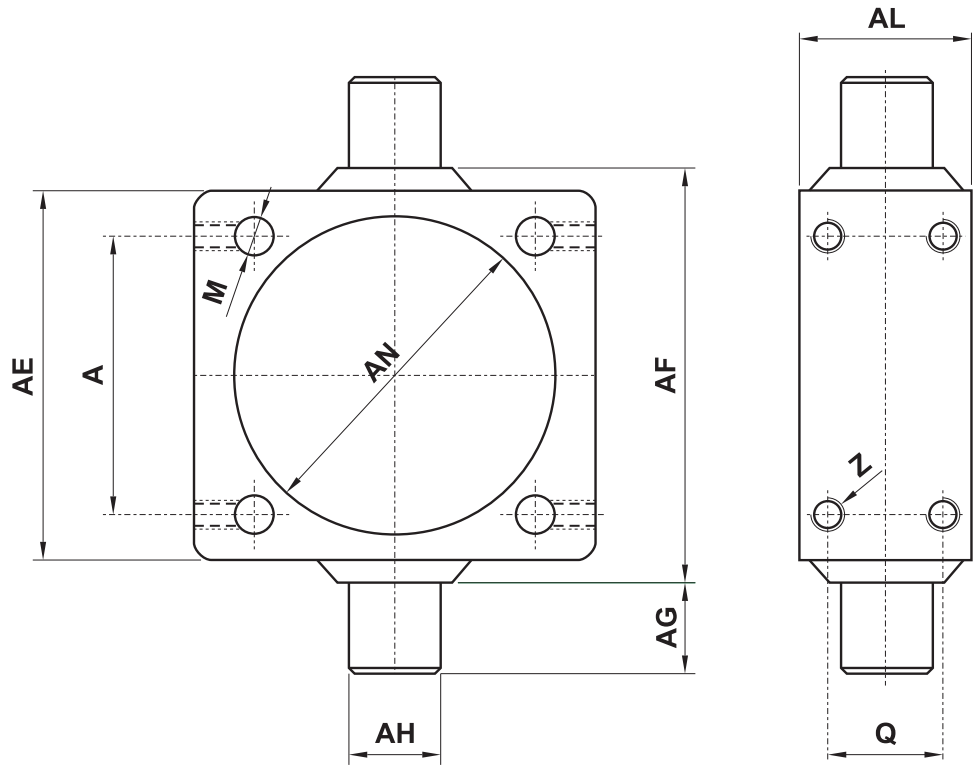
FIXED INTERMEDIATE TRUNNION
for cylinders bores 160 and 200
tie-rods version



This intermediate trunnion can be mounted only on a cylinder with round barrel and tie-rods.
The request for cylinders with tie-rods must be clearly specified on the order.
On the order please specify also the position where the fixing element should be mounted on the cylinder.

part number	for bore	A	B	C	D	E	G	H	J	L
CSIS160TI	160	200	32	ø171	140	M16	ø32	190	40	190
CSIS200TI	200	250	32	ø211	175	M16	ø32	240	40	240

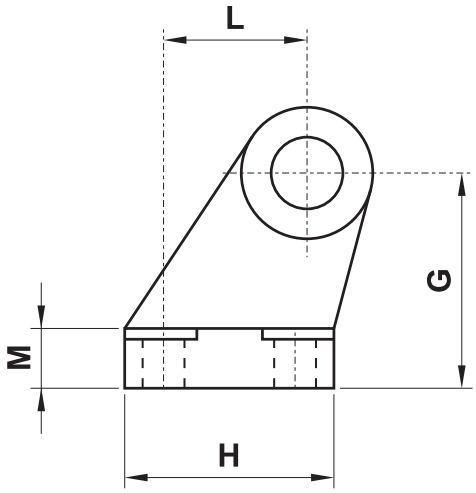
ADJUSTABLE INTERMEDIATE TRUNNION
for cylinders bores 160 and 200
tie-rods version

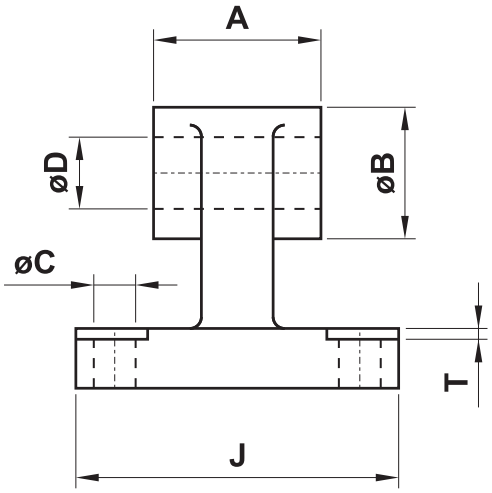


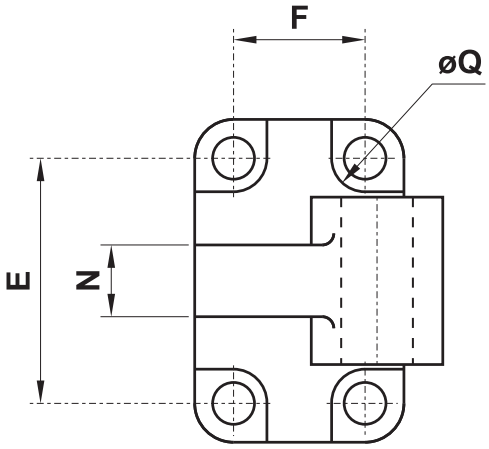
This intermediate trunnion can be mounted only on a cylinder with round barrel and tie-rods.
ATTENTION: This adjustable intermediate trunnion, even if it is correctly mounted on the cylinder, because of the weight can move and cause very serious injury. To avoid this it is better to **use a fixed intermediate trunnion!**

part number	for bore	A	AE	AL	AH	AG	AF	AN	M	Q	Z
26.327.2N	160	140	190	40	ø32	32	200	ø171	ø16.25	18	M12
26.328.2N	200	175	240	40	ø32	32	250	ø211	ø16.25	18	M12

RECTANGULAR JOINT
CETOP RP107P NORM

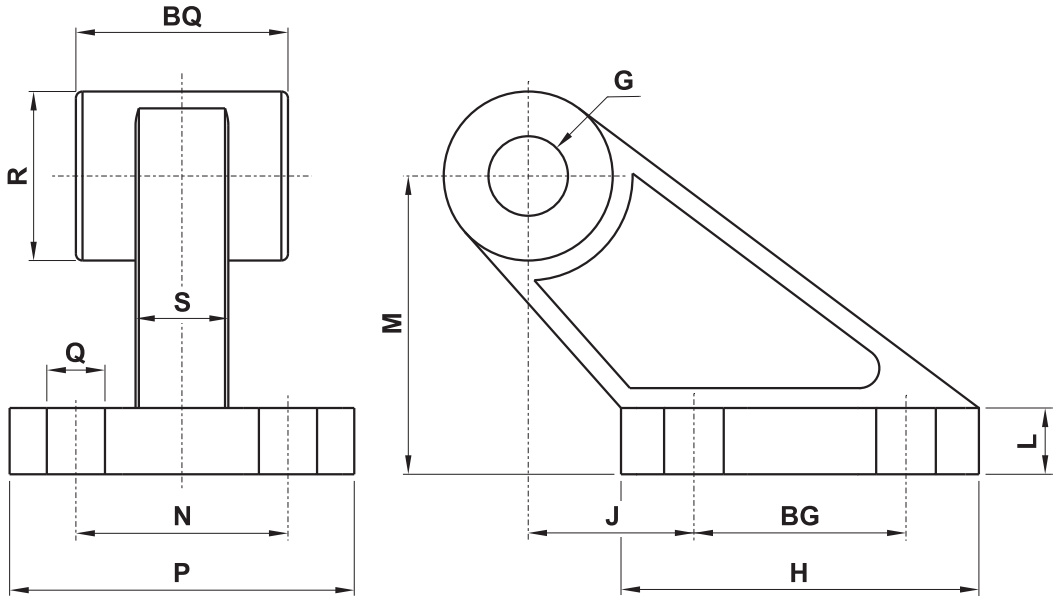






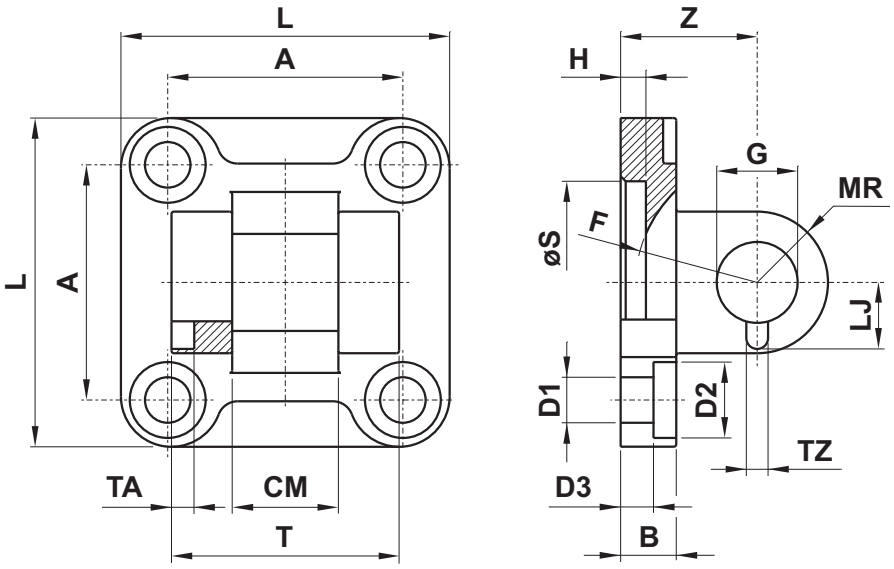
part number	for bore	A	B	C	D	E	F	G	H	J	L	M	N	Q	T
COIS032	32	26	20	6.6	10	38	18	32	31	51	21	8	10	11	1.6
COIS040	40	28	22	6.6	12	41	22	36	35	54	24	10	15	11	1.6
COIS050	50	32	26	9	12	50	30	45	45	65	33	12	16	15	1.6
COIS063	63	40	30	9	16	52	35	50	50	67	37	14	16	15	1.6
COIS080	80	50	30	11	16	66	40	63	60	86	47	14	20	18	2.5
COIS100	100	60	38	11	20	76	50	71	70	96	55	17	20	18	2.5
COIS125	125	70	45	14	25	94	60	90	90	124	70	20	30	20	3.2
COIS160	160	90	63	14	30	118	88	115	126	156	97	25	36	20	4
COIS200	200	90	63	18	30	122	90	135	130	162	105	30	40	26	4

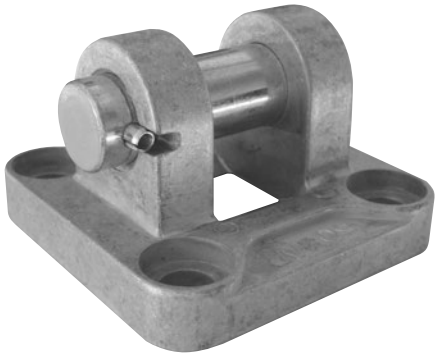
RECTANGULAR JOINT
ISO 6431 - VDMA



part number	for bore	Q	BG	H	J	L	M	N	P	S	R	BQ	G
COVDMA32	32	ø7	20	37	18	8	32	25	41	9	19	26	ø10
COVDMA40	40	ø9	32	54	25	10	45	32	52	14	25.5	28	ø12
COVDMA50	50	ø9	32	54	25	10	45	32	52	14	25.5	32	ø12
COVDMA63	63	ø11	50	75	32	12	63	40	63	14	32	40	ø16
COVDMA80	80	ø11	50	75	32	12	63	40	63	14	32	50	ø16
COVDMA100	100	ø14	70	103	40	17	90	50	80	22	42	60	ø20
COVDMA125	125	ø14	70	103	40	17	90	50	80	22	46	70	ø25
COVDMA160	160	ø18	110	154	50	20	140	63	110	26	53.5	89	ø30
COVDMA200	200	ø18	110	154	50	20	140	63	110	26	53.5	89	ø30

NARROW FEMALE HINGE FOR JOINT WITH ARTICULATED HEAD DIN 648K



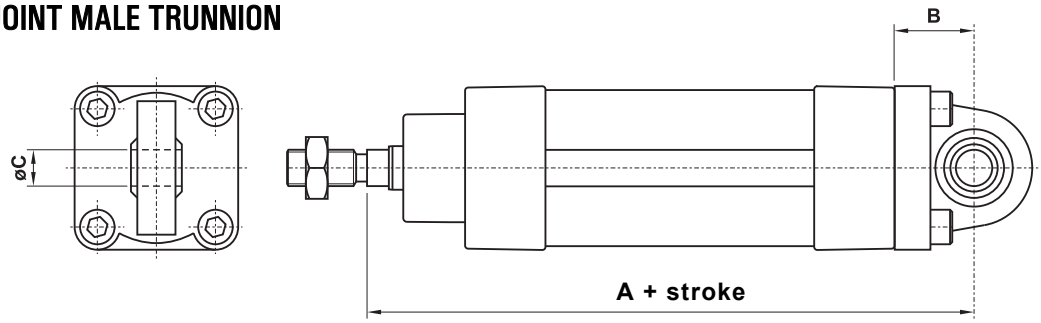


part number	for bore	L	T	CM	A	Z	H	B	D3	S	G	MR	D1	D2	TA	TZ	LJ	F
CFSIS032	32	45	34	14	32.5	22	5	9	5.5	30	ø10	10	ø6.6	ø11	3	3.3	11.5	17
CFSIS040	40	52	40	16	38	25	5	9	5.5	35	ø12	12	ø6.6	ø11	4	4.3	12	20
CFSIS050	50	65	45	21	46.5	27	5	11	6.5	40	ø16	14	ø9	ø15	4	4.3	14	22
CFSIS063	63	75	51	21	56.5	32	5	11	6.5	45	ø16	18	ø9	ø15	4	4.3	14	25
CFSIS080	80	95	65	25	72	36	5	14	10	45	ø20	20	ø11	ø18	4	4.3	16	30
CFSIS100	100	115	75	25	89	41	5	14	10	55	ø20	22	ø11	ø18	4	6.3	16	32
CFSIS125	125	140	97	37	110	50	7	20	10	60	ø30	25	ø14	ø20	6	6.3	24	42
CFSIS160	160	180	122	43	140	55	7	20	10	65	ø35	30	ø18	ø26	6	6.3	26.5	46
CFSIS200	200	220	122	43	175	60	7	25	11	75	ø35	30	ø18	ø26	6	6.3	26.5	49

Fixing elements for cylinders ISO 6431 VDMA

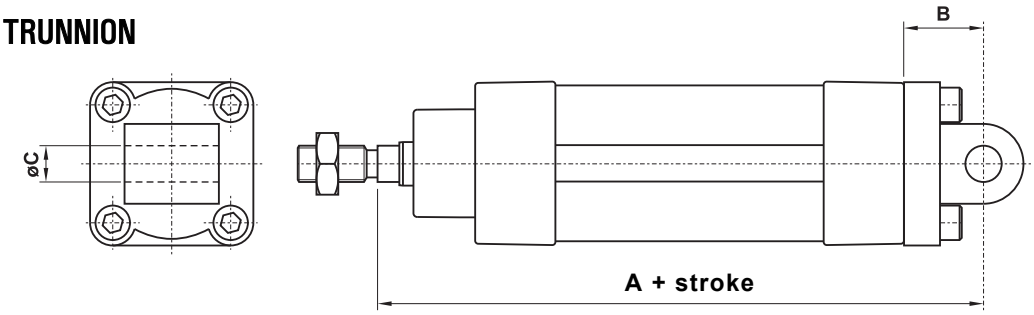
BALL-JOINT MALE TRUNNION

CMSS...



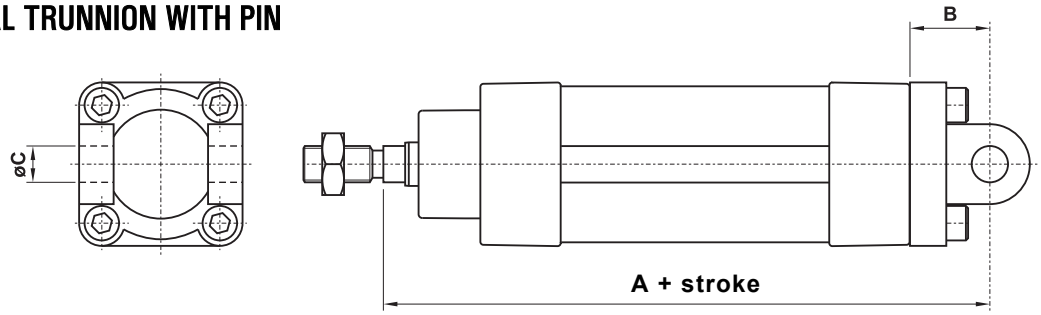
MALE TRUNNION

CMIS...
CMKS...



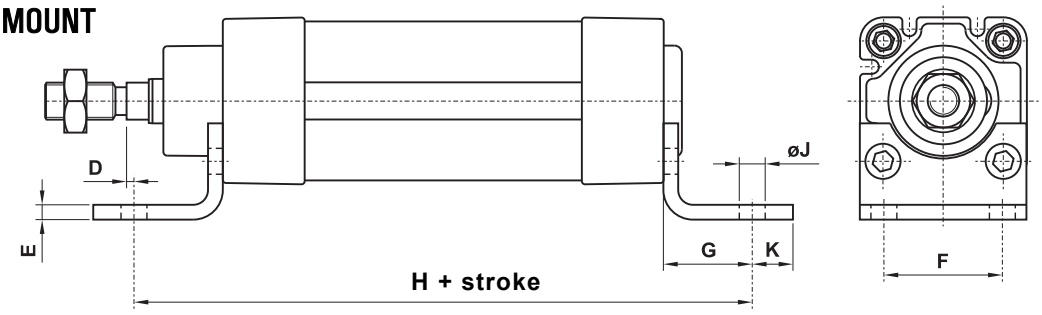
FEMAL TRUNNION WITH PIN

CFIS...
CFKS...



FOOT MOUNT

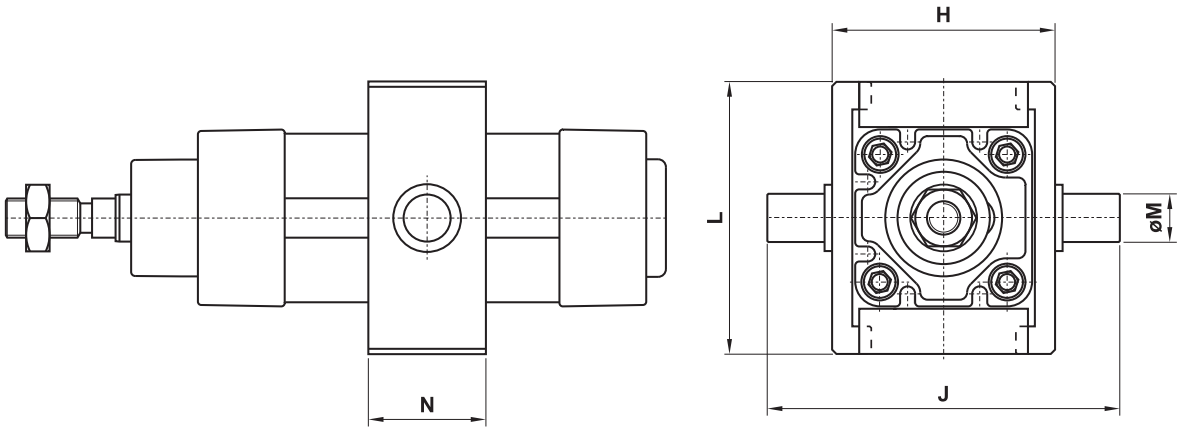
PBIS...



ø	A	B	C	D	E	F	G	H	J	K
32	142	22	10	2	4	32	24	142	7	11
40	160	25	12	2	4	36	28	161	9	8
50	170	27	12	5	5	45	32	170	9	15
63	190	32	16	5	5	50	32	185	9	13
80	210	36	16	5	6	63	41	210	12	14
100	230	41	20	10	6	75	41	220	14	16
125	275	50	25	20	8	90	45	250	16	25
160	315	55	30	20	9	115	60	300	18	15
200	335	60	30	25	12	135	70	320	22	30

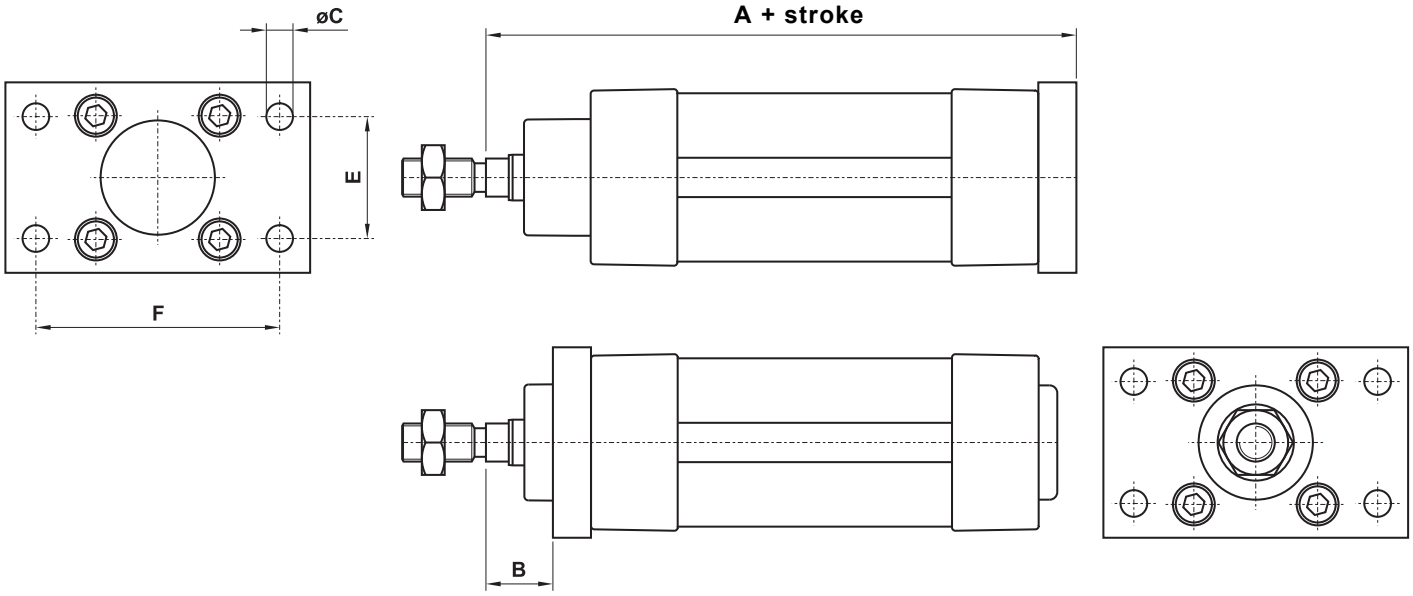
INTERMEDIATE TRUNNION PER ESTRUSO - ONLY FOR "N" SERIES

CIN...
CSIS...TI



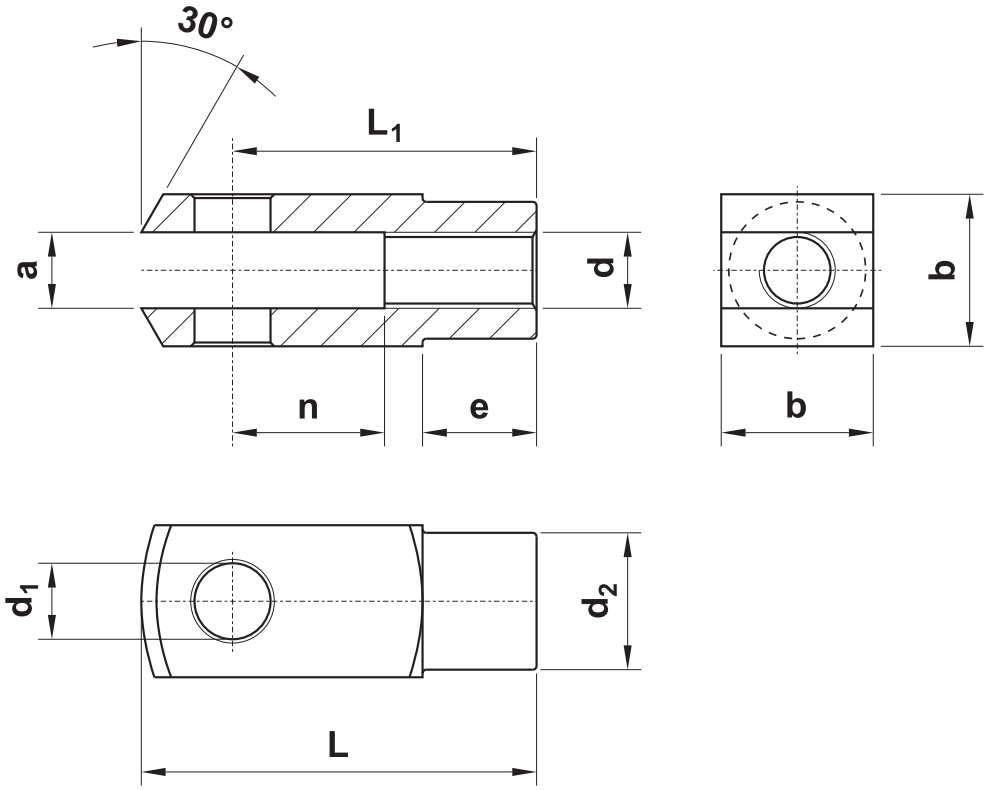
FLANGE

FLIS...



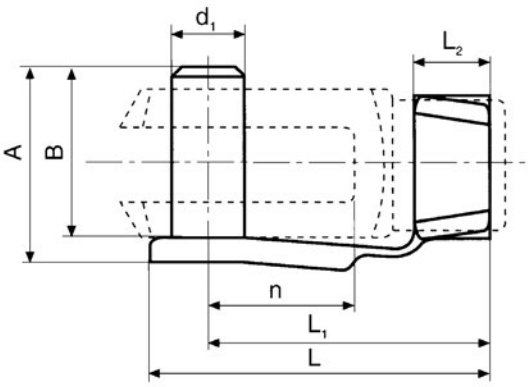
ø	A	B	C	E	F	H	J	L	M	N
32	130	16	7	32	64	52	87	65	12	25
40	145	20	9	36	72	62	105	74.8	16	25
50	155	25	9	45	90	74	117	90.3	16	25
63	170	25	9	50	100	91	136	94.5	20	30
80	190	30	12	63	126	111	156	109.3	20	30
100	205	35	14	75	150	129	195	134	25	40
125	245	45	16	90	180	156.7	222.7	160	25	40
160	280	60	18	115	230	190	262	200	32	40
200	300	70	22	135	270	240	312	250	32	40

FORKS



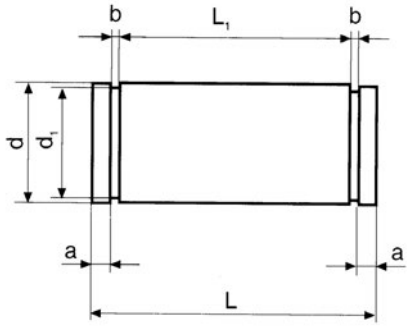
part number	for bores	d	a	b	d_1	d_2	e	L	L_1	n	supplied with
FR8C10	8-10	M4x0.7	4	8	ø4	ø8	6	21	16	8	clip
FR12C16	12-16	M6x1	6	12	ø6	ø10	9	31	24	12	clip
FRC20	20	M8x1.25	8	16	ø8	ø14	12	42	32	16	clip
FR25C32	25-32	M10x1.25	10	20	ø10	ø18	15	52	40	20	clip
FRC40	40	M12x1.25	12	24	ø12	ø20	18	62	48	24	clip
FR50C63	50-63	M16x1.5	16	32	ø16	ø26	24	83	64	32	clip
FR80C100	80-100	M20x1.5	20	40	ø20	ø34	30	105	80	40	clip
FRC125	125	M27x2	30	55	ø30	ø48	38	148	110	54	pin
FR160C200	160-200	M36x2	35	70	ø35	ø60	40	188	144	72	pin

CLIPS FOR FORKS



code	used for fork	d_1	n	A	B	L	L_1	L_2
26.119.0	**M4x0.7**	4	8	11	9	19	15	5
26.120.0	**M6x1**	6	12	16	14	28	23	6
26.121.0	**M8x1.25**	8	16	22	19	37	31	8
26.122.0	**M10x1.25**	10	20	26	23	46	39	10
26.123.0	**M12x1.25**	12	24	32	28	55	47	12
26.124.0	**M16x1.5**	16	32	40	36	72	62	14
26.125.0	**M20x1.5**	20	40	48	44	88	72	16

PINS FOR FORKS

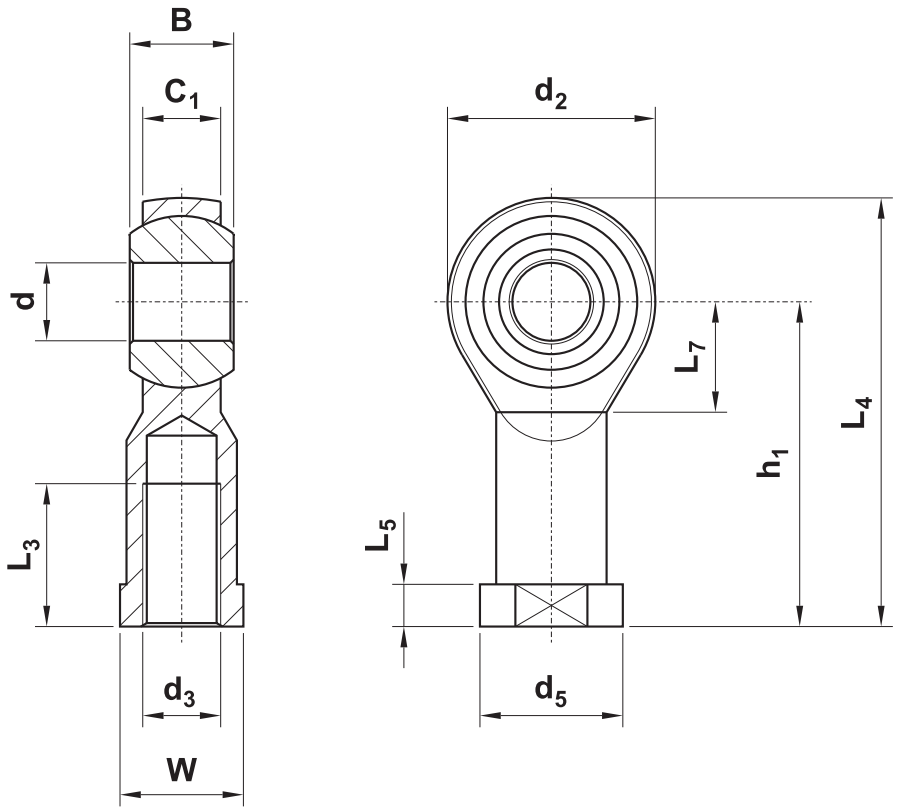


used for fork	d	L	d_1	L_1	a	b
M27x2	30	65	28.6	55	3.4	1.6
M36x2	35	84	33.4	70	5.4	1.6

NUTS FOR PISTON-ROD

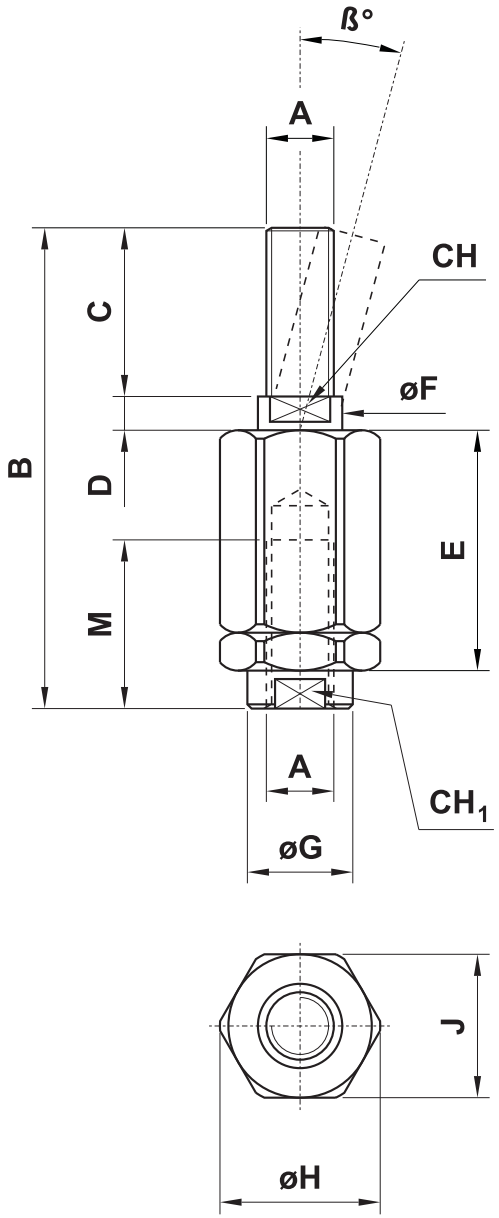
STANDARD part number	**STAINLESS STEEL** part number	code	for bore	thread	key
DSMC8-10		26.196.2	8-10	M4x0.7	7
DSMC12-16		26.197.2	12-16	M6x1	10
DSMC20		26.198.2	20	M8x1.25	13
DSIS032	**DSIS032X**	21.750.0	25-32	M10x1.25	17
DSIS040	**DSIS040X**	21.751.0	40	M12x1.25	19
DSIS05063	**DSIS05063X**	21.752.0	50-63	M16x1.5	24
DSIS080100	**DSIS080100X**	21.753.0	80-100	M20x1.5	30
DSIS125	**DSIS125X**	21.754.0	125	M27x2	41
DSIS160200	**DSIS160200X**	21.755.0	160-200	M36x2	55

SWIVEL BALL JOINT



STANDARD part number	STAINLESS STEEL part number	for bores	d_3	d	B	C_1	d_2	d_5	h_1	L_3	L_4	L_5	L_7	W
TS8T10	**TS8T10X**	8-10	M4x0.7	ø5	8	6	18	ø11	27	10	36	4	10	9
TS12T16	**TS12T16X**	12-16	M6x1	ø6	9	6.75	20	ø13	30	12	40	5	11	11
TST20	**TST20X**	20	M8x1.25	ø8	12	9	24	ø16	36	16	48	5	13	14
TS25T32	**TS25T32X**	25-32	M10x1.25	ø10	14	10.5	28	ø19	43	20	57	6.5	15	17
TST40	**TST40X**	40	M12x1.25	ø12	16	12	32	ø22	50	22	66	6.5	17	19
TS50T63	**TS50T63X**	50-63	M16x1.5	ø16	21	15	42	ø27	64	28	85	8	23	22
TS80T100	**TS80T100X**	80-100	M20x1.5	ø20	25	18	50	ø34	77	33	102	10	27	30
TST125	**TST125X**	125	M27x2	ø30	37	25	70	ø50	110	51	145	15	36	41
TS160T200	**TS160T200X**	160-200	M36x2	ø35	43	28	80	ø58	125	56	165	17	41	50

SELF-ALIGNING JOINTS



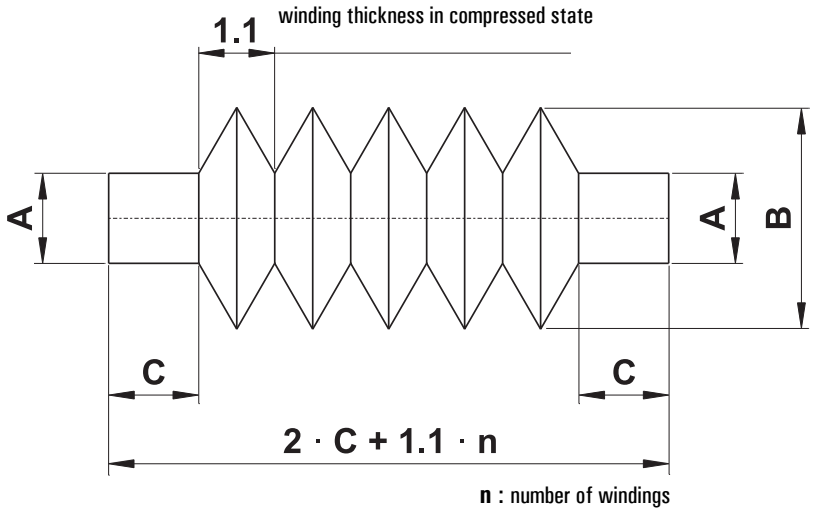
part number	for bores	A	B	C	D	E	F	G	H	J	M	CH	ß°	CH_1
SN12D16	12-16	M6x1	35	10	3.5	17.5	6	8.5	14.5	13	10	5	10	7
SND20	20	M8x1.25	57	20	4	28.5	8	12.5	19	17	20	7	10	11
SN25D32	25-32	M10x1.25	71	20	5	35	14	22	32	30	20	12	10	19
SND40	40	M12x1.25	75	24	5	35	14	22	32	30	20	12	10	19
SN50D63	50-63	M16x1.5	103	32	8	54	22	32	45	41	32	20	10	30
SN80D100	80-100	M20x1.5	119	40	8	54	22	32	45	41	40	20	10	30
SND125	125	M27x2	147	54	10	60	32	57	70	65	48	24	8	54

PISTON ROD PROTECTION COVERS

Piston rod protection cover for ISO 6431 VDMA cylinders, in double-sided hyped-up cloth (fabric). Water, oil and dust resistant. Colour: blue.
The protection cover must be fixed on the piston rod by two clamps, not provided with the protection cover.

SO	A	1	0

size identification — number of windings



n : number of windings

for cylinder ø	A	B	C	number of windings for 100 mm stroke	size identification
32; 40	30	60	36	10	A
50; 63; 80	40	80	46	8	B
100; 125	55	130	40	4	C
160; 200	70	155	55	3	D
250; 320	110	180	60	3	E

bore	maximum stroke (mm)	corresponding number of windings
32	90	9
40	90	9
50	130	11
63	130	11
80	140	12
100	330	14
125	550	22
160	870	27
200	1170	36

If the cylinder stroke is longer than the value in this table, we advise to increase the dimension D of the piston rod length (refer to pages 414-415) by 1.1 mm for each winding.

Example: a cylinder bore 80 and stroke 300 needs 24 windings. It is necessary to increase the piston rod length by (24–12) x 1.1 mm = 13.2 mm.
The cylinder with longer piston rod must be ordered as special (please contact the commercial office).

Rod blocking device

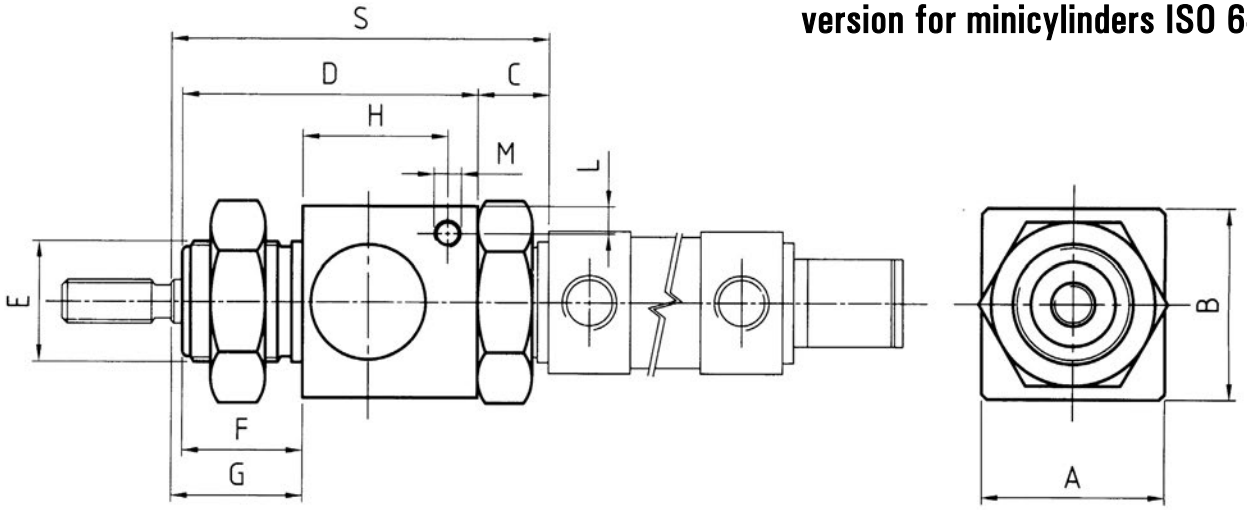
The rod blocking device can be used with cylinders ISO 6431 VDMA (bores from 32 to 125) and with minicylinders ISO 6432 (bores from 12 to 25).
The device is normally locked. It is unlocked by applying a pneumatic signal. Therefore it is possible to block the cylinder in case of pressure drop or to stop the movement in intermediate positions.

Materials
Body: aluminium (anodize treatment)
Internal parts: brass
Pistons: polymer
Springs: steel

Minimum actuating pressure		3 bar (43.5 PSI) 0.3 MPa										
Temperature range		**-15+60°C (5-140° F**										
Construction type		Mechanical bi-directional										
Function		NC (pneumatic piloted unlock)										
Locking force	ø	12	16	20	25	32	40	50	63	80	100	125
	force (N)	200	200	490	490	790	1240	1930	3060	5400	7700	12040
Fluid		50μ filtered, lubricated or non lubricated air										

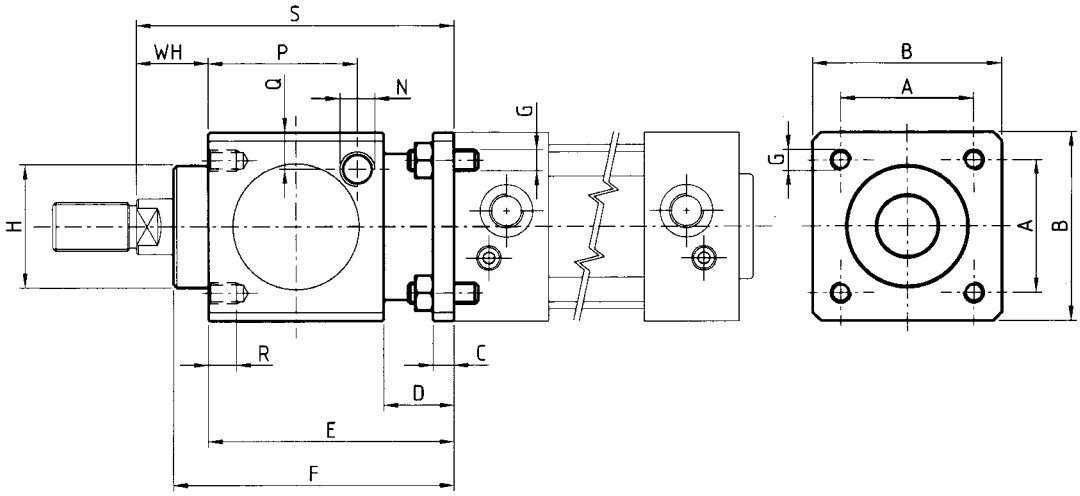
Rod blocking device

version for minicylinders ISO 6432



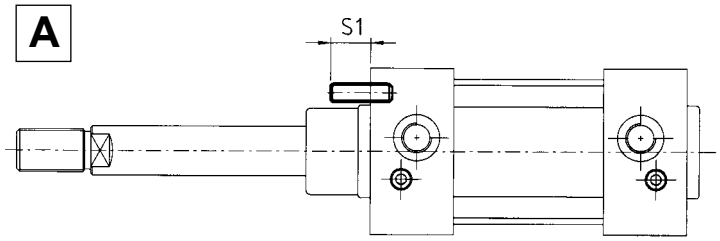
model	for bores	A	B	C	D	E	F	G	H	L	M
BM012	12-16	30	29.5	10.5	44.5	M16x1.5	17	22	24.5	4	M5
BM020	20	35	33.5	13	54	M22x1.5	22	24	26.5	4.5	M5
BM025	25	35	33.5	13	54	M22x1.5	22	28	26.5	4.5	M5

version for cylinders ISO 6431

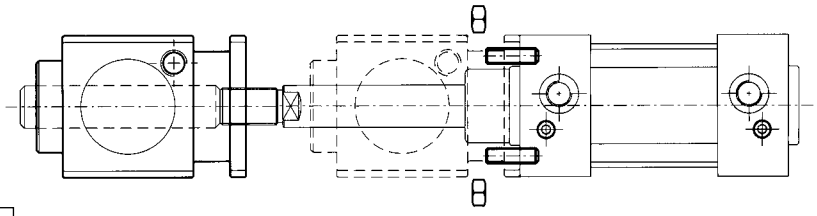


part number	for bores	A	B	C	D	E	F	G	H	WH	N	P	Q	R	S
BM032	32	32.5	47	6	22.5	60	67.5	M6	30	26	G1/8"	33.5	9.5	8	86
BM040	40	38	54	6	20	70	80	M6	35	30	G1/8"	42.5	10.5	8	100
BM050	50	46.5	65	8	24	90	100	M8	40	32	G1/8"	58	12.5	12	122
BM063	63	56.5	75	8	24	90	100	M8	45	37	G1/8"	59	17.5	12	127
BM080	80	72	95	12	32	110	120	M10	45	46	G1/4"	69	17.5	16	156
BM100	100	89	114	12	32	110	120	M10	55	51	G1/4"	69	27	16	161
BM125	125	110	140	20	45	140	156	M12	60	65	G1/4"	84.5	20	20	205

assembling scheme

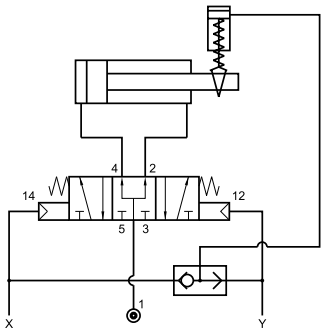


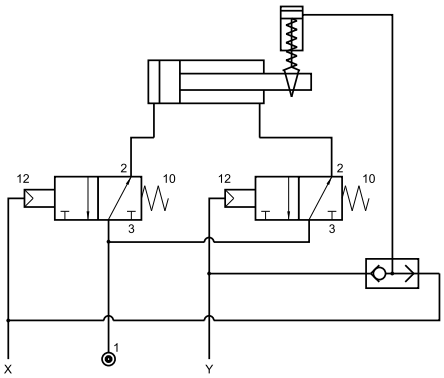
CILINDRO Φ	32	40	50	63	80	100	125
S1	12	12	16	16	22	22	32



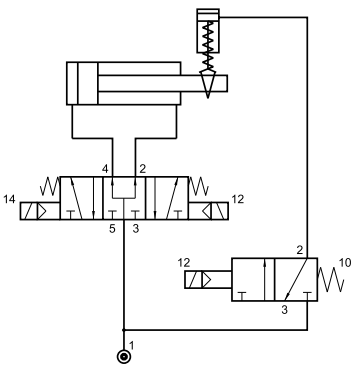
connection scheme

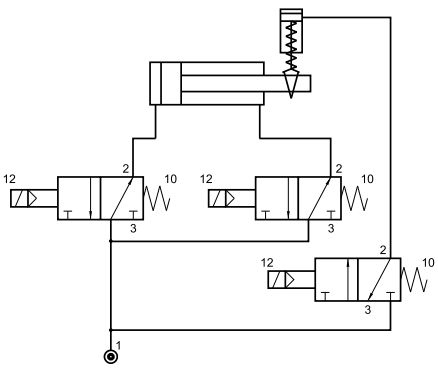
pneumatic control





electropneumatic control



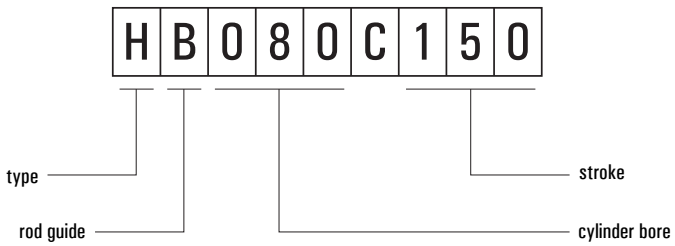


- Guide units for cylinders ISO 6431 and minicylinders ISO 6432
- Available versions: type “U” with sintered bronze rod guide (code UB...) - cylinder bores from 12 to 100
  type “H” with sintered bronze rod guide (code HB...) - cylinder bores from 12 to 100
  type “H” with linear ball bearings (code HS...) - cylinder bores from 12 to 100

- Type “U” with sintered bronze rod guide: movements with medium loads and low speeds
- Type “H” with sintered bronze rod guide: movements with heavy loads and low speeds
- Type “H” with linear ball bearings: movements with medium loads and high speeds

Materials
Body: aluminium (anodize treatment)
Rods: C40 (chromium plated)

coding example



Type
H “H” type
U “U” type

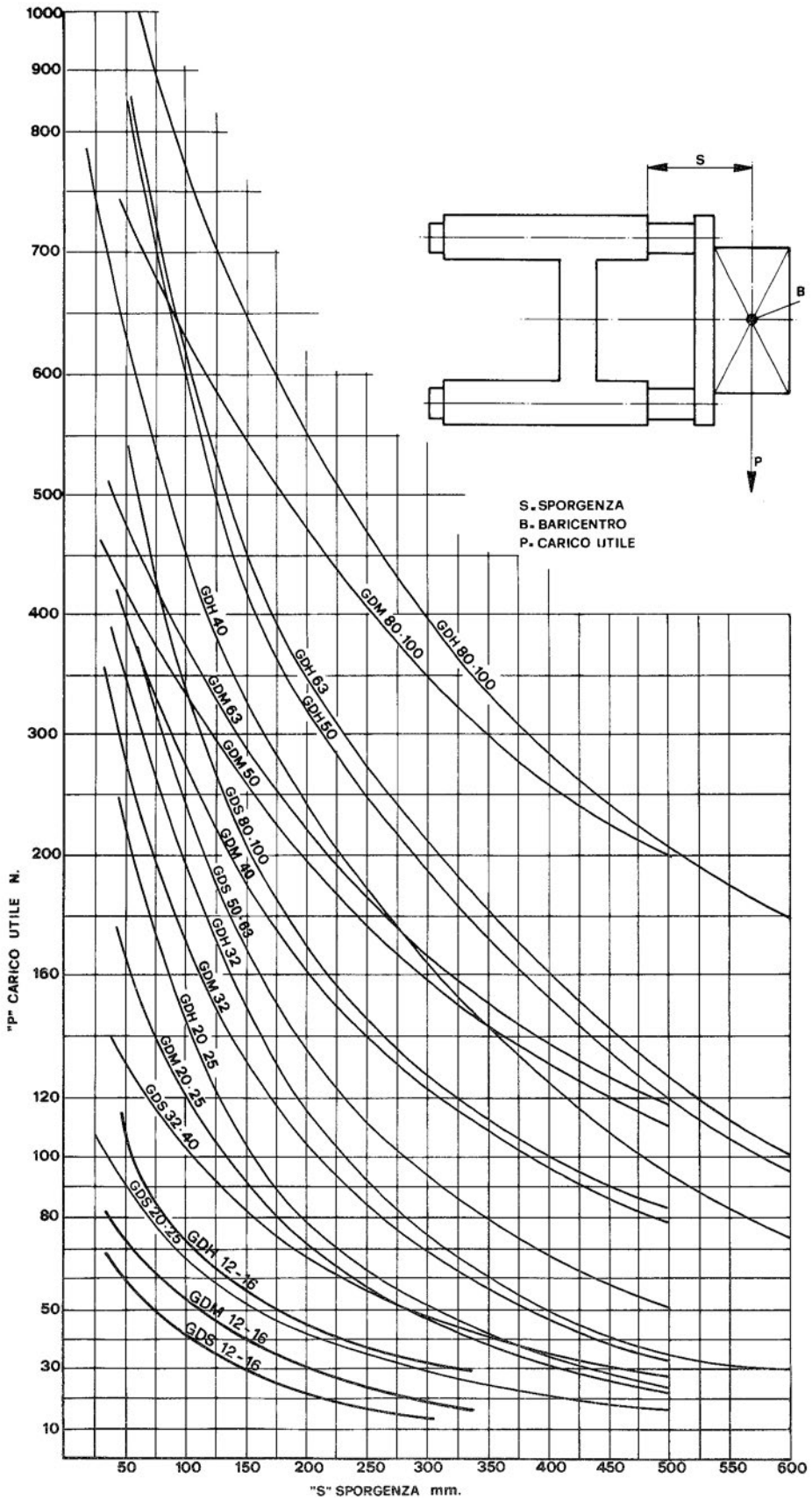
Rod guide
B sintered bronze
S linear ball bearings

available bores and strokes

stroke \ bore	12* 16	20	25	32	40	50	63	80	100
50	X	X	X	X	X	X	X	X	X
100	X	X	X	X	X	X	X	X	X
150				X	X	X	X	X	X
160	X	X	X						
200	X	X	X	X	X	X	X	X	X
250	X	X	X	X	X	X	X	X	X
300				X	X	X	X	X	X
400				X	X	X	X	X	X
500				X	X	X	X	X	X

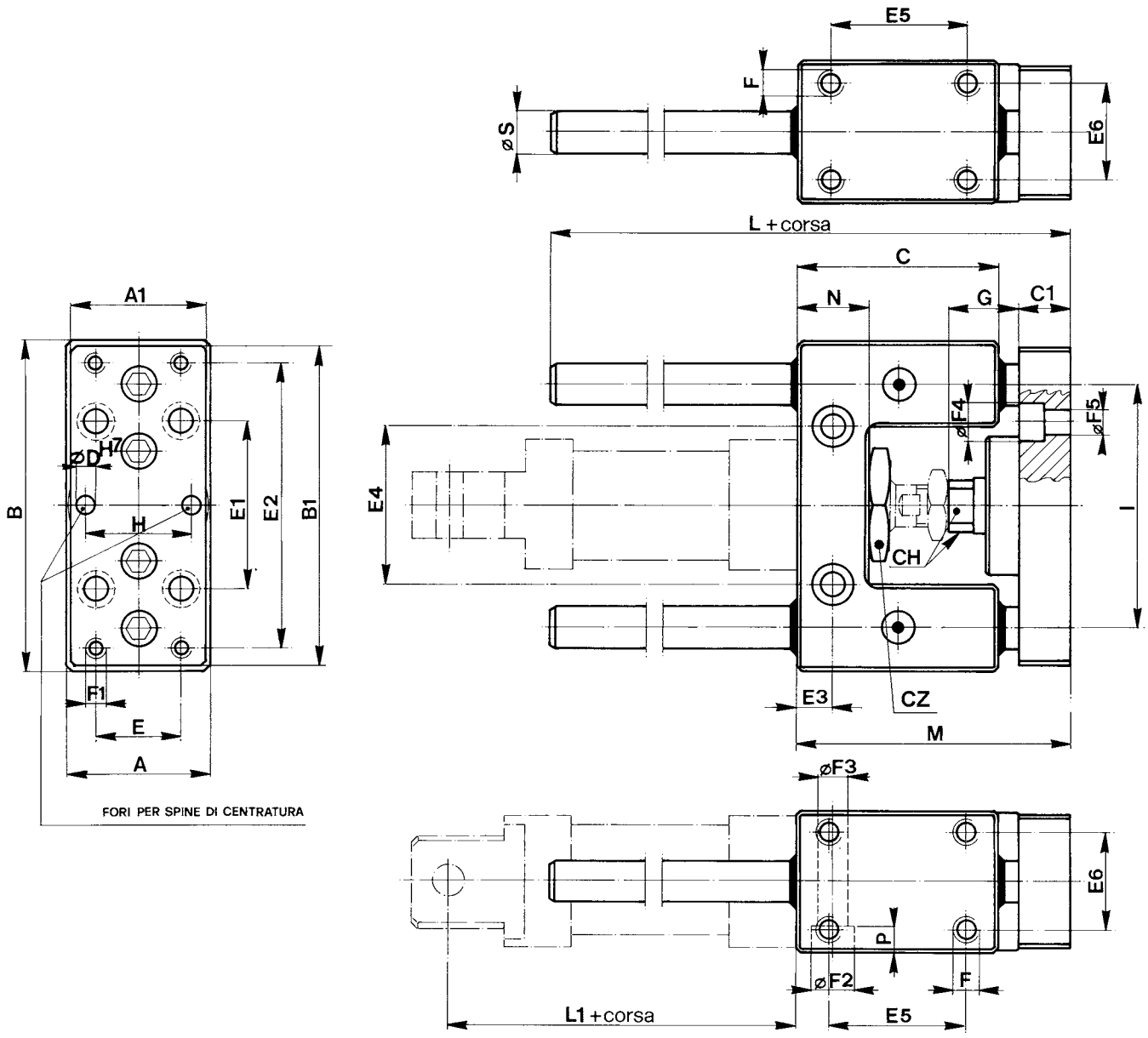
* The guide unit for bore 12 is used also for bore 16, with the same code.

Carico ammissibile / *Permissible loads*



tipo "U" per microcilindri ISO 6432

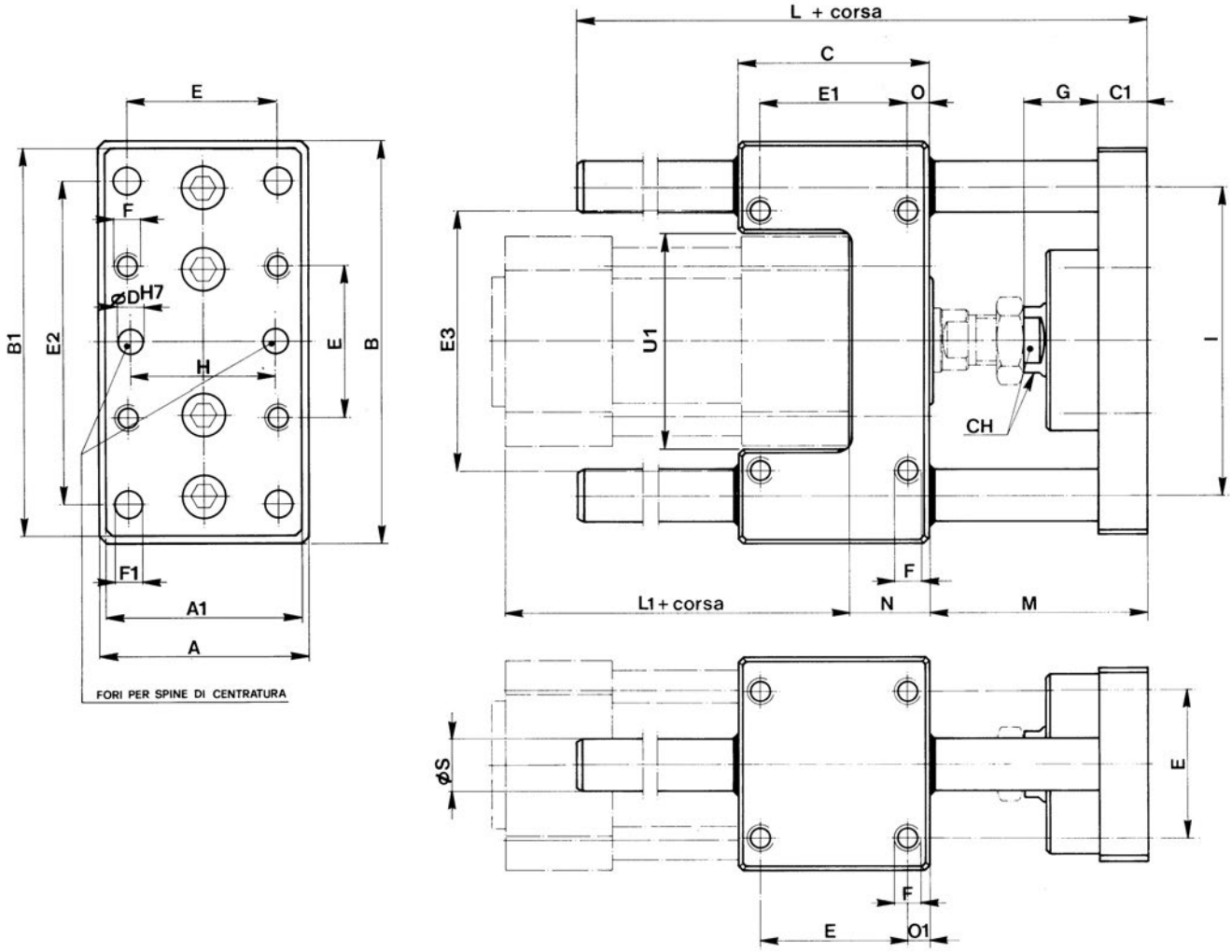
type "U" for minicylinders ISO 6432



ø CIL	A	A1	B	B1	C	C1	CH	CZ	D	E	E1	E2	E3	E4	E5	E6	F	F1	F2	F3	F4	F5	G	H	I	L	L1	M	N	P	S
12 16	30	27	65	63	38	10	8	19	4	15	32	54	6.5	24	25	22	M4	M4	8.5	5.1	7.5	4.5	12	15	46	70	53 60	51	13	5.5	8
20	34	32	79	76	48	12	12	27	6	20	40	68	8.5	38	32.5	23	M6	M5	10.5	6.5	9	5.5	22	20	58	83	71	65	17	6.5	10
25	34	32	79	76	48	12	12	27	6	20	40	68	8.5	38	32.5	23	M6	M5	10.5	6.5	9	5.5	17	20	58	83	76	65	17	6.5	10

tipo "U" per cilindri ISO 6431

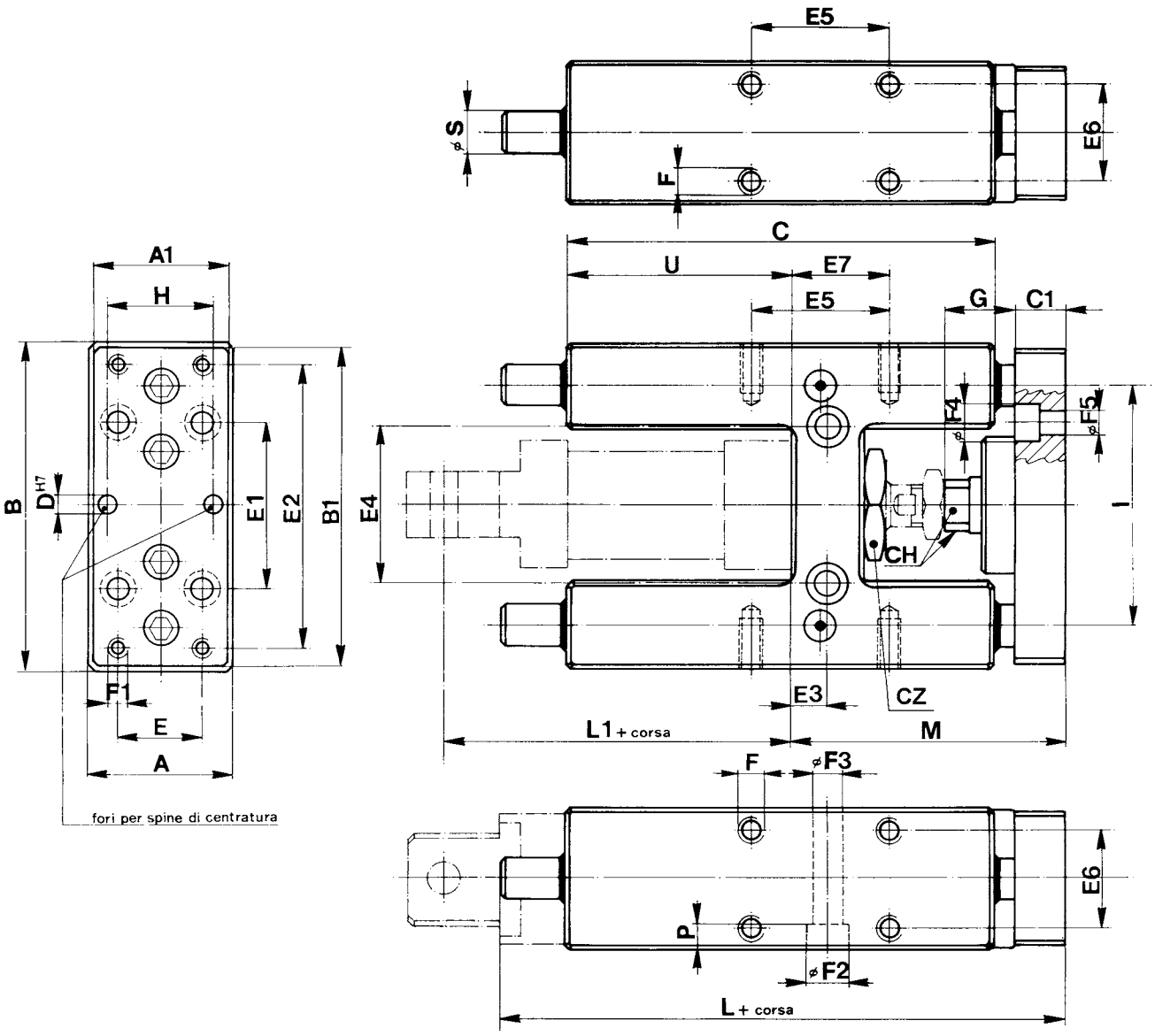
type "U" for cylinders ISO 6431



ø CIL	A	A1	B	B1	C	C1	D	E	E1	E2	E3	F	F1	G	H	I	L	L1	M	N	O	O1	S	CH	U1
32	48	45	100	90	48	12	6	32.5	32.5	78	58	M6	6.5	20	31	74	106	94	54	17	7.8	7.8	12	13	48
40	56	50	106	105	58	12	6	38	38	84	64	M6	6.5	22	36	80	117	105	55	21	10	10	12	15	54
50	66	60	125	124	59	15	6	46.5	46.5	100	80	M8	9	23	45	96	129	106	68	25	6.3	6.3	16	21	67
63	76	70	132	125	76	15	6	56.5	56.5	105	95	M8	9	23	45	104	146	121	68	25	9.8	9.8	16	21	76
80	98	90	165	155	90	18	6	72	50	130	130	M10	11	30	56	130	170	128	78	34	20	9	20	27	97
100	118	110	185	175	110	18	6	89	70	150	150	M10	11	30	56	150	190	138	78	39	20	10.5	20	27	117

tipo "H" per microcilindri ISO 6432

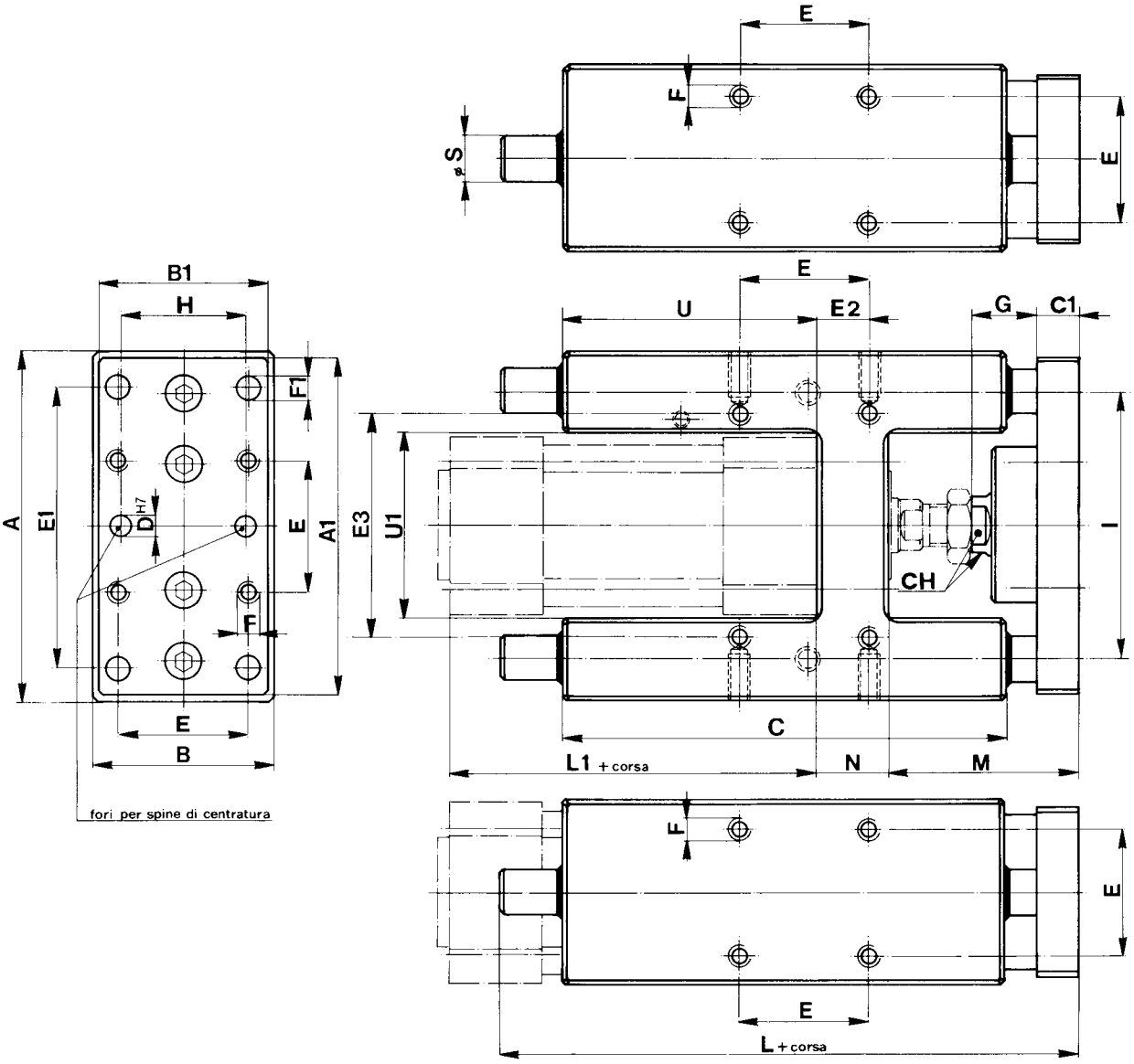
type "H" for minicylinders ISO 6432



ø CIL	A	A1	B	B1	C	C1	CH	CZ	D	E	E1	E2	E3	E4	E5	E6	E7	F	F1	F2	F3	F4	F5	G	H	I	L	L1	M	P	S	U
12 16	30	27	65	63	75	10	8	19	4	15	32	54	6.5	24	32.5	22	11	M4	M4	8.5	5.1	7.5	4.5	12	15	46	130	53 60	51	5.5	8	37
20	34	32	79	76	108	12	12	27	6	20	40	68	8.5	38	32.5	23	15	M6	M5	10.5	6.5	9	5.5	22	20	58	159	71	65	6.5	10	58
25	34	32	79	76	108	12	12	27	6	20	40	68	8.5	38	32.5	23	15	M6	M5	10.5	6.5	9	5.5	17	20	58	159	76	65	6.5	10	58

tipo "H" per cilindri ISO 6431

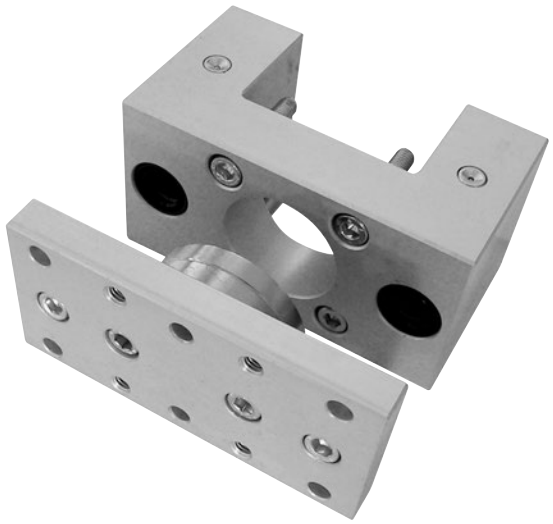
type "H" for cylinders ISO 6431



ø CIL	A	A1	B	B1	C	C1	CH	D	E	E1	E2	E3	F	F1	G	H	I	L	L1	M	N	S	U	U1
32	97	90	50	45	125	12	13	6	32.5	78	4.3	61	M6	6.5	20	31	74	177	94	54	17	12	76	50.5
40	115	105	58	50	136	12	15	6	38	84	11	69	M6	6.5	22	36	87	192	105	55	21	16	81	58.5
50	137	124	70	60	144	15	21	6	46.5	100	18.5	85	M8	9	23	45	104	237	106	68	26	20	79	70.5
63	152	145	85	70	176	15	21	6	56.5	105	15.3	100	M8	9	23	45	119	237	121	68	26	20	111	85.5
80	189	180	105	100	215	20	27	6	72	130	21	130	M10	11	30	56	148	280	128	78	34	25	128	106
100	213	200	130	120	220	20	27	6	89	150	24.5	150	M10	11	30	56	173	280	138	78	39	25	128	131

guide units kit

Kit includes all necessary pieces. Rods are not included.

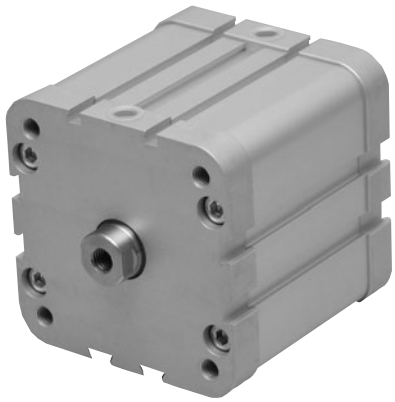


"U" type with sintered bronze rod guide		
for bore	part number	code
12-16	**KUB012-016**	27.271.0
20	**KUB020**	27.272.0
25	**KUB025**	27.273.0
32	**KUB032**	27.274.0
40	**KUB040**	27.275.0
50	**KUB050**	27.278.0
63	**KUB063**	27.279.0
80	**KUB080**	27.280.0
100	**KUB100**	27.281.0

"H" type with sintered bronze rod guide		
for bore	part number	code
12-16	**KHB012-016**	27.259.0
20	**KHB020**	27.250.0
25	**KHB025**	27.251.0
32	**KHB032**	27.252.0
40	**KHB040**	27.253.0
50	**KHB050**	27.254.0
63	**KHB063**	27.255.0
80	**KHB080**	27.256.0
100	**KHB100**	27.257.0

"H" type with linear ball bearings		
for bore	part number	code
12-16	**KHS012-016**	27.260.0
20	**KHS020**	27.261.0
25	**KHS025**	27.268.0
32	**KHS032**	27.262.0
40	**KHS040**	27.263.0
50	**KHS050**	27.264.0
63	**KHS063**	27.265.0
80	**KHS080**	27.266.0
100	**KHS100**	27.267.0

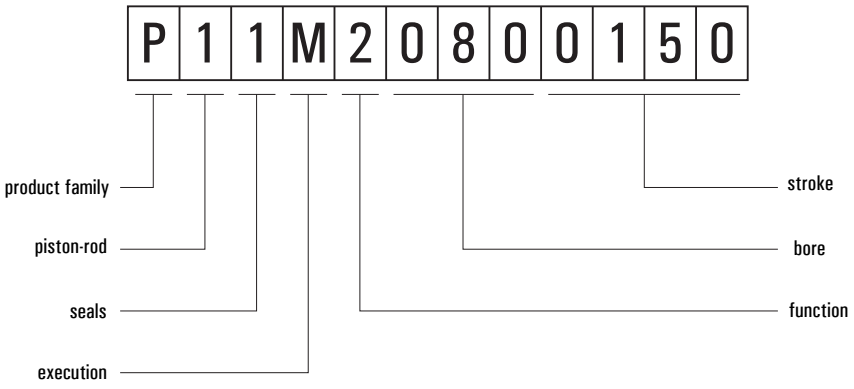
- Fixing dimensions are compliant to norm ISO 6431 or UNITOP
- Suitable for standard fixing elements
- High reliability and long lifetime
- Standard magnetic version
- Special strokes on request



Materials
Barrel: aluminium
Piston-rod: C45 (chromium plated) or stainless steel
End-cups: aluminium
Piston: technopolymer (standard) or aluminium (on request). Technopolymer piston is not suitable for ATEX.
Seals: polyurethane or VITON
Piston-rod seal: polyurethane or VITON
Magnet: magnetic iron compound (not suitable for temperatures over +60°C)

Operating pressure	max 10 bar (145 PSI) max 1 MPa
Temperature range	standard (polyurethane/NBR): **-15+60°C (5-140° F**) VITON: max +110°C (230° F)
Bores	32; 40; 50; 63; 80; 100 mm
Construction type	Square aluminium profile
Strokes	5 ... 200 mm
Fluid	50μ filtered, lubricated or non lubricated air

coding example



Product family
P compact cylinders with fixing distances ISO 6431
R compact cylinders with fixing distances UNITOP

Piston-rod
1 C45 chromium plated - female rod thread
2 stainless steel - female rod thread
3 C45 chromium plated - male rod thread
4 stainless steel - male rod thread

Seals
1 polyurethane
2 all seals in VITON
3 rod seals in VITON

Execution
M magnetic

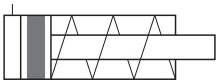
Function
1 single acting front spring without pneumatic cushioning
2 double acting without pneumatic cushioning
3 single acting back spring without pneumatic cushioning
4 double acting without pneumatic cushioning, with through-rod

available versions

single acting front spring

magnetic

without pneumatic cushioning



bore / stroke	32	40	50	63	80	100
5	X	X	X	X	X	X
10	X	X	X	X	X	X
25	X	X	X	X	X	X
30			X	X	X	X
40						
50						
75						
80						
100						
125						
150						
160						
200						

OPTIONS

The standard is marked with grey background

piston-rod material	
C45 chromium plated	stainless steel

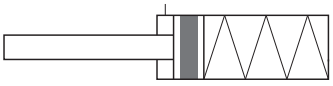
seals material		
polyuret.	all seals in VITON	rod seals in VITON

rod thread	
female rod thread	male rod thread

single acting back spring

magnetic

without pneumatic cushioning



bore / stroke	32	40	50	63	80	100
5	X	X	X	X	X	X
10	X	X	X	X	X	X
25	X	X	X	X	X	X
30			X	X	X	X
40						
50						
75						
80						
100						
125						
150						
160						
200						

OPTIONS

The standard is marked with grey background

piston-rod material	
C45 chromium plated	stainless steel

seals material		
polyuret.	all seals in VITON	rod seals in VITON

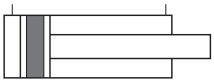
rod thread	
female rod thread	male rod thread

available versions

double acting

magnetic

without pneumatic cushioning



bore / stroke	32	40	50	63	80	100
5	X	X	X	X	X	X
10	X	X	X	X	X	X
25	X	X	X	X	X	X
30	X	X	X	X	X	X
40	X	X	X	X	X	X
50	X	X	X	X	X	X
75	X	X	X	X	X	X
80	X	X	X	X	X	X
100	X	X	X	X	X	X
125	X	X	X	X	X	X
150	X	X	X	X	X	X
160	X	X	X	X	X	X
200	X	X	X	X	X	X

OPTIONS

The standard is marked with grey background

piston-rod material	
C45 chromium plated	stainless steel

seals material		
polyuret.	all seals in VITON	rod seals in VITON

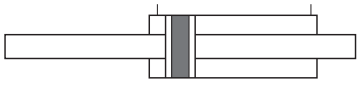
rod thread	
female rod thread	male rod thread

double acting

magnetic

without pneumatic cushioning

through-rod



bore / stroke	32	40	50	63	80	100
5	X	X	X	X	X	X
10	X	X	X	X	X	X
25	X	X	X	X	X	X
30	X	X	X	X	X	X
40	X	X	X	X	X	X
50	X	X	X	X	X	X
75	X	X	X	X	X	X
80	X	X	X	X	X	X
100	X	X	X	X	X	X
125	X	X	X	X	X	X
150	X	X	X	X	X	X
160	X	X	X	X	X	X
200	X	X	X	X	X	X

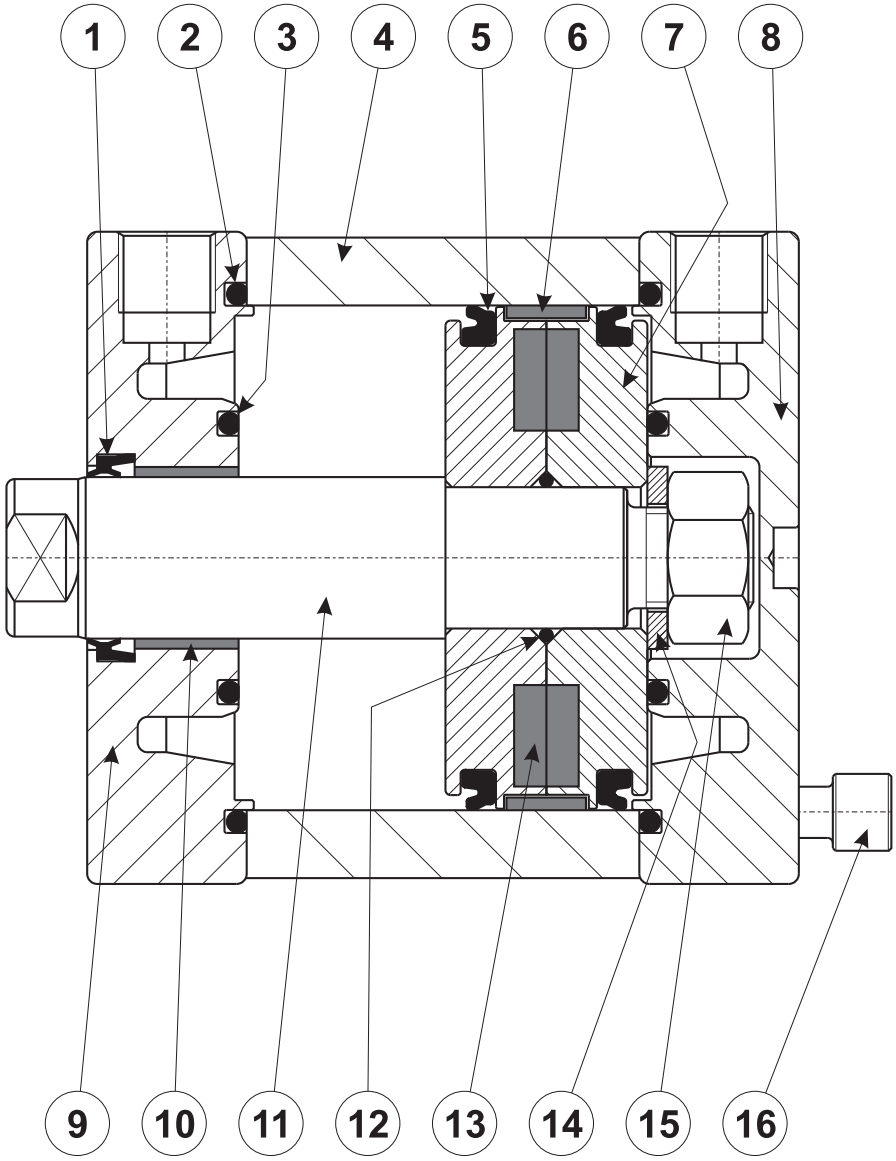
OPTIONS

The standard is marked with grey background

piston-rod material	
C45 chromium plated	stainless steel

seals material		
polyuret.	all seals in VITON	rod seals in VITON

rod thread	
female rod thread	male rod thread



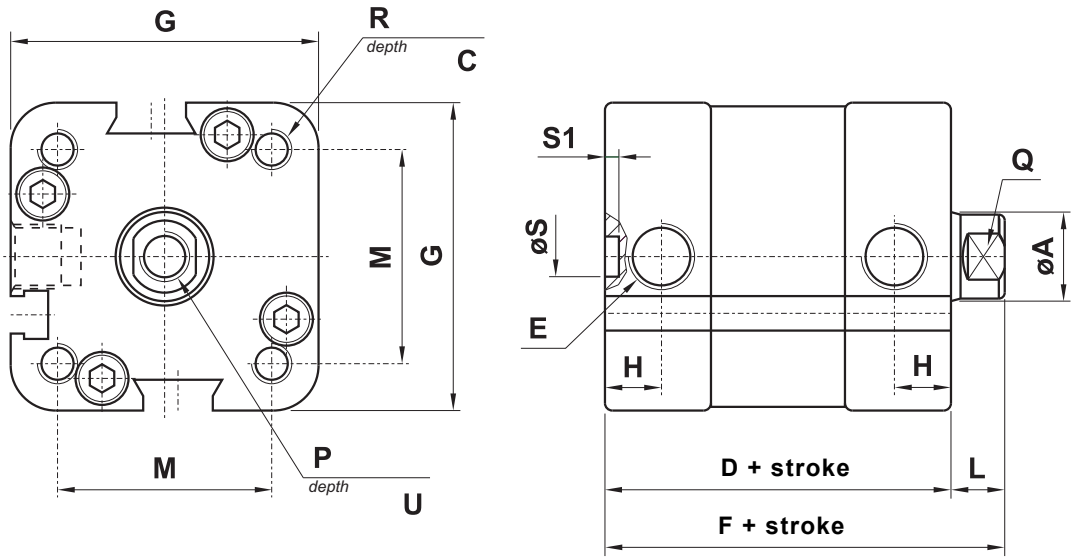
1. Piston-rod seal: polyurethane or VITON
2. O-Ring head seal: NBR or VITON
3. O-Ring bumper: NBR or VITON
4. Barrel: profiled, calibrated, anodized aluminium
5. Piston lip seal: polyurethane or VITON
6. Piston guide ring: bronze PTFE (only for aluminium piston)
7. Piston: technopolymer or aluminium
8. Rear head: aluminium
9. Front head: aluminium
10. Guide bushing: self-lubricating material
11. Rod: C45 chromium plated steel or stainless steel AISI 304
12. O-Ring piston seal: NBR or VITON
13. Magnet: magnetic iron compound
14. Flat washer
15. Rod locking nut
16. Head fixing screw

seals kit

MAGNETIC, standard seals					
normal			through-rod		
for bore	part number	code	for bore	part number	code
32	**GP032**	25.103.2	32	**GP032P**	25.113.2
40	**GP040**	25.104.2	40	**GP040P**	25.114.2
50	**GP050**	25.105.2	50	**GP050P**	25.115.2
63	**GP063**	25.106.2	63	**GP063P**	25.116.2
80	**GP080**	25.107.2	80	**GP080P**	25.117.2
100	**GP100**	25.108.2	100	**GP100P**	25.118.2
MAGNETIC, VITON seals					
normal			through-rod		
for bore	part number	code	for bore	part number	code
32	**GP032V**	25.123.2	32	**GP032PV**	25.133.2
40	**GP040V**	25.124.2	40	**GP040PV**	25.134.2
50	**GP050V**	25.125.2	50	**GP050PV**	25.135.2
63	**GP063V**	25.126.2	63	**GP063PV**	25.136.2
80	**GP080V**	25.127.2	80	**GP080PV**	25.137.2
100	**GP100V**	25.128.2	100	**GP100PV**	25.138.2

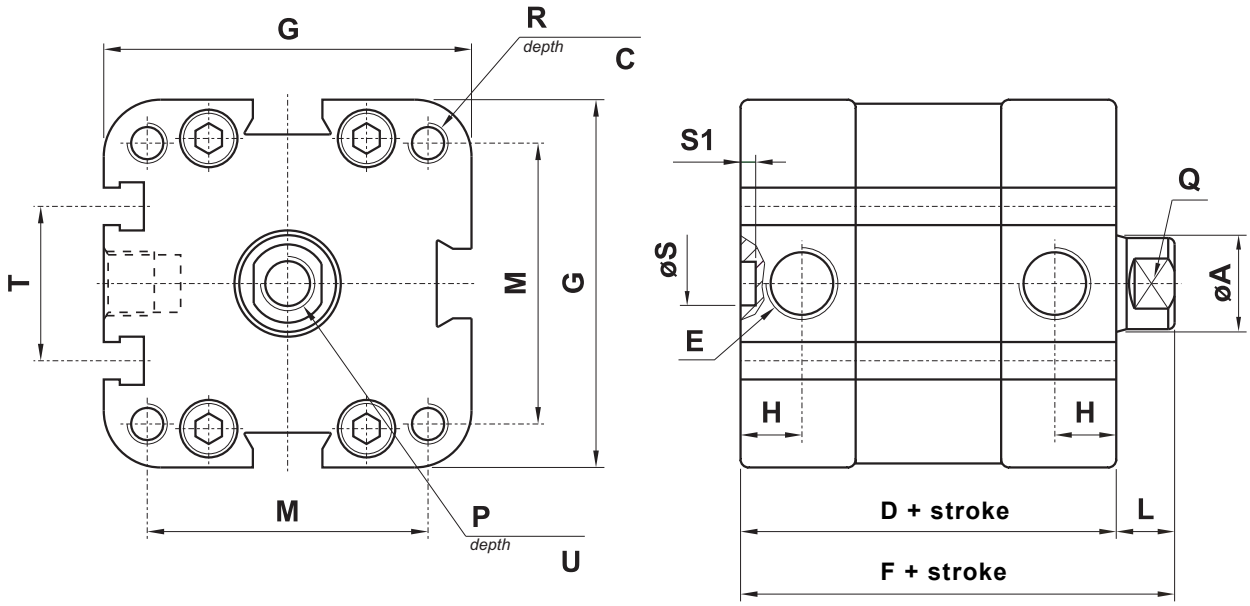
MAGNETIC VERSION, FEMALE ROD THREAD

bore 32



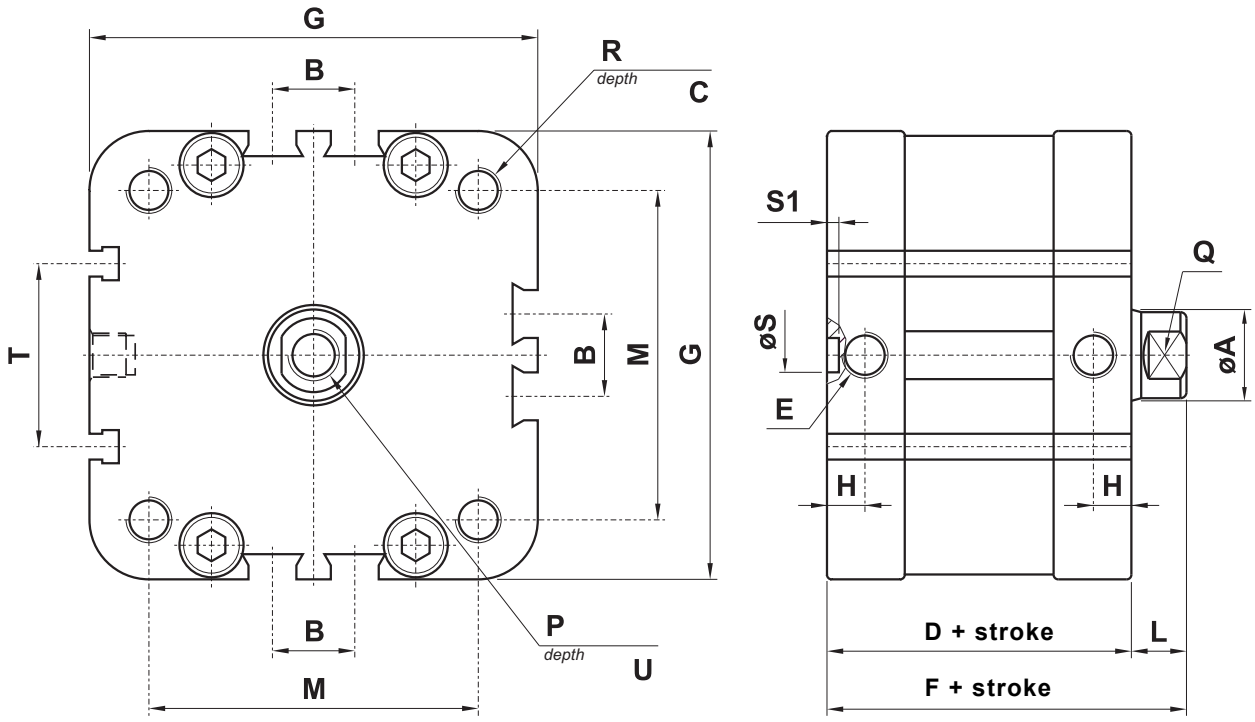
ø	A	C	D	E	F*	G		H	L*	M		P	Q	R		S	S1	U
						ISO	UNITOP			ISO	UNITOP			ISO	UNITOP			
32	12	14	46	G1/8″	53	46	46	7	7	32.3	32.3	M8	ch 10	M6	M6	6	2.5	13.5

bore 40 - 50 - 63



ø	A	C	D	E	F*	G		H	L*	M		P	Q	R		S	S1	T	U
						ISO	UNITOP			ISO	UNITOP			ISO	UNITOP				
40	12	14	46	G1/8″	53	55	55	6.5	7	38	42	M8	ch 10	M6	M6	6	2.5	22	13.5
50	16	16	50	G1/8″	58	64.5	64.5	8	8	46.5	50	M10	ch 13	M8	M8	6	2.5	24	16
63	16	16	53	G1/8″	61	78	78	8	8	56.5	62	M10	ch 13	M8	M10	6	2.5	29	16

bore 80 - 100

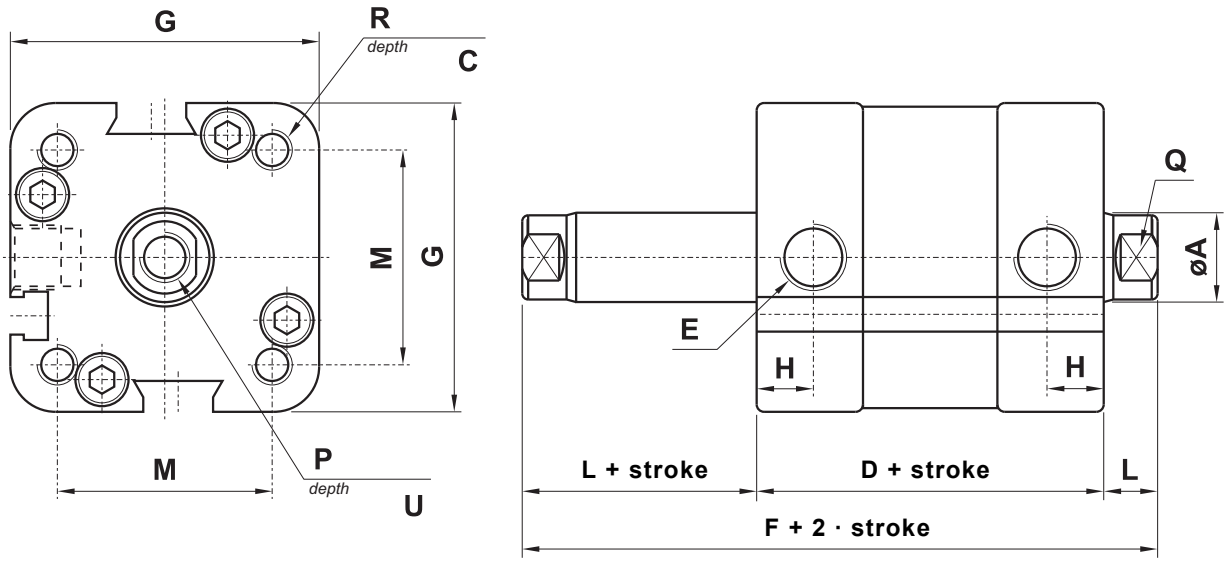


ø	A	B	C	D	E	F*	G		H	L*	M		P	Q	R		S	S1	T	U
							ISO	UNITOP			ISO	UNITOP			ISO	UNITOP				
80	20	18	17	56	G1/8"	66	99	99	8	10	72	82	M10	ch 17	M10	M10	8	4	40	20
100	25	28	17.5	67	G1/4"	77	119	119	9	10	89	103	M12	ch 22	M10	M10	8	4	40	24

F*; **L***: In case of single acting cylinder with back spring add stroke length

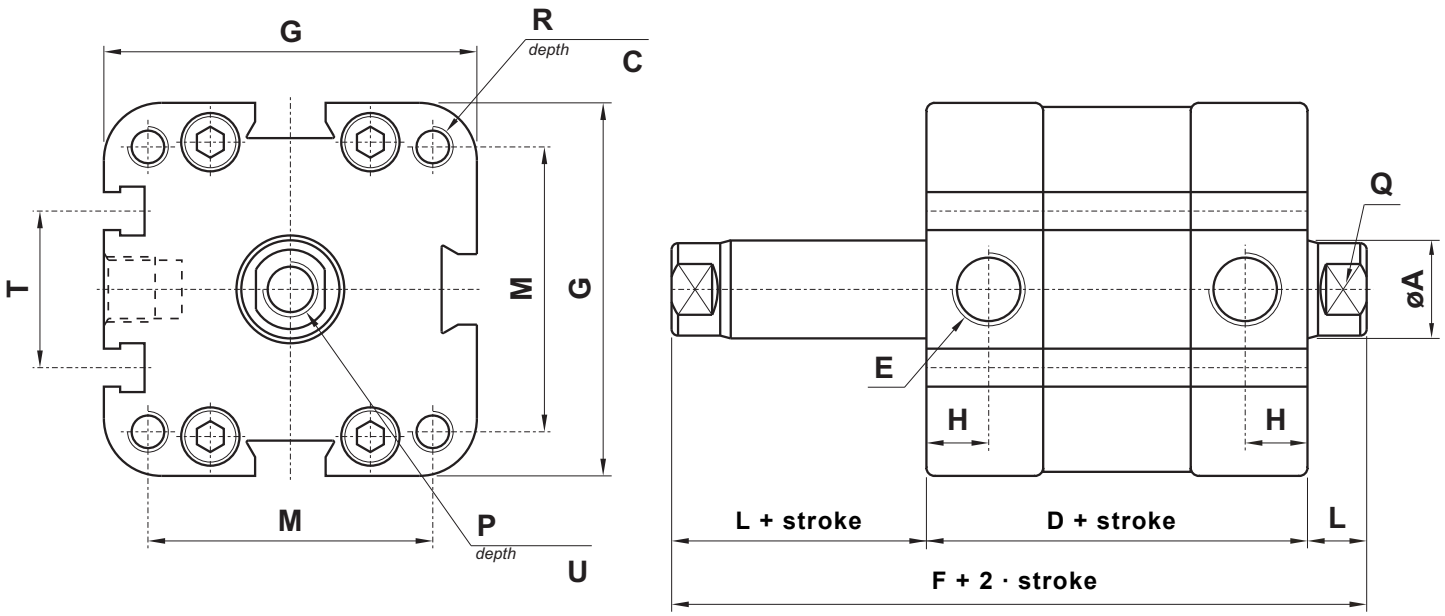
MAGNETIC VERSION, FEMALE ROD THREAD, THROUGH-ROD

bore 32



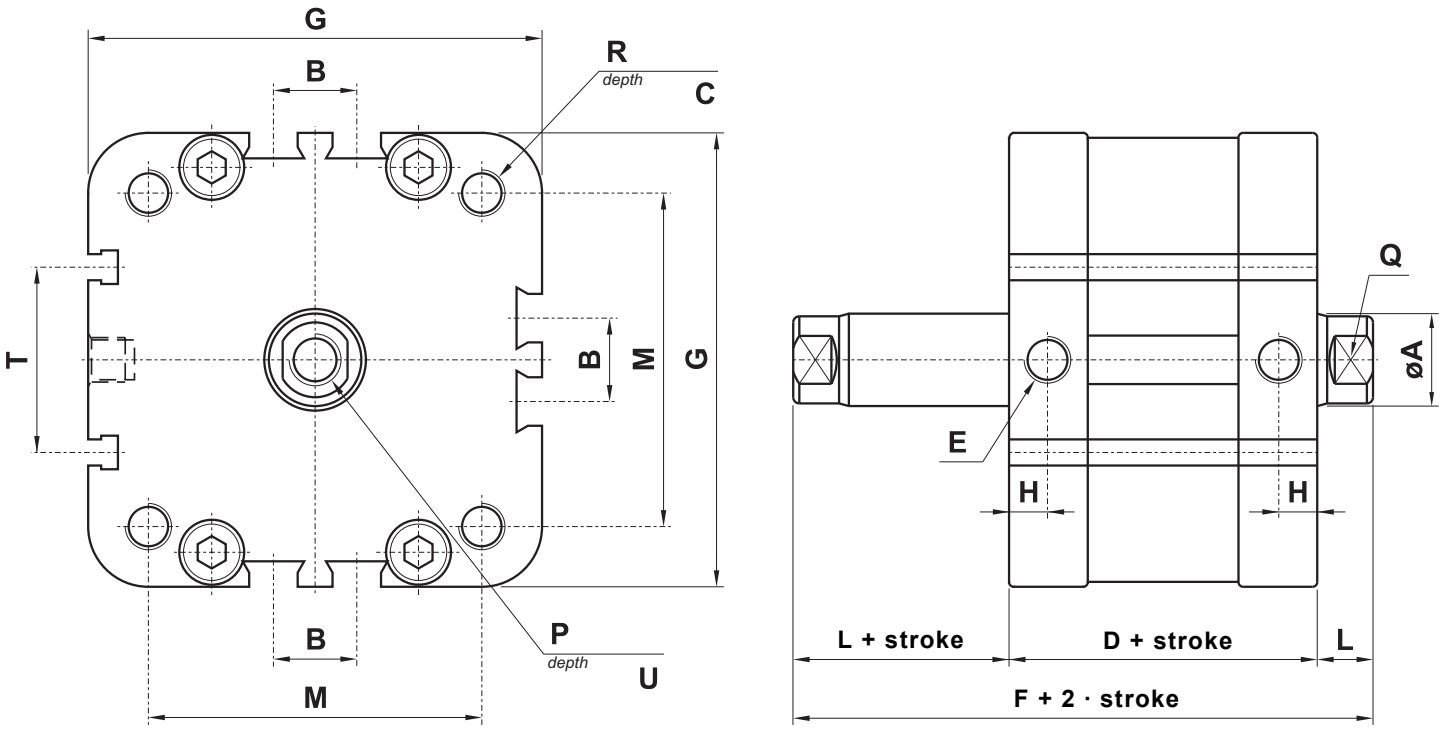
ø	A	C	D	E	F	G		H	L	M		P	Q	R		U
						ISO	UNITOP			ISO	UNITOP			ISO	UNITOP	
32	12	14	46	G1/8″	60	46	46	7	7	32.3	32.3	M8	ch 10	M6	M6	13.5

bore 40 - 50 - 63



ø	A	C	D	E	F	G		H	L	M		P	Q	R		T	U
						ISO	UNITOP			ISO	UNITOP			ISO	UNITOP		
40	12	14	46	G1/8″	60	55	55	6.5	7	38	42	M8	ch 10	M6	M6	22	13.5
50	16	16	50	G1/8″	66	64.5	64.5	8	8	46.5	50	M10	ch 13	M8	M8	24	16
63	16	16	53	G1/8″	69	78	78	8	8	56.5	62	M10	ch 13	M8	M10	29	16

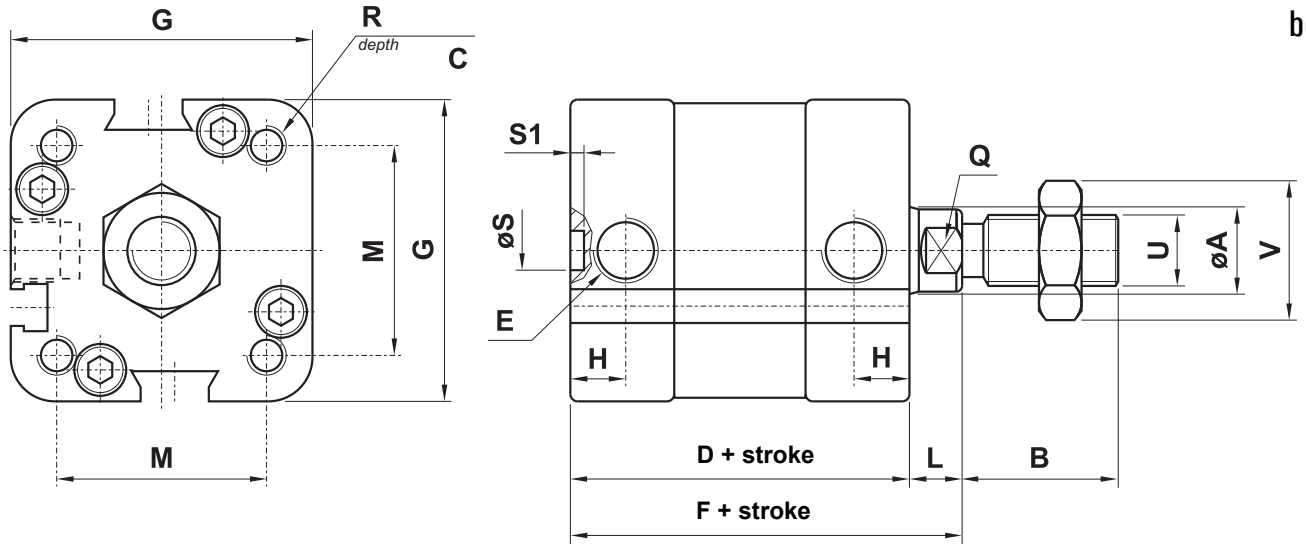
bore 80 - 100



ø	A	B	C	D	E	F	G		H	L	M		P	Q	R		T	U
							ISO	UNITOP			ISO	UNITOP			ISO	UNITOP		
80	20	18	17	56	G1/8″	76	99	99	8	10	72	82	M10	ch 17	M10	M10	40	20
100	25	28	17.5	67	G1/4″	87	119	119	9	10	89	103	M12	ch 22	M10	M10	40	24

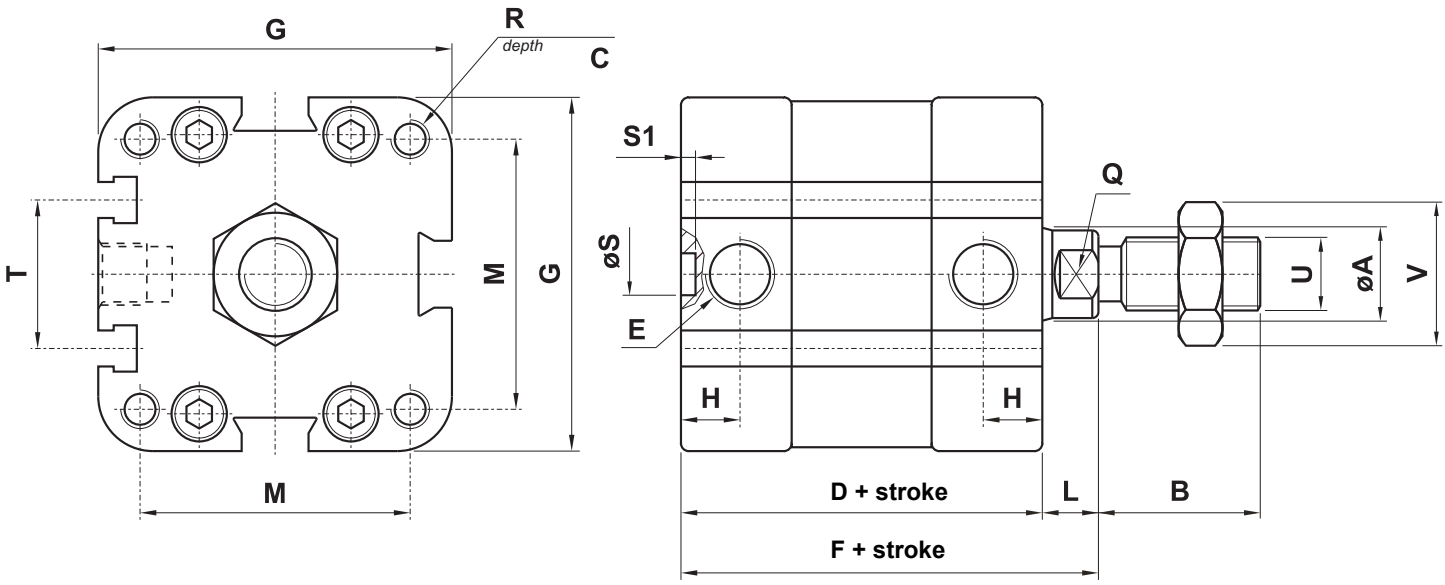
MAGNETIC VERSION, MALE ROD THREAD

bore 32



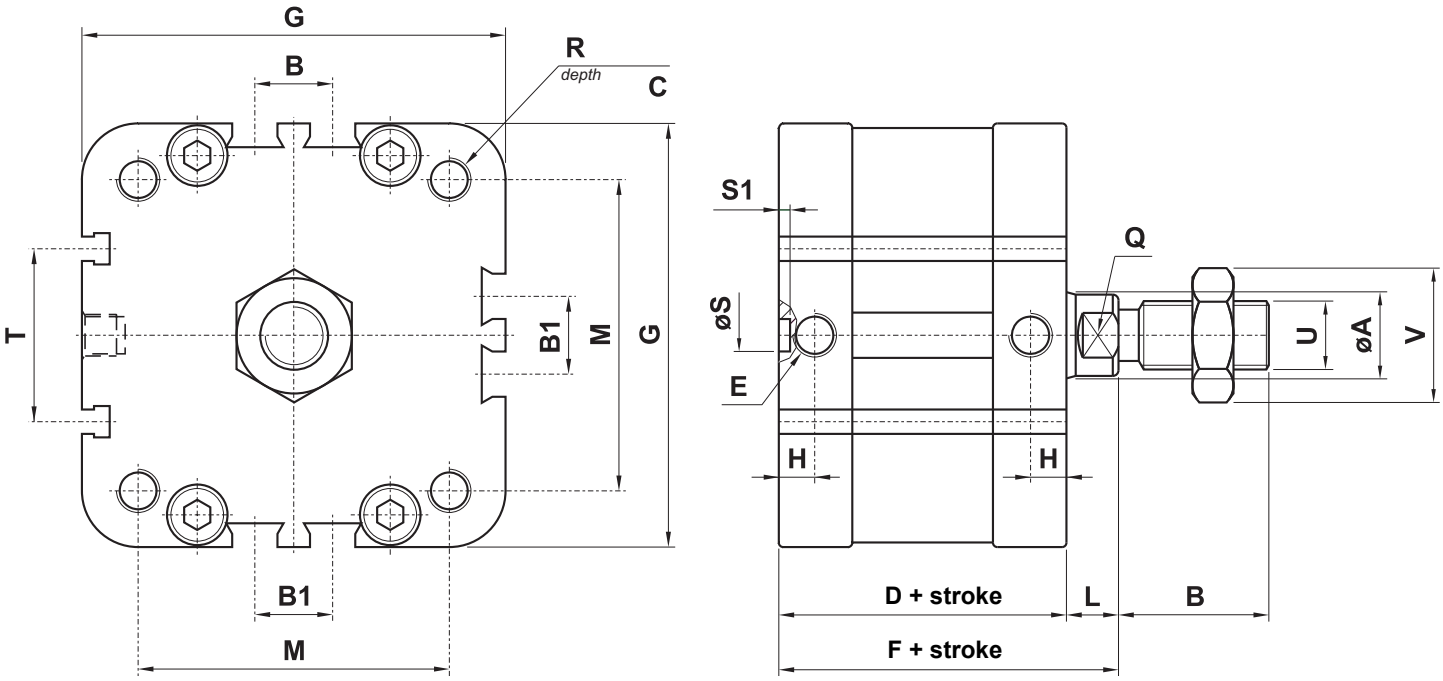
ø	A	B	C	D	E	F*	G		H	L*	M		Q	R		S	S1	U	V
							ISO	UNITOP			ISO	UNITOP		ISO	UNITOP				
32	12	22	14	46	G1/8″	53	46	46	7	7	32.3	32.3	ch 10	M6	M6	6	2.5	M10x1.25	ch 17

bore 40 - 50 - 63



ø	A	B	C	D	E	F*	G		H	L*	M		Q	R		S	S1	T	U	V
							ISO	UNITOP			ISO	UNITOP		ISO	UNITOP					
40	12	22	14	46	G1/8″	53	55	55	6.5	7	38	42	ch 10	M6	M6	6	2.5	22	M10x1.25	ch 17
50	16	24	16	50	G1/8″	58	64.5	64.5	8	8	46.5	50	ch 13	M8	M8	6	2.5	24	M12x1.25	ch 19
63	16	24	16	53	G1/8″	61	78	78	8	8	56.5	62	ch 13	M8	M10	6	2.5	29	M12x1.25	ch 19

bore 80 - 100

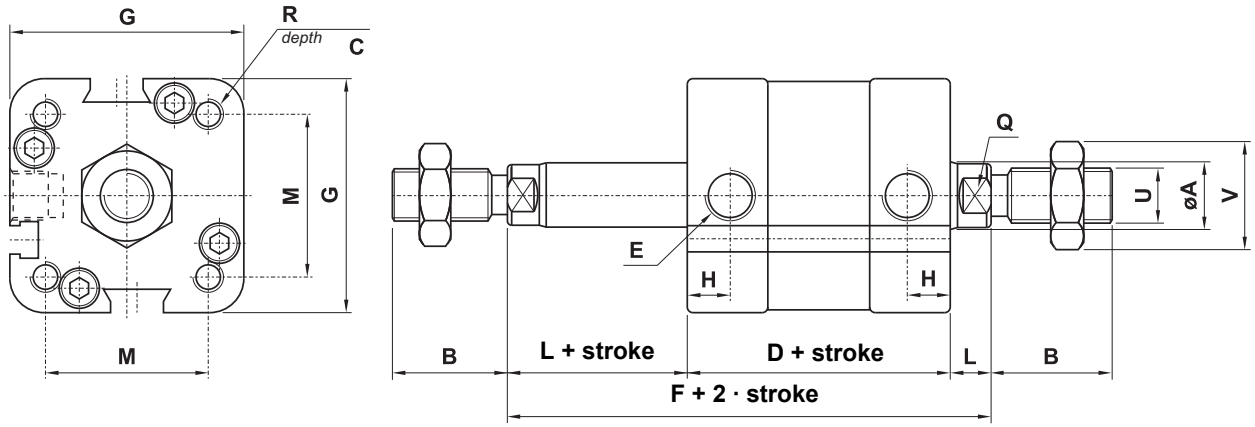


ø	A	B	B1	C	D	E	F*	G		H	L*	M		Q	R		S	S1	T	U	V
								ISO	UNITOP			ISO	UNITOP		ISO	UNITOP					
80	20	32	18	17	56	G1/8"	66	99	99	8	10	72	82	ch 17	M10	M10	8	4	40	M16x1.5	ch 24
100	25	40	28	17.5	67	G1/4"	77	119	119	9	10	89	103	ch 22	M10	M10	8	4	40	M20x1.5	ch 30

F*; **L***: In case of single acting cylinder with back spring add stroke length

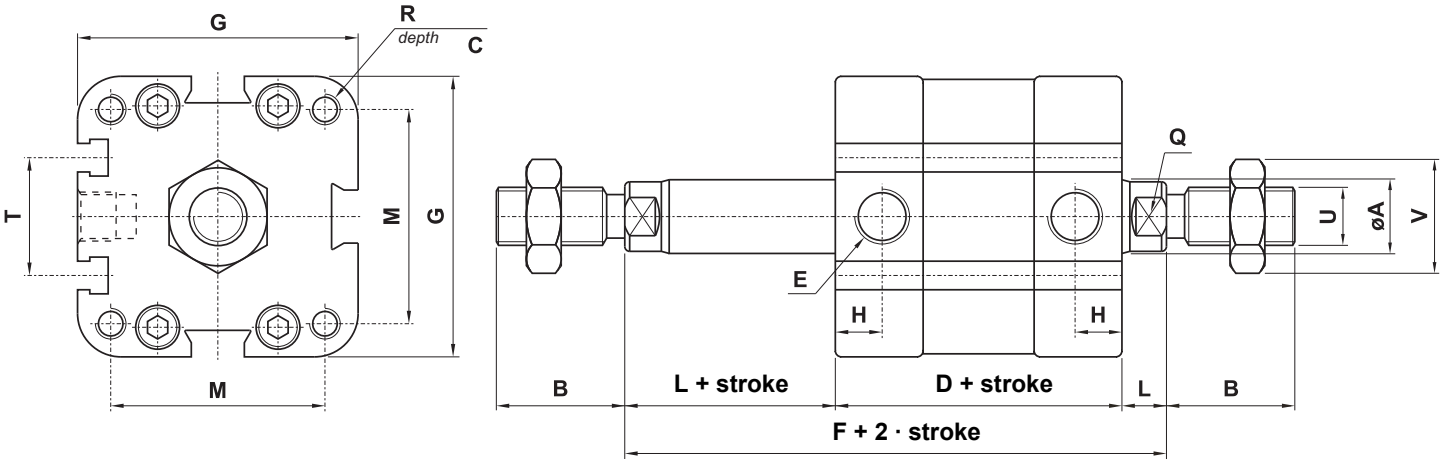
MAGNETIC VERSIONE, MALE ROD THREAD, THROUGH-ROD

bore 32



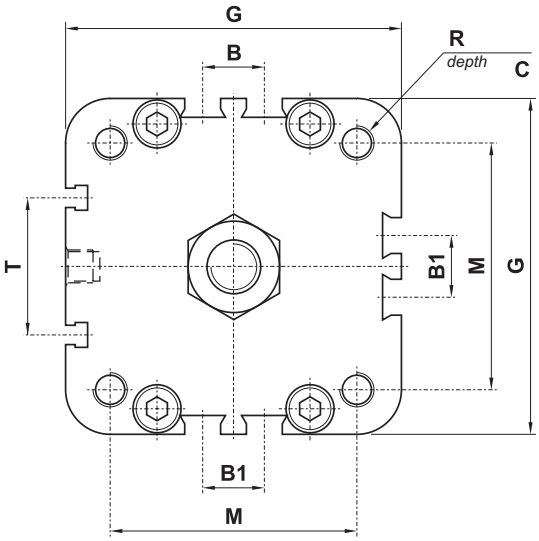
ø	A	B	C	D	E	F	G		H	L	M		Q	R		U	V
							ISO	UNITOP			ISO	UNITOP		ISO	UNITOP		
32	12	22	14	46	G1/8″	60	46	46	7	7	32.3	32.3	ch 10	M6	M6	M10x1.25	ch 17

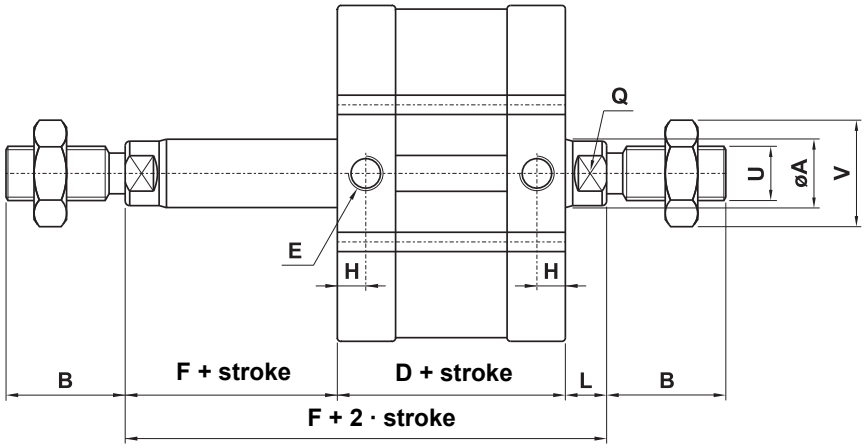
bore 40 - 50 - 63



ø	A	B	C	D	E	F	G		H	L	M		Q	R		T	U	V
							ISO	UNITOP			ISO	UNITOP		ISO	UNITOP			
40	12	22	14	46	G1/8″	60	55	55	6.5	7	38	42	ch 10	M6	M6	22	M10x1.25	ch 17
50	16	24	16	50	G1/8″	66	64.5	64.5	8	8	46.5	50	ch 13	M8	M8	24	M12x1.25	ch 19
63	16	24	16	53	G1/8″	69	78	78	8	8	56.5	62	ch 13	M8	M10	29	M12x1.25	ch 19

bore 80 - 100

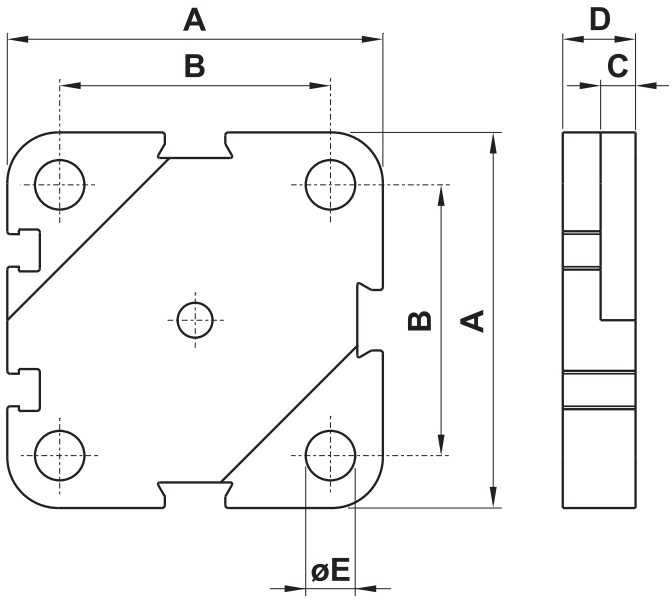


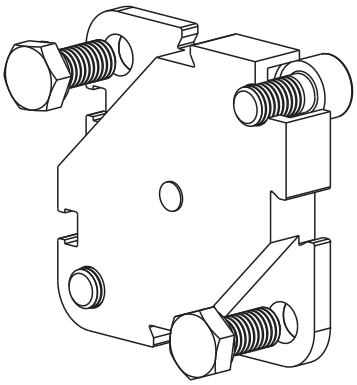


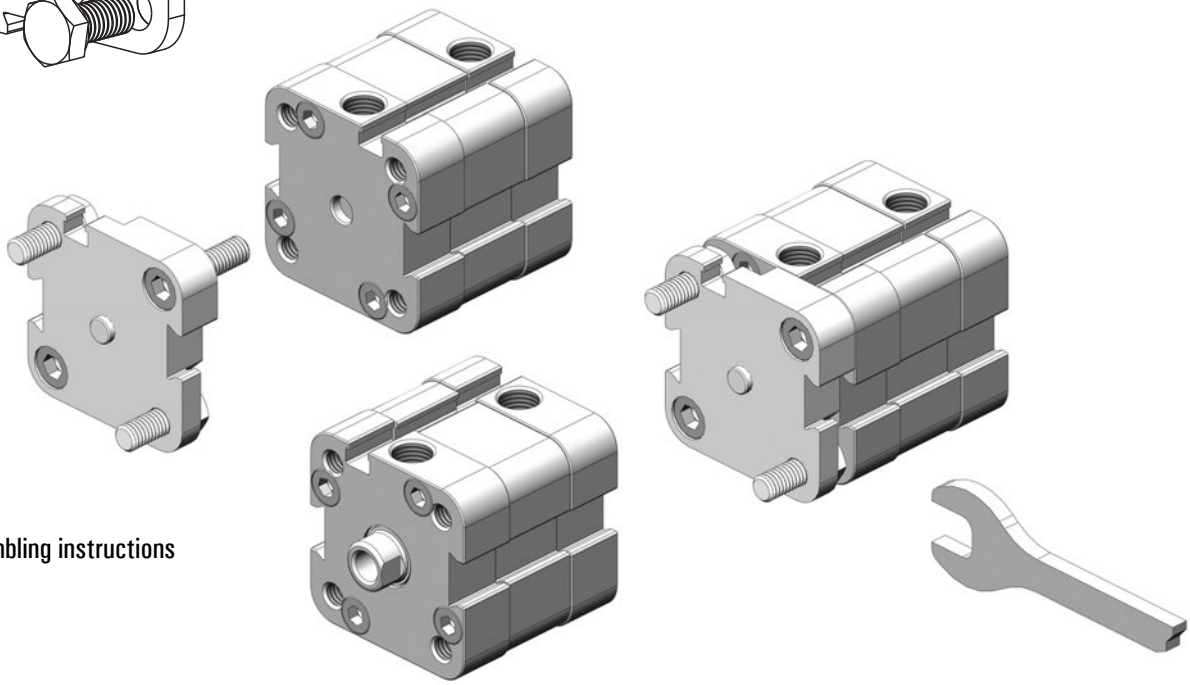
ø	A	B	B1	C	D	E	F	G		H	L	M		Q	R		T	U	V
								ISO	UNITOP			ISO	UNITOP		ISO	UNITOP			
80	20	32	18	17	56	G1/8"	76	99	99	8	10	72	82	ch 17	M10	M10	40	M16x1.5	ch 24
100	25	40	28	17.5	67	G1/4"	87	119	119	9	10	89	103	ch 22	M10	M10	40	M20x1.5	ch 30

intermediate flange for opposite compact cylinders

This intermediate flange has to be inserted between two compact cylinders to form an opposite cylinder. It is sold in kit with all necessary pieces for installation.







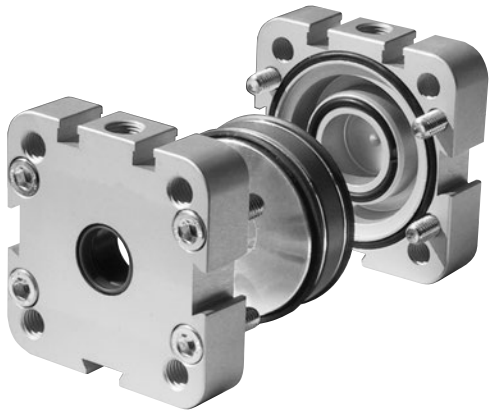
Assembling instructions

code		for bore	A	B		C	D	E
ISO	UNITOP			ISO	UNITOP			
25.082.2	**25.082.2**	32	46	32.3	32.3	5	10.5	6.5
25.083.2	**25.088.2**	40	55	38	42	6	12.5	6.5
25.084.2	**25.089.2**	50	64.5	46.5	50	6	12.5	8.5
25.085.2	**25.090.2**	63	78	56.5	62	7	13.5	8.5
25.086.2	**25.091.2**	80	98	72	82	7	15	10.5
25.087.2	**25.092.2**	100	119	89	103	7	15	10.5

compact cylinder kit

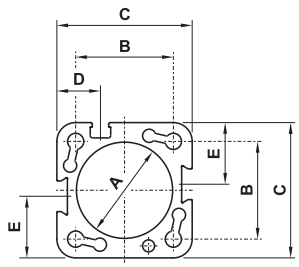
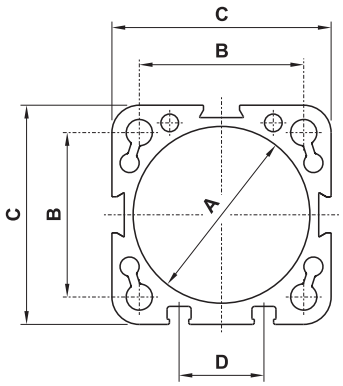
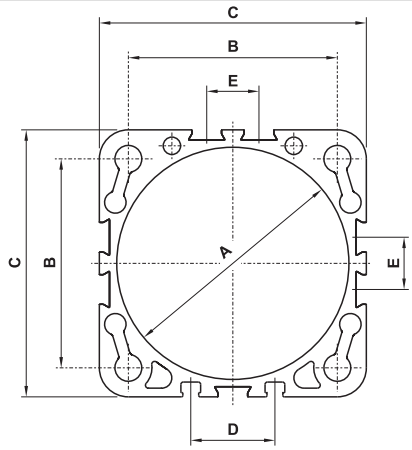
Kit includes:

- pre-mounted heads
- piston with magnet, seals and guide ring (for aluminium piston)
- screws
- all necessary seals



MAGNETIC, standard seals									
normal					passing-through rod				
for bore	ISO		UNITOP		for bore	ISO		UNITOP	
	part number	code	part number	code		part number	code	part number	code
32	**KP032**	25.004.3	**KR032**	25.104.3	32	**KP032P**	25.014.3	**KR032P**	25.114.3
40	**KP040**	25.005.3	**KR040**	25.105.3	40	**KP040P**	25.015.3	**KR040P**	25.115.3
50	**KP050**	25.006.3	**KR050**	25.106.3	50	**KP050P**	25.016.3	**KR050P**	25.116.3
63	**KP063**	25.007.3	**KR063**	25.107.3	63	**KP063P**	25.017.3	**KR063P**	25.117.3
80	**KP080**	25.008.3	**KR080**	25.108.3	80	**KP080P**	25.018.3	**KR080P**	25.118.3
100	**KP100**	25.009.3	**KR100**	25.109.3	100	**KP100P**	25.019.3	**KR100P**	25.119.3
MAGNETIC, VITON seals									
normal					passing-through rod				
for bore	ISO		UNITOP		for bore	ISO		UNITOP	
	part number	code	part number	code		part number	code	part number	code
32	**KP032V**	25.024.3	**KR032V**	25.124.3	32	**KP032PV**	25.034.3	**KR032PV**	25.134.3
40	**KP040V**	25.025.3	**KR040V**	25.125.3	40	**KP040PV**	25.035.3	**KR040PV**	25.135.3
50	**KP050V**	25.026.3	**KR050V**	25.126.3	50	**KP050PV**	25.036.3	**KR050PV**	25.136.3
63	**KP063V**	25.027.3	**KR063V**	25.127.3	63	**KP063PV**	25.037.3	**KR063PV**	25.137.3
80	**KP080V**	25.028.3	**KR080V**	25.128.3	80	**KP080PV**	25.038.3	**KR080PV**	25.138.3
100	**KP100V**	25.029.3	**KR100V**	25.129.3	100	**KP100PV**	25.039.3	**KR100PV**	25.139.3

Barrel for compact cylinders

	order code	dimensions [mm]					weight [kg/m]
		A	B	C	D	E	
	**000.523.7**	ø32$^{+0.16}$	32.5	45	14.5	20.5	2.368
	**000.524.7**	ø40$^{+0.16}$	38	53	22	-	2.984
	000.525.7	ø50$^{+0.19}$	46.5	63	24	-	3.823
	000.526.7	ø63$^{+0.19}$	56.5	76.5	29	-	5.686
	**000.527.7**	ø80$^{+0.22}$	72	95	40	18	7.544
	000.528.7	ø100$^{+0.45}$	89	115	40	28	10.919

chemical composition	Cu	Fe	Mn	Mg	Si	Zn	Cr	Ti	Al
	≤ 0.10	0.10÷0.30	≤ 0.10	0.35÷0.60	0.30÷0.60	≤ 0.15	≤ 0.05	≤ 0.10	rest

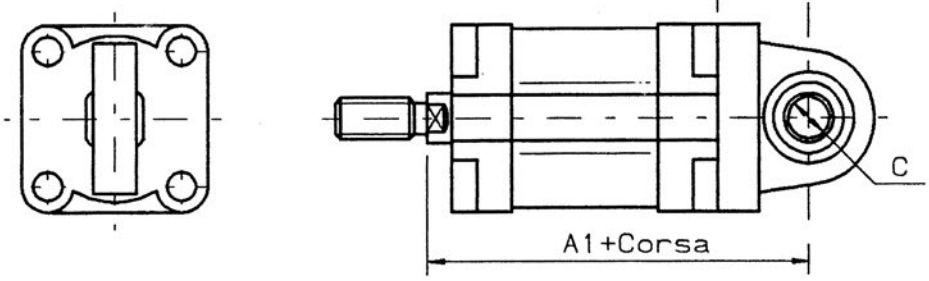
Fixing holes

from ø32 to ø100 : prepared for metric thread through rolling

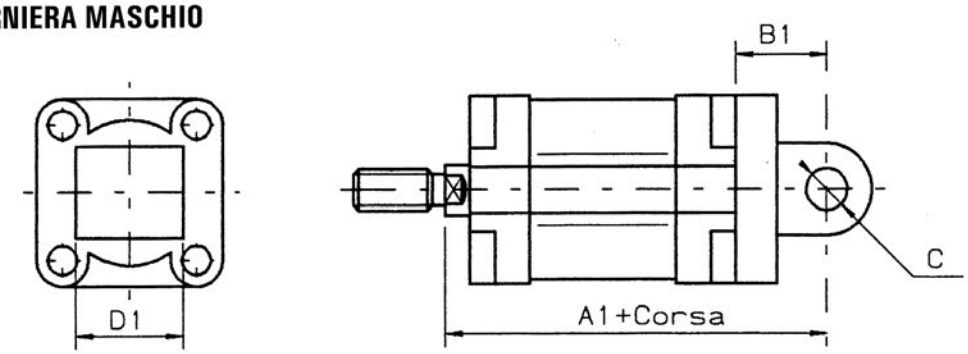
Fixing elements for ISO compact cylinders

(fixing elements for cylinders ISO 6431 VDMA)

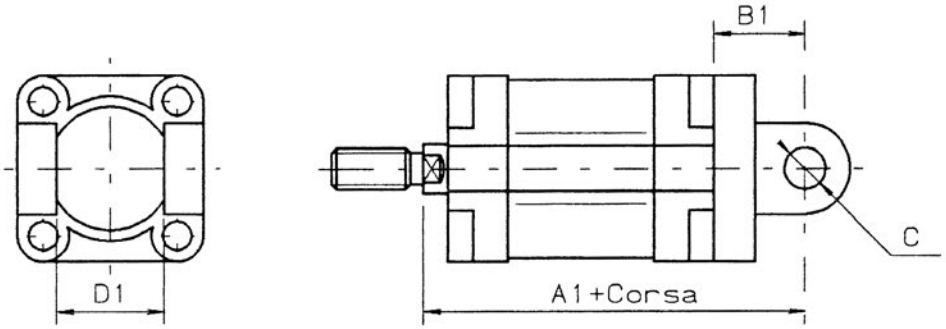
CERNIERA MASCHIO SNODO SFERICO — **CMSS...**



CERNIERA MASCHIO — **CMIS...** / **CMKS...**



CERNIERA FEMMINA CON PERNO — **CFIS...** / **CFKS...**

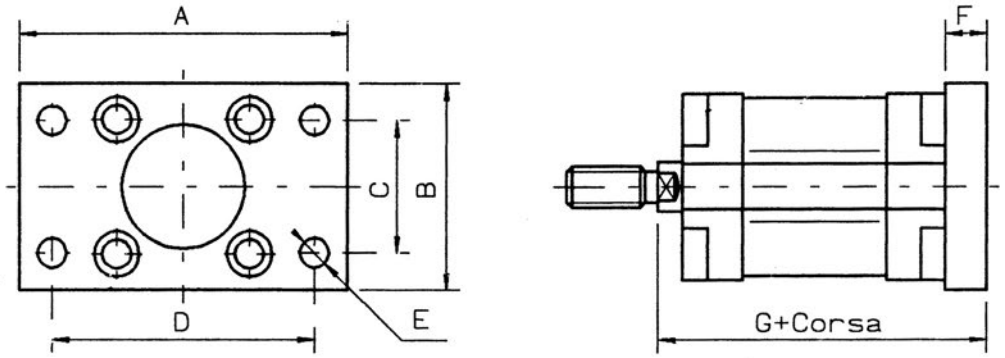


ø	A1	B1	C	D1
32	75	22	10	26
40	78	25	12	28
50	85	27	12	32
63	93	32	16	40
80	102	36	16	50
100	118	41	20	60

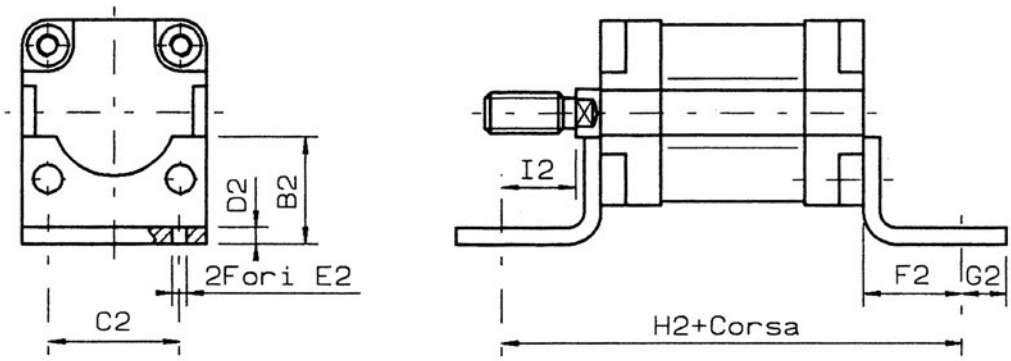
Fixing elements for ISO compact cylinders

(fixing elements for cylinders ISO 6431 VDMA)

FLANGIA — **FLIS...**

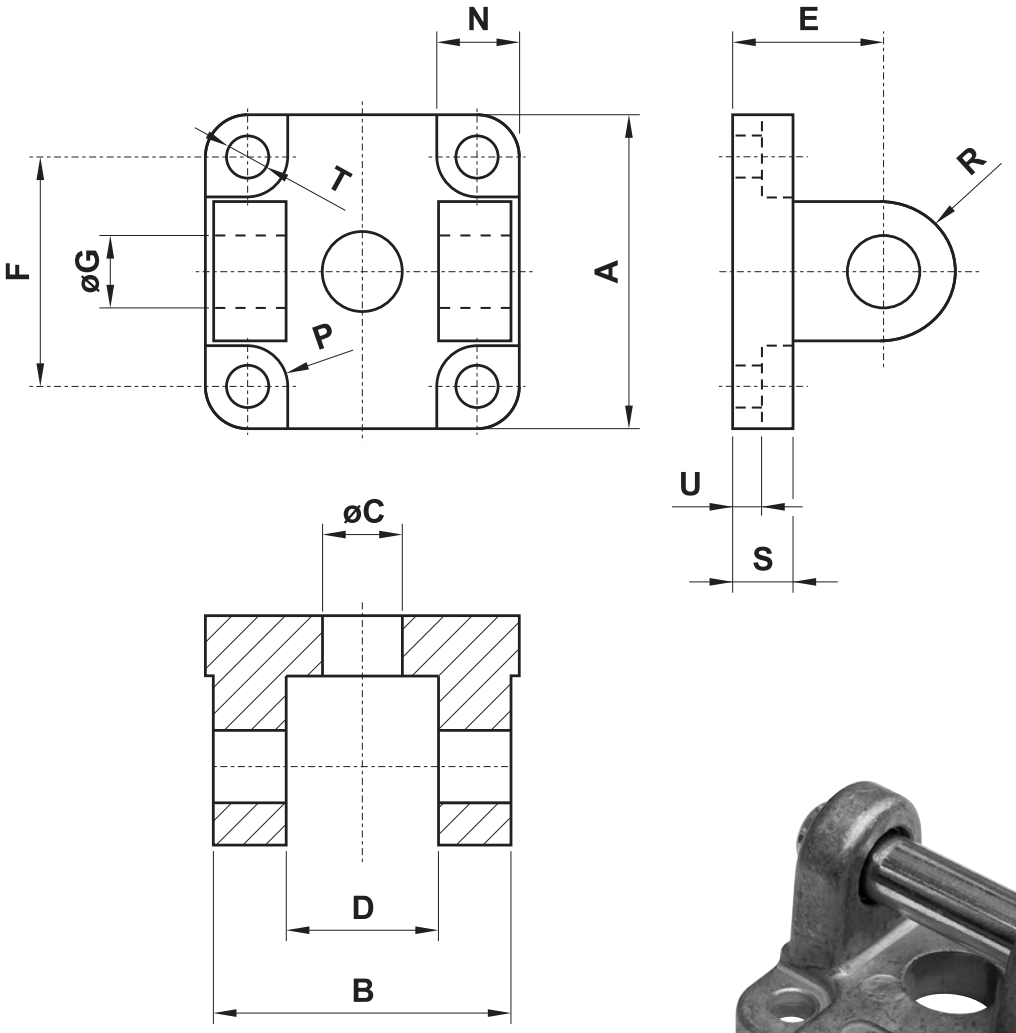


PIEDINO — **PBIS...**



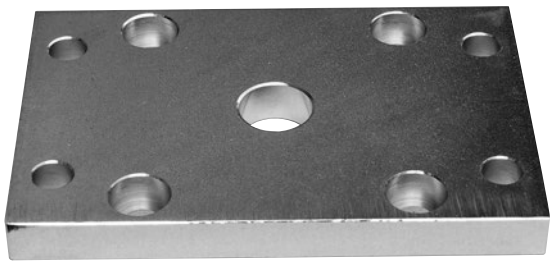
G	F	E	D	C	B	A	ø	B2	C2	D2	E2	F2	G2	H2	I2
63	10	7	64	32	45	80	**32**	30	32.5	4	7	24	11	94	17
63	10	9	72	36	52	90	**40**	30	38	4	9	28	8	102	21
70	12	9	90	45	65	110	**50**	36	46.5	5	9	32	15	114	24
73	12	9	100	50	75	120	**63**	35	56.5	5	9	32	13	117	24
82	16	12	126	63	95	150	**80**	47	72	6	12	41	14	138	31
93	16	14	150	75	115	170	**100**	53	89	6	14	41	16	149	31

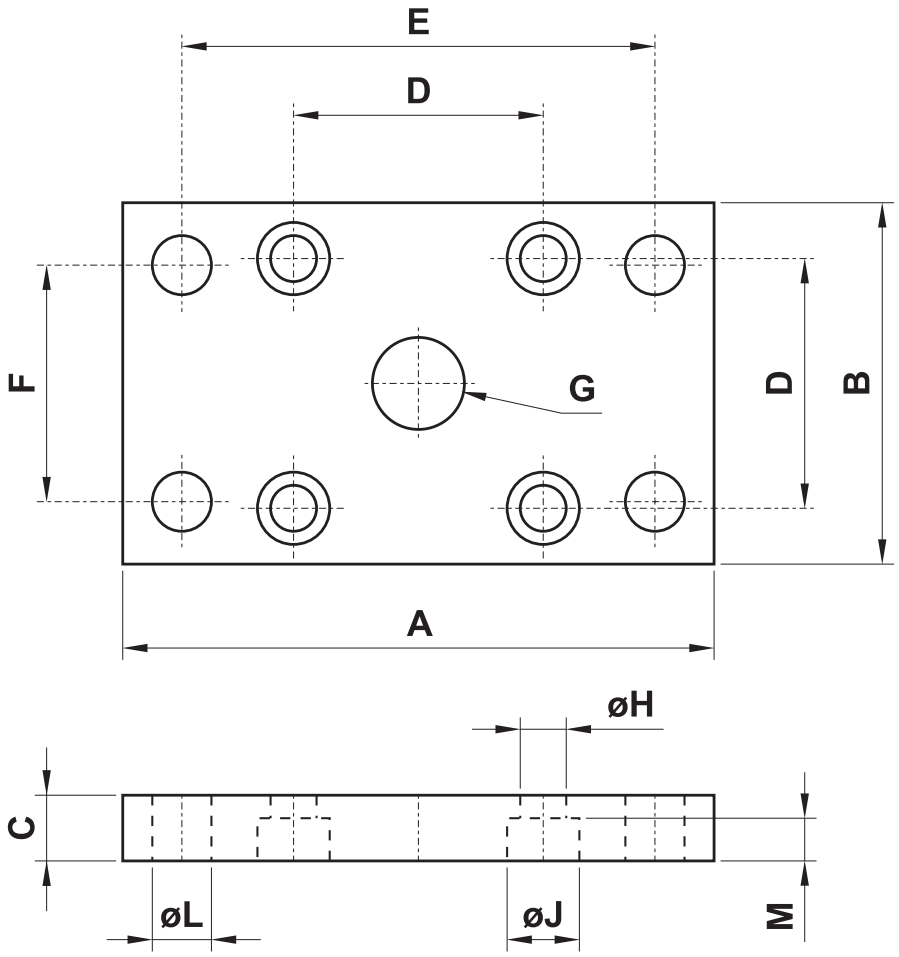
FEMALE TRUNNION WITH PIN



part number	part number	for bore	A	B	C	D	E	F	G	N	P	R	S	T	U
standard	with bronze bushing														
CFUN032	**CFKN032**	32	48	45	14	26	22	32	10	13.5	5.5	10	9	6.6	5.5
CFUN040	**CFKN040**	40	58	52	14	28	25	42	12	13.5	5.5	12.5	9	6.6	5.5
CFUN050	**CFKN050**	50	66	60	18	32	27	50	12	15.5	7.5	12.5	11	9	6.5
CFUN063	**CFKN063**	63	83	70	18	40	32	62	16	18	7.5	15	11	11	6.5
CFUN080	**CFKN080**	80	102	90	23	50	36	82	16	19	9	15	13	11	10
CFUN100	**CFKN100**	100	123	110	28	60	41	103	20	19	9	20	15	11	10

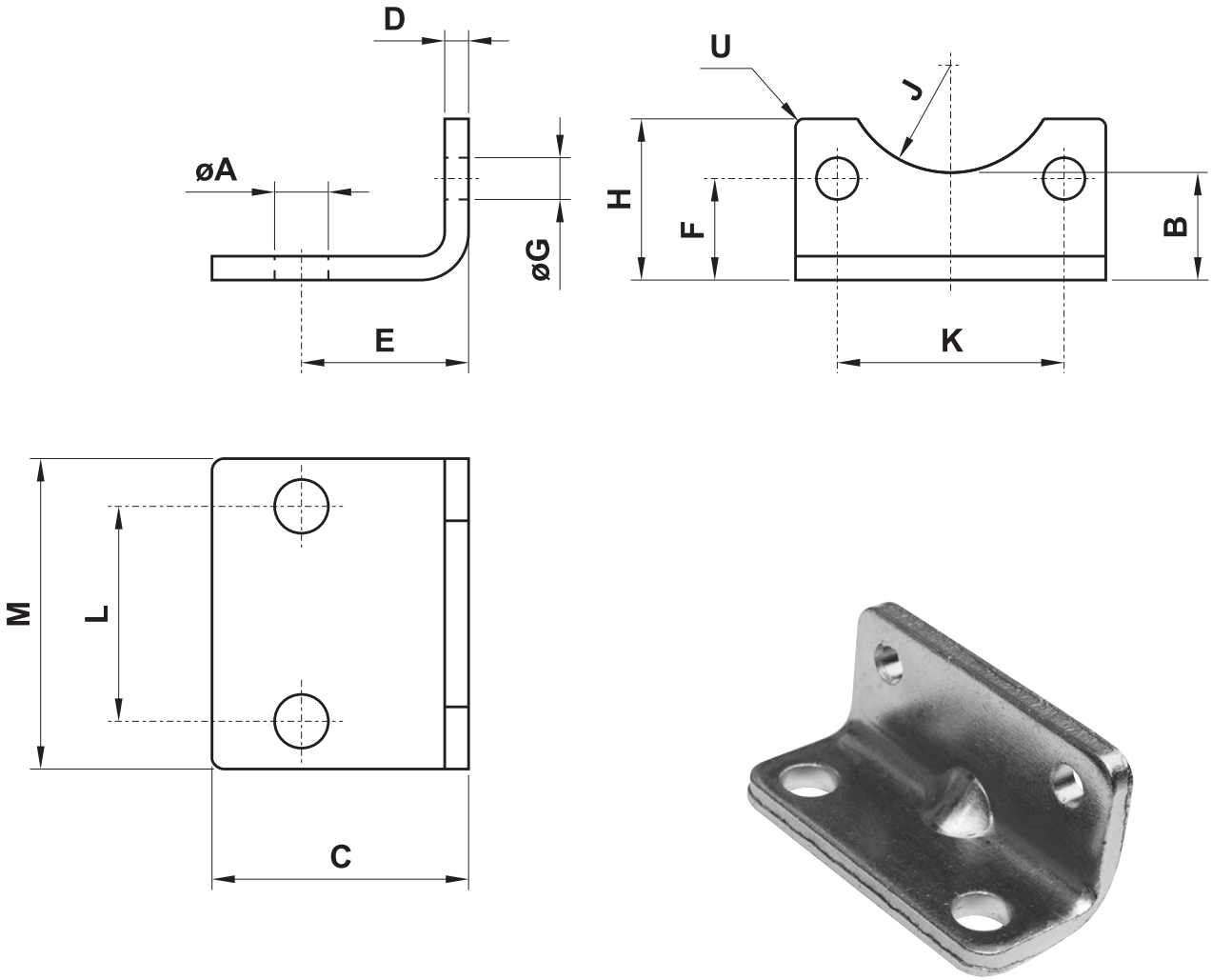
FLANGE





part number	for bore	A	B	C	D	E	F	G	H	J	L	M
FLUN032	32	80	50	10	32	65	32	ø14	6.6	11	7	6.4
FLUN040	40	102	60	10	42	82	36	ø14	6.6	11	9	6.4
FLUN050	50	110	68	12	50	90	45	ø18	9	15	9	8.6
FLUN063	63	130	87	15	62	110	50	ø18	11	15	9	8.6
FLUN080	80	160	107	15	82	135	63	ø23	11	18	12	10.6
FLUN100	100	190	128	15	103	163	75	ø28	11	18	14	10.6

FOOT MOUNTING



part number*	for bore	A	B	C	D	E	F	G	H	J	K	L	M	U
PBUN032	32	6.6	20	26	5	18	16	6.6	24	12	32	32	50	2
PBUN040	40	9	-	28	5	20	21.5	6.6	29.5	-	42	42	60	5
PBUN050	50	9	-	32	6	24	22	9	30	-	50	50	68	5
PBUN063	63	11	-	39	6	27	28.5	11	39	-	62	62	84	5
PBUN080	80	11	-	42	8	30	24.5	11	36.5	-	82	82	102	5
PBUN100	100	13.5	-	45	8	33	26.5	11	38.5	-	103	103	123	5

* Part number refers to a single element, not to the couple

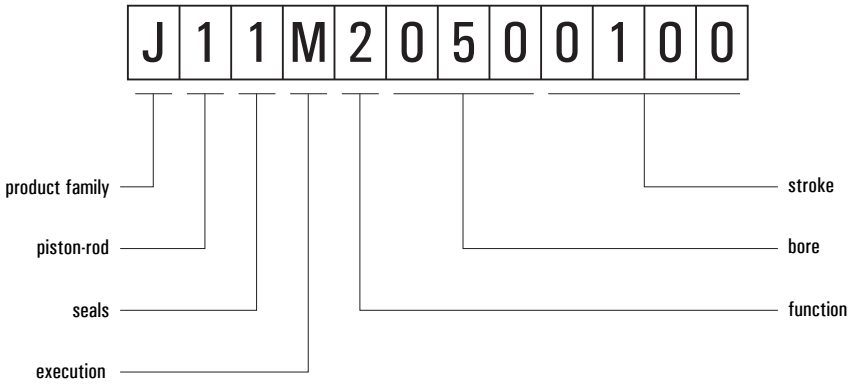
Twin rod cylinders

- High reliability and long lifetime
- Standard magnetic version
- Standard pneumatic cushioning on whole range
- Special versions and strokes on request

Materials
Barrel: aluminium
Piston-rods: C45 (chromium plated)
Heads: aluminium
Piston: aluminium
Seals: NBR
Flange: burnished steel
Bushing rod guides: sintered bronze
Piston guide: low friction PTFE

Operating pressure	max 10 bar (145 PSI) max 1 MPa
Temperature range	**-15+60°C (5-140° F**
Bores	32; 40; 50; 63; 80; 100 mm
Strokes	25; 50; 80; 100; 125; 150; 160; 200; 250; 300; 320; 400; 500 mm
Fluid	50μ filtered, lubricated or non lubricated air

coding example



Product family
J twin rod cylinders

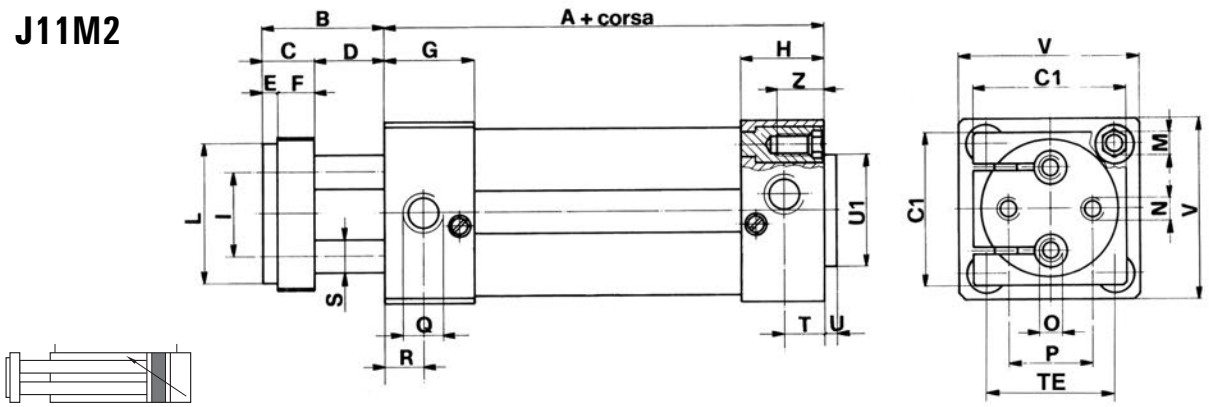
Piston-rods
1 C45 chromium plated

Seals
1 NBR

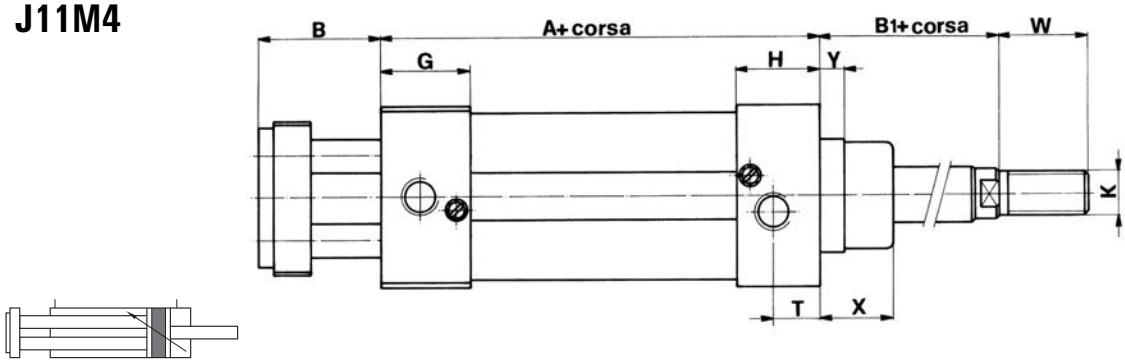
Execution
M magnetic

Function
2 double acting with pneumatic cushioning
4 double acting with pneumatic cushioning, with ISO through-rod
9 double acting with pneumatic cushioning, with twin through-rod

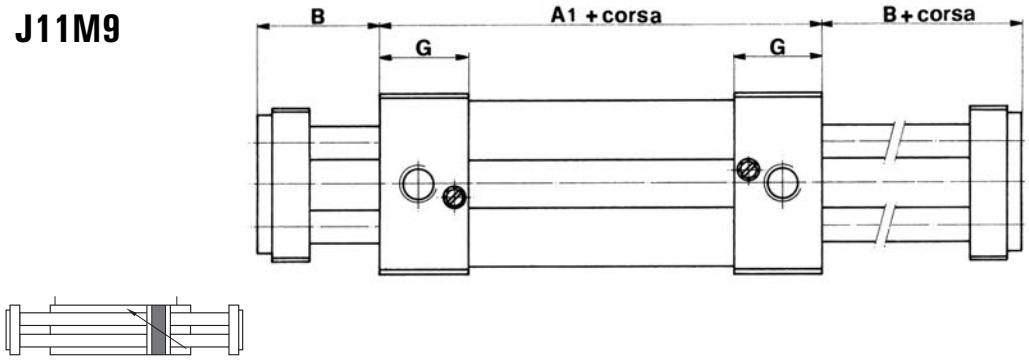
J11M2



J11M4



J11M9

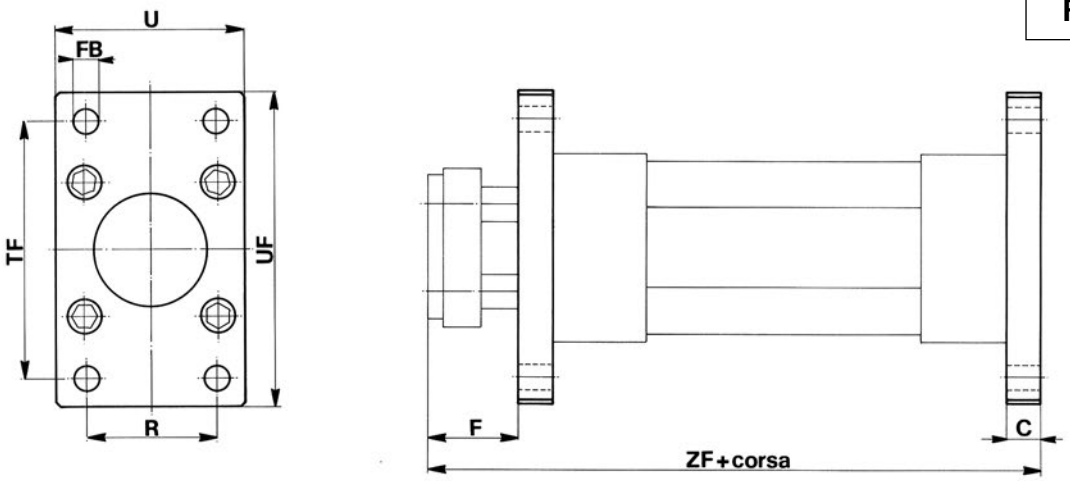


Ø	A	A1	B	B1	C	C1	D	E	F	G	H	I	L	M	N	O	P	Q
32	100	111	40	26	15	45	25	4	11	30	24,5	18	32	M6	M6	–	19	G1/8
40	101	104	40	30	15	50	25	4	11	26,5	27,5	22	40	M6	M8	–	22	G1/4
50	108,5	113	43	37	18	55	25	5	13	32	31	30	50	M8	M8	M8	30	G1/4
63	119	125	47	37	22	70	25	5	17	34	35,5	38	63	M8	M10	M10	38	G3/8
80	134	135	50	46	25	90	25	5	20	38	40	48	80	M10	M12	M12	50	G3/8
100	144	142	50	51	25	110	25	5	20	36	43	60	100	M10	M12	M12	70	G1/2

Ø	R	S	T	TE	U	U1	V	Z	W	Y	X	K
32	13	10	14	32,5	4	30	45	18	22	6	20	M10X1,25
40	11,5	10	17	38	4	35	52	18	24	6	22	M12X1,25
50	14	12	18	46,5	4	40	65	23	32	8	26	M16X1,5
63	14	16	17,5	56,5	4	45	75	23	32	8	26	M16X1,5
80	15	22	20,5	72	4	45	95	30	40	10	40	M20X1,5
100	15	22	18	89	4	55	115	30	40	10	40	M20X1,5

FLANGE

FLIS...

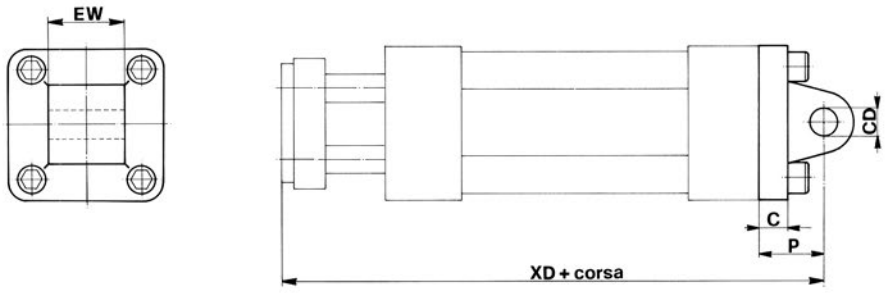


ø \ DIM.	C	F	R	U	FB	TF	UF	ZF
32	10	30	32	45	7	64	80	150
40	10	30	36	52	9	72	90	151
50	12	31	45	65	9	90	110	163,5
63	12	35	50	75	9	100	120	178
80	16	34	63	95	12	126	150	200
100	16	34	75	115	14	150	170	210

Standard ISO flange can be mounted on all bores rear head. On front head it can be mounted only on bores 32 and 40. For other bores, please contact the commercial office.

MALE TRUNNION

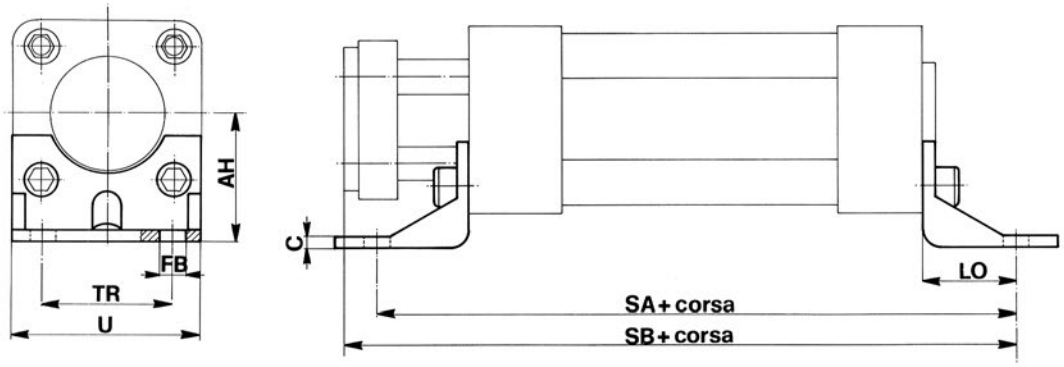
CMIS...
CMKS...



ø \ DIM.	C	CD	P	EW	XD
32	9	10	22	26	162
40	9	12	25	28	166
50	11	12	27	32	178,5
63	11	16	32	40	198
80	14	16	36	50	220
100	14	20	41	60	235

FOOT MOUNT

PBIS...

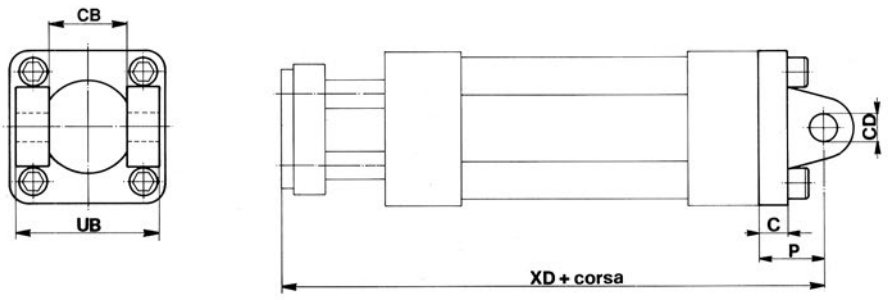


ø \ DIM.	C	AH	FB	LO	SA	SB	TR	U
32	4	32	7	24	148	164	32	45
40	4	36	9	28	157	169	36	52
50	5	45	9	32	172,5	183,5	45	65
63	5	50	9	32	183	198	50	75
80	6	63	12	41	216	225	63	95
100	6	71	14	41	226	235	75	115

FEMALE TRUNNION WITH PIN

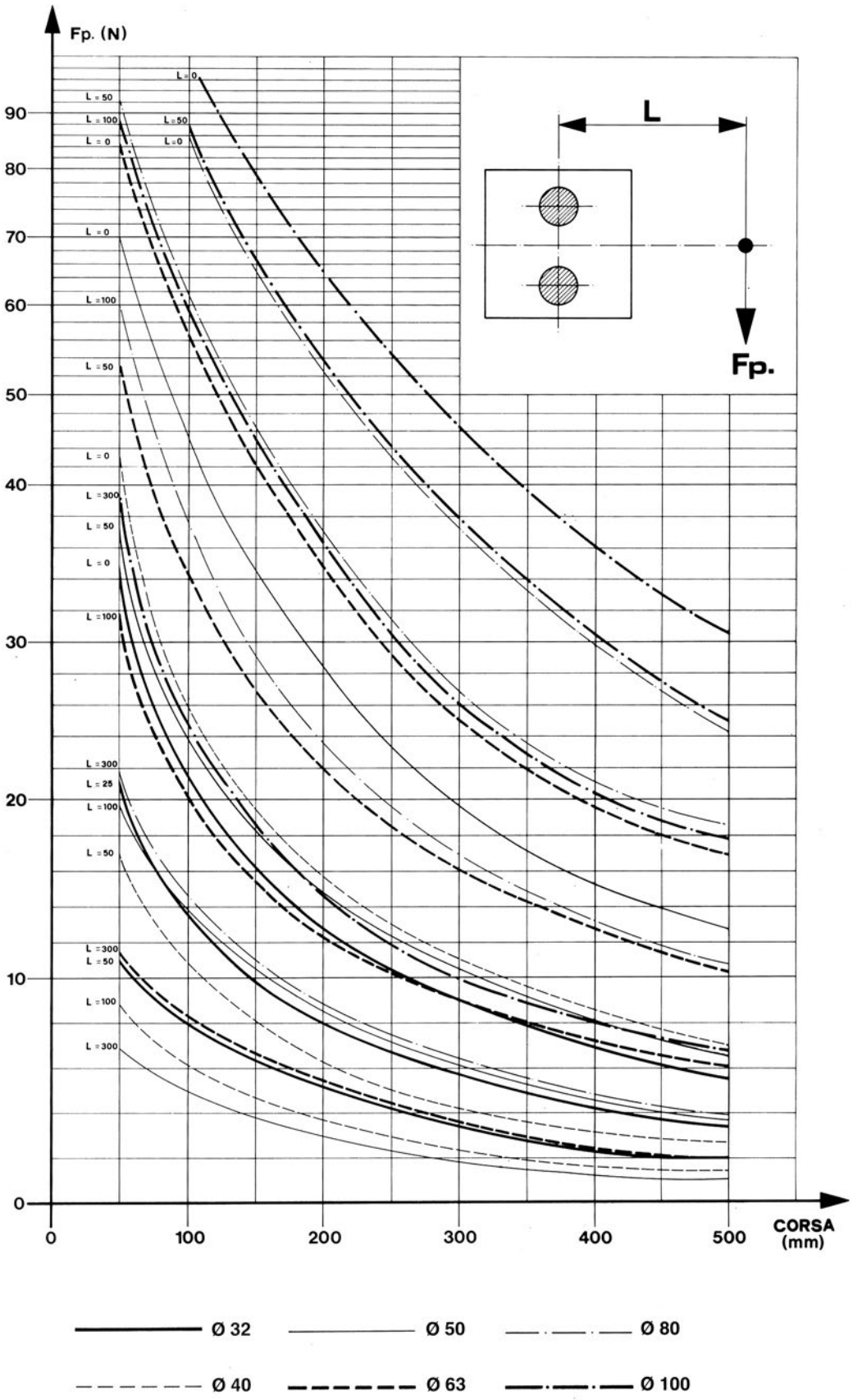
CFIS...

CFKS...

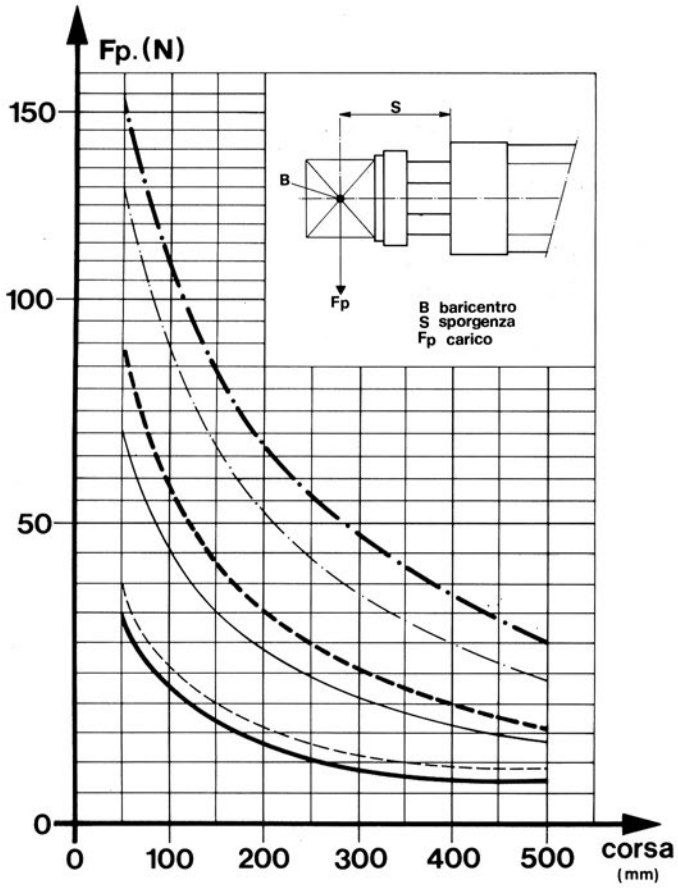


ø \ DIM.	C	CD	P	CB	UB	XD
32	9	10	22	26	45	162
40	9	12	25	28	52	166
50	11	12	27	32	60	178,5
63	11	16	32	40	70	198
80	14	16	36	50	90	220
100	14	20	41	60	110	235

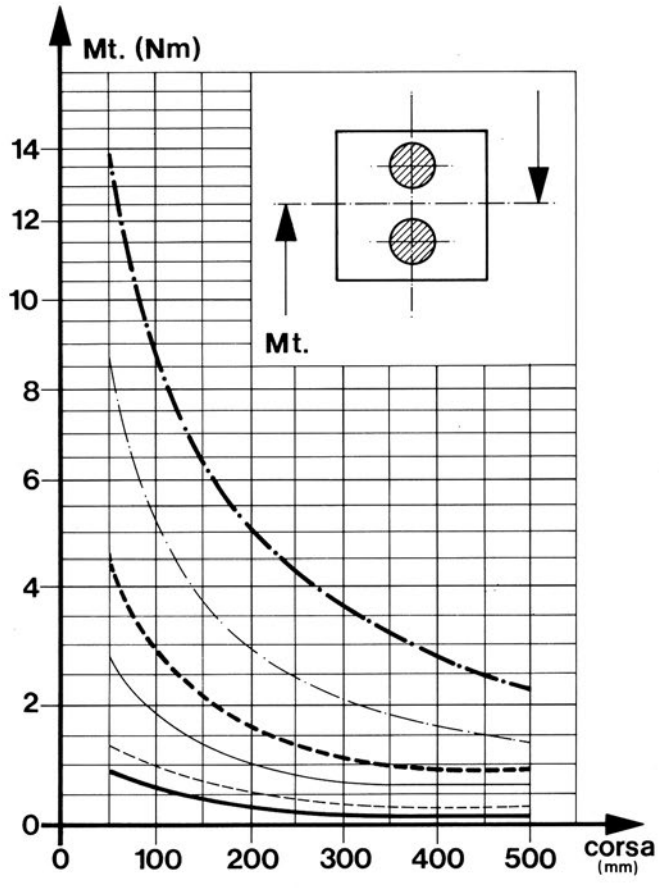
bending moments



bending loads



twisting moments



Ø 32 Ø 50 Ø 80

Ø 40 Ø 63 Ø 100

Guided compact cylinders

- High reliability and long lifetime
- Standard magnetic version
- Standard magnetic sensors (pages 532-535)
- Air ports on the top or on the side

CG	B	B	1	6	-	0	1	0

product family — CG
type — B / BB
bore — 16
stroke — 010

Product family
CG guided compact cylinders

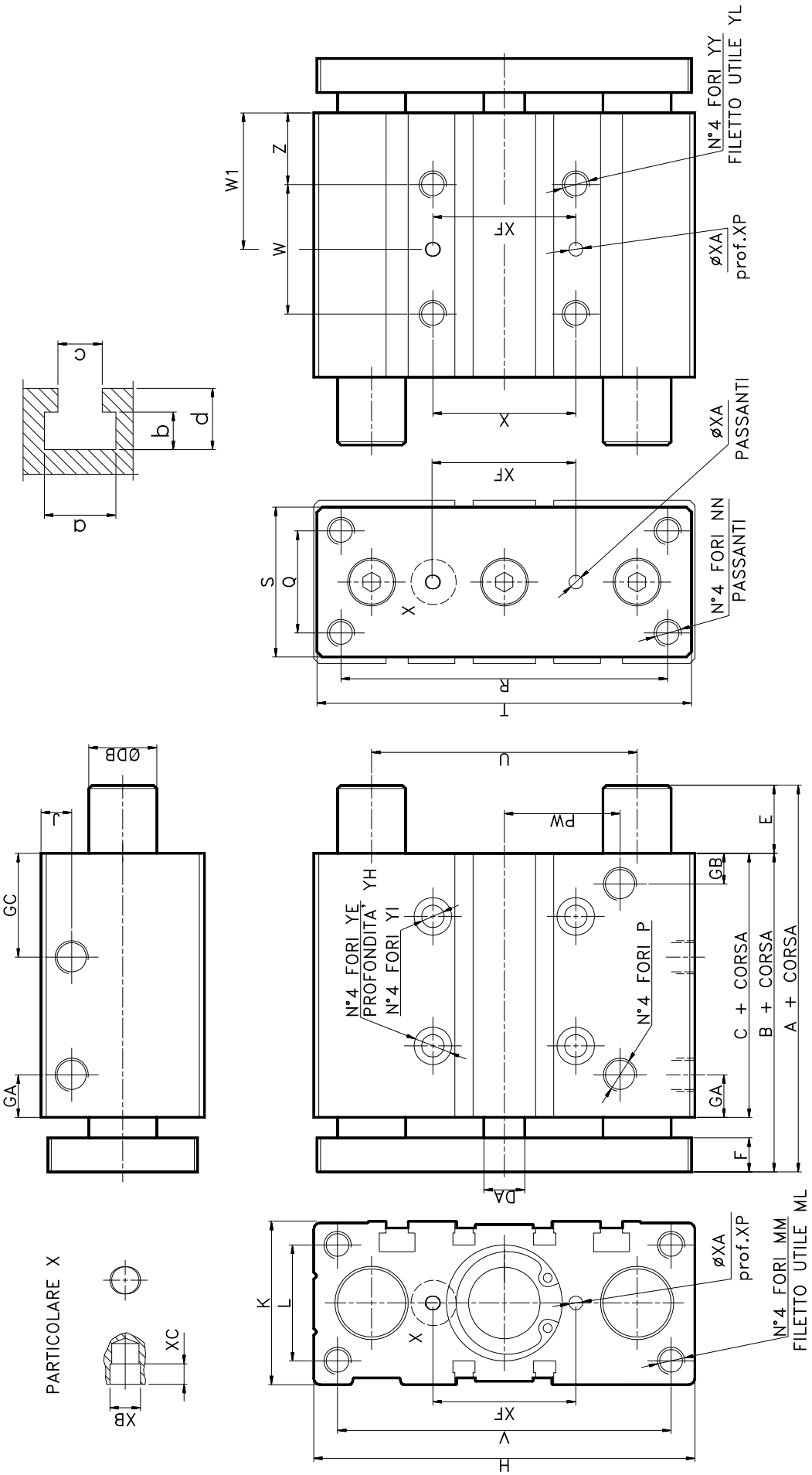
Type
B with sintered bronze rod guide
BB with linear ball bearings

Materials
Body: anodized aluminium
Piston-rod: C40 (chromium plated)
Carrier plate: nickel plated steel
Seals: NBR and polyurethane
Piston-rod seal: polyurethane

available strokes

stroke \ bore	16	20	25	32	40	50	63
10	X						
20	X	X	X				
25				X	X	X	X
30	X	X	X				
40	X	X	X				
50	X	X	X	X	X	X	X
75	X	X	X	X	X	X	X
100	X	X	X	X	X	X	X
125		X	X	X	X	X	X
150		X	X	X	X	X	X
175		X	X	X	X	X	X
200		X	X	X	X	X	X

Operating pressure	max 10 bar (145 PSI) max 1 MPa
Temperature range	**-15+60°C (5-140° F**
Bores	16; 20; 25; 32; 40; 50; 63 mm
Strokes	See table above
Fluid	50μ filtered, lubricated or non lubricated air


N°4 FORI YY
FILETTO UTILE YL
W1
Z
W
XF
X
øXA
prof.XP
c
b
d
a
øXA
PASSANTI
N°4 FORI NN
PASSANTI
S
Q
R
T
ØDB
L
GC
GA
U
PW
E
GB
N°4 FORI YE
PROFONDITA' YH
N°4 FORI YI
N°4 FORI P
C + CORSA
B + CORSA
A + CORSA
F
DA
K
L
øXA
prof.XP
N°4 FORI MM
FILETTO UTILE ML
V
H
PARTICOLARE X
XC
XB

Ø	B	C	DA	F	GA	GB	GC	H	J	K	L	MM	ML	NN	P	PW	Q	R	S	T	U	V	X	YY	YL	YE	YH	YI	Z	XF	XA	XP	XB	XC	a	b	c	d
16	46	33	8	8	11	8	18	64	5	30	22	M5	12	M5	M5	19	16	54	25	62	46	56	24	M5	10	8	4.5	4.3	5	24	3	6	3.5	3	7.4	3.7	4.4	6.2
20	53	37	10	10	10.5	8.5	24.5	83	6.5	36	24	M5	13	M5	G1/8	25	18	70	30	81	54	72	28	M6	12	9.5	5.5	5.6	17	28	3	6	3.5	3	8.4	4.5	5.5	7.3
25	53.5	37.5	10	10	11.5	9	25	93	7.5	42	30	M6	15	M6	G1/8	28.5	26	78	38	91	64	82	34	M6	12	9.5	5.5	5.6	17	34	4	6	4.5	3	8.4	4.5	5.5	7.5
32	59.5	37.5	12	12	12.5	9	30.5	112	9	48	34	M8	20	M8	G1/8	34	30	96	44	110	78	98	42	M8	16	11	7.5	6.6	21	42	4	6	4.5	3	10.5	5.5	6.5	9
40	66	44	12	12	14	10	31	120	9	54	40	M8	20	M8	G1/8	38	30	104	44	118	86	106	50	M8	16	11	7.5	6.6	22	50	4	6	4.5	3	10.5	5.5	6.5	9
50	72	44	16	16	14	11	35	148	9.5	64	46	M10	22	M10	G1/4	47	40	130	60	146	110	130	66	M10	20	14	9	8.6	22	66	5	8	6	4	13.5	7.5	8.5	12
63	77	49	16	16	16.5	13.5	35	162	11	78	58	M10	22	M10	G1/4	55	50	130	70	158	124	142	80	M10	20	14	9	8.6	24	80	5	8	6	4	17.8	10	11	16.5

con bronzine
with sintered bronze rod guide

Ø	quota A (CORSE–STROKES)		quota E (CORSE–STROKES)		DB
16	46 (10÷50)	64.5 (75÷100)	0 (10÷50)	18.5 (75÷100)	10
20	53 (20÷50)	84.5 (75÷200)	0 (20÷50)	31.5 (75÷200)	12
25	53.5 (20÷50)	85 (75÷200)	0 (20÷50)	31.5 (75÷200)	16
32	97 (25÷50)	107 (75÷200)	37.5 (25÷50)	47.5 (75÷200)	20
40	97 (25÷50)	107 (75÷200)	31 (25÷50)	41 (75÷200)	20
50	106.5 (25÷50)	118 (75÷200)	34.5 (25÷50)	46 (75÷200)	25
63	106.5 (25÷50)	118 (75÷200)	29.5 (25÷50)	41 (75÷200)	25

con cuscinetti a rotolamento
with linear ball bearings

Ø	quota A (CORSE–STROKES)			quota E (CORSE–STROKES)			DB
16	46 (10÷30)		66 (40÷100)	0 (10÷30)		20 (40÷100)	8
20	53 (20÷30)		85.5 (40÷200)	0 (20÷30)		32.5 (40÷200)	12
25	53.5 (20÷30)		86 (40÷200)	0 (20÷30)		32.5 (40÷200)	12
32	97 (25÷50)		107 (75÷200)	37.5 (25÷50)		47.5 (75÷200)	20
40	97 (25÷50)		107 (75÷200)	31 (25÷50)		41 (75÷200)	20
50	106.5 (25)	114 (50)	118 (75÷200)	34.5 (25)	42 (50)	46 (75÷200)	25
63	106.5 (25)	114 (50)	118 (75÷200)	29.5 (25)	37 (50)	41 (75÷200)	25

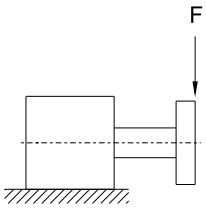
quote W e W1
dimensions W and W1

Ø	quota W (CORSE–STROKES)			quota W1 (CORSE–STROKES)		
16	24 (10÷30)	44 (40÷100)		17 (10÷30)	27 (40÷100)	
20	24 (20÷30)	44 (40÷100)	120 (125÷200)	29 (20÷30)	39 (40÷100)	77 (125÷200)
25	24 (20÷30)	44 (40÷100)	120 (125÷200)	29 (20÷30)	39 (40÷100)	77 (125÷200)
32	24 (25)	48 (50÷100)	124 (125÷200)	33 (25)	45 (50÷100)	83 (125÷200)
40	24 (25)	48 (50÷100)	124 (125÷200)	34 (25)	46 (50÷100)	84 (125÷200)
50	24 (25)	48 (50÷100)	124 (125÷200)	36 (25)	48 (50÷100)	86 (125÷200)
63	28 (25)	52 (50÷100)	128 (125÷200)	38 (25)	50 (50÷100)	88 (125÷200)

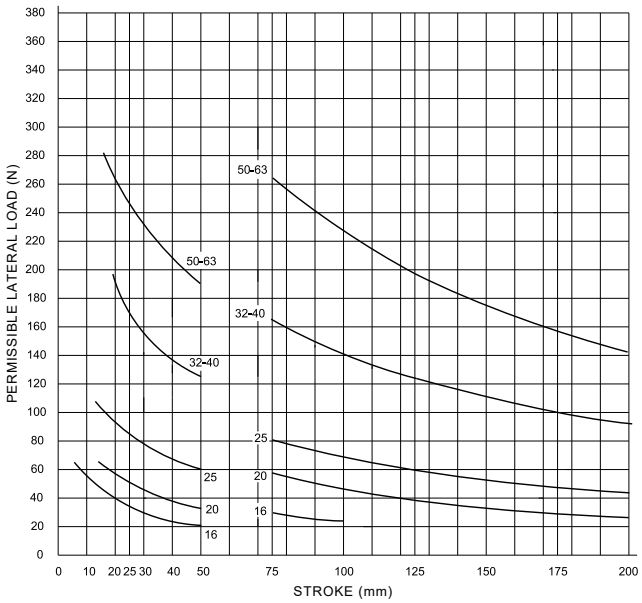
weight (grams)

Ø	10	20	25	30	40	50	75	100	125	150	175	200
16	352	402		452	502	552	752	902				
20		689		830	910	990	1310	1510	1625	1740	1855	1970
25		870		990	1080	1260	1680	2100	2500	2900	3300	3700
32			1770			2120	2770	3080	3408	3737	4066	4395
40			1990			2390	2940	3050	3460	3880	4300	4720
50			3355			3955	4755	5355	5955	6555	7155	7755
63			4030			5070	5786	6505	7224	7943	8662	9380

permissible lateral loads with self-lubricating sintered bronze guide

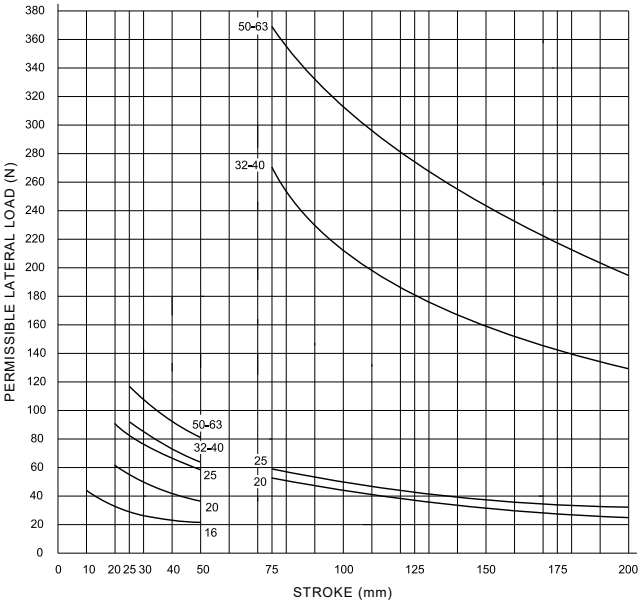


Ø mm	LOAD (N)											
16	56	40		30	25	21	30	24				
20		57		46	38	33	55	45	38	33.5	30	27
25		93		78	68	60	81	67	60	54	48	43
32			170			125	166	142	124	110	99	90
40			170			125	166	142	124	110	99	90
50			250			190	265	227	197	177	156	141
63			250			190	265	227	197	177	156	141
STROKES ⟶	10	20	25	30	40	50	75	100	125	150	175	200



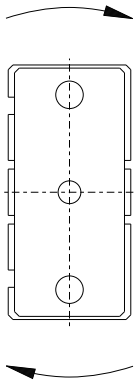
permissible lateral loads with linear ball bearings

Ø mm	LOAD (N)											
16	44	34		27	23	21						
20		62		50	42	36	53	42	36	31	27	25
25		94		79	68	60	59	50	43	39	35	33
32			84			58	270	213	180	159	142	130
40			92			64	270	213	180	159	142	130
50			117			81	370	312	275	243	216	193
63			117			81	370	312	275	243	216	193
STROKES ⟶	10	20	25	30	40	50	75	100	125	150	175	200



permissible torque with self-lubricating sintered bronze guide

Ø mm	MOMENT (Nm)											
16	0.65	0.51		0.42	0.36	0.32						
20		0.99		0.84	0.71	0.64	0.97	0.78	0.63	0.54	0.48	0.43
25		1.98		1.67	1.45	1.28	1.73	1.43	1.31	1.18	1.05	0.94
32			4.10			3.19	3.97	3.36	2.46	2.2	2	1.84
40			4.51			3.51	4.38	3.70	2.46	2.2	2	1.84
50			6.60			5.19	6.68	5.72	4.68	4.25	3.88	3.5
63			6.60			5.19	6.68	5.72	4.68	4.25	3.88	3.5
STROKES ⟶	10	20	25	30	40	50	75	100	125	150	175	200

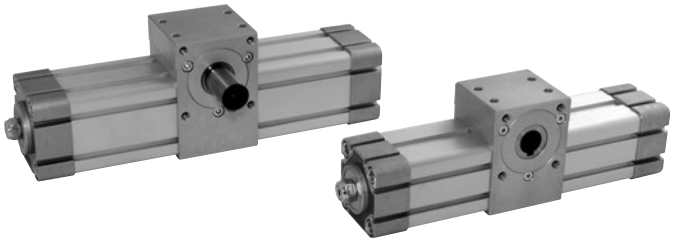


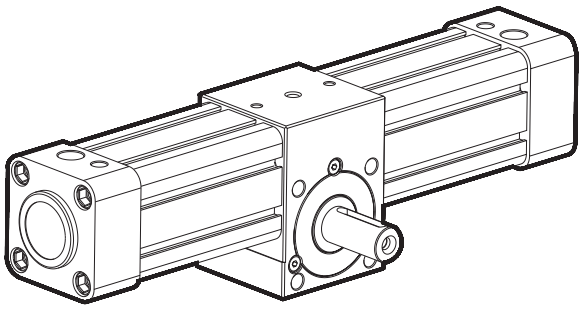
permissible torque with linear ball bearings

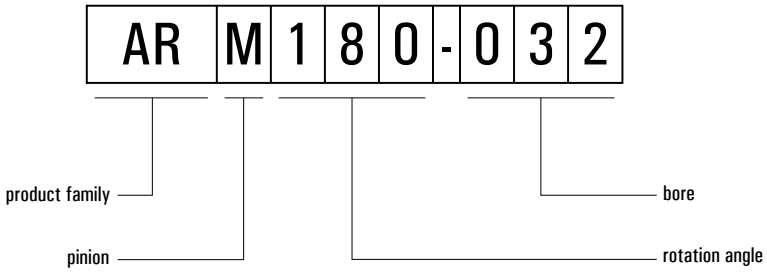
Ø mm	MOMENT (Nm)											
16	0.83	0.65		0.52	0.44	0.40						
20		1.20		0.96	0.81	0.69	1.02	0.93	0.82	0.71	0.64	0.58
25		2.00		1.69	1.45	1.28	1.26	1.09	0.98	0.87	0.79	0.70
32			2.04			1.41	6.58	5.19	4.49	3.87	3.58	3.17
40			2.47			1.72	7.25	5.72	4.49	3.87	3.58	3.17
50			3.22			2.22	10.17	8.58	7.75	6.86	5.99	5.30
63			3.22			2.22	10.17	8.58	7.75	6.86	5.99	5.30
STROKES ⟶	10	20	25	30	40	50	75	100	125	150	175	200

Rotary cylinders

- High reliability and long lifetime
- Standard magnetic version
- Standard magnetic sensors (pages 532-535)
- Integrated pneumatic cushioning



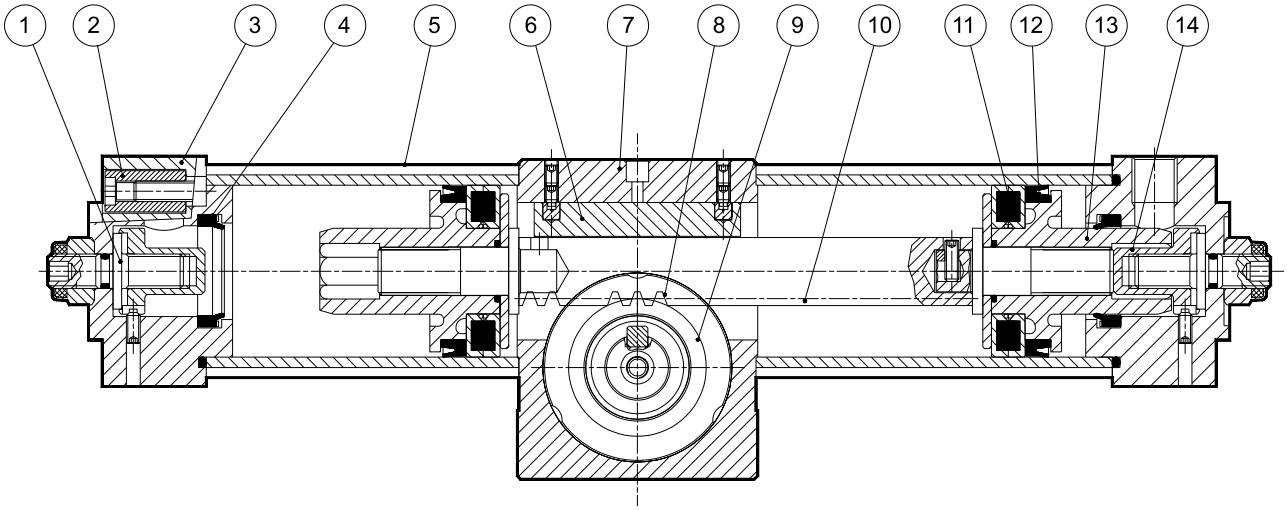




Product family
AR rotary cylinders

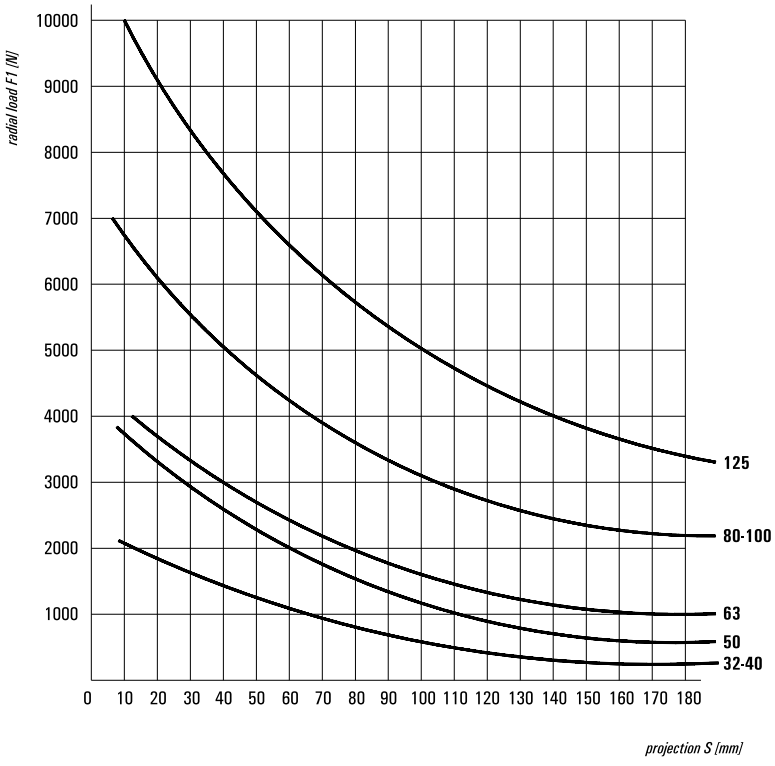
Pinion
M male pinion
F female pinion

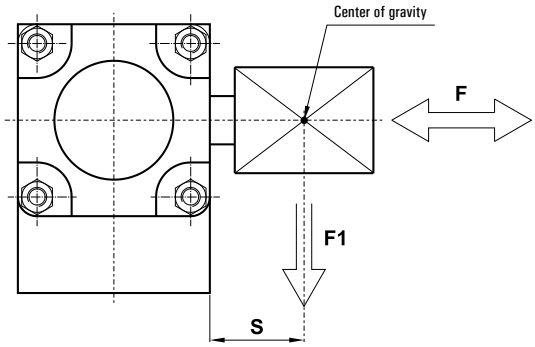
Operating pressure	max 10 bar (145 PSI) max 1 MPa
Temperature range	**-15+60°C (5-140° F**
Bores	32; 40; 50; 63; 80; 100; 125 mm
Rotation angle	90°; 180°; 270°; 360° angle adjustment: 10°
Fluid	50μ filtered, lubricated or non lubricated air



1. Regulation screw: zinc-plated steel
2. Head fixing screw: zinc-plated steel
3. Cylinder head: die-cast aluminium
4. Barrel: extruded anodized aluminium alloy
5. Piattino di guida cremagliera: Delrin acetal resin
6. Rotary cylinders body: anodized aluminium
8. Pinion: nitrided steel
9. Cuscinetto a sfera
10. Cremagliera: acciaio normalizzato
11. Anello magnetico: plastoferrite
12. Guarnizione pistone: NBR
13. Pistone: alluminio pressofuso
14. Vite bloccaggio pistone: acciaio zincato

Maximum radial load F1 with F=0



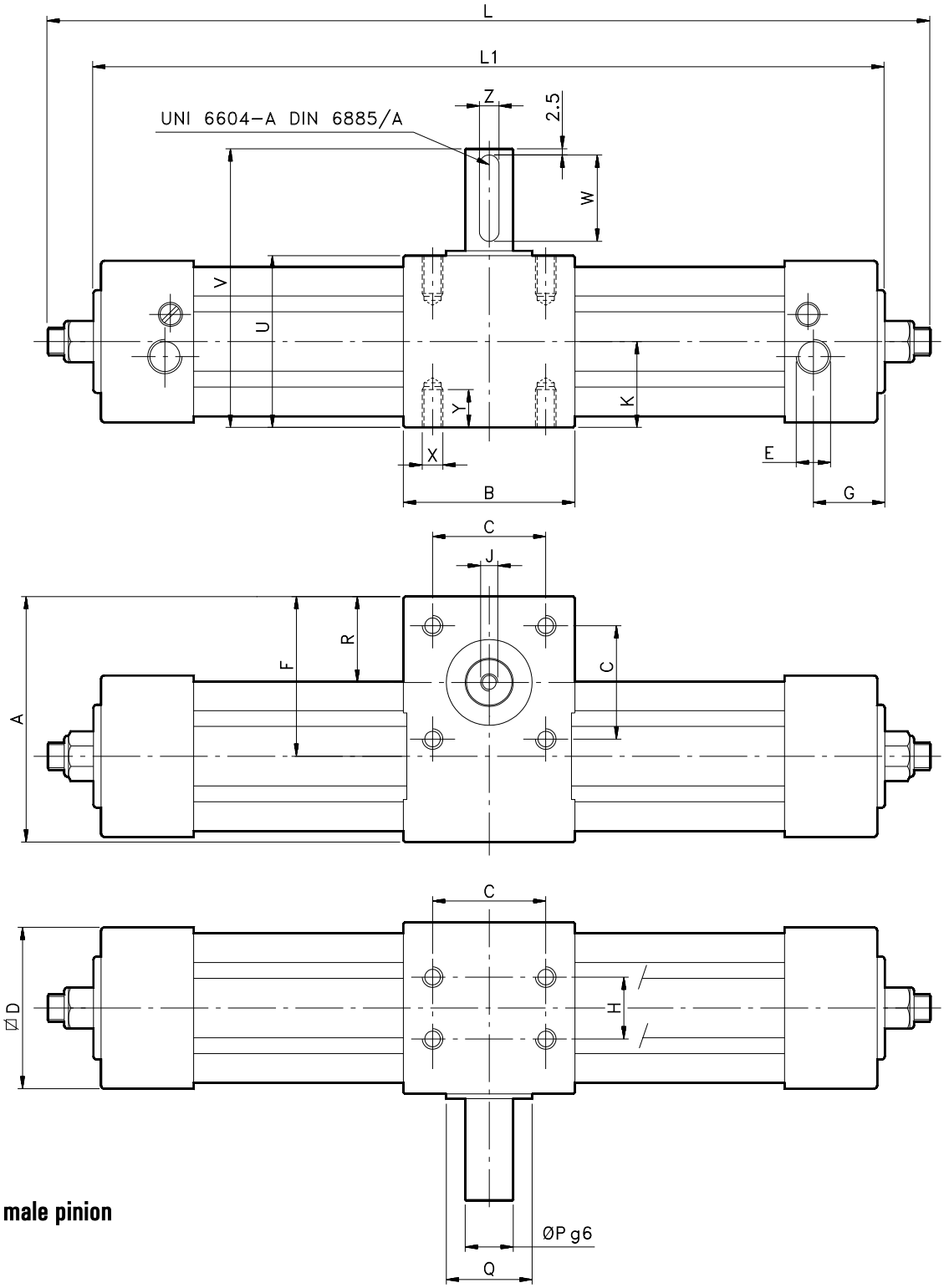


Maximum axial load F with F1=0

bore	F
32	100 N
40	100 N
50	120 N
63	120 N
80	200 N
100	250 N
125	300 N

Torque

bore	M (1 bar)	M (6 bar)
32	1.2 Nm	7.2 Nm
40	2.25 Nm	13.5 Nm
50	3.9 Nm	23.4 Nm
63	7.3 Nm	43.8 Nm
80	15.7 Nm	94.2 Nm
100	26.35 Nm	158.1 Nm
125	51 Nm	306 Nm



male pinion

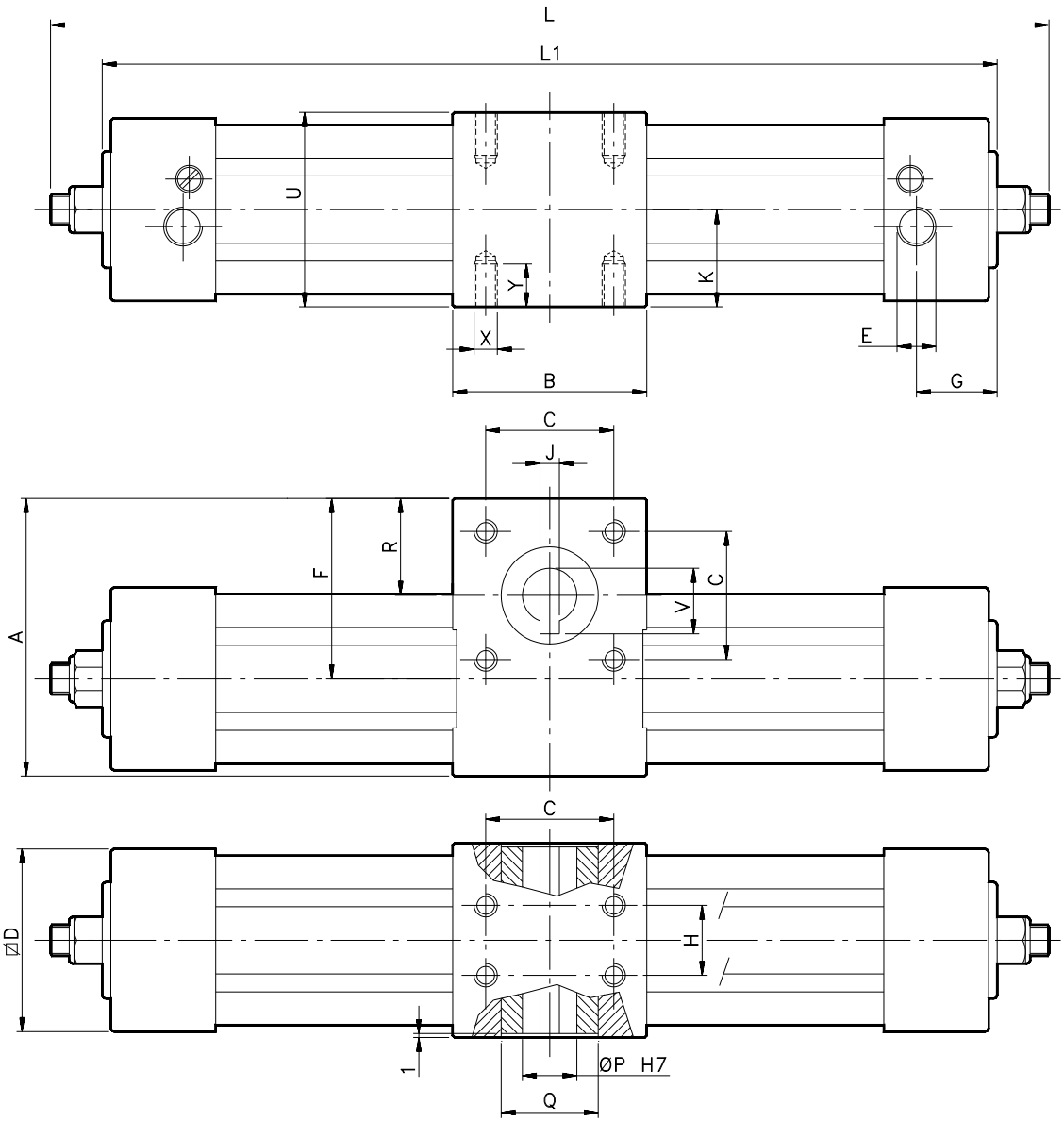
90° rotation		
ø CIL.	**L**	**L1**
32	238	219
40	282	261
50	306	284
63	353	330
80	408	380
100	451	419
125	520	490

180° rotation		
ø CIL.	**L**	**L1**
32	285	266
40	339	318
50	369	347
63	428	405
80	507	479
100	558	526
125	652	622

270° rotation		
ø CIL.	**L**	**L1**
32	332	313
40	396	375
50	432	410
63	503	480
80	606	578
100	665	633
125	784	754

360° rotation		
ø CIL.	**L**	**L1**
32	379	360
40	453	432
50	495	473
63	578	555
80	705	677
100	772	740
125	916	886

ø CIL.	A	B	C	D	E	F	G	H	J	K	P	Q	R	U	V	W	X	Y	Z
32	71.5	50	33	48	G1/8″	46.5	18	18	M5	25	14	25	25	50	81	25	M6	10	5
40	82	60	40	54	G1/4″	54.5	21	22	M5	30	14	25	30	60	91	25	M6	10	5
50	93	70	50	67	G1/4″	60.5	24	25	M6	32.5	19	30	32.5	65	106	35	M8	13	6
63	109	75	60	78	G3/8″	70.8	26	35	M8	37.5	24	30	37	75	116	35	M8	13	8
80	142	99	80	97	G3/8″	93.5	26	50	M8	49.5	28	45	50	99	150	45	M10	16	8
100	156.5	115	80	115	G1/2″	99	30	60	M10	57.5	38	50	54	115	166	45	M10	16	10
125	188	125	90	140	G1/2″	118	32	70	M10	70	38	60	60	140	191	45	M12	20	10



90° rotation		
ø CIL.	L	L1
32	238	219
40	282	261
50	306	284
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40	339	318
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270° rotation		
ø CIL.	L	L1
32	332	313
40	396	375
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63	503	480
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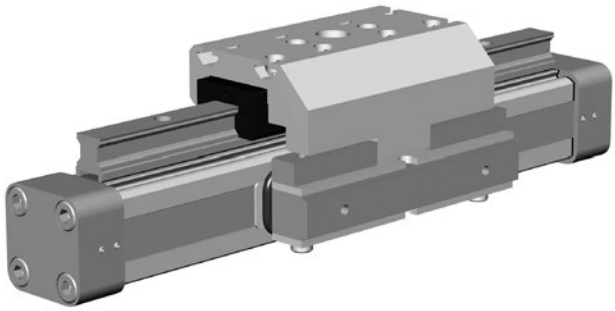
360° rotation		
ø CIL.	L	L1
32	379	360
40	453	432
50	495	473
63	578	555
80	705	677
100	772	740
125	916	886

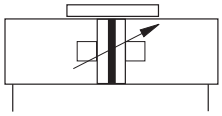
female pinion

ø CIL.	A	B	C	D	E	F	G	H	J	K	P	Q	R	U	V	X	Y
32	71.5	50	33	47	G1/8″	46.5	20	18	5	25	14	25	25	50	16.3	M6	10
40	82	60	40	53	G1/4″	54.5	19	22	5	30	14	25	30	60	16.3	M6	10
50	93	70	50	65	G1/4″	60.5	22	25	6	32.5	19	30	32.5	65	21.8	M8	13
63	109	75	60	76	G3/8″	70.8	24	35	6	37.5	19	30	37	75	21.8	M8	13
80	142	99	80	94	G3/8″	93.5	24	50	8	49.5	24	45	50	99	27.3	M10	16
100	156.5	115	80	112.5	G1/2″	99	22	60	8	57.5	28	50	54	115	31.3	M10	16
125	188	125	90	136.5	G1/2″	118	29	70	8	70	28	60	60	140	31.3	M12	20

Rodless cylinders

- Standard magnetic version
- High reliability and long lifetime
- Low friction and good resistance to loads
- Installation in any position
- Mounting elements and switches can be ordered separately
- Version with recirculating ball bearing guide

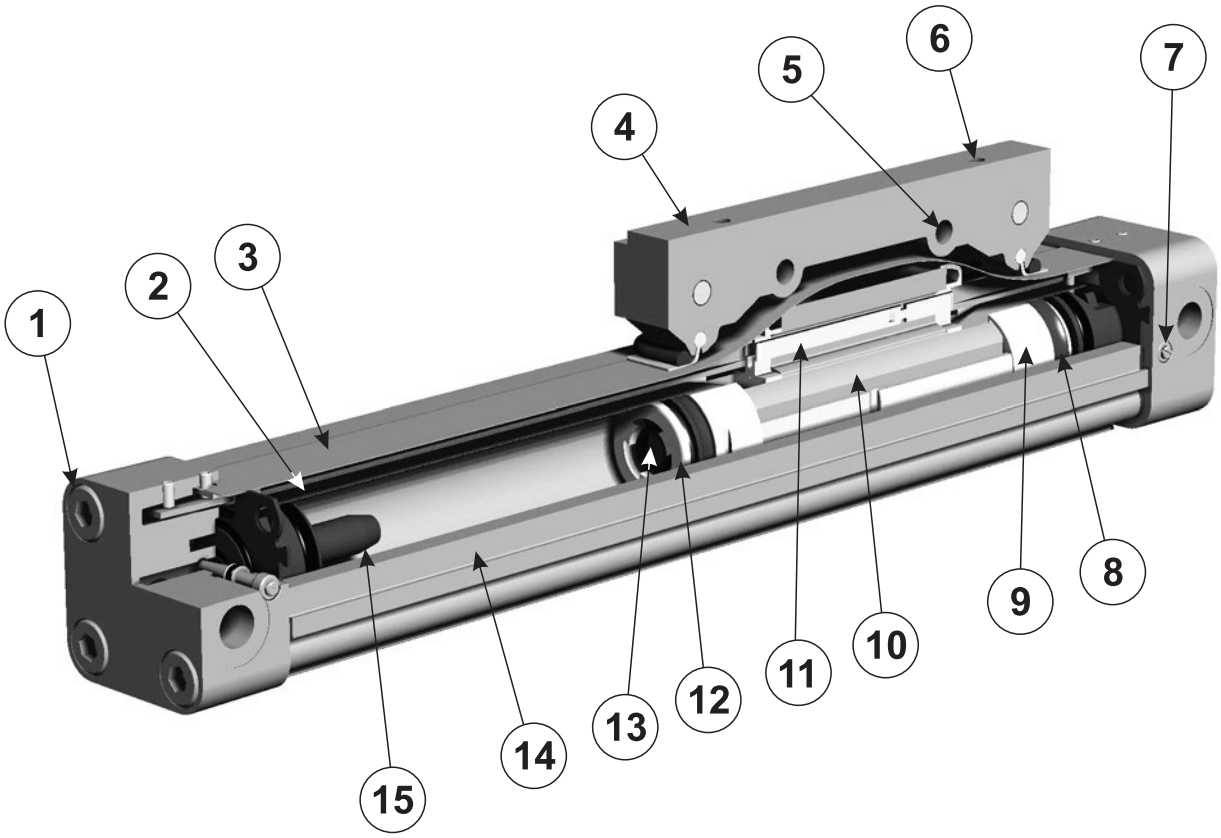




General features

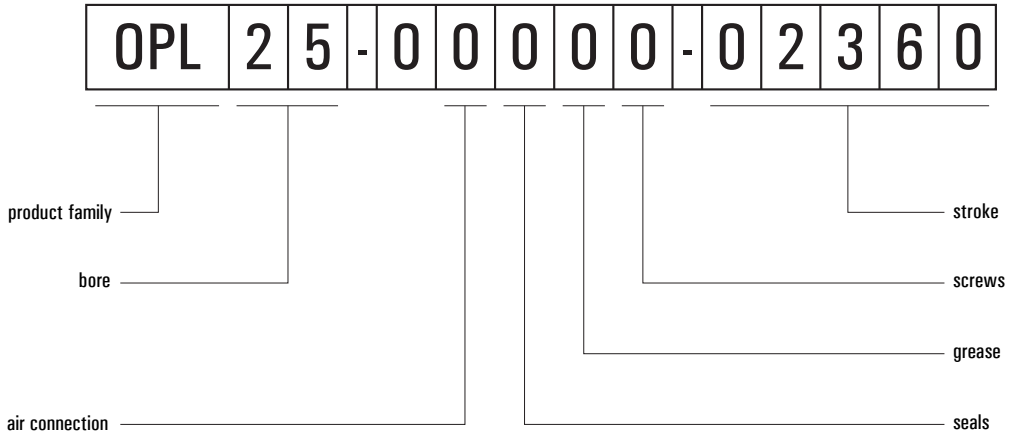
Rodless cylinders consist of an extruded profile with two heads and a piston inside it. The cylinder barrel has a groove along its entire length. A flexible corrosion resistant steel inner band running along the entire length of the bore and passing through the piston provides a near-zero-leakage metal to metal seal. An outer band of the same material acts as a cover over the groove preventing foreign particles to enter into the cylinder. The aluminium piston is fitted with synthetic bearing rings and houses the internal magnet. A physical connection through the slot between the piston and the external mounting plate allows the power transmission outwards. This solid connection permits the acceptance of big external forces and moments, and minimizes frictional losses. Magnetic switches can be mounted on the aluminium profile with mounting brackets.

Rodless cylinders are available in seven different diameters: ø16; 25; 32; 40; 50; 63; 80 and in two versions:
- basic (part number begins with **OPL**), suitable for small and medium loads
- with recirculating ball bearing guide (part number begins with **OPL-KF**), suitable for big loads and precision.



1. Screw for assembling cylinder head
2. Corrosion resistant steel inner sealing band
3. Corrosion resistant steel outer sealing band
4. Standard mounting plate for external loads
5. Passing-through hole to fasten the external loads
6. Threaded holes to fasten the external load
7. Adjustable cushioning screw
8. Piston sealing
9. Bearing ring, low friction material
10. Magnet
11. Sliding pad
12. Piston
13. Cushioning seal
14. Cylinder barrel: extruded profile with grooves for magnetic sensors
15. Cushioning pipe

coding example



Product family
OPL rodless cylinders - basic version

OPL-KF rodless cylinders with recirculating ball bearing guide

Air connection
option available only for OPL-KF

0 opposite side guide rail

1 same side guide rail

Seals
0 NBR

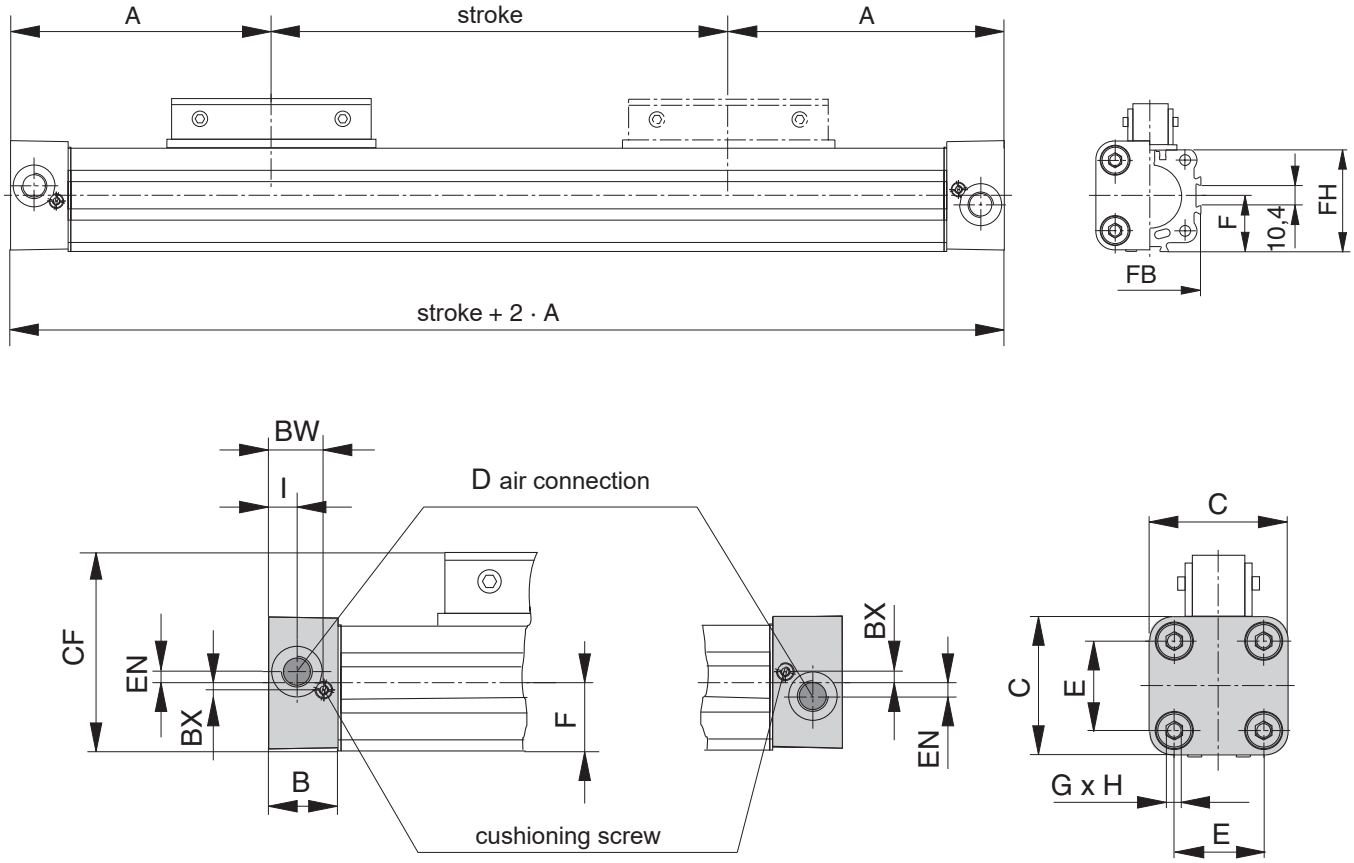
Grease
0 standard grease

1 special grease for low speed

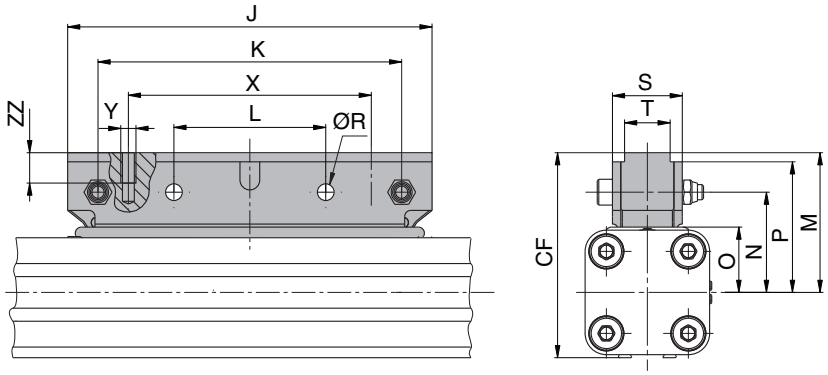
Screws
0 standard screws in galvanized steel

Standard version represented by number 0

Overall dimensions
bore 16 ... 32



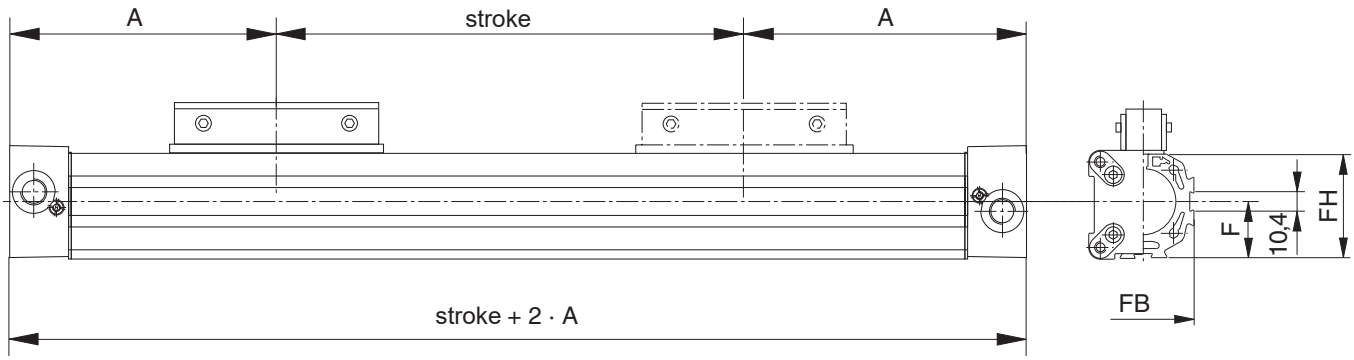
Standard mounting plate for external loads
bore 16 ... 32

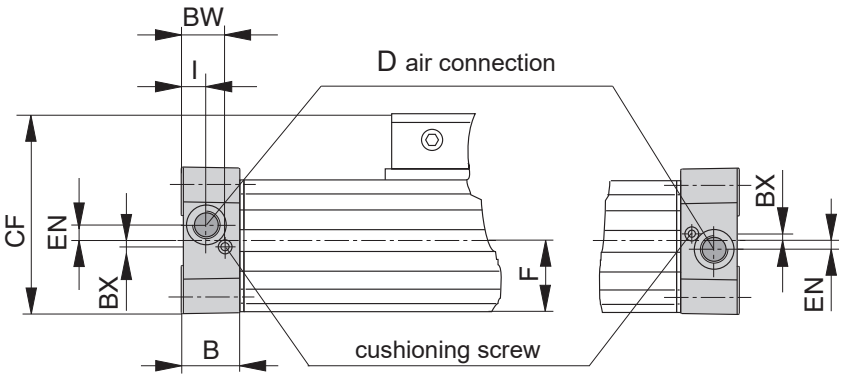


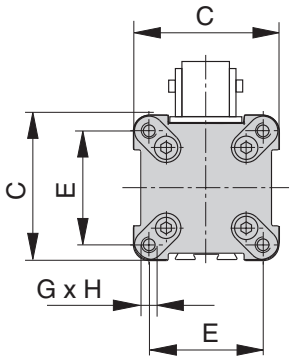
ø	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
16	65	14	30	M5	18	15	M3	9	5.5	76	64	32	30	24	17	29
25	100	22	41	G1/8"	27	21.5	M5	15	9	120	100	50	46	33	22.5	43
32	125	25.5	52	G1/4"	36	28.5	M6	15	11.5	160	120	60	59.8	45.8	28.5	54.3

ø	R	S	T	X	Y	BW	BX	CF	EN	FB	FH	ZZ				
16	4.5	18	10.5	48	M4	10.8	1.8	45	3	30	27.2	8				
25	5.5	23	17.5	80	M5	17.5	2.2	67.5	3.6	40	39.5	10				
32	7	27	18	90	M6	20.5	2.5	88.3	5.5	52	51.7	15				

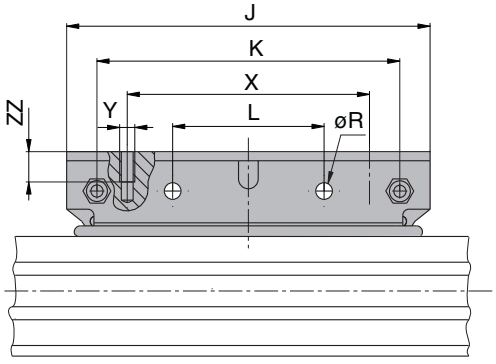
Overall dimensions
bore 40 ... 80

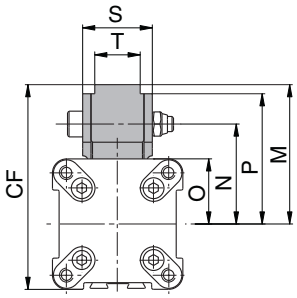






Standard mounting plate for external loads
bore 40 ... 80

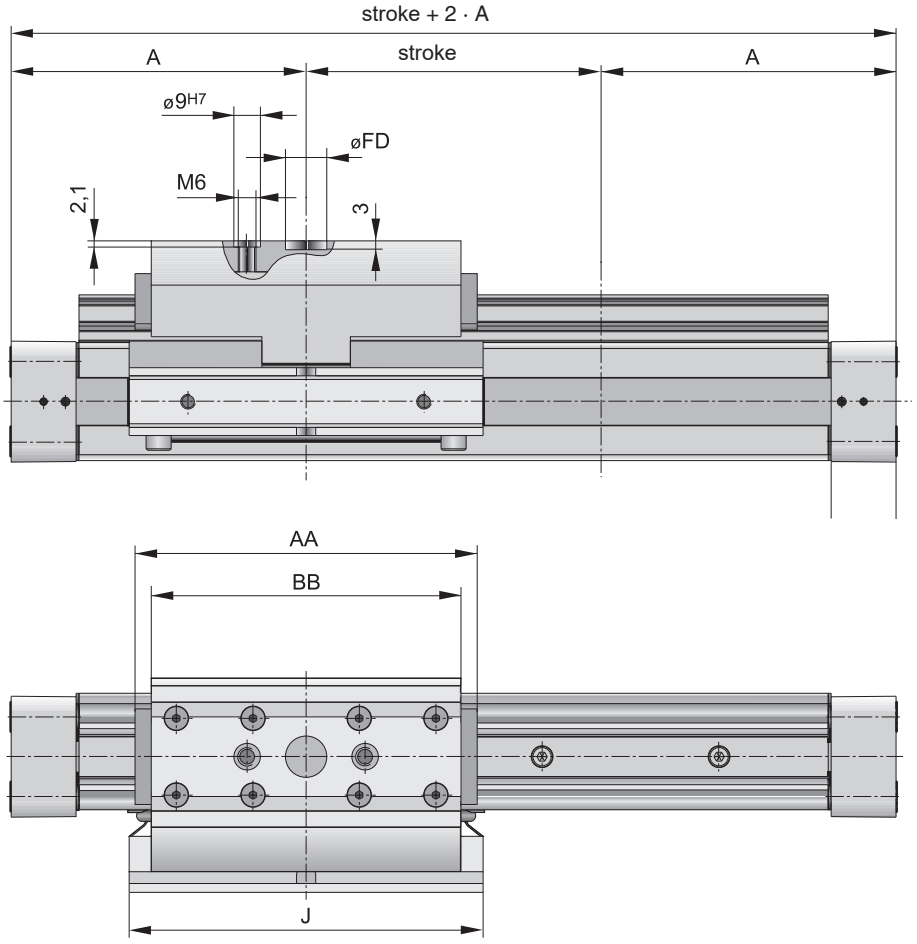


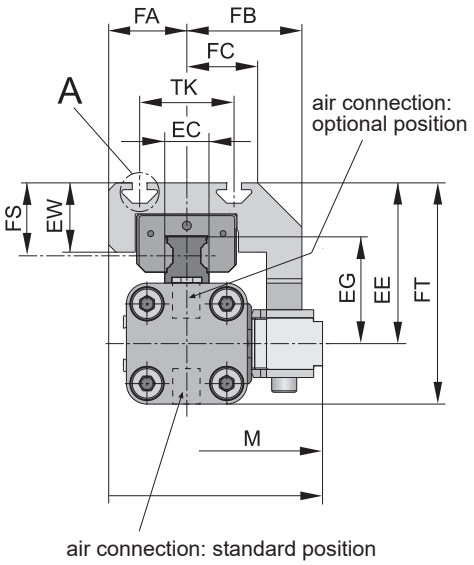


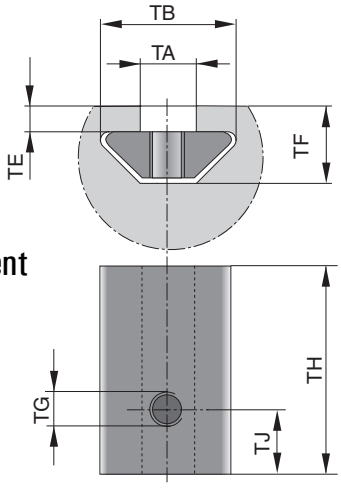
ø	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
40	150	28	69	G1/4"	54	34	M6	15	12	150	110	55	60.8	48.8	35	56.8
50	175	33	87	G1/4"	70	43	M6	15	14.5	180	140	70	69	57	40	65
63	215	38	106	G3/8"	78	54	M8	21	14.5	220	180	90	82.8	67.8	50	77.8
80	260	47	132	G1/2"	96	67	M10	25	22	280	240	120	101	83	57	95

ø	R	S	T	X	Y	BW	BX	CF	EN	FB	FH	ZZ				
40	7	28	18	90	M6	21	3	95.3	7.5	62	63	12				
50	7	28	18	110	M6	27	-	112.5	11	76	77	12				
63	9	30	19	140	M8	30	-	136.8	12	96	96	16				
80	11	32	20	180	M10	37.5	-	168	16.5	122	122	20				

Overall dimensions; for other dimensions refer to pages 508-509





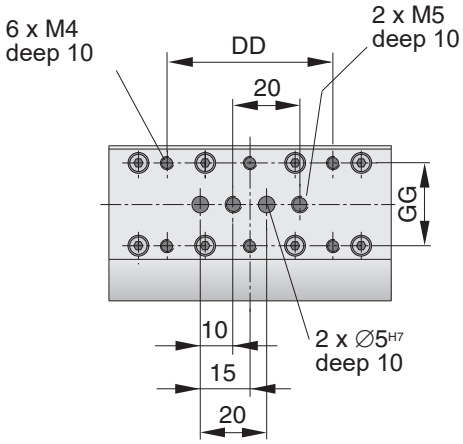


A element

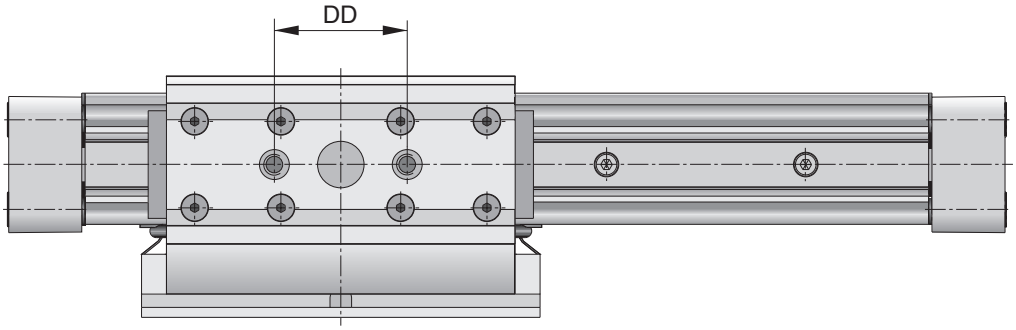
Standard T-nuts can be purchased from ITEM company.

ø	A	B	J	AA	BB	CF	DD	EC	EE	EG	EW	JJ	GG	M	FA	FB
16	65	14	76	93	85	48	50	15	41	24.6	10	-	25	30	17.7	29
25	100	22	120	120.2	105	72.5	40	15	54.5	36.2	23.5	-	-	46	26.5	39
32	125	25.5	160	146.2	131	93.8	40	15	60.5	42.2	23.5	-	20	59.8	34	53.8
40	150	28	150	188.5	167	103.3	40	20	69.5	51.6	26.5	120	20	60.8	42.5	56.8
50	175	33	180	220.2	202	121	40	23	90.5	62.3	32.5	120	40	69	52	65

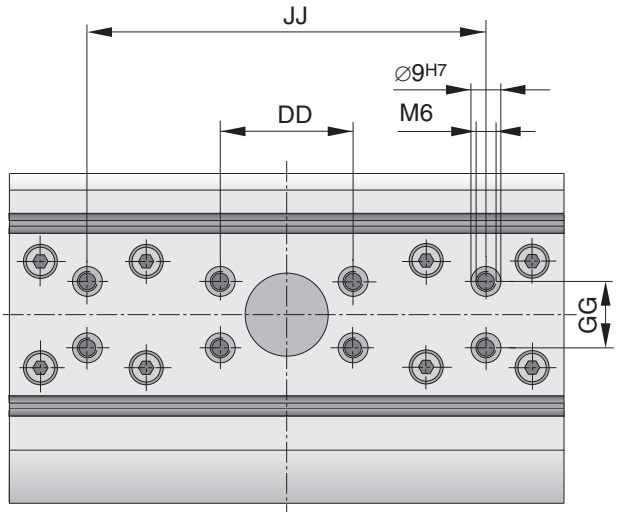
Load fixing bores for cylinder ø16



Load fixing bores for cylinder ø25



Load fixing bores for cylinder ø32; 40; 50

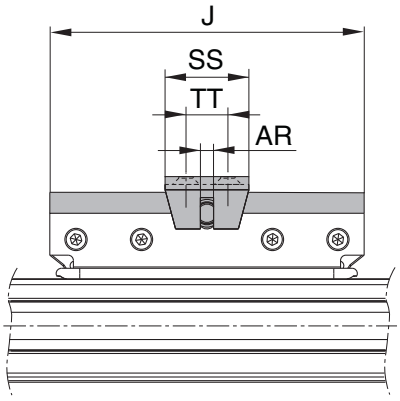


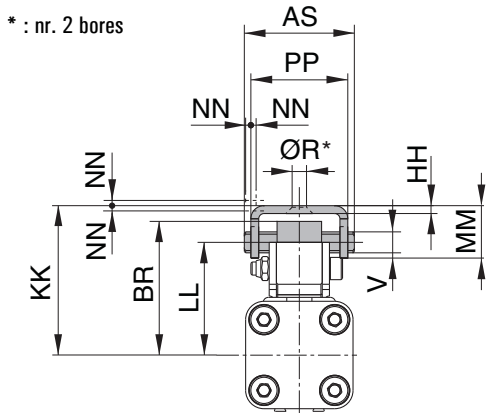
ø	FC	FD	FT	FS	TA	TB	TE	TF	TG	TH	TJ	TK				
16	16.5	-	56	19	-	-	-	-	-	-	-	-				
25	24	14 G7	75	24.7	5	12.1	2.3	6.9	M5	11.5	4	32				
32	34	25 G7	86.5	24.7	5	12.1	1.8	6.4	M5	11.5	4	47				
40	41	25 G7	104	26	6	12.8	1.8	8.4	M6	17	5.5	55				
50	50	25 G7	134	38	8	21.1	4.5	12.5	M8	23	7.5	72				

Mounting elements for rodless cylinders OPL

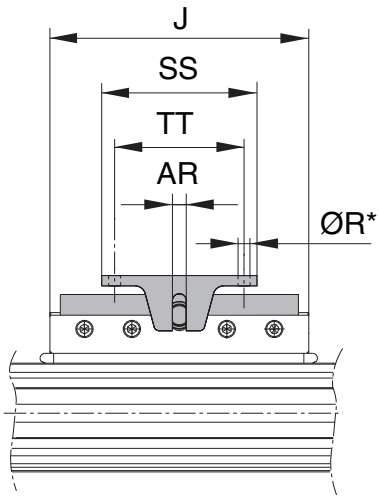
clevis mounting

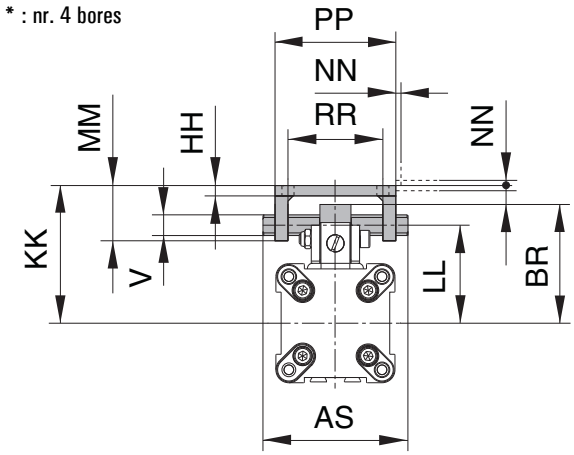
bore	part number
16	**21054**
25	**21055**
32	**21056**





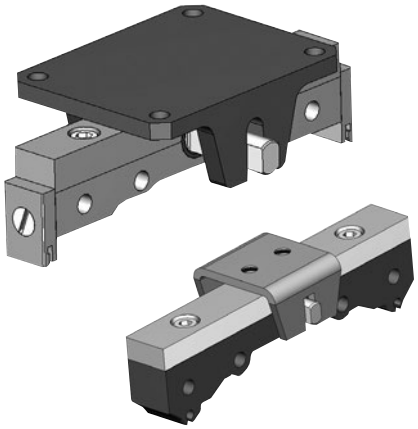
bore	part number
40	**21057**
50	**21058**
63	**21059**
80	**21060**





When external guides are used, possible parallelism deviations can lead to mechanical strains on the piston. This can be avoided using a clevis mounting.
Freedom of movement is provided as follows:

- Tilting in direction of movement
- Vertical compensation
- Lateral tilting
- Horizontal compensation

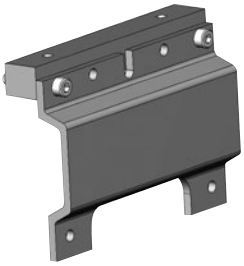


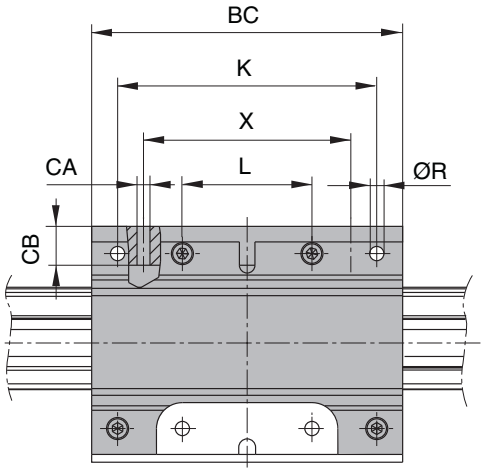
ø	J	øR	V	AR	AS	BR	HH	KK	LL	MM	NN	PP	RR	SS	TT	
16	76	4.5	5	3	28	34	2	38	29	13	1.5	25	-	20	10	
25	120	5.5	8	5	42	51	3	57	43	20	1.5	37	-	32	16	
32	160	6.6	12	8	55	65.5	4	74	54.5	30	3	44	-	60	40	
40	150	7	12	8	84	69	6	80	57	32	3.5	70	55	90	75	
50	180	7	12	8	84	77	6	88	65	32	3.5	70	55	90	75	
63	220	9	16	10	90	98	8	112.5	83	40	3	90	70	120	100	
80	280	11	20	13	110	118	8	137.5	101	48	4	110	85	150	125	

Mounting elements for rodless cylinders OPL

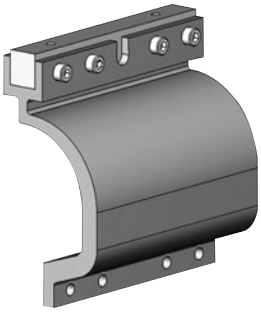
inversion mounting

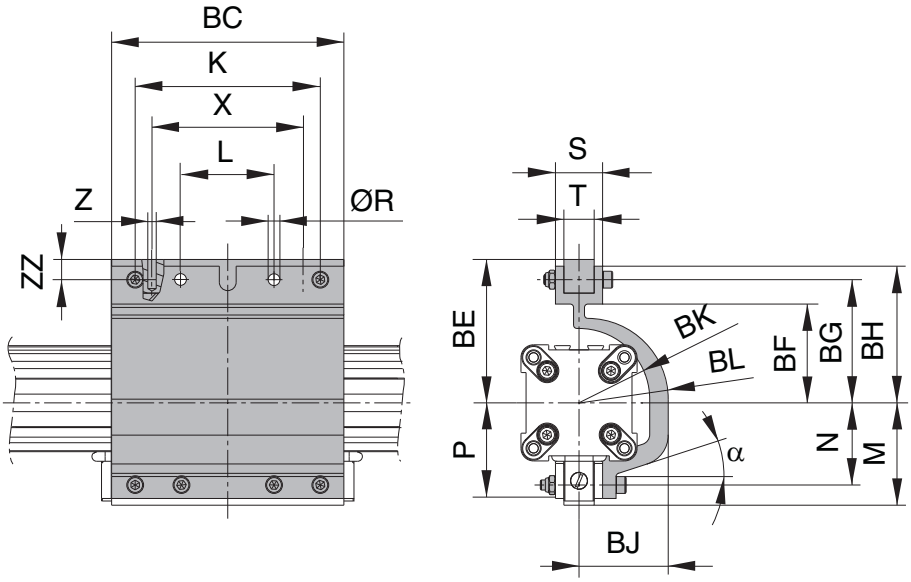
bore	part number
32	**3510**





bore	part number
40	**4510**
50	**5510**
63	**6510**
80	**8510**





In dirty environments, or in case of special space problems, inversion of the cylinder is recommended.
This element transfers driving force to the opposite side of the cylinder. Size and position of mounting holes are the same of standard cylinder.

Note: other components such as mid-section supports and magnetic switches can be mounted on the free side of the cylinder.

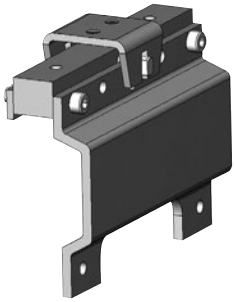
ø	K	L	M	N	P	øR	S	T	X	Z	BC
32	140	60	60	-	-	7	-	-	90	-	160
40	110	55	61	49	57	7	28	18	90	M6	138
50	140	70	69	57	65	7	28	18	110	M6	168
63	180	90	83	68	78	9	30	19	140	M8	208
80	240	120	101	83	95	11	32	20	180	M10	268

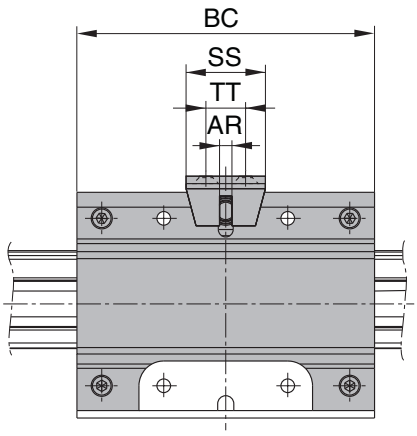
ø	BE	BF	BG	BH	BJ	BK	BL	CA	CB	CD	ZZ	α
32	58	-	44	-	33	-	-	M8	25	20	-	-
40	85	58.5	73	81	53	42	48	-	-	-	12	22°
50	97	70	85	93	62	50	56	-	-	-	12	18°
63	117	82	102	112	77	62	71	-	-	-	16	15°
80	143	102	125	137	96	78	88	-	-	-	20	15°

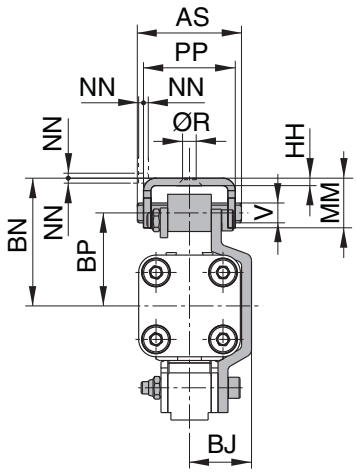
Mounting elements for rodless cylinders OPL

clevis mounting with inversion

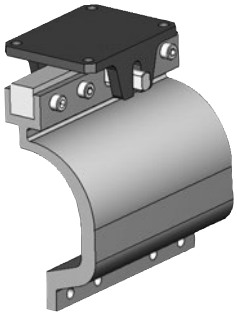
bore	part number
16	**21063**
25	**21064**
32	**3550**

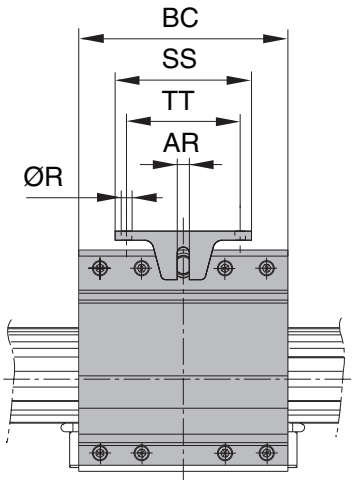


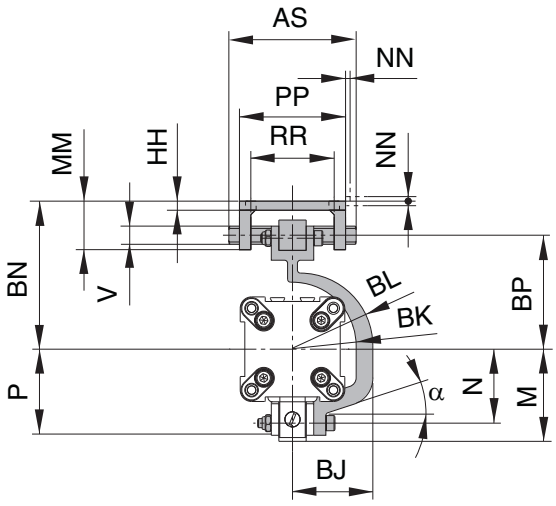




bore	part number
40	**4530**
50	**5530**
63	**6530**
80	**8530**







ø	M	N	P	øR	V	AR	AS	BC	BJ	BK
16	-	-	-	4.5	5	3	28	76	21.5	-
25	-	-	-	5.5	8	5	42	120	26	-
32	-	-	-	6.6	12	8	55	160	33	-
40	61	49	57	7	12	8	84	138	53	42
50	69	57	65	7	12	8	84	168	62	50
63	83	68	78	9	16	10	90	208	77	62
80	101	83	95	11	20	13	110	268	96	78

In dirty environments, or in case of special space problems, inversion of the cylinder is recommended. This element transfers driving force to the opposite side of the cylinder and provides movement advantages typical of clevis mounting (refer to page 512). Size and position of mounting holes are the same of clevis mounting.

Note: other components such as mid-section supports and magnetic switches can be mounted on the free side of the cylinder.

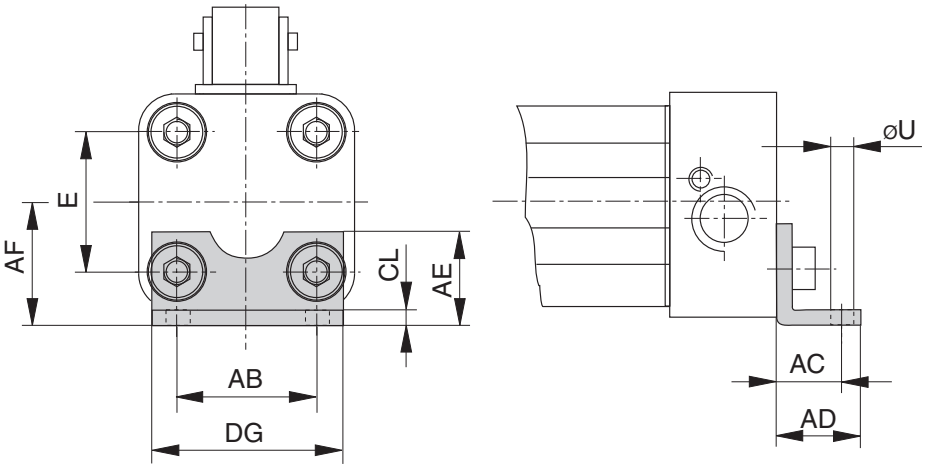
ø	BL	BN	BP	HH	MM	NN	PP	RR	SS	TT	α
16	-	38.5	29	2	13	1.5	25	-	20	10	-
25	-	48	34	3	20	1.5	37	-	32	16	-
32	-	67	46.5	4	30	3	44	-	60	40	-
40	48	99	75	6	32	3.5	70	55	90	75	22°
50	56	111	87	6	32	3.5	70	55	90	75	18°
63	71	134	104.5	8	40	3	90	70	120	100	15°
80	88	163	128	8	48	4	110	85	150	125	15°

Mounting elements for rodless cylinders OPL

end cap foot mounting

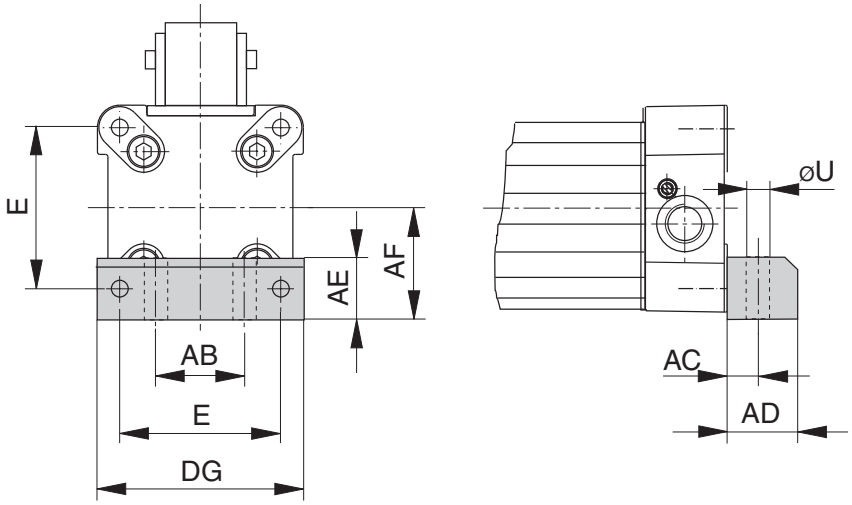
bore	part number
16	**20408**
25	**2010**
32	**3010**

Material: galvanized steel



bore	part number
40	**4010**
50	**5010**
63	**6010**
80	**8010**

Material: anodized aluminium



On each end cap there are four threaded holes for cylinder mounting. Hole layout is square, so that the foot mounting can be assembled on the bottom, top or either side, regardless of position chosen for air connection.
Order codes refer to a foot mounting couple.

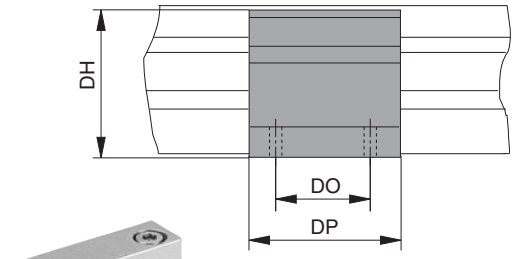
ø	E	øU	AB	AC	AD	AE	AF	CL	DG							
16	18	3.6	18	10	14	12.5	15	1.6	26							
25	27	5.8	27	16	22	18	22	2.5	39							
32	36	6.6	36	18	26	20	30	3	50							
40	54	9	30	12.5	24	24	38	-	68							
50	70	9	40	12.5	24	30	48	-	86							
63	78	11	48	15	30	40	57	-	104							
80	96	14	60	17.5	35	50	72	-	130							

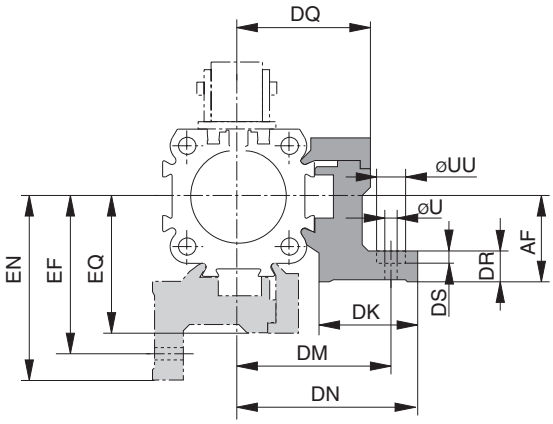
Mounting elements for rodless cylinders OPL

mid support

bore	part number
16	**20435**
25	**20009**
32	**20158**
40	**20028**
50	**20163**
63	**20452**
80	**20482**

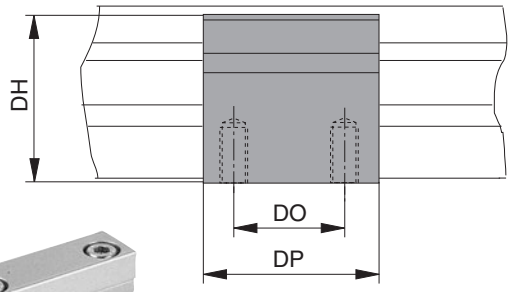
Mounting from above or below using through-screws

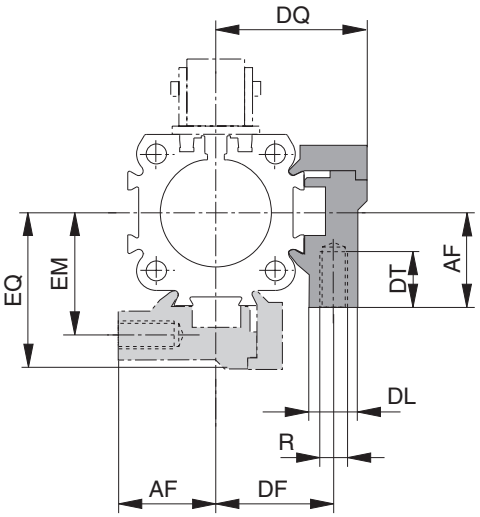




bore	part number
16	**20434**
25	**20008**
32	**20157**
40	**20027**
50	**20162**
63	**20451**
80	**20480**

Mounting from below using two threads





This element can be mounted also on the underside of the cylinder. In this case its distance from the centre of the cylinder is different (see drawing).

For more information about installation, refer to page 528.

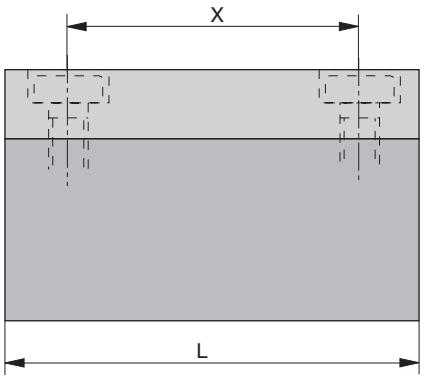
ø	R	øU	øUU	AF	DF	DH	DK	DM	DN	DO	DP	DL	DQ	DR	DS	DT	EF	EM	EN	EQ
16	M3	3.4	6	15	20	29.2	24	32	36.4	18	30	14.6	27	6	3.4	6.5	32	20	36.4	27
25	M5	5.5	10	22	27	38	26	40	47.5	36	50	13	34.5	8	5.7	10	41.5	28.5	49	36
32	M5	5.5	10	30	33	46	27	46	54.5	36	50	13	40.5	10	5.7	10	48.5	35.5	57	43
40	M6	7	-	38	35	61	34	53	60	45	60	19	45	10	-	11	56	38	63	48
50	M6	7	-	48	40	71	34	59	67	45	60	19	52	10	-	11	64	45	72	57
63	M8	9	-	57	47.5	91	44	73	83	45	65	24	63	12	-	16	79	53.5	89	69
80	M10	11	-	72	60	111.5	63	97	112	55	80	32	81	15	-	25	103	66	118	87

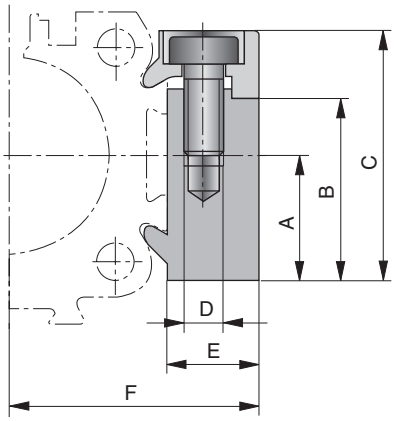
Mounting elements for rodless cylinders OPL and OPL-KF

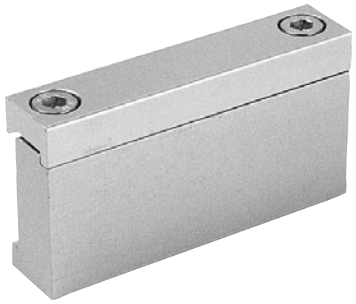
mounting profile

bore	part number
16	**20432**
25-32	**20006**
40-50	**20025**

Universal profile in full solid aluminium which can be bored for mounting of various elements on the cylinder.



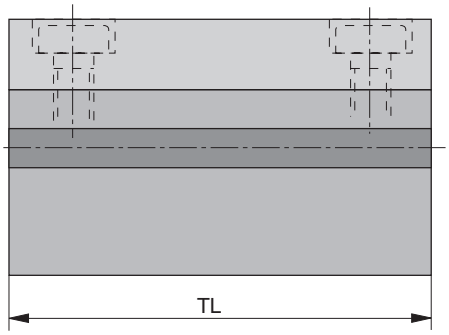


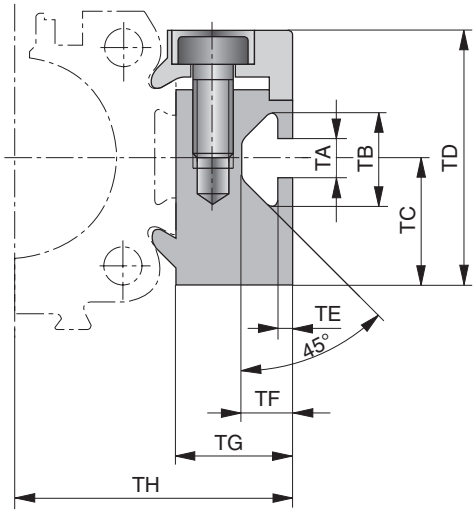


T-nut profile

bore	part number
16	**20433**
25-32	**20007**
40-50	**20026**

Universal profile to fix various elements on the cylinder with standard T-nuts, purchasable from ITEM company.





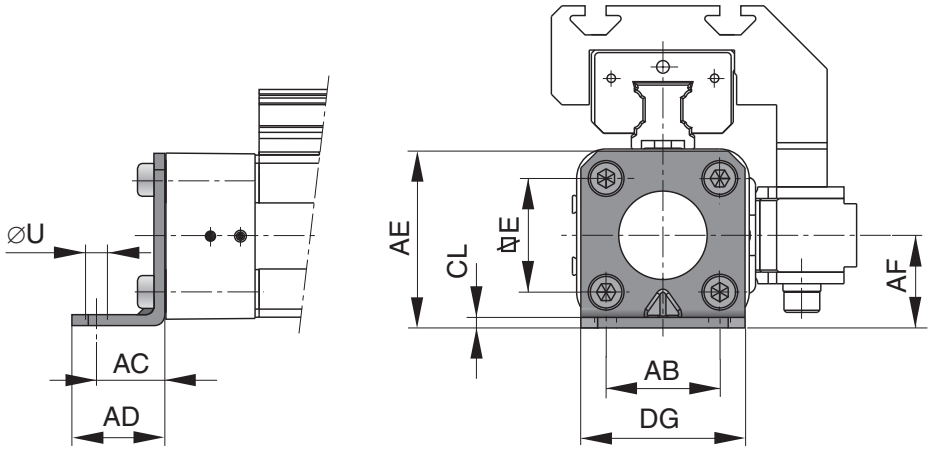
ø	A	B	C	D	E	F	L	X	TA	TB	TC	TD	TE	TF	TG	TH	TL
16	14	20.5	28	M3	12	27	50	38	5	11.5	14	28	1.8	6.4	12	27	50
25	16	23	32	M5	10.5	30.5	50	36	5	11.5	16	32	1.8	6.4	14.5	34.5	50
32	16	23	32	M5	10.5	36.5	50	36	5	11.5	16	32	1.8	6.4	14.5	40.5	50
40	20	33	43	M6	14	45	80	65	8.2	20	20	43	4.5	12.3	20	51	80
50	20	33	43	M6	14	52	80	65	8.2	20	20	43	4.5	12.3	20	58	80

Mounting elements for rodless cylinders OPL-KF

end cap foot mounting (galvanized steel)

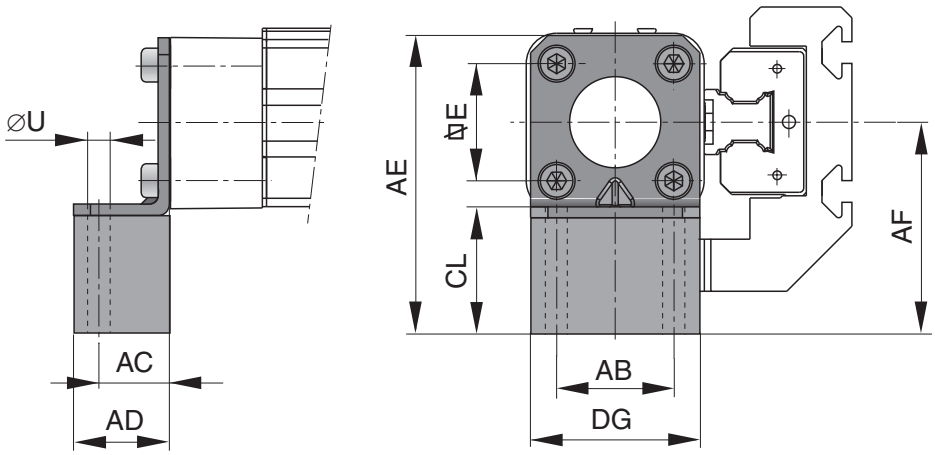
bore	part number
16	**21135**
25	**20311**
32	**20313**

ø	AE	AF	CL
16	28	15	2
25	42	22	2.5
32	55	30	3



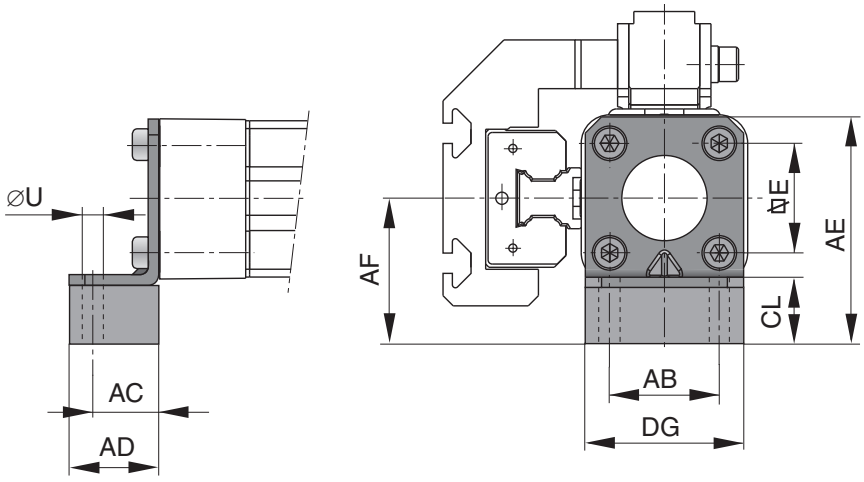
bore	part number
16	**21137**
25	**21139**
32	**21141**

ø	AE	AF	CL
16	55	42	29
25	69	49	29.5
32	90	65	9



bore	part number
16	**21136**
25	**21138**
32	**21140**

ø	AE	AF	CL
16	43	30	17
25	57	37	17.5
32	69	44	17



Materials: foot mounting in galvanized steel,
support in anodized aluminium.
Order codes refer to a foot mounting couple.

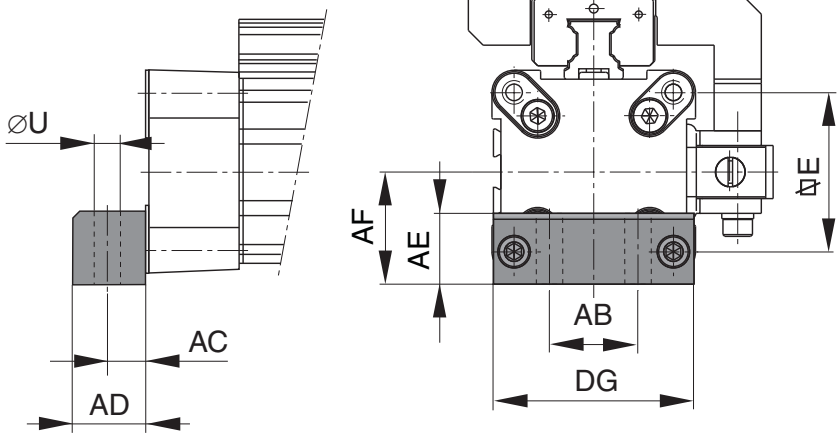
ø	E	øU	AB	AC	AD	DG
16	18	3.6	18	10	14	26
25	27	5.8	27	16	22	39
32	36	6.6	36	18	26	50

Mounting elements for rodless cylinders OPL-KF

end cap foot mounting (anodized alluminium)

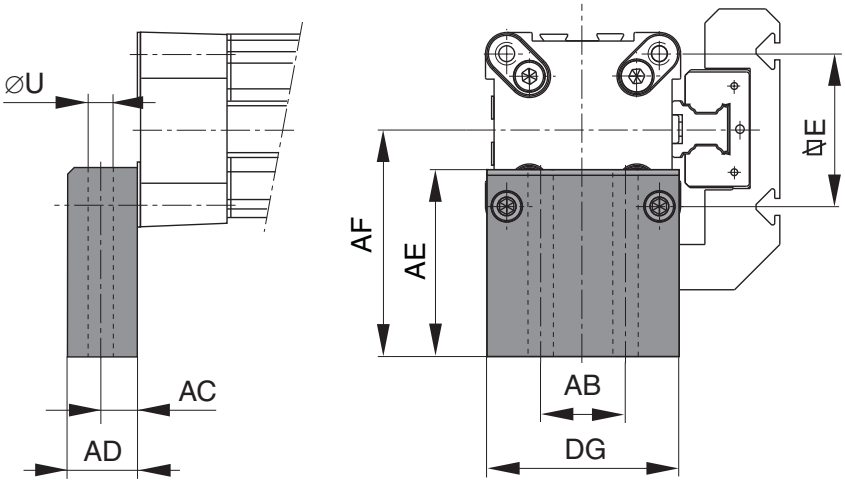
bore	part number
40	**4010**
50	**5010**

ø	AE	AF
40	24	38
50	30	48



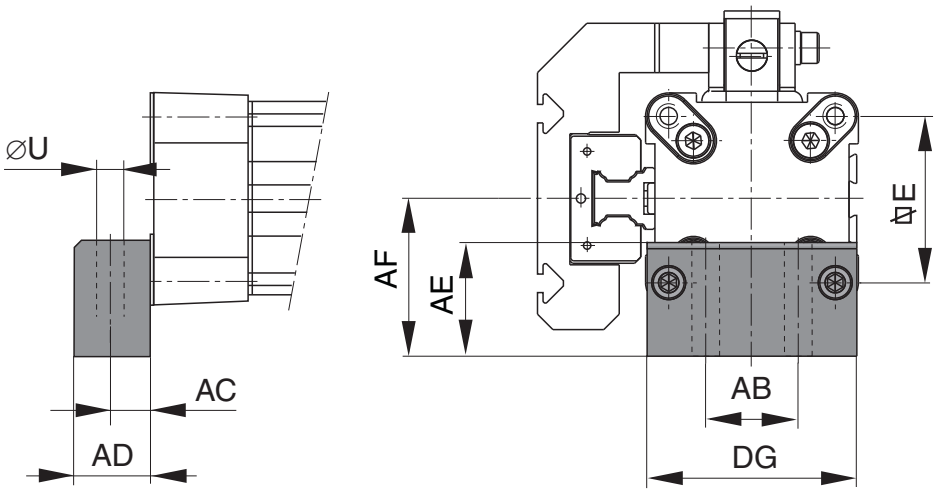
bore	part number
40	**20340**
50	**20350**

ø	AE	AF
40	56	70
50	54	72

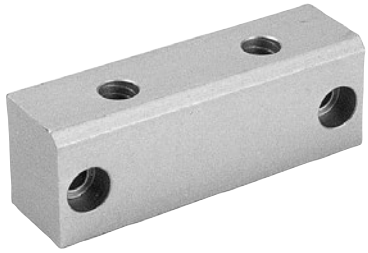


bore	part number
40	**20338**
50	**20349**

ø	AE	AF
40	37	51
50	39	57



Material: anodized aluminium
Order codes refer to a foot mounting couple.



ø	E	øU	AB	AC	AD	DG
40	54	9	30	12.5	24	68
50	70	9	40	12.5	24	86

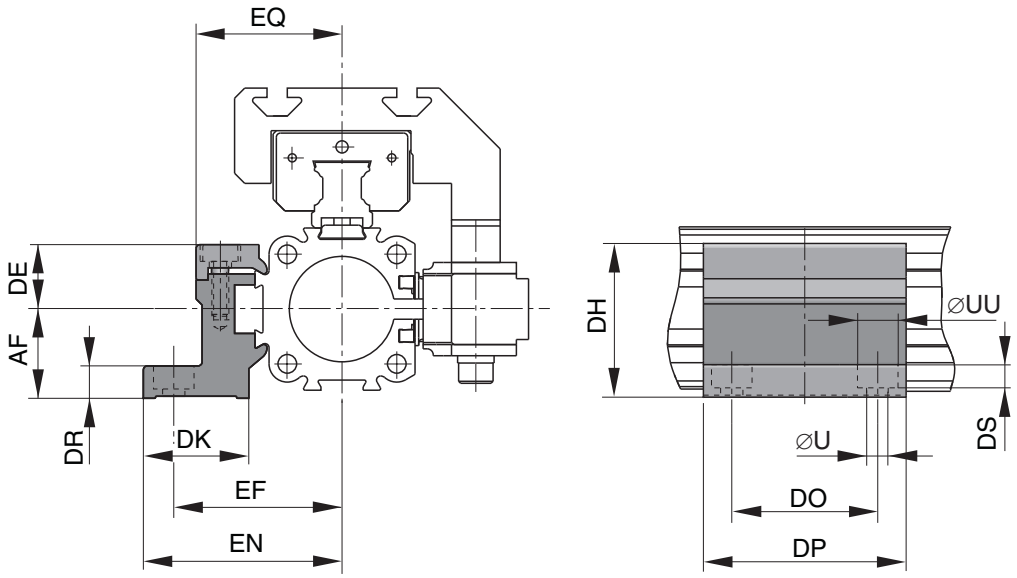
Mounting elements for rodless cylinders OPL-KF

mid support

bore	part number
16	**21130**
25	**21131**
32	**21132**
40	**21133**
50	**21134**

ø	AF	DR
16	15	6
25	22	8
32	30	10
40	38	10
50	48	10

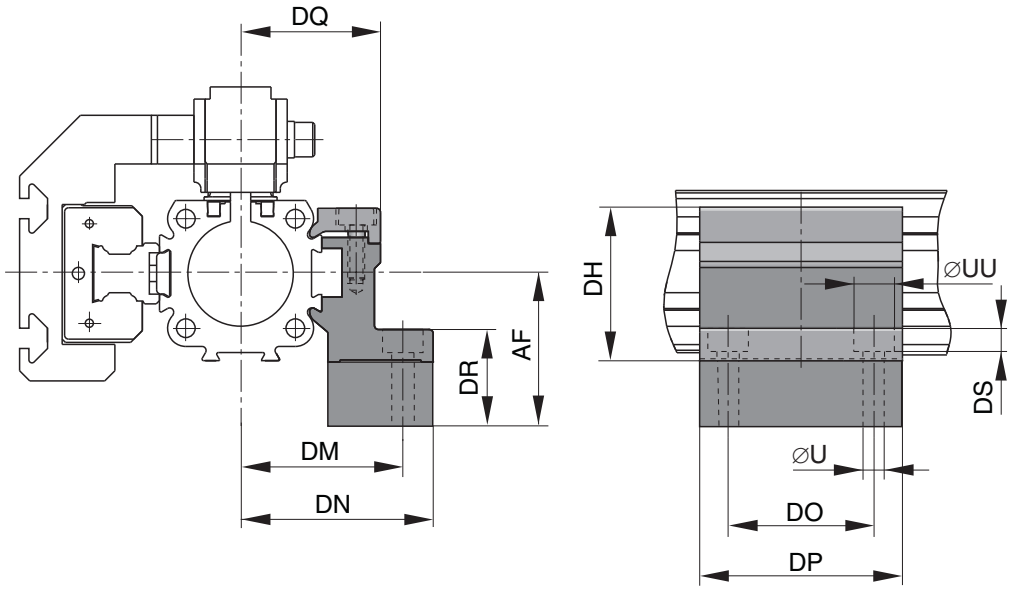
Mounting from above or below using through-screws



bore	part number
16	**21142**
25	**21143**
32	**21144**
40	**21145**
50	**21146**

ø	AF	DR
16	30	21
25	37	23
32	44	24
40	51	23
50	57	19

Mounting from above or below using through-screws



ø	øU	øUU	DE	DH	DK	DM	DN	DO	DP	DQ	DS	EF	EN	EQ		
16	3.4	6	14.2	29.2	24	32	36.4	18	30	27	3.4	32	36.4	27		
25	5.5	10	16	38	26	40	47.5	36	50	34.5	5.7	41.5	49	36		
32	5.5	10	16	46	27	46	54.5	36	60	40.5	5.7	48.5	57	43		
40	7	-	23	61	34	53	60	45	60	45	-	56	63	48		
50	7	-	23	71	34	59	67	45	60	52	-	64	72	57		

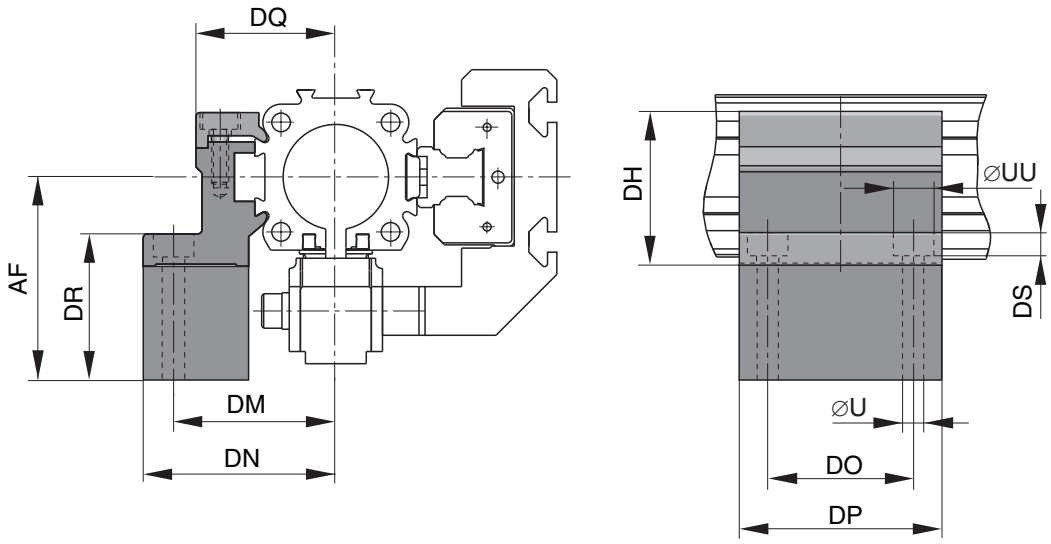
Mounting elements for rodless cylinders OPL-KF

mid support

bore	part number
25	**21148**
32	**21151**
40	**21150**
50	**21149**

ø	AF	DR
25	49	35
32	65	45
40	70	42
50	72	34

Mounting from above or below using through-screws



Material: anodized aluminium
For more information about installation, refer to page 529.

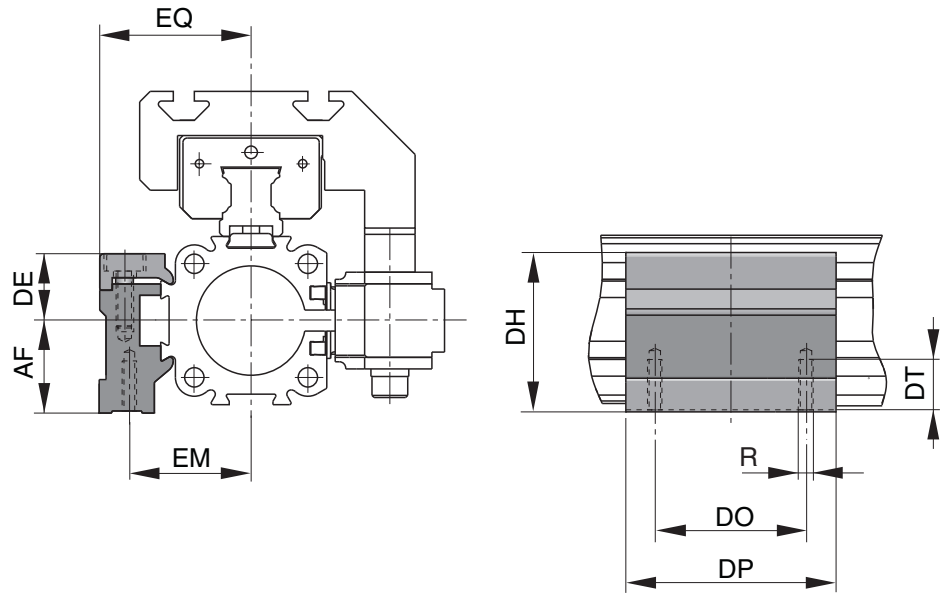
ø	øU	øUU	DE	DH	DK	DM	DN	DO	DP	DQ	DS	EF	EN	EQ		
16	3.4	6	14.2	29.2	24	32	36.4	18	30	27	3.4	32	36.4	27		
25	5.5	10	16	38	26	40	47.5	36	50	34.5	5.7	41.5	49	36		
32	5.5	10	16	46	27	46	54.5	36	60	40.5	5.7	48.5	57	43		
40	7	-	23	61	34	53	60	45	60	45	-	56	63	48		
50	7	-	23	71	34	59	67	45	60	52	-	64	72	57		

Mounting elements for rodless cylinders OPL-KF

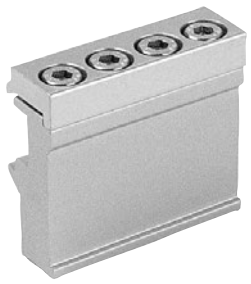
mid support

bore	part number
16	**21125**
25	**21126**
32	**21127**
40	**21128**
50	**21129**

Mounting from below using two threads



This element can be mounted also on the underside of the cylinder. In this case its distance from the center of the cylinder is different.
For more information about installation, refer to page 529.

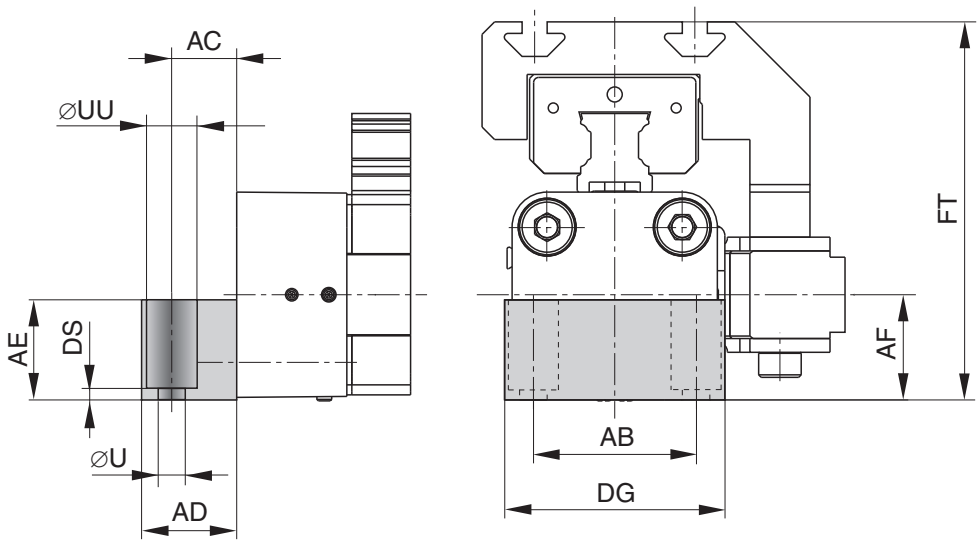


ø	R	AF	DE	DH	DO	DP	DT	EM	EQ							
16	M3	15	14.2	29.2	18	30	6.5	20	27							
25	M5	22	16	38	36	50	10	28.5	36							
32	M5	30	16	46	36	60	10	35.5	43							
40	M6	38	23	61	45	60	11	38	48							
50	M6	48	23	71	45	60	11	45	57							

Mounting elements for rodless cylinders OPL-KF

end cap foot mounting for cylinder interchangeability

bore	part number
25	**21107**
32	**21108**
40	**21109**
50	**21110**



Material: anodized aluminium.
Order codes refer to a foot mounting couple.

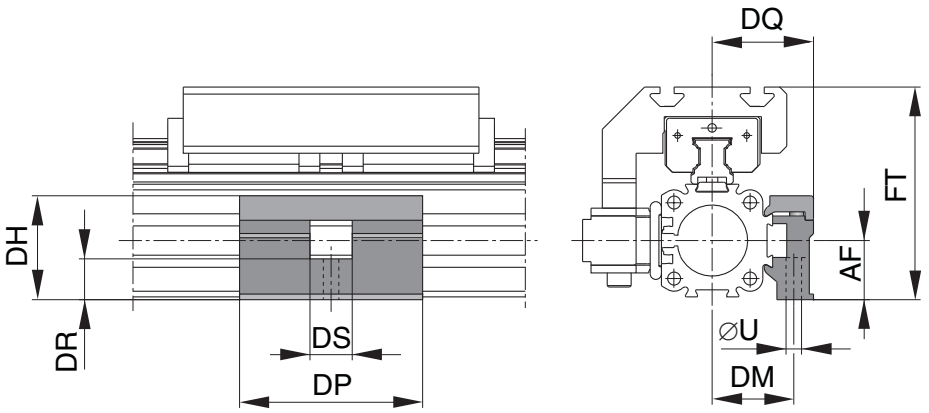
If the end cap foot mounting is assembled with the cylinder oriented as shown in the drawing, the cylinder is interchangeable with the most part of cylinders in the European market.

ø	øU	AB	AC	AD	AE	AF	DG	DS	FT	øUU						
25	5.5	32.5	13	19	20	21	44	2	75.5	10						
32	6.6	38	17	24	24	27	52	3	87.5	11						
40	6.6	45	17.5	24	24	35	68	2	104.5	11						
50	9	65	25	35	35	48	86	6	138.5	15						

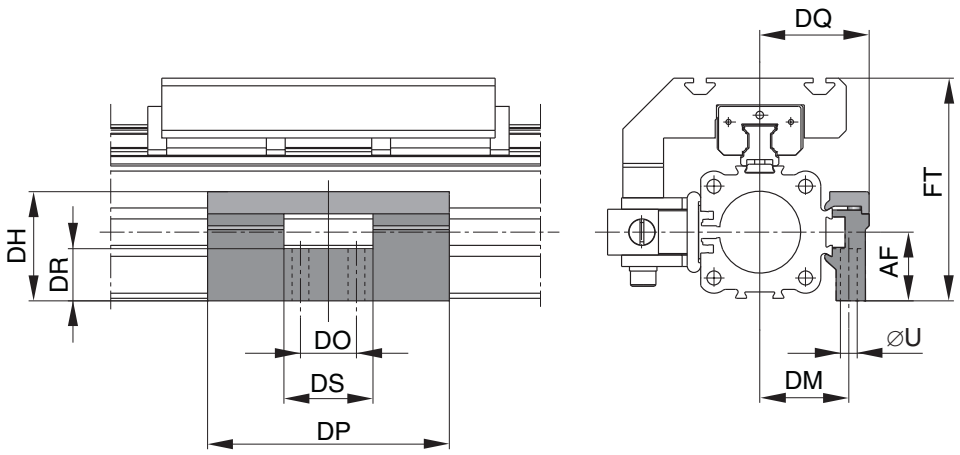
Mounting elements for rodless cylinders OPL-KF

mid support for cylinder interchangeability

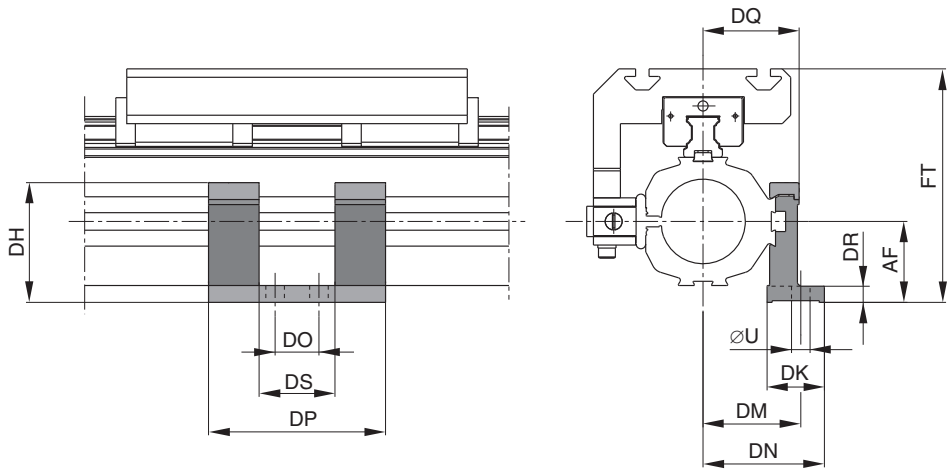
bore	part number
25	**21119**



bore	part number
32	**21120**
40	**21121**



bore	part number
50	**21122**



Material: anodized aluminium

If the mid support is assembled with the cylinder oriented as shown in the drawing, the cylinder is interchangeable with the most part of cylinders in the European market.
For more information about installation, refer to page 529.

ø	øU	AF	DH	DK	DM	DN	DO	DP	DQ	DR	DS	FT				
25	5.5	21	36.9	-	29	-	-	65	36	14.5	15	75.5				
32	6.6	27	42.9	-	35	-	22	95	43	20.5	35	87.5				
40	6.6	35	58	-	40	-	22	95	48	28.5	35	104.5				
50	11	48	71	34	58	72	26	105	57	10	45	138.5				

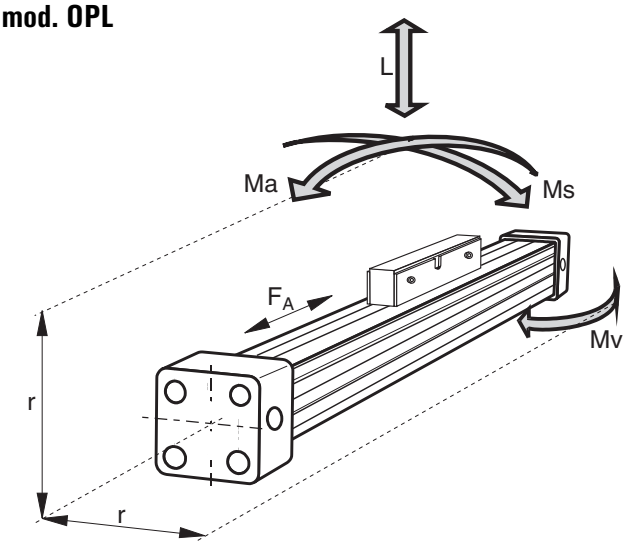
SIZING OF RODLESS CYLINDERS

To choose appropriate size and type, it is necessary to consider the following elements:

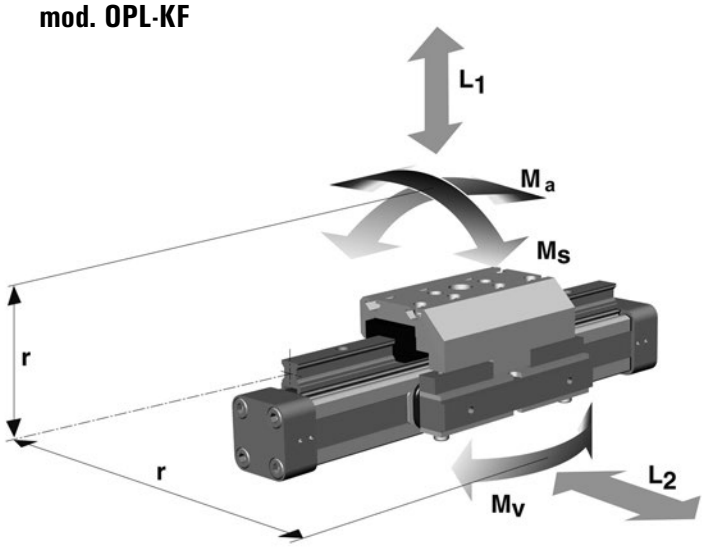
1. Loads, forces and moments
2. Combined load
3. End-stroke pneumatic cushioning
4. Allowable unsupported lenght - placing of mid supports

LOADS, FORCES AND MOMENTS

mod. OPL



mod. OPL-KF



M = F · r

Bending moments are calculated from the center of the cylinder or guide rail (radius r), and F indicates the force.

Cylinder choice and its sizing are selected considering:

- permissible loads, forces and moments;
- performance of the pneumatic end cushions. A fundamental aspect to evaluate is the mass to be cushioned and the piston speed at start of cushioning (unless external cushioning is used, e.g. hydraulic shock absorbers).

The following table gives the maximum values for light, shock-free operation, which must not be exceeded.
Load and moment data refer to a speed of 0.2 m/s for series OPL, and to the speed indicated in the table for series OPL-KF.

The theoretical values of action force are the same both for series OPL and OPL-KF.

To achieve a fully controlled movement and good force margins, we recommend to utilize 50% of the theoretical action forces.

model	bore	theoretical action force at 6 bar (87 PSI) [N]	real action force at 6 bar (87 PSI) [N]	maximum load [N]	maximum moment [Nm]		
		F	F_a	L	M_a	M_s	M_v
OPL	16	120	78	120	4	0.3	0.5
	25	295	250	300	15	1	3
	32	483	420	450	30	2	5
	40	754	640	750	60	4	8
	50	1178	1000	1200	115	7	15
	63	1870	1550	1650	200	8	24
	80	3016	2600	2400	360	16	48

model	bore	maximum speed [m/s]	maximum load [N]		maximum moment [Nm]		
		v	L_1	L_2	M_a	M_s	M_v
OPL-KF	16	3	1000	1000	25	12	25
	25	5	3100	3100	90	35	90
	32	5	3100	3100	133	44	133
	40	3	7100	4000	346	119	346
	50	5	7500	4000	480	170	480

STROKE LENGHT

The stroke length of OPL cylinders can be chosen up to 5500 mm; for OPL-KF type the maximum stroke is 3700 mm.
Longer strokes on request.

TOLERANCES

total length of cylinder barrel	cylinder bore						
	16	25	32	40	50	63	80
0 ... 1000 mm	+1.8 −0	+1.8 −0	+1.8 −0	+1.8 −0	+1.8 −0	+1.8 −0	+1.9 −0
1001 ... 2000 mm	+1.9 −0	+1.9 −0	+1.9 −0	+1.9 −0	+1.9 −0	+1.9 −0	+2 −0
2001 ... 4000 mm	+2.1 −0	+2.1 −0	+2.1 −0	+2.1 −0	+2.1 −0	+2.1 −0	+2.2 −0
4001 ... 6000 mm	+2.3 −0	+2.3 −0	+2.3 −0	+2.3 −0	+2.3 −0	+2.3 −0	+2.4 −0
> 6000 mm	+2.8 −0	+2.8 −0	+2.8 −0	+2.8 −0	+2.8 −0	+2.8 −0	+2.9 −0

COMBINATE LOADINGS

The maximum allowable loads and moments can be found in the tables above. Before using the cylinder, the following inequation must be fulfilled replacing the corresponding values of loading and moments. The tables show the maximum loads and moments for a light and shock-free operation, which must never be exceeded. The mass of the carriage has to be added to the total moving mass.

$$\frac{L_1}{L_1(\max)} + \frac{L_2}{L_2(\max)} + \frac{M_a}{M_a(\max)} + \frac{M_s}{M_s(\max)} + \frac{M_v}{M_v(\max)} \leq 1$$

Cylinder weight

type	bore	cylinder weight - stroke 0	additional weight per 100 mm of stroke	carriage weight*
OPL	16	0.25 kg	0.1 kg	-
	25	0.74 kg	0.197 kg	-
	32	1.62 kg	0.354 kg	-
	40	2.10 kg	0.415 kg	-
	50	3.74 kg	0.566 kg	-
	63	6.12 kg	0.925 kg	-
	80	12.42 kg	1.262 kg	-
OPL-KF	16	0.558 kg	0.21 kg	0.228 kg
	25	1.522 kg	0.369 kg	0.607 kg
	32	2.673 kg	0.526 kg	0.896 kg
	40	4.167 kg	0.701 kg	1.531 kg
	50	7.328 kg	0.936 kg	2.760 kg

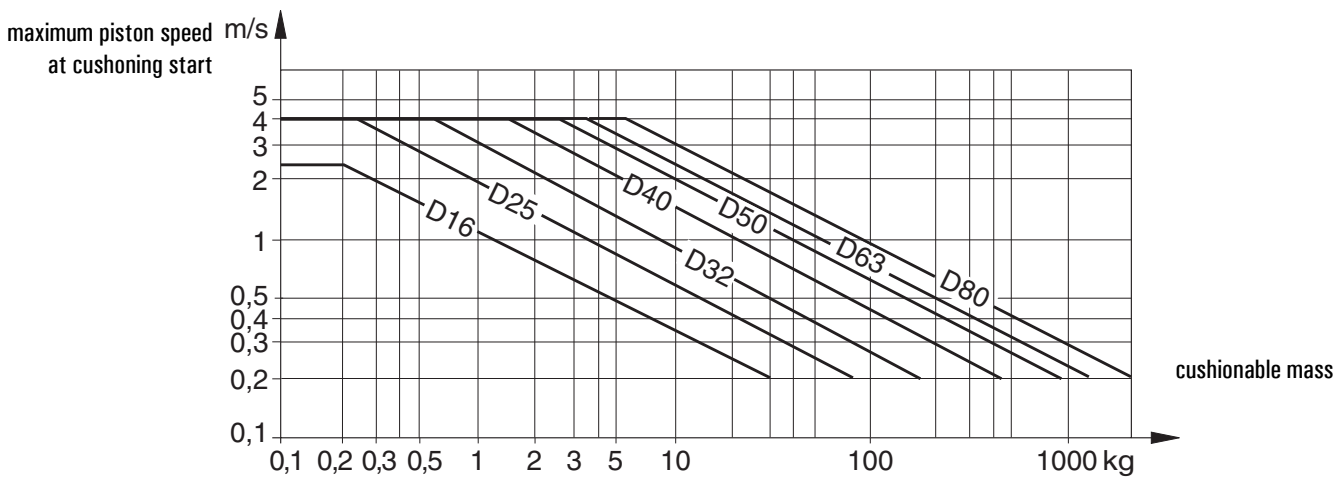
* Carriage weight must be added to the load weight to calculate forces and moments and to estimate the end-stroke pneumatic cushioning (see diagram).

END-STROKE PNEUMATIC CUSHIONING

Calculate your expected moving mass (the mass of the carriage has to be added to the total moving mass) and find the maximum permissible speed at start of cushioning.
Alternatively, take your desired speed and expected mass and find the cylinder size required. Please note that piston speed at start of cushioning is typically ca. 50% higher than the average speed, and this higher speed determines the choice of cylinder. If the permitted limit values are exceeded, additional shock absorbers should be fitted in the area of the centre of mass.

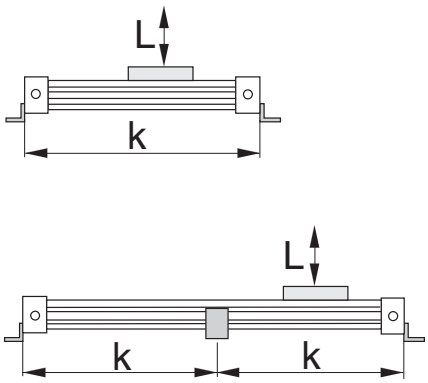
Cushion length

bore	cushion length
16	11 mm
25	17 mm
32	20 mm
40	27 mm
50	30 mm
63	32 mm
80	39 mm



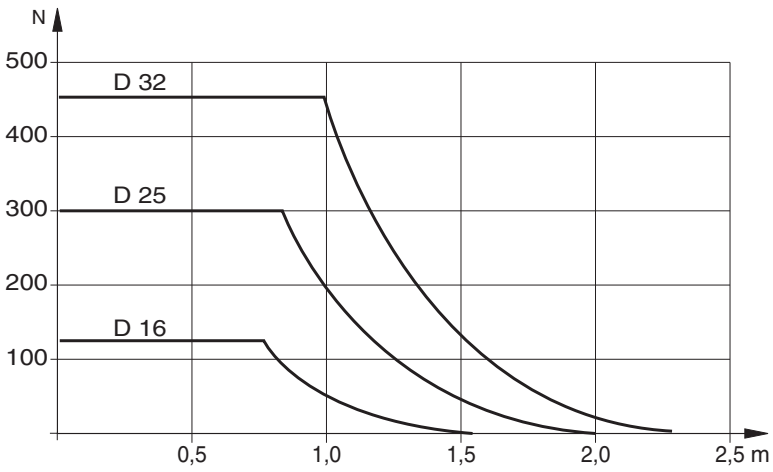
MID-SECTION SUPPORTS

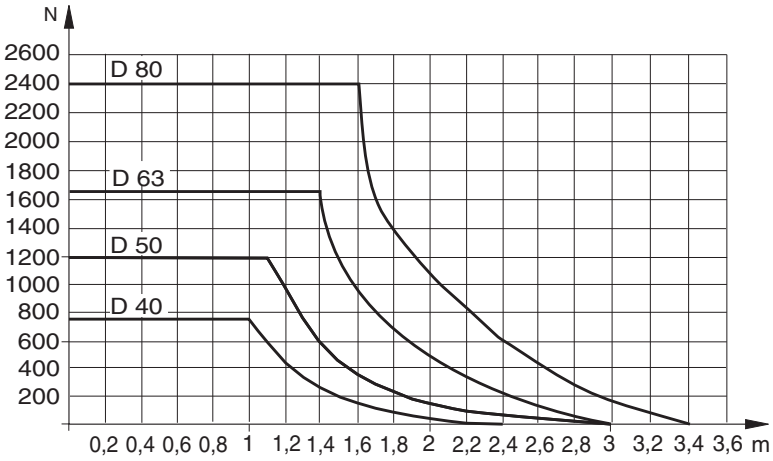
To avoid excessive bending and oscillation of the cylinder, mid-section supports have to be collocated at specific distances. The diagrams show the maximum possible length (not the stroke!), depending on the load, without mid-section support and between two supports. Bending up to max. 0.5 mm is permissible between supports. The mid-section supports are clamped onto the cylinder profile and they can also help to support axial forces. Anyway, for speeds v > 0.5 m/s the free distance should not be more than 1 meter.
For the series OPL-KF two graphics are given: one should be used if the cylinder is positioned according to drawing 1, the other one if the cylinder is positioned according to drawing 2.
For types and dimensions of mid-section supports see previous pages.



k = maximum allowable distance between mountings and/or mid-section supports, related to a given load (L).

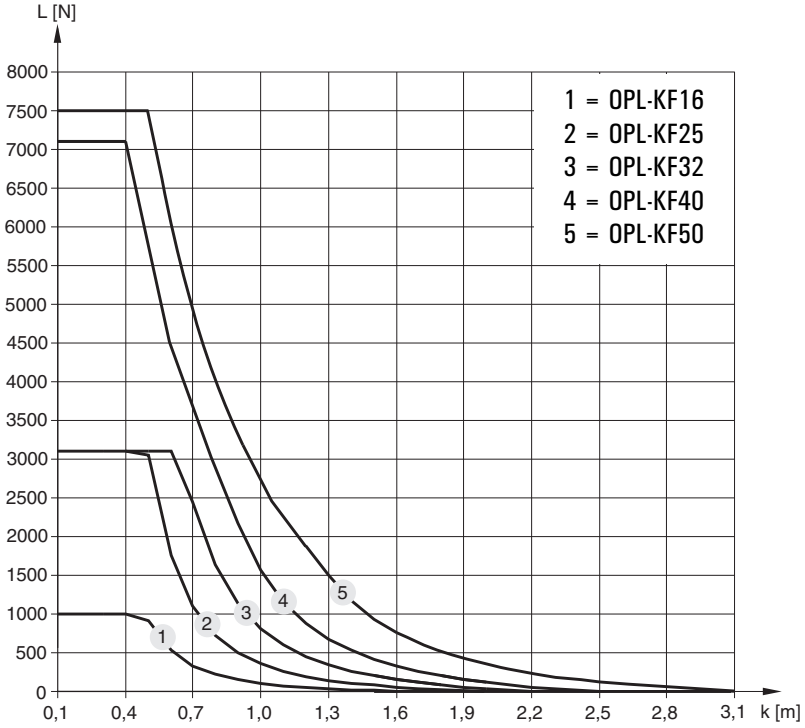
OPL SERIES

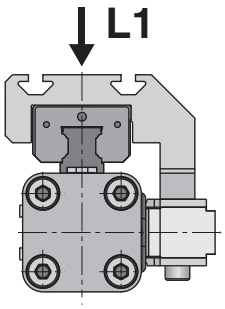


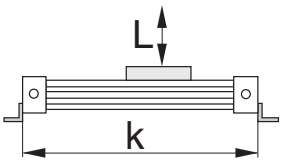


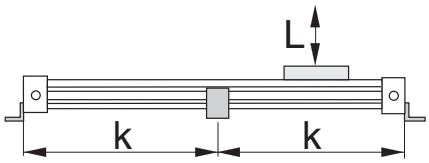
MID-SECTION SUPPORTS OPL-KF SERIES

CARRIAGE IN UN POSITION

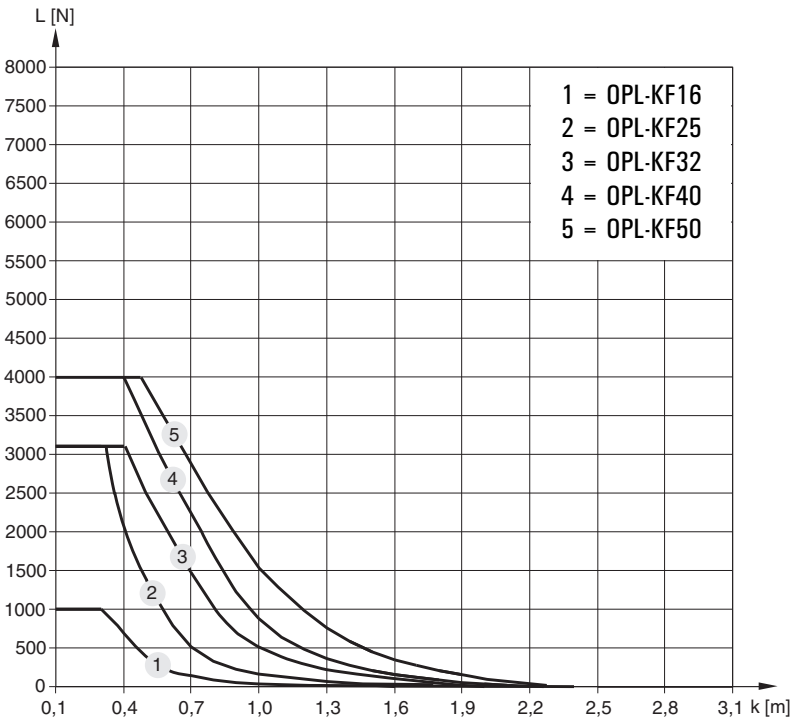




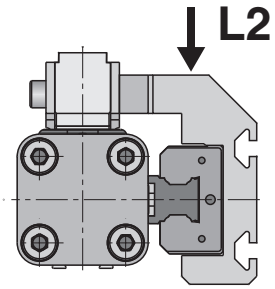




CARRIAGE IN SIDE POSITION



k = maximum allowable distance between mountings and/ or mid-section supports, related to a given load (L).



Materials

Cylinder profile, piston: anodized aluminium
End caps: aluminium
Seals: NBR
Guide rings: plastic material
Slide shoes: plastic material
Sealing bands: corrosion resistant steel
Screws, nuts: galvanized steel
Mountings: galvanized steel and aluminium
External guide rail Guideway: hardened steel

Corrosive environments

Stainless steel screws can be supplied as option
(not for version OPL-KF).

Ambient temperature range

Standard version: – 10°C ... + 80°C

Supply air treatment

Operating pressure: max 8 bar (116 PSI)
Medium: 50μ filtered and dried compressed air
The cylinders are grease lubricated, additional oil mist lubrication is normally not required. If oil mist lubrication is present, it must be present all the time and never interrupted.

Maintenance

Lifetime: 6000 km in standard condition and perfect maintenance. After that, the cylinder can be very easily renewed with a service-package which contains all necessary spare parts.

In normal operating environments we recommend to periodically check and, if necessary, re-lubricate the external guide rail of the cylinder (OPL-KF). Sufficient grease must be always present in the carriages; check that a grease film is visible on the running surface of the guide rail.

To prevent contamination such as fluid ingress, avoid direct spraying toward the outer sealing band. The guide way should always be re-lubricated after any cleaning.

Speed related versions

Standard version of the cylinder is designed for piston speeds from 0.2 m/s to 5.0 m/s.

Slow speed option

Specially formulated grease lubrication facilitates slow, smooth and uniform piston travel in the speed range below 0.2 m/s.
This slow speed version is available on request.
Minimum speed with special grease 0.005 m/s.

High speed option

For speeds exceeding 5.0 m/s please contact our commercial office.

Installation instructions

Use the threaded holes in the end caps to install the cylinder.
Check if mid supports are needed. At least one end cap must be secured to prevent axial sliding when mid support is used.
The cylinder can be installed in any position. To prevent contamination such as fluid ingress, the cylinder should be installed with its sealing band facing downwards.

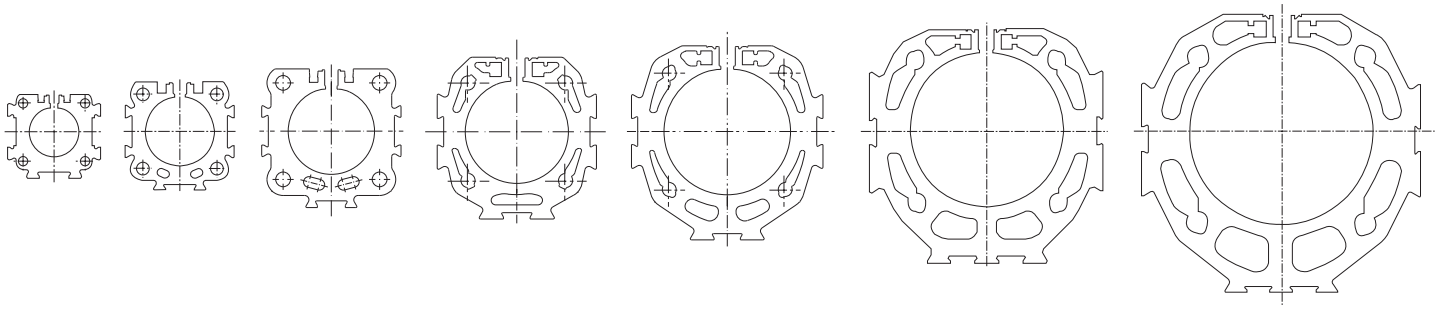
Start up

The products in this data sheet should not be operated until the machine/application in which they are used has passed necessary inspection according to law regulations.

Important: in case of electric arc welding in the area next to the cylinder or on the machine where the cylinder is installed, the cylinder must be insulated and removed. Otherwise the welding causes permanent damage to the cylinder and the warranty expires.

Barrel profile

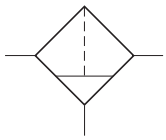
ø16 ø25 ø32 ø40 ø50 ø63 ø80



Chapter VII - air preparation units

G1/4″-G1/2″ filter-water-separator

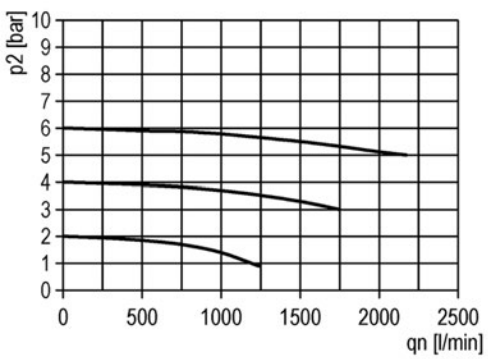
- Cyclone system and filter element
- Moisture separation: 95%
- Semi-automatic moisture exhaust
- Vertical installation; bracket on request
- Bowl protection already mounted



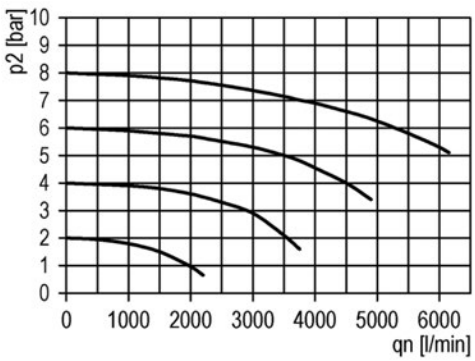
ORDER CODE		US16.302.0	US16.322.0
Ports		G1/4″	G1/2″
Moisture exhaust		semi-automatic	semi-automatic
Temperature range		0 ... +50°C (122° F)	0 ... +50°C (122° F)
Weight		0.25 kg	0.4 kg
Operating pressure range	p_{min} p_{max}	1.5 bar (21.7 PSI); 0.15 MPa 16 bar (232 PSI); 1.6 MPa	1.5 bar (21.7 PSI); 0.15 MPa 16 bar (232); 1.6 MPa
Maximum flow rate p = 6.3 bar (91.4 PSI); Δp = 1 bar (14 PSI)	Q_{max}	2000 Nl/min (2.12 Cv)	3500 Nl/min (3.71 Cv)
Filter element		5 µm	5 µm

Flow characteristics

G1/4″

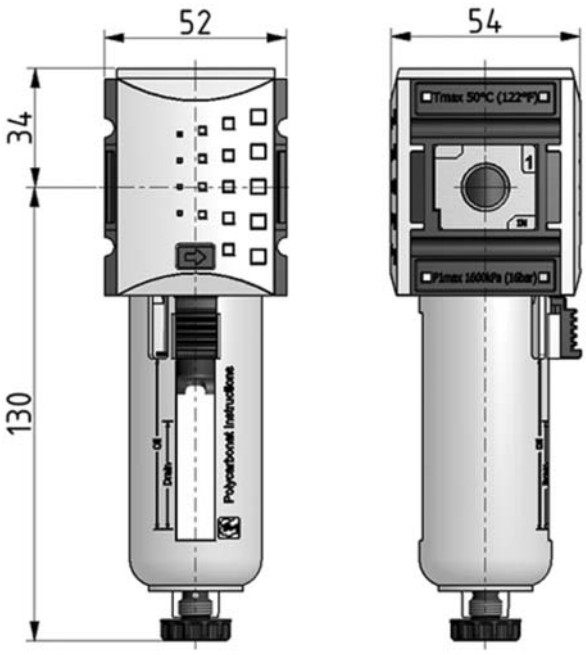


G1/2″

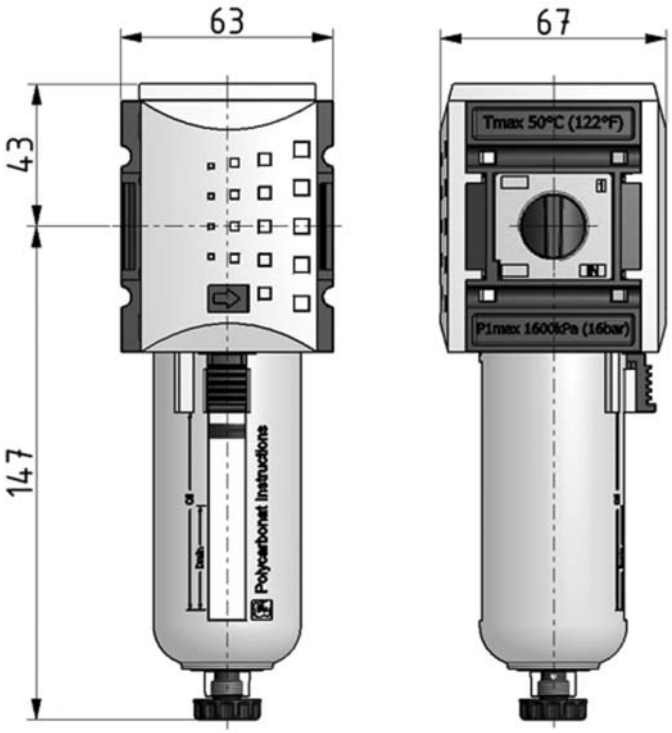


G1/4″-G1/2″ filter-water-separator

US16.302.0



US16.322.0



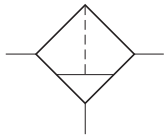
Materials

Body: technopolymer
Seals: NBR
Internal parts: brass and stainless steel
Internal bowl: polycarbonate
Bowl protection: polyamide

Mounting bracket is bought separately.

G1/4″-G1/2″ sub-micro-filters

- Special filter elements with very high performances
- Degree of filtration: 99.999%
- Residual oil: 0.01 mg/m³ (input concentration: 3 mg/m³)
- Vertical installation
- Bowl protection already mounted



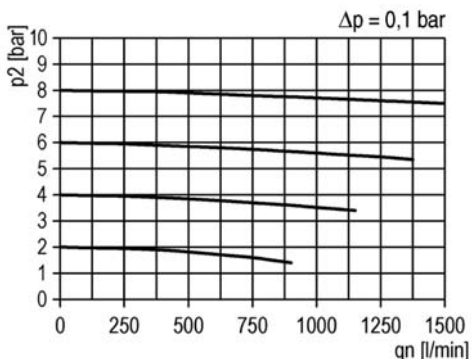
Mounting bracket is bought separately.

Materials
Body: technopolymer
Seals: NBR
Internal parts: brass and stainless steel
Internal bowl: polycarbonate
Bowl protection: polyamide

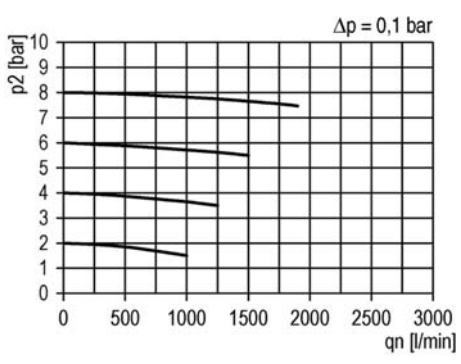
ORDER CODE		US16.306.0	US16.326.0
Ports		G1/4″	G1/2″
Temperature range		0 ... +50°C (122° F)	0 ... +50°C (122° F)
Weight		0.29 kg	0.44 kg
Operating pressure range	p_{min} p_{max}	1.5 bar (21.7 PSI); 0.15 MPa 16 bar (232 PSI); 1.6 MPa	1.5 bar (21.7 PSI); 0.15 MPa 16 bar (232 PSI); 1.6 MPa
Recommended flow rate p = 6 bar (87 PSI) a 25 m/s	Q_n	350 Nl/min (0.37 Cv)	450 Nl/min (0.48 Cv)
Pressure drop with new filter element		0.1 bar (1.45 PSI)	0.1 bar (1.45 PSI)
Pressure drop with saturated filter element		0.3 bar (4.35 PSI)	0.3 bar (4.35 PSI)

Flow characteristics

G1/4″

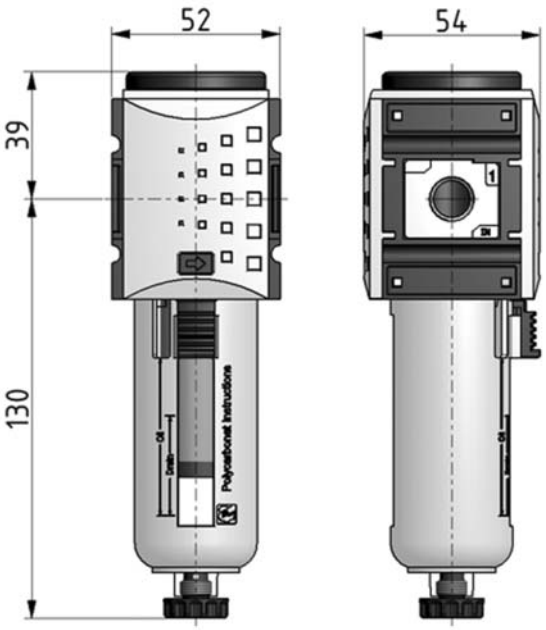
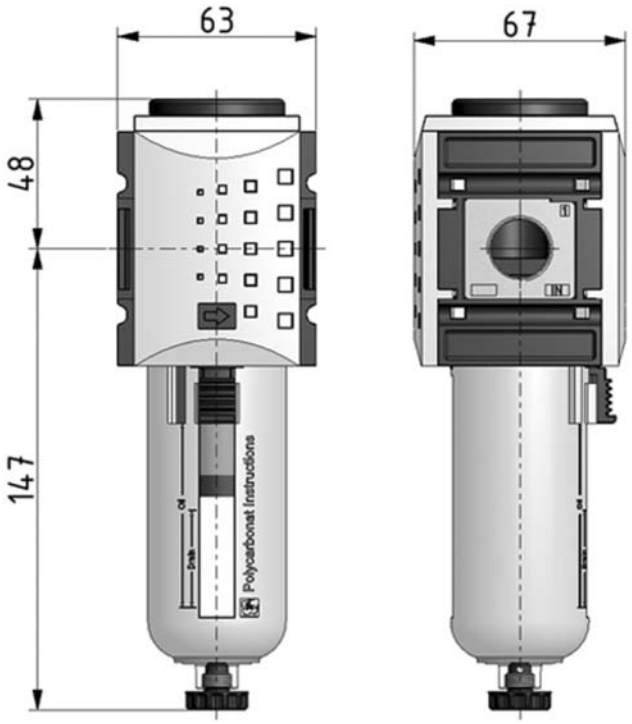


G1/2″



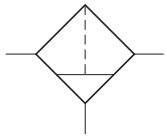
Installation procedure

To increase the life span of the filter elements, we recommend the installation in the following order: filter with 5 μm degree, sub-micro-filter and activated carbon filter.

US16.306.0	US16.326.0
	
	

G1/4″-G1/2″ activated carbon filters

- Activated carbon filter elements
- Residual oil: 0.003 p.p.m. in combination with sub-micro-filter
- Vertical installation
- Bowl protection already mounted



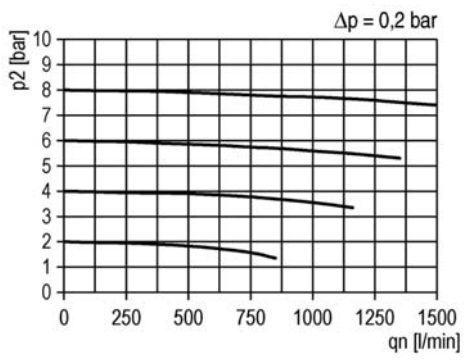
Materials
Body: technopolymer
Seals: NBR
Internal parts: brass and stainless steel
Internal bowl: polycarbonate
Bowl protection: polyamide

Mounting bracket is bought separately.

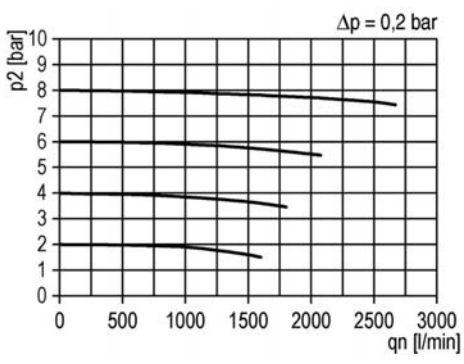
ORDER CODE		US16.307.0	US16.327.0
Ports		G1/4″	G1/2″
Temperature range		0 ... +50°C (122° F)	0 ... +50°C (122° F)
Weight		0.26 kg	0.42 kg
Operating pressure range	p_{min} p_{max}	0 bar (0 PSI); 0 MPa 16 bar (232 PSI); 1.6 MPa	0 bar (0 PSI); 0 MPa 16 bar (232 PSI); 1.6 MPa)
Recommended flow rate p = 6 bar (87 PSI) at 25 m/s	Q_n	500 Nl/min (0.53 Cv)	1600 Nl/min (1.69 Cv)
Pressure drop with new filter element		0.1 bar (1.45 PSI)	0.1 bar (1.45 PSI)
Pressure drop with saturated filter element		0.3 bar (4.35 PSI)	0.3 bar (4.35 PSI)

Flow characteristics

G1/4″



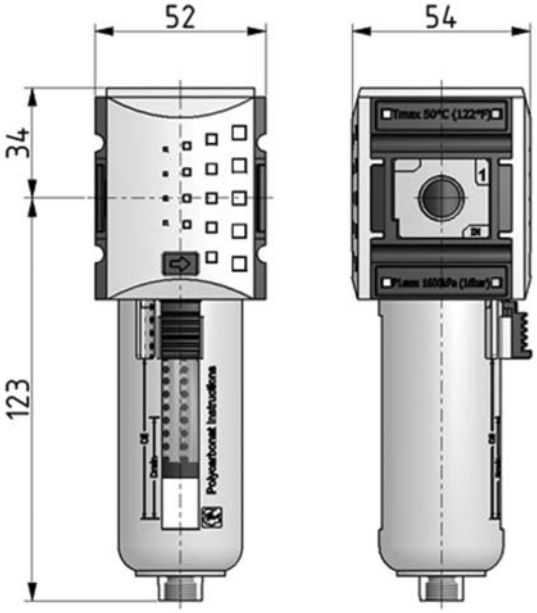
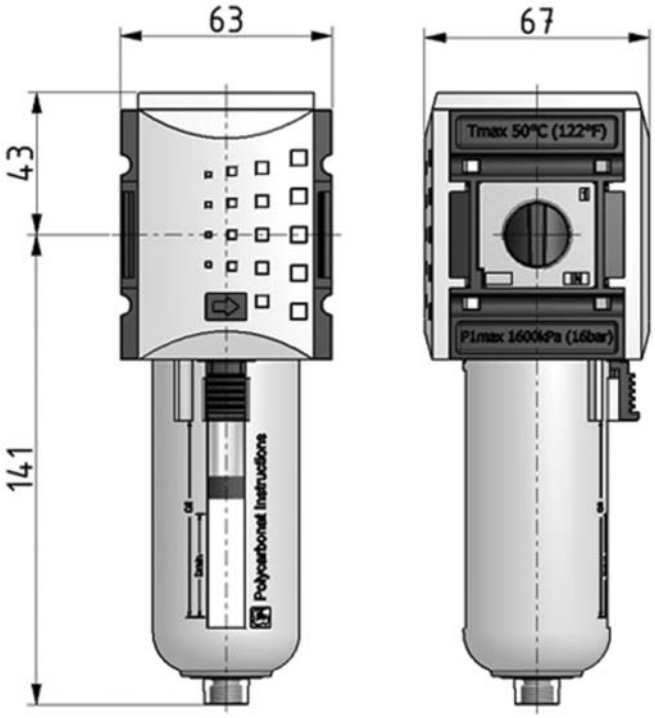
G1/2″



G1/4″-G1/2″ activated carbon filters

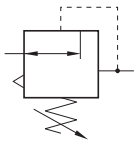
Installation procedure

To increase the life span of the filter elements, we recommend the installation in the following order: filter with 5 μm degree, sub-micro-filter and activated carbon filter.

US16.307.0	US16.327.0
	
	

G1/4″-G1/2″ pressure regulator

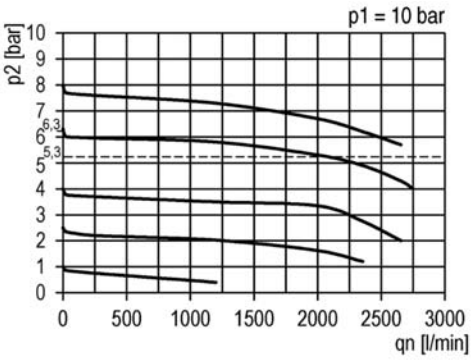
- Riaphragm-type pressure regulator with relieving
- Self-compensated regulation
- In-line or panel mounting; bracket on request



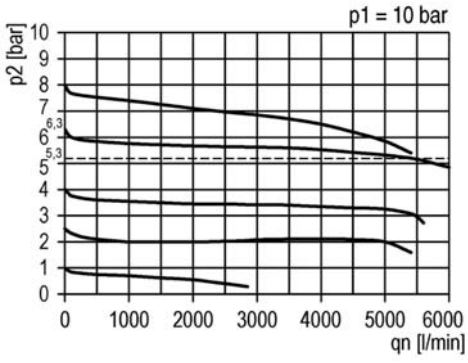
ORDER CODE		US16.301.0	US16.321.0
Ports		G1/4″	G1/2″
Temperature range		0 ... +50°C (122° F)	0 ... +50°C (122° F)
Weight		0.3 kg	0.5 kg
Inlet pressure range	$p_{1\,min}$ $p_{1\,max}$	0 bar (0 PSI); 0 MPa 16 bar (232 PSI); 1.6 MPa	0 bar (0 PSI); 0 MPa 16 bar (232 PSI); 1.6 MPa
Outlet pressure range	$p_{2\,min}$ $p_{2\,max}$	0 bar (0 PSI); 0 MPa 8 bar (116 PSI); 0.8 MPa	0 bar (0 PSI); 0 MPa 8 bar (116 PSI); 0.8 MPa
Maximum flow rate p = 6.3 bar (91.4 PSI); Δp = 1 bar (14 PSI)	Q_{max}	2200 Nl/min (2.34 Cv)	5100 Nl/min (5.41 Cv)

Flow characteristics

G1/4″

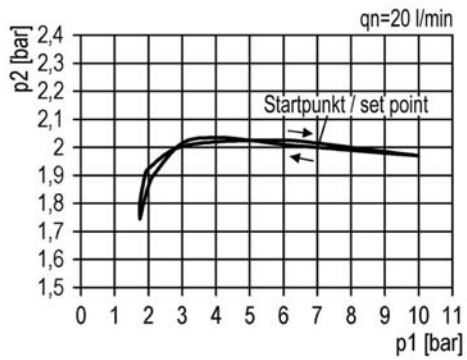


G1/2″

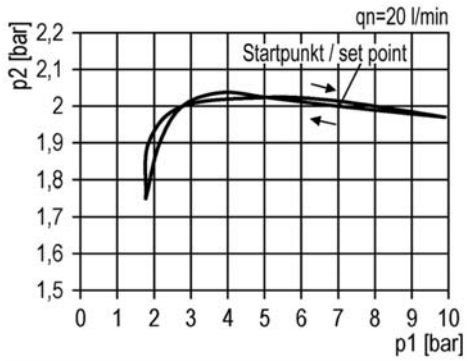


Hysteresis

G1/4″

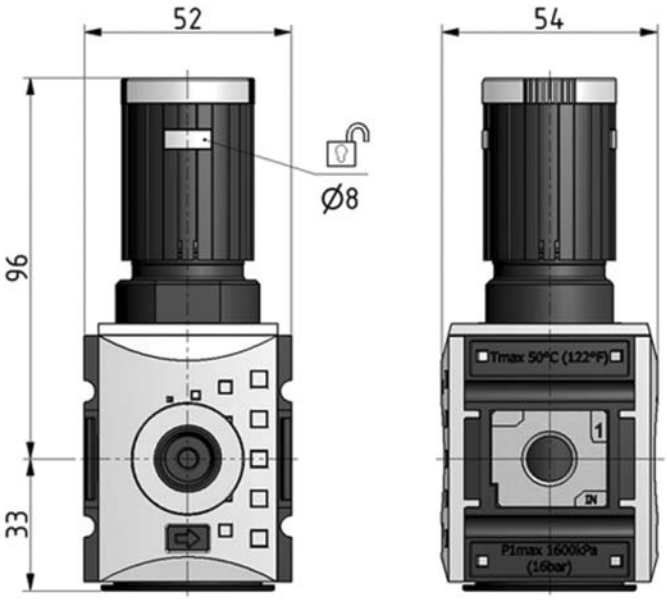


G1/2″

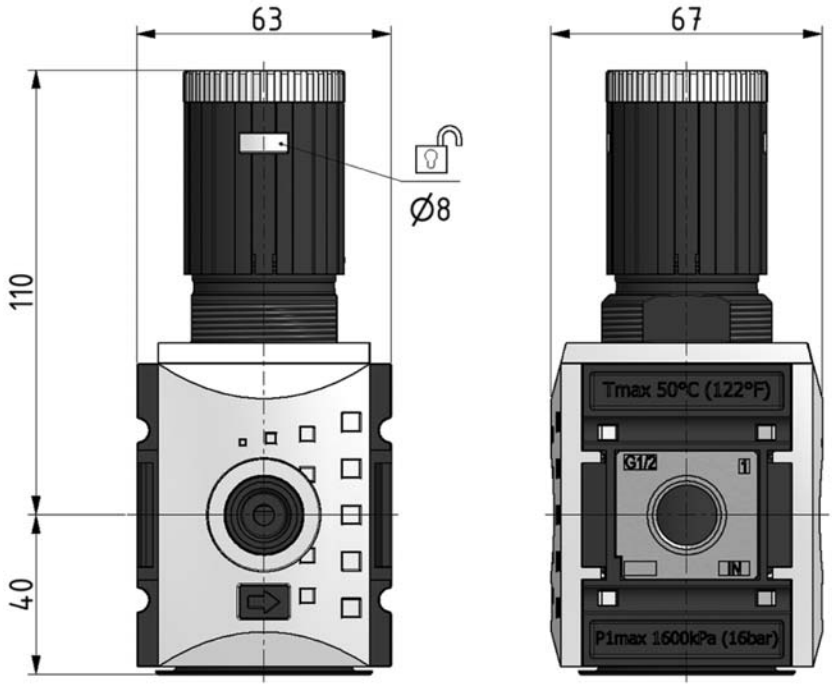


G1/4″-G1/2″ pressure regulator

US16.301.0



US16.321.0



Materials

Body: technopolymer

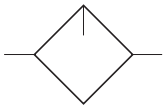
Seals: NBR

Internal parts: brass and stainless steel

Mounting bracket is bought separately.

G1/4″-G1/2″ lubricator

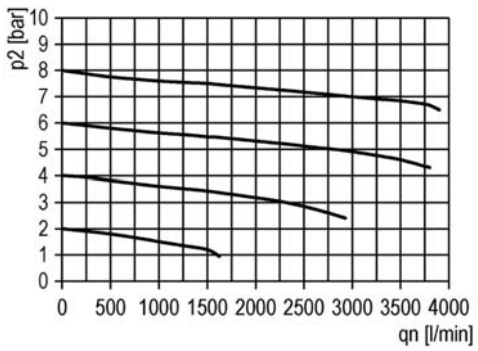
- Oil mist lubricator with flow compensation
- Manual oil refilling, possible also in presence of pressure
- Vertical installation; bracket on request
- Bowl protection already mounted
- Bowl capacity: 40 cm³ (G1/4″); 80 cm³ (G1/2″)



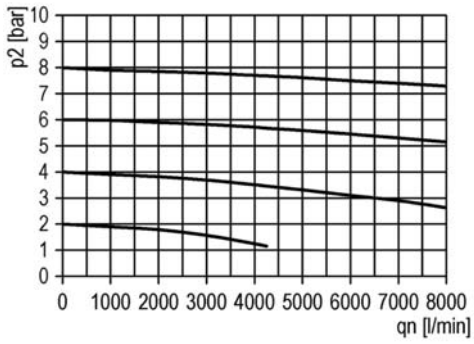
ORDER CODE		US16.303.0	US16.323.0
Ports		G1/4″	G1/2″
Temperature range		0 ... +50°C (122° F)	0 ... +50°C (122° F)
Weight		0.28 kg	0.42 kg
Operating pressure range	p_{min} p_{max}	1.5 bar (21.8 PSI); 0.15 MPa 16 bar (232 PSI); 1.6 MPa	1.5 bar (21.8 PSI); 0.15 MPa 16 bar (232 PSI); 1.6 MPa
Maximum flow rate p = 6.3 bar (91.4 PSI); Δp = 1 bar (14 PSI)	Q_{max}	2800 Nl/min (2.97 Cv)	8000 Nl/min (8.5 Cv)

Flow characteristics

G1/4″

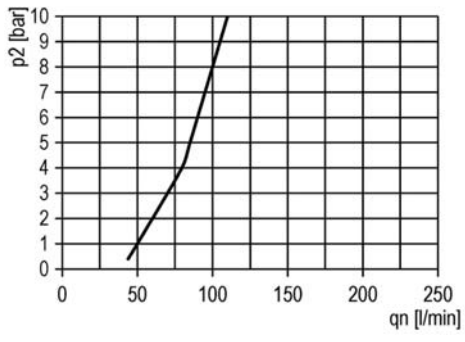


G1/2″

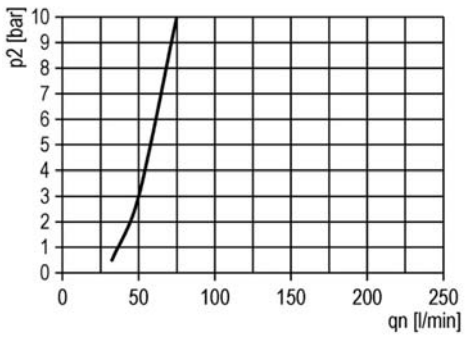


Oil/air ratio

G1/4″

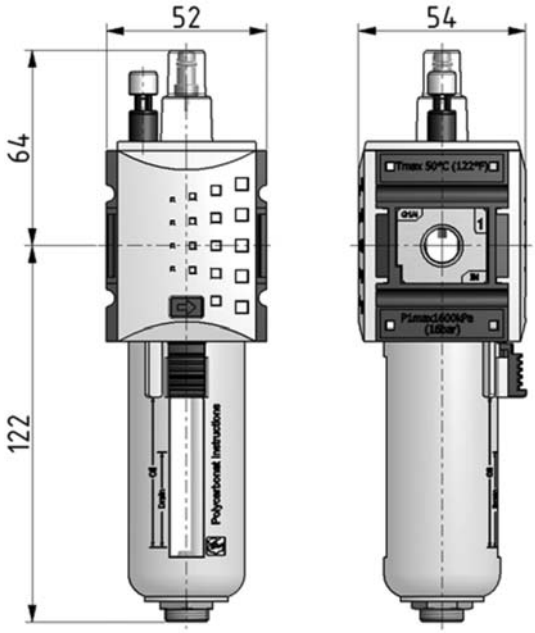


G1/2″

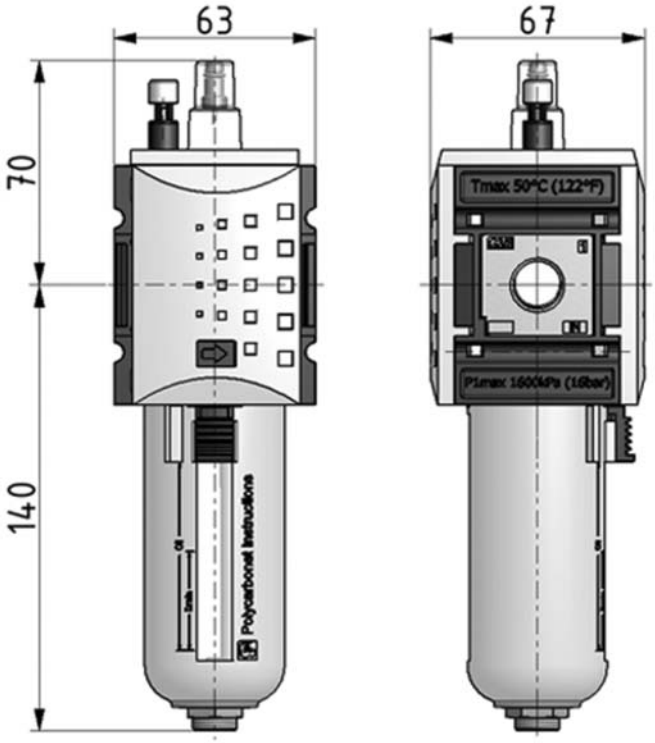


G1/4″-G1/2″ lubricator

US16.303.0



US16.323.0



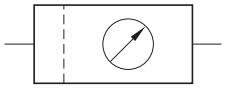
Materials

Body: technopolymer
Seals: NBR
Internal parts: brass and stainless steel
Internal bowl: polycarbonate
Bowl protection: polyamide

Mounting bracket is bought separately.

G1/4″-G1/2″ filter-regulator

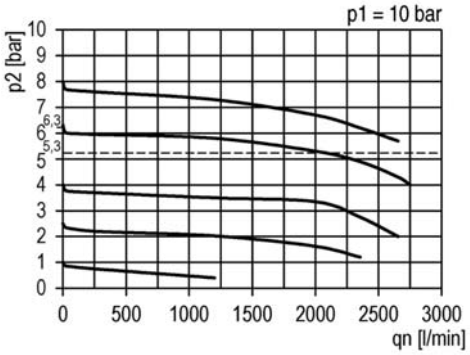
- Diaphragm-type pressure regulator with relieving
- Self-compensated regulation
- In-line or panel mounting; bracket on request



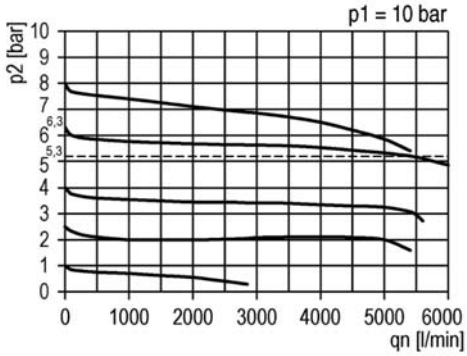
ORDER CODE		**US16.304.0**	**US16.324.0**
Ports		G1/4″	G1/2″
Temperature range		0 ... +50°C	0 ... +50°C
Weight		0.37 kg	0.56 kg
Inlet pressure range	$p_{1\ min}$ $p_{1\ max}$	1.5 bar; 0.15 MPa 16 bar; 1.6 MPa	1.5 bar; 0.15 MPa 16 bar; 1.6 MPa
Outlet pressure range	$p_{2\ min}$ $p_{2\ max}$	0 bar; 0 MPa 8 bar; 0.8 MPa	0 bar; 0 MPa 8 bar; 8 MPa
Maximum flow rate p = 6.3 bar; Δp = 1 bar	Q_{max}	2200 Nl/min	5100 Nl/min

Caratteristiche di portata
Flow characteristics

G1/4″

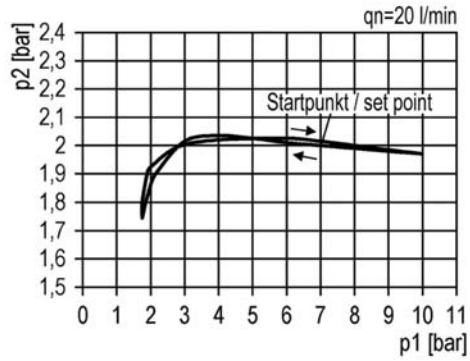


G1/2″

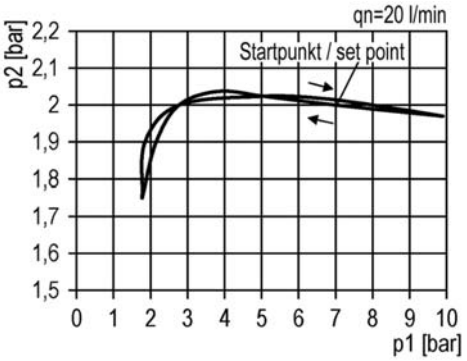


Isteresi
Hysteresis

G1/4″

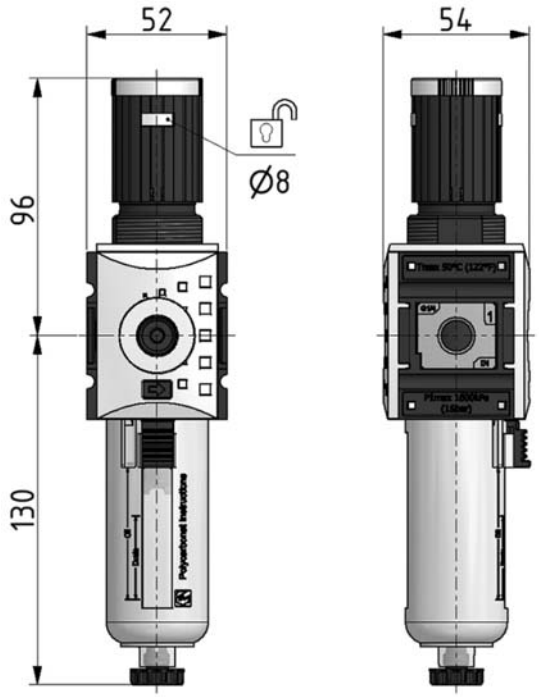


G1/2″

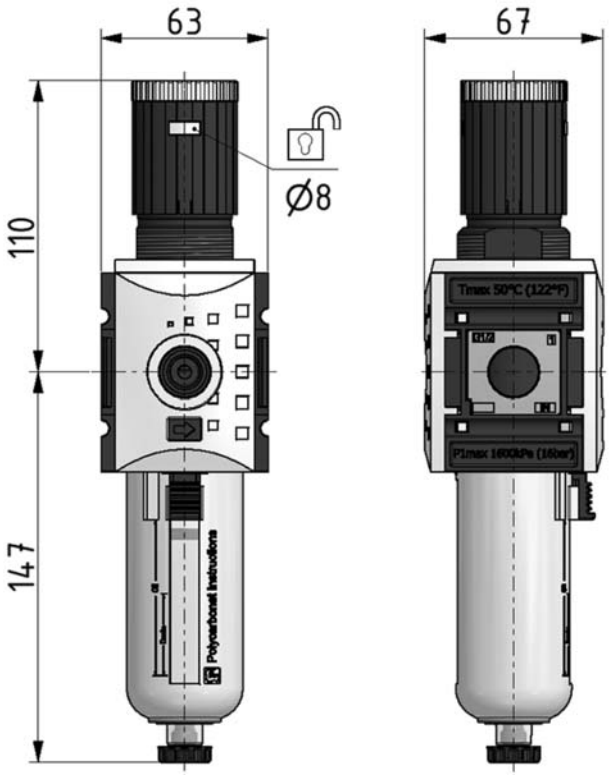


G1/4″-G1/2″ filter-regulator

US16.304.0



US16.324.0



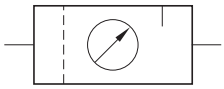
Materials

Body: technopolymer
Seals: NBR
Internal parts: brass and stainless steel
Internal bowl: polycarbonate
Bowl protection: polyamide

La staffa di fissaggio deve essere acquistata separatamente.
Mounting bracket is bought separately.

G1/4″-G1/2″ FR+L air preparation unit

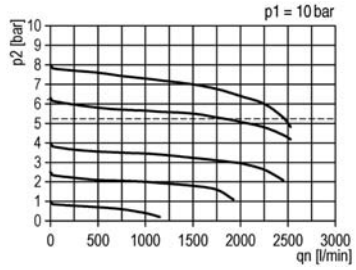
- Diaphragm-type pressure regulator with relieving; filtro 5 μm
- Self-compensated regulation
- In-line or panel mounting; bracket on request



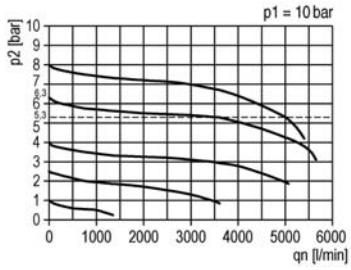
ORDER CODE		**US16.305.0**	**US16.325.0**
Ports		G1/4″	G1/2″
Temperature range		0 ... +50°C	0 ... +50°C
Weight		0.68 kg	1.06 kg
Inlet pressure range	$p_{1\ min}$ $p_{1\ max}$	1.5 bar; 0.15 MPa 16 bar; 1.6 MPa	1.5 bar; 0.15 MPa 16 bar; 1.6 MPa
Outlet pressure range	$p_{2\ min}$ $p_{2\ max}$	0 bar; 0 MPa 8 bar; 0.8 MPa	0 bar; 0 MPa 8 bar; 8 MPa
Maximum flow rate p = 6.3 bar; Δp = 1 bar	Q_{max}	1800 Nl/min	3500 Nl/min

Flow characteristics

1/4″

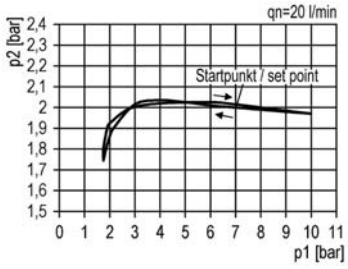


1/2″

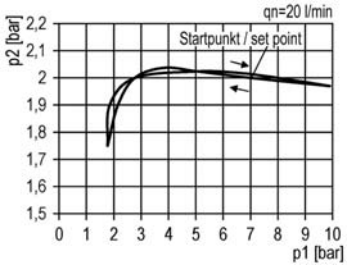


Hysteresis

1/4″

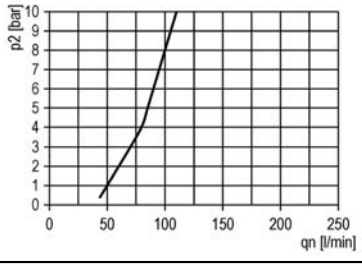


1/2″

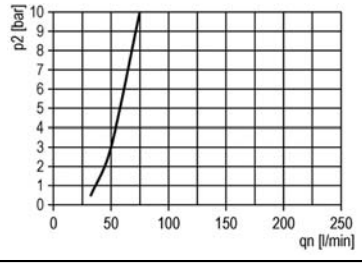


Oil/air ratio

1/4″

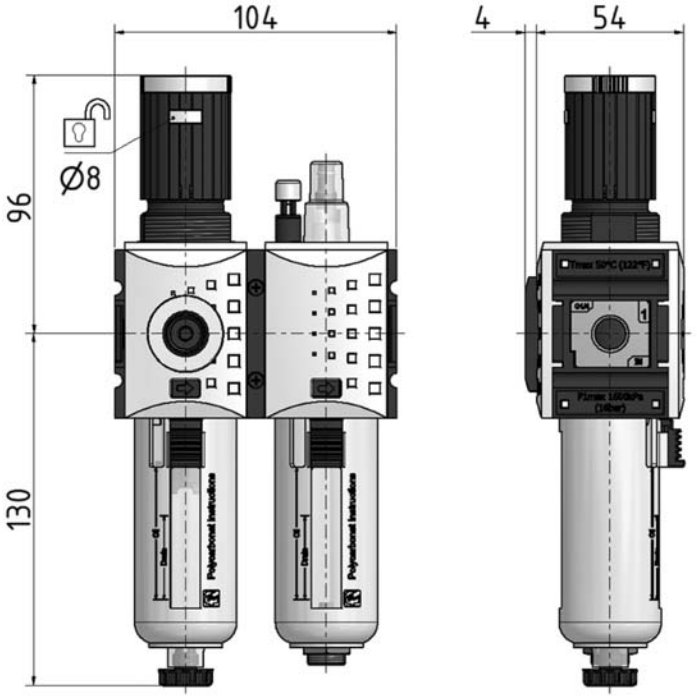


1/2″

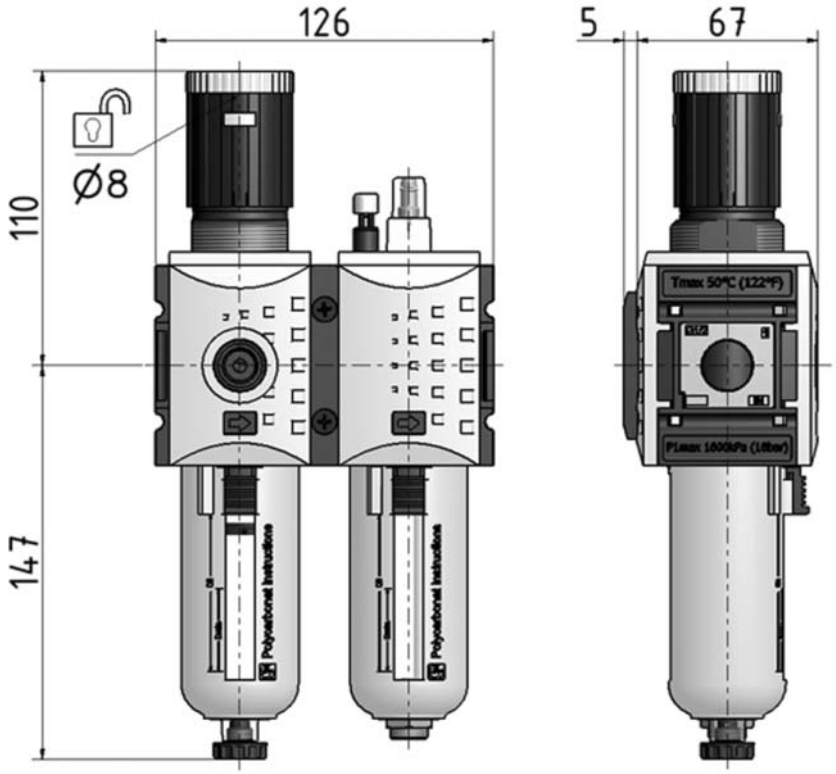


G1/4″-G1/2″ FR+L air preparation unit

US16.305.0



US16.325.0



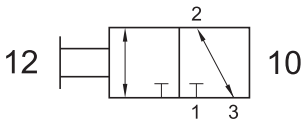
Materials

Body: technopolymer
Seals: NBR
Internal parts: brass and stainless steel
Internal bowl: polycarbonate
Bowl protection: polyamide

Mounting bracket is bought separately.

3/2 G1/4″-G1/2″ shut-off valve

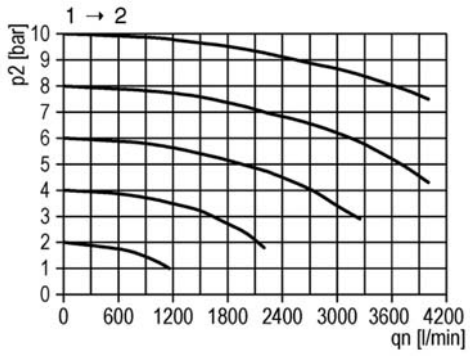
- High performance modular element
- High exhaust flow rate
- It can be secured with a padlock
- Installation in any position



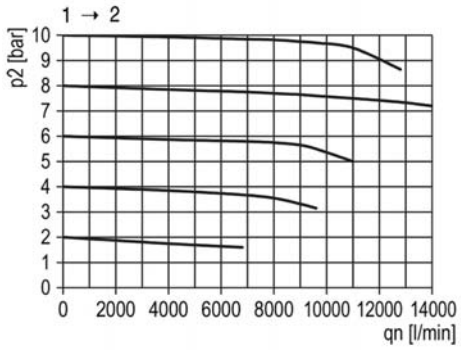
ORDER CODE		**US16.308.0**	**US16.328.0**
Ports		G1/4″	G1/2″
Temperature range		0 ... +50°C	0 ... +50°C
Weight		0.27 kg	0.53 kg
Working pressure range	p_{min} p_{max}	0 bar; 0 MPa 16 bar; 1.6 MPa	0 bar; 0 MPa 16 bar; 1.6 MPa
Inlet maximum flow rate *p = 6.3 bar; Dp = 1 bar*	Q_{max}	1900 Nl/min	11000 Nl/min
Exhaust maximum flow rate	Q_{max}	400 Nl/min	3000 Nl/min

Inlet flow rate

1/4″

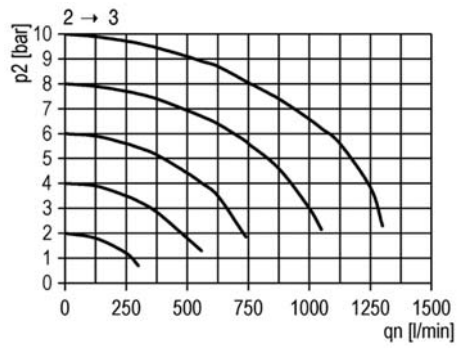


1/2″

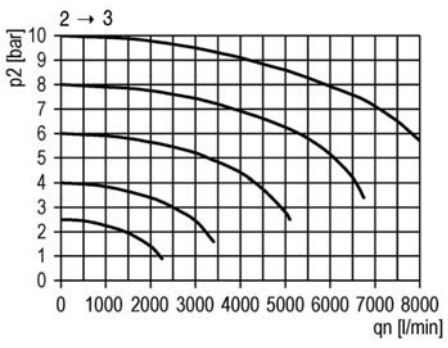


Exhaust flow rate

1/4″

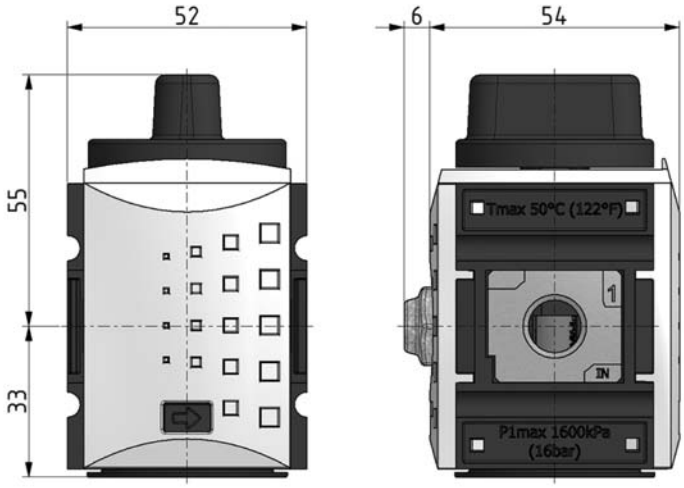


1/2″

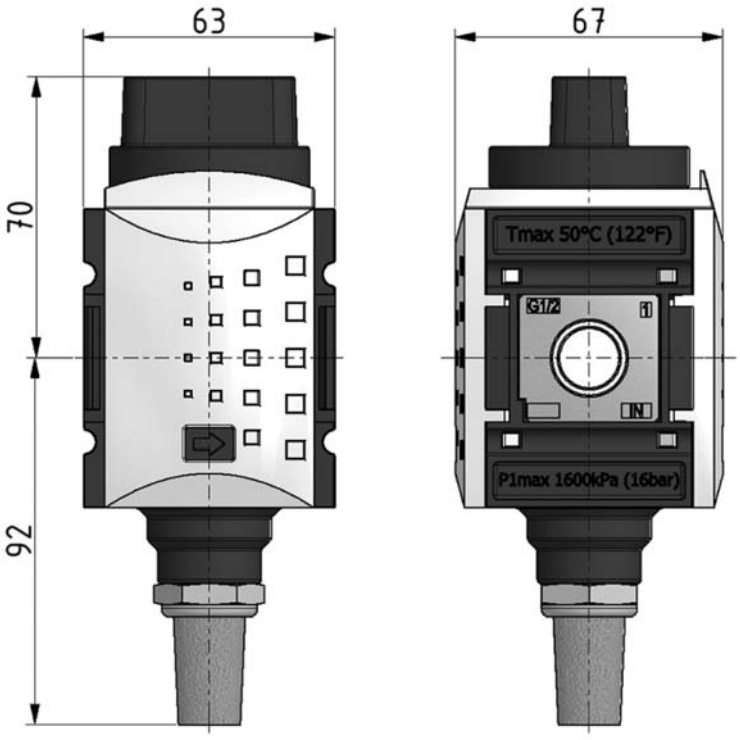


3/2 G1/4″-G1/2″ shut-off valve

US16.308.0



US16.328.0



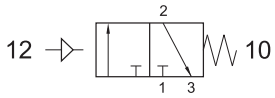
Materiali
Corpo: tecnopolimero
Guarnizioni: NBR
Parti interne: ottone e INOX

Materials
Body: technopolymer
Seals: NBR
Internal parts: brass and stainless steel

La staffa di fissaggio deve essere acquistata separatamente.
Mounting bracket is bought separately.

G1/4″-G1/2″ quick exhaust valve

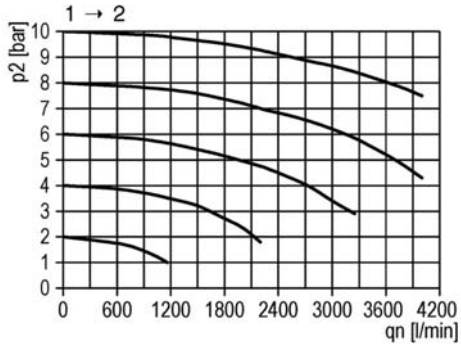
- *Pneumatically actuated 3/2 valve*
- *High exhaust flow rate*



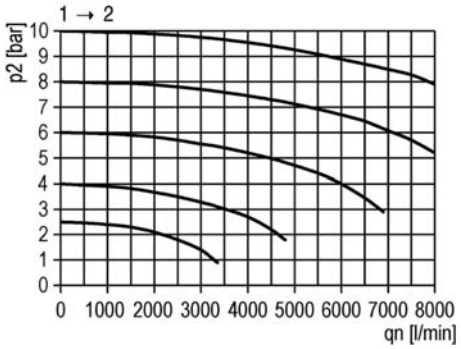
ORDER CODE		**US16.310.0**	**US16.330.0**
Ports		G1/4″	G1/2″
Temperature range		0 ... +50°C	0 ... +50°C
Weight		0.26 kg	0.56 kg
Working pressure range	p_{min} p_{max}	0 bar; 0 MPa 16 bar; 1.6 MPa	0 bar; 0 MPa 16 bar; 1.6 MPa
Inlet maximum flow rate p = 6.3 bar; Δp = 1 bar	Q_{max}	2000 Nl/min	4300 Nl/min
Exhaust maximum flow rate	Q_{max}	400 Nl/min	3000 Nl/min

G1/4″

Portata in entrata
Inlet flow rate

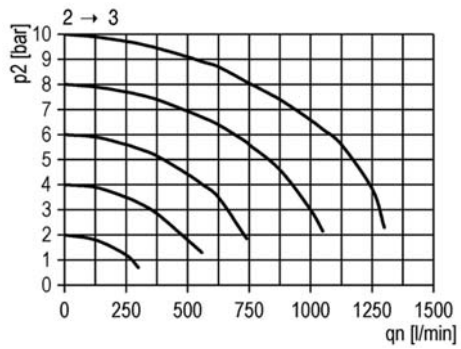


G1/2″

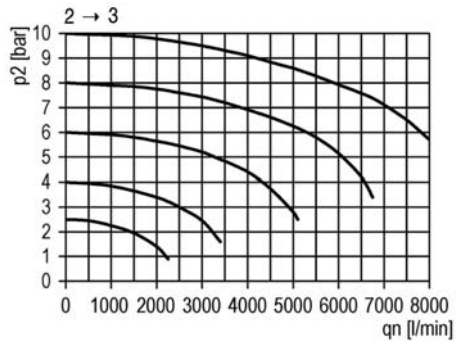


G1/4″

Portata in scarico
Exhaust flow rate

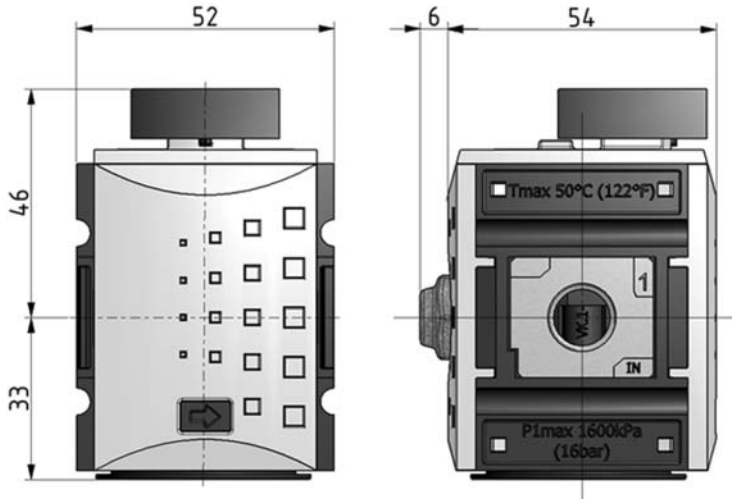


G1/2″

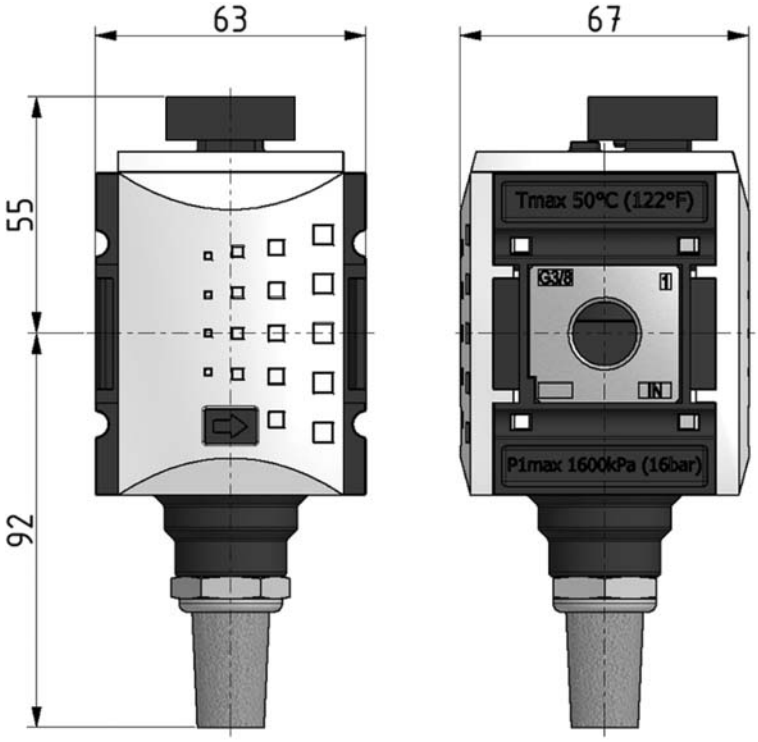


G1/4″-G1/2″ quick exhaust valve

US16.310.0



US16.330.0



Materials

Body: technopolymer
Seals: NBR
Internal parts: brass and stainless steel

Mounting bracket is bought separately.

G1/4″-G1/2″ slow-start valve

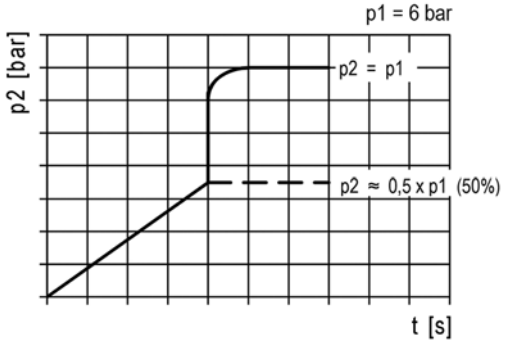
Valve operation

The valve applies to a pneumatic circuit a progressively increasing pressure over a period of time set by the integrated screw. During this phase no air consumption is allowed in the circuit. After having reached the half of the system pressure, the slow-start valve begins to automatically feed the circuit with the system pressure.
The slow-start valve prevents from unexpected motions of the pneumatic devices in the circuit, which could happen by applying directly the system pressure.

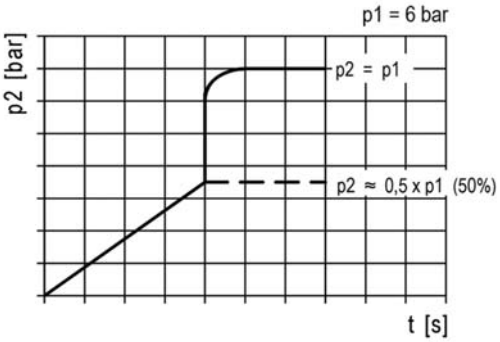
CODICE DI ORDINAZIONE *ORDER CODE*		**US16.311.0**	**US16.331.0**
Ports		G1/4″	G1/2″
Temperature range		0 ... +50°C	0 ... +50°C
Weight		0.24 kg	0.53 kg
Working pressure range	p_{min} p_{max}	2.5 bar; 0.25 MPa 16 bar; 1.6 MPa	2.5 bar; 0.25 MPa 16 bar; 1.6 MPa
Maximum flow rate p = 6.3 bar; Δp = 1 bar	Q_{max}	1900 Nl/min	400 Nl/min

G1/4″

Rapporto tempo/pressione
Time/pressure ratio

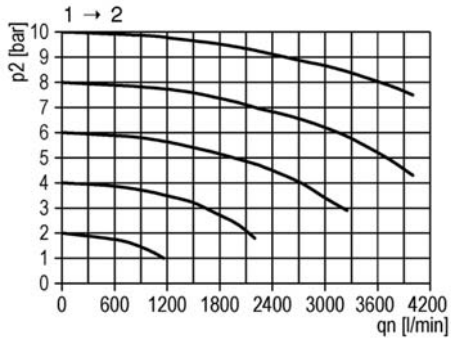


G1/2″

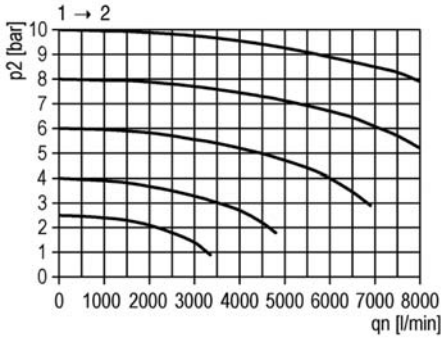


G1/4″

Portata in scarico
Exhaust flow rate

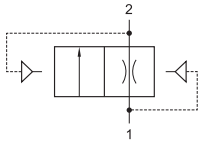


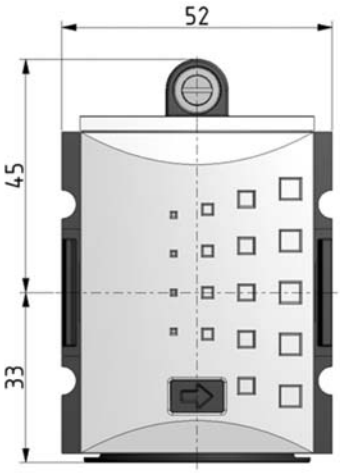
G1/2″

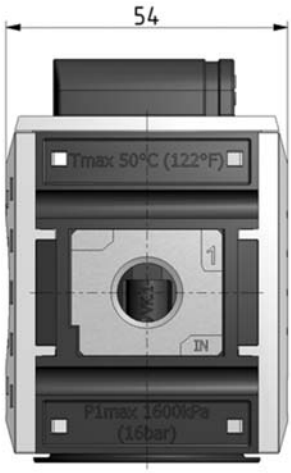


G1/4″-G1/2″ slow-start valve

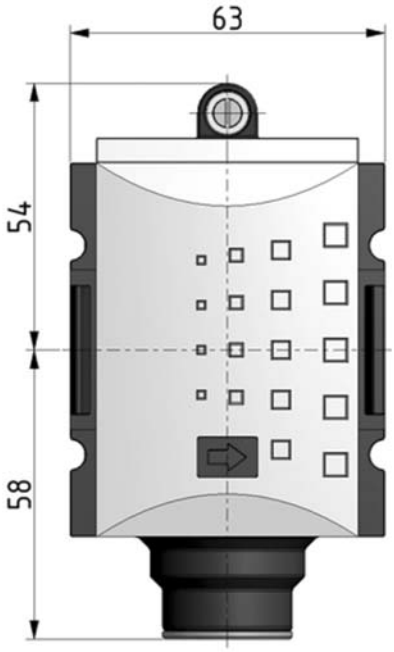
US16.311.0







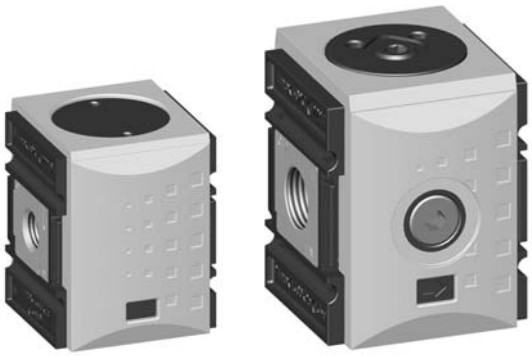
US16.331.0



Materials
Body: technopolymer
Seals: NBR
Internal parts: brass and stainless steel

La staffa di fissaggio deve essere acquistata separatamente.
Mounting bracket is bought separately.

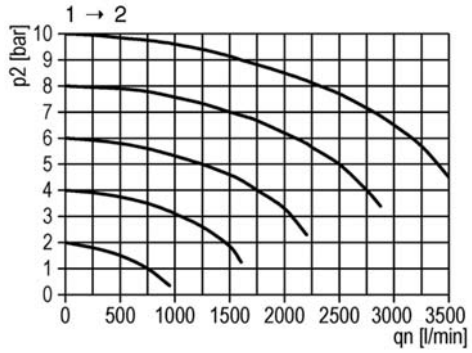
G1/4″-G1/2″ check valve



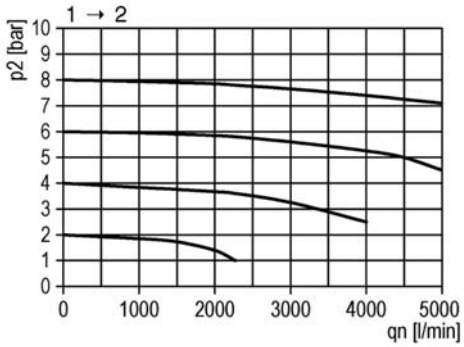
ORDER CODE		**US16.315.0**	**US16.335.0**
Ports		G1/4″	G1/2″
Temperature range		0 ... +50°C	0 ... +50°C
Weight		0.24 kg	0.37 kg
Working pressure range	p_{min} p_{max}	0.4 bar; 0.04 MPa 16 bar; 1.6 MPa	0.4 bar; 0.04 MPa 16 bar; 1.6 MPa
Direct maximum flow rate p = 6.3 bar; Δp = 1 bar	Q_{max}	1250 Nl/min	4500 Nl/min
Maximum flow rate in side direction	Q_{max}	700 Nl/min	1150 Nl/min

Portata diretta
Direct flow rate

G1/4″

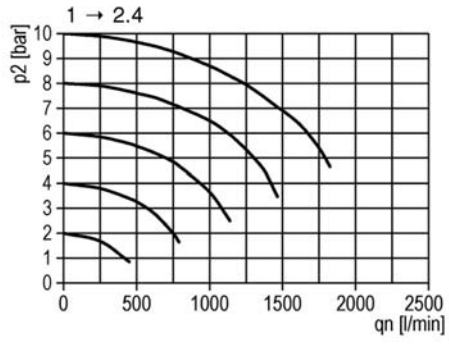


G1/2″

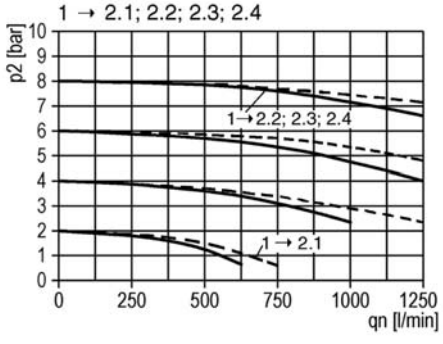


Portata laterale
Side flow rate

G1/4″

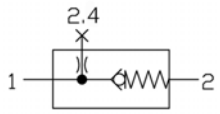


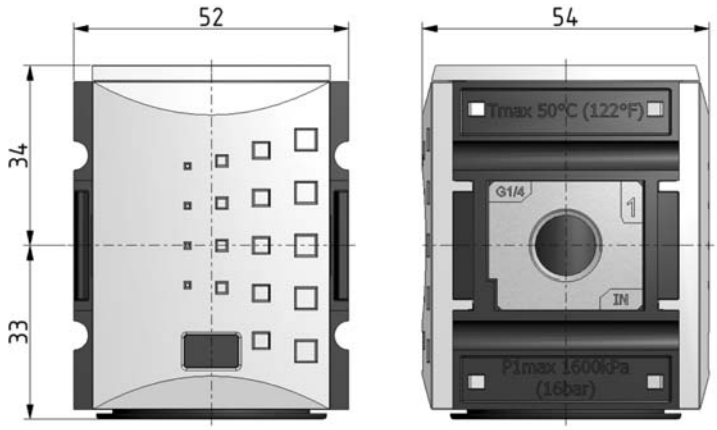
G1/2″



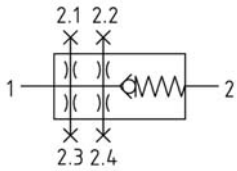
G1/4″-G1/2″ check valve

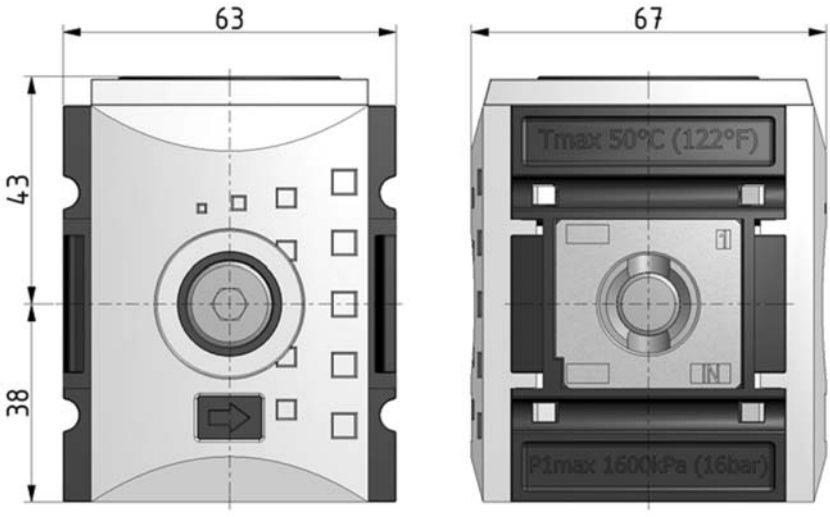
US16.315.0





US16.335.0





Materials
Body: technopolymer
Seals: NBR
Internal parts: brass and stainless steel

La staffa di fissaggio deve essere acquistata separatamente.
Mounting bracket is bought separately.

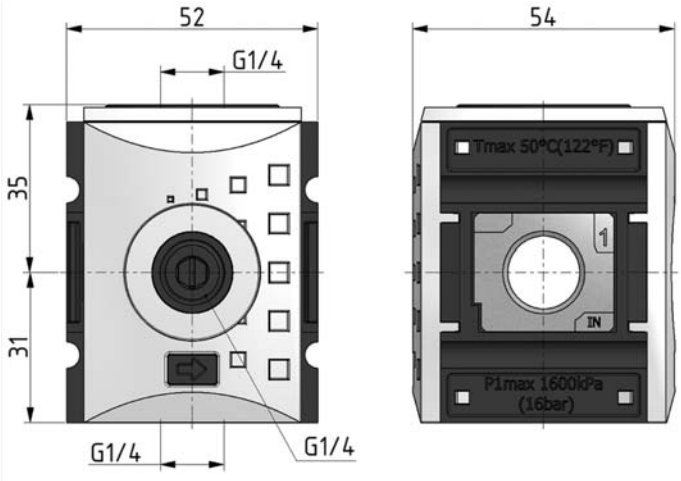
porting block

It can be used to provide unlubricated and/or unregulated air.

1/4"NPT

ORDER CODE

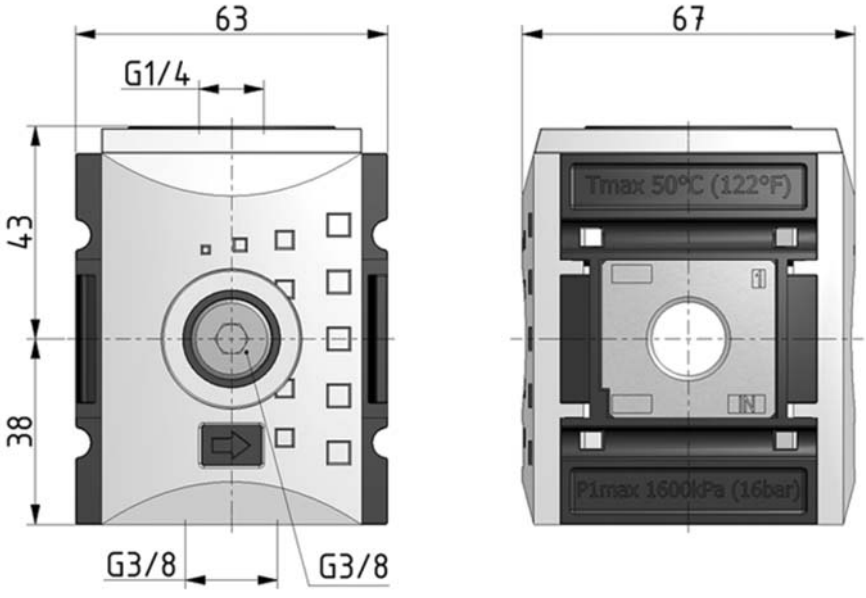
US16.312.0



1/2"NPT

ORDER CODE

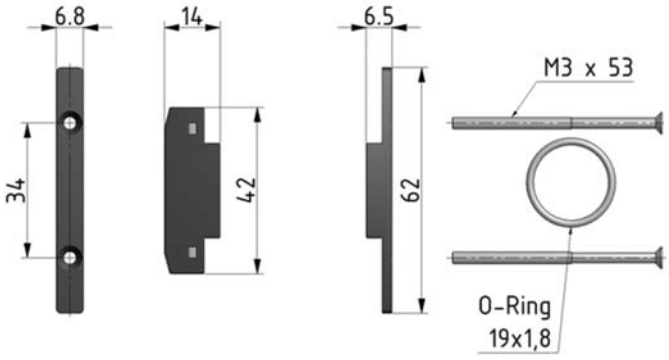
US16.332.0



coupling kit

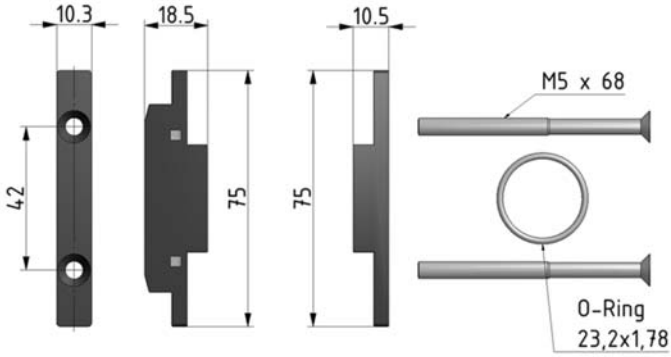
16.313.0

1/4″



16.333.0

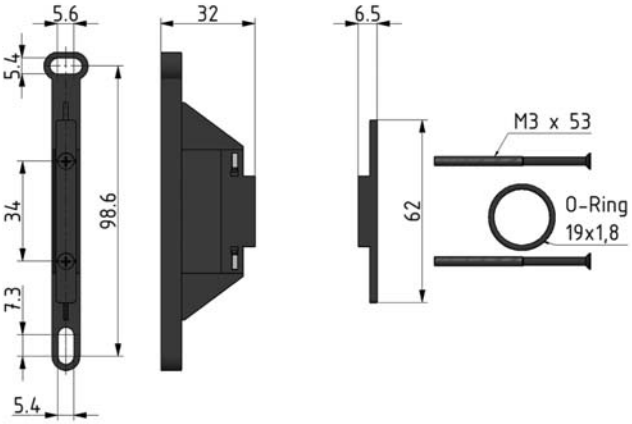
1/2″



coupling kit with mounting bracket

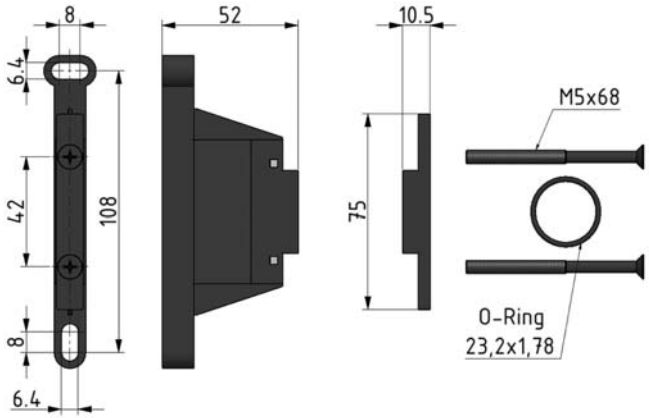
16.314.0

1/4″



16.334.0

1/2″



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