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The company reserves the right to amend without notice the specifications given in this document

Index chapter 0

TECHNICAL INFORMATION

Technical information

0 FLUID

Most of WAIRCOM M.B.S. products can be fed with lubricated or unlubricated compressed air, thus means these components are greased on assembly so that they can work even without the use of a lubricator; however for a correct lubrication we advise to use the WAIRSOL grease class ISO 22, studied on purpose for pneumatic circuits, while the use of a filter element with a void fraction of at least 40 µm is essential. The condensate drainage system can be manual, semi-automatic or automatic and it is set up of a cock situated on the bottom of the bowl.
The working pressure range for each product is shown on every single relevant technical sheet and it is generally included between 1 to 10 bar.

PRESSURE

DEFINITION OF PRESSURE
It is the ratio between a force and the surface on which it acts; it is dimensionally expressed in force units per surface units.

$$P_{(Pa)} = F_{(N)} / S_{(m^2)}$$

ATMOSPHERIC PRESSURE
It is the pressure exerted on a surface of 1 cm^2 at sea level, at a temperature of 20 °C and with a relative humidity of 65%; it is equivalent to a column of water of 10,33 m or to 760 mmHg.

ABSOLUTE PRESSURE
It is the pressure of a fluid respect to the absolute vacuum and it is obtainable adding the atmospheric pressure to the gauge one.

GAUGE PRESSURE
It is the differential pressure of a fluid above and below the atmospheric pressure normally read on the pressure gauges.

UPSTREAM PRESSURE
Pressure of the compressed air at the inlet of the pneumatic component.

DOWNSTREAM PRESSURE
Pressure of the compressed air at the outlet of the pneumatic component.

DIFFERENTIAL PRESSURE (ΔP)
It is the difference between upstream and downstream pressure.

BOYLE-MARIOTTE'S LAW
The volume of a closed quantity of gas with constant temperature is inversely proportional to the absolute pressure, thus means that for a given quantity of gas the product between the absolute pressure and the volume is a constant value:

$$P^1 \cdot V^1 = P^2 \cdot V^2 = \text{Constant.}$$

GAY - LUSSAC'S LAW
The volume of a quantity of gas with constant pressure is proportional to its temperature:

$$V^1 / V2 = T^1 / T^2$$

or even, with constant volume, the pressure of a quantity of gas is proportional to its temperature.

$$P^1 / P2 = T^1 / T^2$$

Then we obtain the General Equation of Gases:

$$P \cdot V = n \cdot R \cdot T$$

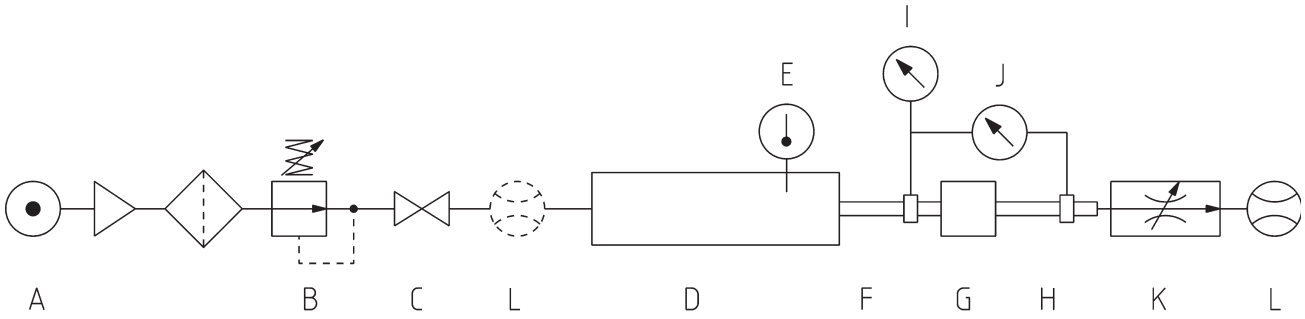
where:
P = pressure (atm)
V = volume (Nl)
n = gram molecules of gas contained in the volume (mol)
R = perfect gas constant (0,0821 Nl · atm · K^{-1} · mol^{-1})
T = absolute temperature in Kelvin (273 K = 0 °C)

NORMAL CONDITIONS OF AIR
In the design of industrial pneumatic circuits are employed measures that refer to the "Normal conditions of air".
As "normal cubic meter of air" (1Nm^3) we refer to 1 m^3 of air at a temperature of 273 K (0 °C) and at a pressure of 1,0013 bar (pressure of the normal air at the sea level): 1 Nm^3 = 1000 Nl.

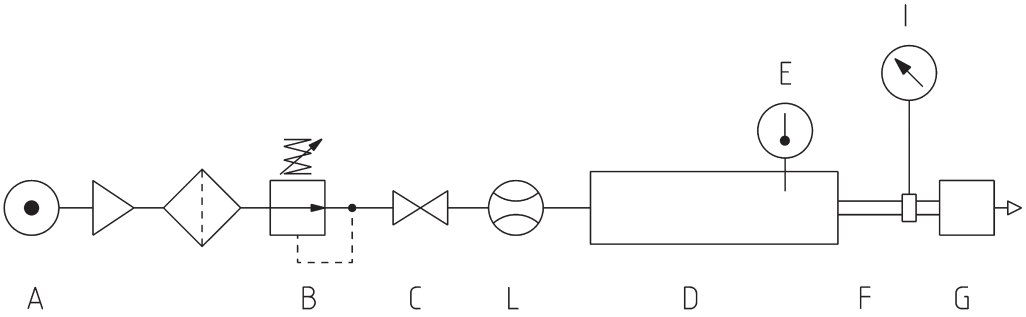
Technical information

RATED FLOW RATE

It is the volume of fluid passing through a given section of measurement in a unit of time with an upstream gauge pressure P1=6 bar (7 absolute bar) and with a pressure drop ΔP=1 bar (thus means a downstream gauge pressure P2=5 bar, 6 absolute bar) with a fluid temperature of +20 °C.
The rated flow rate, generally expressed in normal liters per minute (Nl/m), can give some indications on the performances of the valves if the working conditions are the ones just described.
Herebelow are the circuits used in our company to test the flow rate measurements of products in according to the UNI ISO 6358 standard.



Testing circuit for components with input/output connections



Testing circuit for components with direct exhaust in the atmosphere

A – Filter and supply unit
B – Adjustable pressure regulator
C – Shut-off valve
D – Tube for temperature measurement
E – Device for the measure of temperature
F – Tube for upstream pressure measurement
G – Component on trial
H – Tube for downstream pressure measurement
I – Device for the measure of upstream pressure
J – Device for the measure of differential pressure
K – Flow regulator valve
L – Device for the measure of flow rate

Technical information

0 PROTECTION CLASS FOR COILS WITH CONNECTOR

For protection class, we mean the intrinsic ability of live electrical equipment to protect and to protect itself against casual contatcts and penetration of solid particles and water. It is defined with the abbreviation “I.P.” followed by 2 figures: the first, 0 to 6, defines the protection against casual contacts and penetration of foreign particles; the second, 0 to 8, the protection against water.
The tables shown below describe the various degrees.

Protection class against casual contacts and penetration of foreign particles

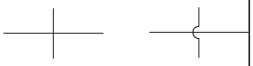
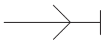
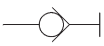
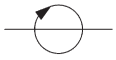
First figure	Denomination	Explanation
0	No protection.	No special protection for people against casual contacts with live parts or moving parts. No protection of the equipment against the penetration of foreign solid particles.
1	Protection against the penetration of large-sized solid particles.	Protection against casual contacts of large surfaces with live parts or moving parts inside the equipment, for example contacts with hands, but no protection against the voluntary access to these parts. Protection of the equipment against the penetration of solid particles with a diameter larger than 50 mm.
2	Protection against the penetration of fluid-sized solid particles.	Protection against contacts of fingers with live parts or moving parts inside the equipment. Protection against the penetration of solid particles with a diameter larger than 12 mm, such as fingers.
3	Protection against the penetration of small-sized solid particles.	Protection against contacts of tools, wires or the like, thicker than 2.5 mm with live parts of moving parts inside the equipment. Protection against the penetration of solid particles with a diameter larger than 2.5 mm, such as tools, wires, and so on.
4	Protection against the penetration of very small-sized solid particles.	Protection against contacts of tools, wires or the like, thicker than 1 mm with live parts or moving parts inside the equipment. Protection against the penetration of solid particles with a diameter larger than1 mm, such as thin tools and wires and so on.
5	Protection against dust deposits.	Full protection against contacts with means of any kind with live parts or moving parts inside the equipment. Protection against dust deposits. The penetration of dust is not fully eliminated, but it is reduced to such an extent as to assure the good operation of the equipment.
6	Protection against dust penetration.	Full protection against contacts with means of any kind with live parts or moving parts inside the equipment. Protection against dust deposits. Full protection against the penetration of dust.

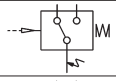
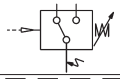
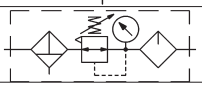
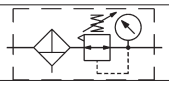
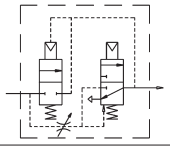
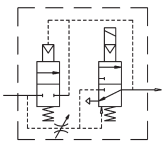
Protection class against penetration of water

Second figure	Denomination	Explanation
0	No protection.	No special protection.
1	Protection against water drops falling perpendicularly.	Water drops that fall perpendicularly must not cause harmful effect.
2	Protection against water drops falling slantwise.	Water drops that fall at a slanted angle of up to 15° to the perpendicular direction must not cause harmful effect.
3	Protection against water dripping.	Water that falls at a slanted angle of up to 60° to the perpendicular direction must not cause harmful effect.
4	Protection against water sprays.	Water sprayed against the equipment from any direction must not cause harmful effect.
5	Protection against water jets.	Water jets fired against the equipment from any direction must not cause harmful effect.
6	Protection against inondation.	The water penetrating into the equipment due to a temporary flood, for example during rough sea conditions, must not cause harmful effect.
7	Protection against immersion.	Water must not penetrate in such a quantity as to damage the equipment, should the equipment itself be immersed for pre-established times and at pre-defined pressure.
8	Protection against submersion.	Water must not penetrate in such a quantity as to damage the equipment, should the equipment itself be submerged at pre-defined pressure and for an undetermined period of time.

Technical information

GRAPHIC SYMBOLS

Pipes and connections		
Designation	**Explanation**	**Symbol**
Pressure line	Line for the energy transfer	
Control line	Line for the transfer of the control energy (including regulation)	
Exhaust or leakage line		
Line connection	Fixed connection, e.g. welded,saldered, screwed (including fittings)	
Crossover	Crossing of unconnected lines	
Flexible line	Connectors of mobile parts	
Electric line	Line for transmitting electrical energy	
Pneumatic pressure source		
Discharge point or vent		
Air exhaust	With not threaded connection	
	With threaded connection	
Compressed air pick-up point	With plug	
	With connecting line	
Quick-acting couplings	Connected, without check valve	
	Connected, with check valve	
	Uncoupled with open end	
	Uncoupled, end blocked by check valve	
Rotating joint (device that allows a rotating movement)	1-way	
	3-way	
Silencer		
Pneumatic accumulator (capacity)		

Air treatment equipment		
Designation	**Explanation**	**Symbol**
Air filter	Device for removing impurity	
Condensate separator	With manual draining	
	With automatic draining	
Filter with condensate separator	With manual draining	
	With automatic draining	
Air drier	Device in which the air is dried	
Lubricator	Device in which small quantities of oil are added to the air flowing through it	
Sequence valve	Valve which, by opening the outlet against the spring force, makes connection with further units	
Pressure reducer (valve which to a large extent holds the outlet pressure at a constant level, even with altered inlet pressure)	Without exhaust valve	
	With exhaust valve (Relieving)	
	Piloted pressure reducer with exhaust valve (Relieving)	
Pneumoelectric transducer	Device converting an input pneumatic signal into an output electrical signal	
Pressure switch	Device switching at an adjustable fixed pressure	
Filter - pressure reducer lubricator group (Detailed symbol)		
Filter - pressure reducer lubricator group (Simplified symbol)		
Filter - pressure reducer group		
Soft - start valve	Pneumatic actuated	
	Solenoid actuated	
Pressure gauge		
Thermometer		
Flowmeter		
Totalizator flowmeter		
Optical tester	Device indicating the presence of pressure by means of an optical reflector	

Technical information

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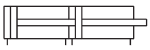
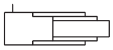
GRAPHIC SYMBOLS

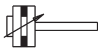
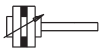
Distribution		
Designation	**Explanation**	**Symbol**
2/2 port valve	Two positions at rest, normally closed (N.C.)	
	Two positions at rest, normally open (N.O.)	
3/2 port valve	Two positions at rest, normally closed (N.C.)	
	Two positions at rest, normally open (N.O.)	
4/2 port valve	With two positions and one exhaust	
3/3 port valve	With three positions and closed the neutral one	
5/2 port valve	With two positions and two exhausts	
5/3 port valve	Open centre	
	Pressure centre	
	Closed centre	
Check valve	Unloaded (without spring)	
	Spring-loaded	
Controlled check valve	Pilot operated to close check valve	
	Pilot operated to open check valve	
Shuttle valve (OR type)	The inner port with the higher pressure is automatically connected to the outlet port, while the other inlet port is closed	
Quick-exhaust valve	When the inlet port is not supplied with air, the outlet port is exhausted directly into the atmosphere	
Flow regulator	Bidirectional	
	Unidirectional fixed	
	Unidirectional adjustable	
Flow divider	The flow is divided in two quite similar parts that are indipendent from the variations of pressure	
Shut-off valve	Two port	
	Three port	
Two pressure valve (AND type)	The outlet port is pressurized only when pressure is supplied to both of the inlet ports	

Controls		
Designation	**Explanation**	**Symbol**
Manual actuation	General (without specifying the type of control)	
	By push-button	
	By lever	
	By pedal	
	By pedal with safety device	
Mechanical actuation	By stem or key	
	By spring	
	By roller lever	
	By unidirectional roller lever	
Pneumatic actuation	Direct action by application of pressure	
	Direct action by pressure relief	
	Differential (i.e. pressure dominant pilot)	
	Indirect actuation by application of pressure to the pilot valve	
	Indirect actuation by relieving of pressure on the pilot valve	
Electrical actuation	By solenoid with one winding	
	By solenoid with two in-phase windings	
	By solenoid with two opposing windings	
Combined actuation	By solenoid with one pilot valve	
	By solenoid pilot assisted	
Detent	Device for maintaining a given position	
Release unit	Device for preventing the equipment from blocking at a dead spot	

Technical information

GRAPHIC SYMBOLS

Energy conversion (actuators)		
Designation	**Explanation**	**Symbol**
Compressor	With constant displacement volume (only one direction of rotation)	
Pneumatic motor with constant displacement volume	With one direction of rotation	
	With two directions of rotation	
Pneumatic motor with variable displacement volume	With one direction of rotation	
	With two directions of rotation	
Pneumatic rotary cylinder	With rotary drive limited range of oscillation	
Single acting cylinder	Front spring	
	Rear spring	
Double acting cylinder		
Double acting cylinder through rod		
Tandem cylinder	Opposed	
	Double push	
	Double stroke	
Telescopic cylinder	Single acting	
	Double acting	
Pressure multiplier	For fluids with the same characteristics	
	For fluids with different characteristics	

Rod and piston unit options		
Designation	**Explanation**	**Symbol**
Rod and piston unit	Standard	
	With adjustable cushioning at one end	
	With adjustable cushioning at both ends	
	With magnetic piston	
	With magnetic piston and adjustable cushioning at one end	
	With magnetic piston and adjustable cushioning at both ends	
	With non-rotating piston rod device	
	With piston rod locking unit	

Technical information

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COMPARISON OF DESIGNATIONS FOR CONNECTIONS

Port	ISO 5599	Letter designations
Supply/inlet port	1	P
Working or outlet line	2	B
Exhaust line	3	S
Working or outlet line	4	A
Exhaust line	5	R
Pilot line that reset the output signal	10	Z
Pilot line	12	Y
Pilot line	14	Z
Pre-pilot exhaust line	82	—
Pre-pilot exhaust line	84	—

MULTIPLES AND SUB-MULTIPLES

Prefix	Symbol	Factor
yotta	Y	10^{24}
zetta	Z	10^{21}
exa	E	10^{18}
peta	P	10^{15}
tera	T	10^{12}
giga	G	10^{9}
mega	M	10^{6}
kilo	k	10^{3}
etto	h	10^{2}
deca*	da	10
deci	d	10^{-1}
centi	c	10^{-2}
milli	m	10^{-3}
micro	µ	10^{-6}
nano	n	10^{-9}
pico	p	10^{-12}
femto	f	10^{-15}
atto	a	10^{-18}
zepto	z	10^{-21}
yocto	y	10^{-24}

* In the U.S.A. this prefix is commonly defined “deka”

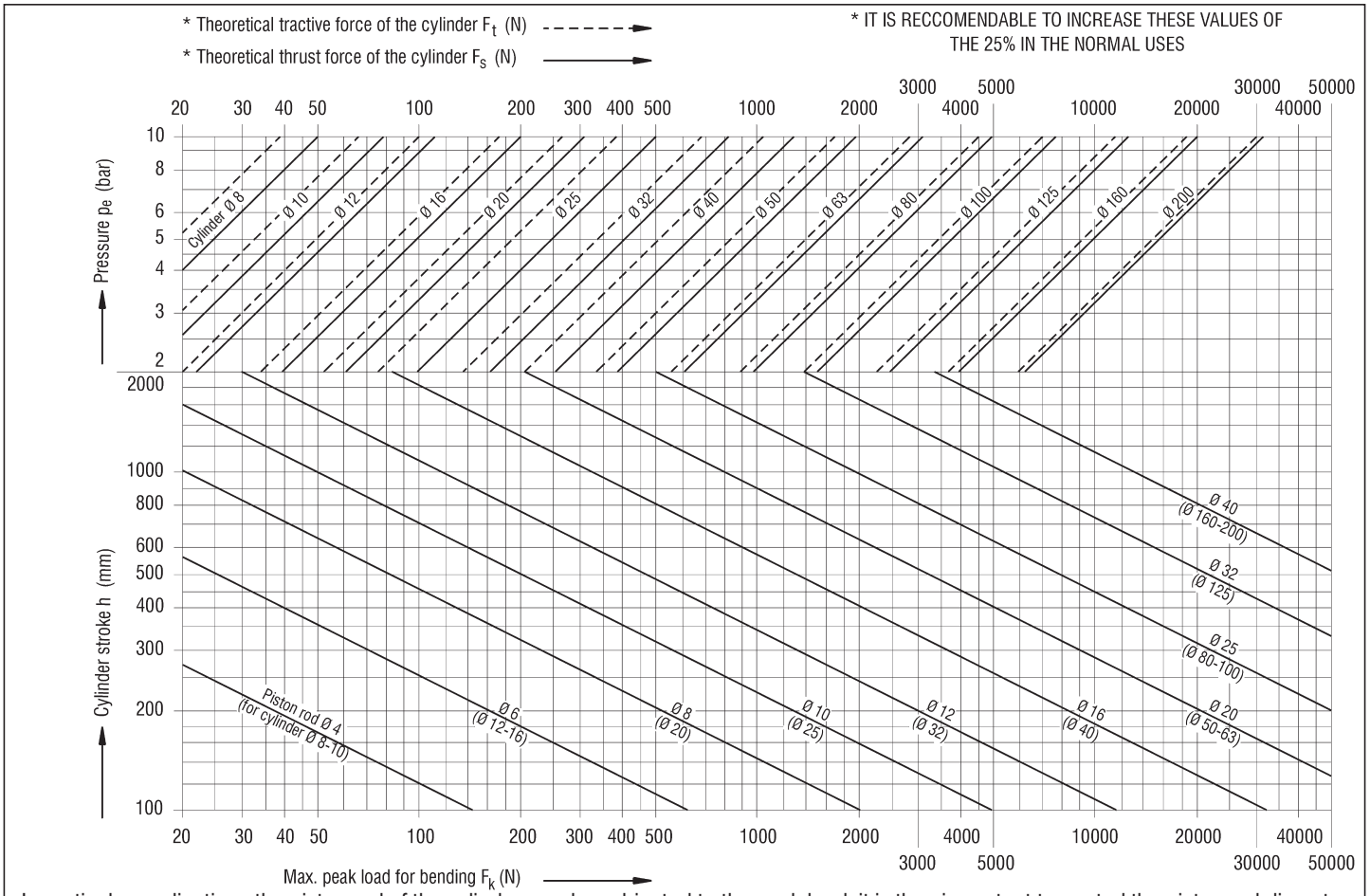
CONSUPTION OF AIR TABLE

Cylinder bore D (mm)	Piston rod diameter d (mm)	Motion	Useful area cm²	Consumption of air in thrust and in traction expressed in Nl per cm of stroke as a function of the operating pressure P expressed in bar, at 20°C									
				1 bar	2 bar	3 bar	4 bar	5 bar	6 bar	7 bar	8 bar	9 bar	10 bar
12	4	Thrust	1,13	0,0023	0,0034	0,0045	0,0057	0,0068	0,0079	0,009	0,0102	0,0113	0,0124
		Traction	1	0,002	0,003	0,004	0,005	0,006	0,007	0,008	0,009	0,01	0,011
16	6	Thrust	2,01	0,004	0,006	0,008	0,01	0,0121	0,0141	0,0161	0,0181	0,0202	0,0221
		Traction	1,73	0,0035	0,0052	0,0069	0,0086	0,0104	0,0121	0,0138	0,0156	0,0173	0,019
20	8	Thrust	3,14	0,0063	0,0094	0,0126	0,0157	0,0188	0,022	0,0251	0,0283	0,0314	0,0346
		Traction	2,64	0,0053	0,0079	0,0106	0,0132	0,0158	0,0185	0,0211	0,0238	0,0264	0,029
25	12	Thrust	4,91	0,0098	0,0147	0,0196	0,0245	0,0295	0,0344	0,0393	0,0442	0,0491	0,054
		Traction	3,78	0,0076	0,0113	0,0151	0,0189	0,0227	0,0264	0,0302	0,034	0,0378	0,0415
32	12	Thrust	8,04	0,016	0,024	0,032	0,04	0,048	0,056	0,064	0,072	0,08	0,088
		Traction	6,91	0,014	0,021	0,028	0,035	0,042	0,049	0,058	0,063	0,07	0,076
40	16	Thrust	12,56	0,025	0,038	0,05	0,063	0,076	0,088	0,1	0,113	0,126	0,138
		Traction	10,55	0,021	0,032	0,042	0,053	0,063	0,074	0,088	0,095	0,106	0,116
50	20	Thrust	19,63	0,039	0,059	0,079	0,098	0,118	0,137	0,157	0,177	0,196	0,216
		Traction	16,49	0,033	0,05	0,066	0,082	0,099	0,115	0,132	0,149	0,165	0,181
63	20	Thrust	31,16	0,062	0,093	0,125	0,156	0,187	0,218	0,249	0,28	0,312	0,343
		Traction	28,02	0,056	0,084	0,112	0,14	0,168	0,196	0,224	0,252	0,28	0,308
80	25	Thrust	50,24	0,1	0,15	0,2	0,25	0,301	0,351	0,402	0,452	0,502	0,552
		Traction	45,36	0,091	0,138	0,181	0,227	0,272	0,318	0,363	0,408	0,454	0,5
100	32	Thrust	78,54	0,157	0,238	0,314	0,382	0,471	0,549	0,628	0,706	0,785	0,862
		Traction	70,5	0,141	0,211	0,282	0,352	0,423	0,493	0,564	0,635	0,705	0,775
125	32	Thrust	122,66	0,245	0,368	0,49	0,613	0,736	0,859	0,981	1,104	1,226	1,349
		Traction	114,67	0,229	0,344	0,459	0,573	0,688	0,803	0,917	1,032	1,147	1,262
160	40	Thrust	201,06	0,402	0,603	0,804	1,005	1,206	1,407	1,608	1,809	2,01	2,211
		Traction	188,49	0,377	0,565	0,754	0,942	1,13	1,319	1,508	1,696	1,884	2,673
200	40	Thrust	314,15	0,628	0,942	0,257	1,571	1,885	2,199	2,513	2,827	3,145	3,456
		Traction	301,59	0,603	0,905	1,506	1,508	1,81	2,111	2,413	2,714	3,016	3,318

The following formula is used to determinate the consumption of air:
Q = H x (S+T) x N where:
Q = consumption of air (Nl/min)
H = cylinder stroke (cm)
S = consumption of air per 1 cm of stroke in thrust
T = consumption of air per 1 cm of stroke in traction
N = number of cycles per minute

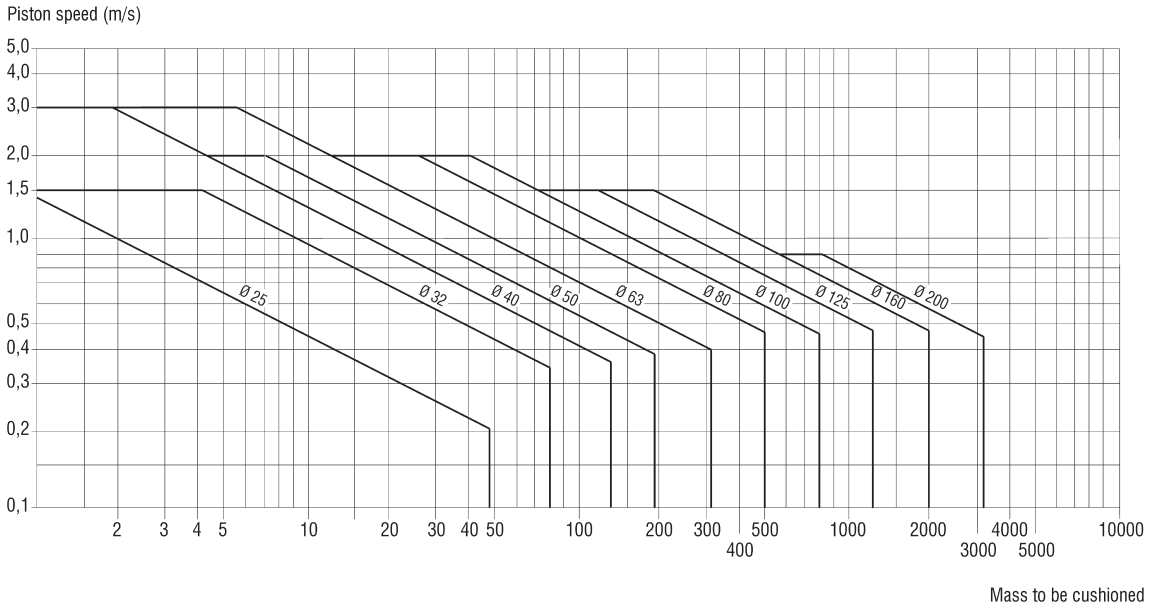
Technical information

PEAK LOAD AND THEORETICAL FORCES



In particular applications the piston rod of the cylinder may be subjected to the peak load; it is then important to control the piston rod diameter in relation to the stroke that should be made, the force developed by the cylinder, the working pressure and the fixings.
The diagram shown has been realized considering the worst condition, consisting in a rear hinge fixing on the cylinder body (in vertical position with the load charging the rod end) and fork on the piston rod.
Given the stroke, the relevant horizontal line is followed until the relevant line to the piston rod diameter (cylinder bore) is crossed; from that point, drawing the vertical line till reaching the x-axis, is obtainable the maximum acceptable peak load.

CUSHIONING DIAGRAM



In order not to compromise the correct fuctioning of the cylinders with harmful impacts, it is necessary to cushion the moving mass to gradually reduce its kinetic energy.
The maximum absorbable mass depends on the speed of traslation and on the absorption capacity of the pneumatic damper.
This diagram gives the speed and the maximum absorbable mass at a pressure of 6 bar for various bores.

Technical information

0 CONVERSION TABLES

Torque

	inchounce (ozf·in)	inchpound (lbf·in)	footpound (lbf·ft)	kilogrammetro (kgf·m)	Newtonmetro (N·m)
1 inchounce =		0,0625	0,0052	$7{,}2\cdot10^{-4}$	$7{,}06\cdot10^{-3}$
1 inchpound =	16		0,0833	$1{,}152\cdot10^{-2}$	0,113
1 footpound =	192	12		0,1383	1,356
1 kilogrammetro =	1388,7	86,796	7,233		9,80665
1 Newtonmetro =	141,6	8,85	0,7375	0,102	

Length

	Inch (in)	foot (ft)	yard (yd)	millimeter (mm)	meter (m)
1 inch =		0,0833	0,0278	25,4	0,0254
1 foot =	12		0,333	304,8	0,304
1 yard =	36	3		914,4	0,9144
1 millimeter =	0,03937	0,0033	0,00109		0,001
1 meter =	39,37	3,2808	1,0936	1000	

Area

	inch² (in²)	foot² (ft²)	yard² (yd²)	square millimeter (mm²)	square meter (m²)
1 inch² =		0,0069	0,00077	645,16	$6{,}45\cdot10^{-4}$
1 foot² =	144		0,111	92903	0,0929
1 yard² =	1296	9		836100	0,8361
1 millimetro² =	0,0016	$1{,}0764\cdot10^{-5}$	$1{,}196\cdot10^{-6}$		10^{-6}
1 meter² =	1550	10,764	1,196	10^{6}	

Force

	Newton (N)	kilopound (kp)	poundforce (lbf)
1 Newton =		0,10197	0,22481
1 kilopound =	9,80665		2,20463
1 poundforce =	4,4482	0,45359	

Density

	ounce / inch³ (ozf / in³)	pound / foot³ (lbf / ft³)	grams / centimeter³ (g/cm³)
1 ounce / inch³ =		108	1,73
1 pound / foot³ =	0,0092		0,016
1 gram / centimeter³ =	0,578	62,43	

Mass

	ounce (oz)	pound (lb)	Kilogram (kg)
1 ounce =		0,0625	0,0283
1 pound =	16		0,4536
1 Kilogram =	35,274	2,2046	

Speed

	foot/second (ft/s)	foot/minute (ft/min)	mile/hour (mi/h)	meter/second (m/s)	Kilometers/hour (km/h)
1 foot/second =		60	0,6818	0,3048	1,097
1 foot/minute =	0,017		0,0114	0,00508	0,01829
1 mile/hour =	1,4667	88		0,447	1,609
1 meter/second =	3,28	196,848	2,237		3,6
1 Kilometer/hour =	0,9113	54,68	0,6214	0,278	

Temperature

	Kelvin (K)	Celsius degree (°C)	Fahrenheit degree (°F)
1 K =		K - 273,15	K · 9/5 - 459,67
1 °C =	°C + 273,15		°C · 9/5 + 32
1 °F =	5/9 · (°F - 32) + 273,15	(°F - 32) · 5/9	

Volume

	inch³ (in³)	US quart (liq qt)	Imperial gallon (UK) (Imp gall)	foot³ (cu ft)	US gallon (gal)	liter (l)
1 inch³ =		0,0173	0,0036	0,00058	0,0043	0,0164
1 US quart =	57,75		0,2082	0,0334	0,25	0,9464
1Imperial gallon =	277	4,8		0,1604	1,2	4,546
1 foot³ =	1728	29922	6,23		7,48	28,317
1 US gallon =	231	4	0,8327	0,1337		3,785
1 liter =	61,024	1,0567	0,22	0,0353	0,264	

Pressure

	inch Hg	psi	atmosphere	torr	mm Hg	bar	Mpa	kg/cm²
1 inch Hg =		0,491	0,0334	25,4	25,4	0,0339	0,00339	0,0345
1 psi =	2,036		0,068	51,715	51,715	0,0689	0,00689	0,0703
1 atmosphere =	29,921	14,696		760	760	1,0133	0,10133	1,0332
1 torr =	0,0394	0,0193	0,0013		1	0,0013	0,00013	0,00136
1 mm Hg =	0,0394	0,0193	0,0013	1		0,0013	0,00013	0,00136
1bar =	29,53	14,504	0,987	749,87	749,87		0,1	1,02
1 Mpa =	295,3	145,04	9,869	7498,7	7498,7	10		10,2
1 kg/cm² =	28,95	14,22	0,968	735,35	735,35	0,98	0,098	

Technical information

THREADS COMPARISON TABLE

Ø external (mm)	Ø core (mm)	lead* - turns/inch	metric coarse pitch	metric fine pitch	BSP, G	NPT	UNF
3,8 ÷ 3,9	3,2 ÷ 3,4	0,7	M 4				
4 ÷ 4,2	3,4 ÷ 3,6	36					No. 8-36
4,6 ÷ 4,8	4,0 ÷ 4,2	32					No.10-32
4,8 ÷ 4,9	4,1 ÷ 4,3	0,8	M 5				
5,7 ÷ 5,9	4,9 ÷5,2	1	M 6				
7,7 ÷ 7,9	6,9 ÷ 7,2	1		M 8 x 1			
7,7 ÷ 7,9	6,6 ÷ 6,9	1,25	M 8				
7,7 ÷ 7,9	6,8 ÷ 7,1	24					5/16 x 24
maximum 7,9	minimum 6	27				1/16	
9,5 ÷ 9,7	8,5 ÷ 8,8	28			1/8		
9,7 ÷ 9,9	8,9 ÷ 9,2	1		M 10 x 1			
9,7 ÷ 9,9	8,6 ÷ 8,9	1,25		M 10 x 1,25			
9,7 ÷ 9,9	8,4 ÷ 8,7	1,5	M 10				
maximum10,3	minimum 8,3	27				1/8	
10,9 ÷ 11,1	9,7 ÷ 10	20					7/16 x 20
11,7 ÷ 11,9	10,6 ÷ 10,9	1,25		M 12 x 1,25			
11,7 ÷ 11,9	10,4 ÷ 10,7	1,5		M 12 x 1,5			
11,6 ÷ 11,9	10,1 ÷ 10,4	1,75	M 12				
12,5 ÷ 12,7	11,3 ÷ 11,7	20					½ x 20
12,9 ÷ 13,2	11,4 ÷ 11,9	19			¼		
13,6 ÷ 13,9	11,8 ÷ 12,2	2	M 14				
maximum 13,7	minimum 10,7	18				¼	
15,7 ÷ 15,9	14,4 ÷ 14,7	1,5		M 16 x 1,5			
15,6 ÷ 15,9	13,8 ÷ 14,2	2	M 16				
15,7 ÷ 15,9	14,4 ÷ 14,7	16					5/8 x 16
16,4 ÷ 16,7	14,9 ÷ 15,4	19			3/8		
maximum 17,1	minimum 14,2	18				3/8	
17,6 ÷ 17,9	15,3 ÷ 15,7	2,5	M 18				
18,8 ÷ 19,1	17,3 ÷ 17,8	16					¾ x 16
19,7 ÷ 19,9	18,9 ÷ 19,2	1		M 20 x 1			
19,7 ÷ 19,9	18,4 ÷ 18,7	1,5		M 20 x 1,5			
19,6 ÷ 19,9	17,3 ÷ 17,7	2,5	M 20				
20,7 ÷ 20,9	18,6 ÷ 19,2	14			½		
maximum21,3	minimum 17,4	14				½	
21,7 ÷ 21,9	20,4 ÷ 20,7	1,5		M 22 x 1,5			
21,9 ÷ 22,6	20,3 ÷ 20,8	14					7/8 x 14
23,7 ÷ 23,9	22,4 ÷ 22,7	1,5		M 24 x 1,5			
23,6 ÷ 23,9	20,8 ÷ 21,3	3	M 24				
25,1 ÷ 25,4	23,1 ÷ 23,6	12					1 x 12
26,2 ÷ 26,4	24,1 ÷ 24,7	14			¾		
26,6 ÷ 26,9	24,8 ÷ 25,2	2		M 27 x 2			
maximum 26,7	minimum 22,5	14				¾	
28,3 ÷ 28,6	26,3 ÷ 26,8	12					1 1/8 x 12
29,7 ÷ 29,9	28,4 ÷ 28,7	1,5		M 30 x 1,5			
31,5 ÷ 31,7	29,5 ÷ 30	12					1 ¼ x 12
32,9 ÷ 33,2	30,3 ÷ 30,9	11			1		
maximum 33,4	minimum 28,5	11 1/2				1	
35,7 ÷ 35,9	34,4 ÷ 34,7	1,5		M 36 x 1,5			
35,6 ÷ 35,9	33,8 ÷ 34,2	2		M 36 x 2			
37,7 ÷ 37,9	36,4 ÷ 36,7	1,5		M 38 x 1,5			
37,8 ÷ 38,1	35,8 ÷ 36,4	12					1 ½ x 12
41,6 ÷ 41,9	38,9 ÷ 39,6	11			1 ¼		
41,7 ÷ 41,9	40,4 ÷ 40,7	1,5		M 42 x 1,5			
41,6 ÷ 41,9	39,8 ÷ 40,2	2		M 42 x 2			
maximum 42,2	minimum 37	11 1/2				1 ¼	
44,7 ÷ 44,9	43,4 ÷ 43,7	1,5		M 45 x 1,5			
47,9 ÷ 47,8	44,8 ÷ 45,5	11			1 ½		
47,6 ÷ 47,9	45,8 ÷ 46,2	2		M 48 x 2			
maximum 48,3	minimum 43,5	11 1/2				1 ½	
59,3 ÷ 59,6	56,7 ÷ 57,3	11			2		
59,7 ÷ 59,9	58,4 ÷ 58,7	1,5		M 60 x 1,5			
maximum 60,3	minimum 55	11 1/2				2	
79,7 ÷ 79,9	78,4 ÷ 78,7	1,5		M 80 x 1,5			

* for metric screw thread

metric = metric screw thread (coarse pitch = MA; fine pitch = MB)
G = Gas thread ("BSP" according to ISO standard)
NPT = tapered gas thread (used in the U.S.A.)
UNF = fine pitch thread (used in the Anglo-Saxon countries)

Technical information

0

SPECIAL OPTIONS TABLE FOR CYLINDERS

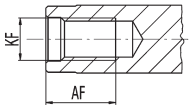
	U	P	UP	X	CPUI	CPA	CX	CPU	BU	B	BG	HB	Z	WR
S														
S1														
S2														
S3									As standard	As standard				
S4														
S5				As standard	As standard			As standard						As standard
S6					Ø 125÷200		Ø 32÷200	Ø 32÷100						
S7														
S8														
S9	As standard	As standard	As standard	As standard	As standard		As standard	As standard	As standard	As standard				
S10	As standard	As standard							As standard	As standard		As standard		
S10A														
S10B														

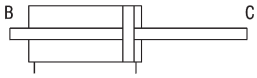
S- WAIRCOM M.B.S. drawing
S1- Oil proof seal (only scraper ring)
S2- Scraper ring for high temperatures
S3- Female threaded piston rod (dimension AF = 1,5 KF)

S4 - Nuts and tie rods made of AISI 303 stainless steel
S5 - Female threaded tie rods
S6 - Completed threaded and galvanized tie rods
S7 - Linear sliding
S8 - Through rod with different piston rod for side “B” and/or “C”

S9 - Piston rod with plane working for key
S10 - Without cushioning
S10A - With front cushioning
S10B - With rear cushioning

Feasible
Not feasible





Example: Cylinder to ISO and VDMA standards Ø 63, through rod, 150 mm stroke, magnetic piston type with different piston rod on side “B” with dimensions: KK=M20x1,5 AM=45 and WH=60:
63R150 CPUI/M S8 B KK=M20x1,5 AM=45 WH=60

GENERAL TECHNICAL DATA FOR CYLINDERS

OPERATING LIFE

The life cycle of cylinders is affected by manifold factors including: loads (axial and radial), speeds and frequencies of use, average working temperatures, shocks, tolerances of the acceptable pneumatic leakage. Due to the variability of all the factors above mentioned it’s not possible to give indications on the life of cylinders that would not be purely theoretical data. The intent of these indications is only to supply a reference value that could help the end user to planning properly during the implementation phase of any installation, and not binding or guaranteed towards the customer. In consideration of all the above, we can give the following values (without radial loads):

- 15,000 km for cylinders with polyurethane seals;
- 8,000 km for cylinders with NBR seals;
- 5,000 km for rodless cylinders.

STROKE TOLERANCES

The actual stroke of the cylinders has a tolerance with respect to the nominal stroke but always in compliance with the applicable standards, if any, or anyway within the following tolerances:

- -0/+1.5 mm for cylinders to ISO 6432 Ø 8 ÷ 25;
- -0.5/+1.5 mm for round cylinders Ø 32 ÷ 63;
- -0/+2 mm for cylinders to ISO 15552 Ø 32 ÷ 50;
- -0/+2.5 mm for cylinders to ISO 15552 Ø 63 ÷ 200;
- -0/+2.5 mm for compact cylinders to AFNOR Ø 20 ÷ 100;
- -0/+1 mm for compact cylinders Ø 12 ÷ 100;
- -0/+2.5 mm for rodless cylinders Ø 18 ÷ 63.

STROKES EXCEEDING THE MAXIMUM VALUE INDICATED IN THE CATALOGUE

Customer can address our commercial office even the “Demand for Feasibility” of cylinders having strokes exceeding the maximum value indicated in the catalogue. By and large Waircom will always be able to supply these cylinders, obviously with the physical limitations of the production technologies, but it will be care and responsibility of only the end user to realize proper solutions (e.g. guiding the piston rod, avoiding peaks loads, etc.) so that these cylinders with non-standard strokes could work properly and securely.

MAGNETIC SENSORS

The intensity and the shape of the magnetic fields generated by permanents magnets housed in the piston assembly depend on the presence of magnetic metal masses in the vicinity of the cylinders that could create mutual magnetic inductance. Therefore these masses may prevent the sensors from switching correctly, in which case non-magnetic materials should be used as, for instance, convenient stainless steel.

Index chapter 1

CYLINDERS

Waircom cylinders: overview

Waircom offers an extensive range of cylinders that can satisfy the most disparate demands and industrial applications. We are able to propose linear (with or without piston rod), guided, compact, non-rotating and rotary actuators, that comply with the most common international standards or with our own designs and that point at the optimisation of the quality/price rate, without neglecting the always present care to the continuous innovation.

All the series foresee, when not already included in the initial designs of the cylinders, even the application of convenient accessories or magnetic sensors that allow an even wider possibility of exploitation.
As usual all these can work thanks to a production driven by a management of the quality system that complies all the demands included in the reference standard UNI EN ISO 9001:2000.

Cylinders to ISO 6432 standard

series U

DESCRIPTION

Cylinders series "U" comply with ISO 6432 standard. The basic version is available for every diameter, while the rear axial feed, the magnetic piston and the adjustable cushions versions are produced from Ø 16 to Ø 25.

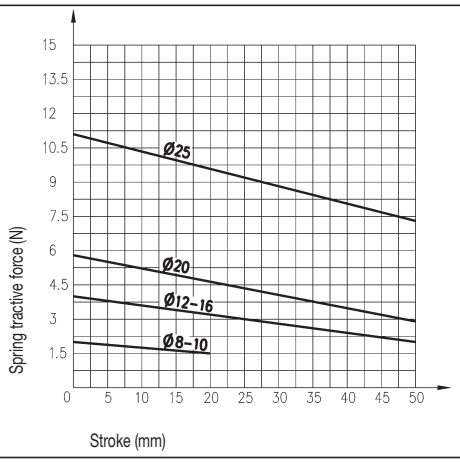
TECHNICAL DATA

Operating pressure	1 ÷ 10 bar
Working temperature	0 ÷ +80 °C (-20 °C with dry air) 0 ÷ +150 °C with seals for high temperatures (-10 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Versions	Double acting; Single acting front spring; Single acting rear spring; Through rod; Flat rear cap (rear axial feed).
Bore	Ø 8, 10, 12, 16, 20, 25
Port size	Ø 8 ÷ 16 = M5 Ø 20 - 25 = G1/8
Standard strokes (mm)	10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100, 120, 125, 140, 150, 160, 180, 200, 250, 300, 350, 400, 500
Decelerators length	Ø 16 20 25 mm 17 18 18.5
Maximum strokes (mm)	Ø 8 - 10 = 150; Ø 12 - 16 = 250; Ø 20 - 25 = 1000
Max. strokes single acting (mm)	Ø 8 ÷ 12 = 20; Ø 16 ÷ 25 = 50

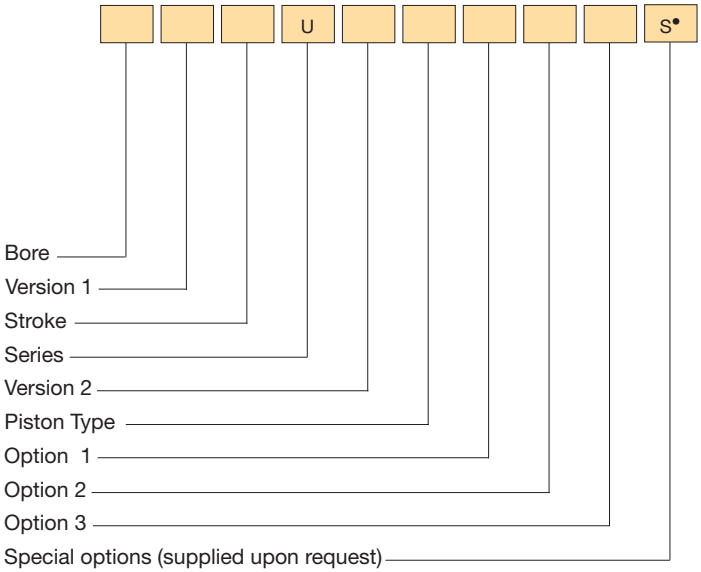
MATERIALS

End caps	Anodized aluminium alloy
Cylinder barrel	Extruded tube, AISI 304 stainless steel
Barrel-end cover fixing type	Irreversible calking with dual-seal system, mechanical and pneumatic
Piston rod	AISI 303 rolled stainless steel
Rod and end cap nuts	Steel Stainless steel (supplied upon request)
Decelerators ogives	Brass
Piston rod bearing	Self-lubricating sintered bronze
Piston	Aluminium alloy with acetal resin piston bearing (supplied with and without magnet)
Piston seals	NBR rubber - Viton®
Springs	Springs steel

SPRING THEORETICAL TRACTIVE FORCE



ORDER KEY



P.S.: ***Magnetic sensors*** FM100 - FM157 (see chapter magnetic sensors from page. 1.93)

• See technical data on page 0.12

VERSION 1

/	Basic cylinder	R	Through rod
H	Flat rear cup (rear axial feed)		

VERSION 2

D	Double acting	Y	Single acting rear spring*
S	Single acting front spring		

PISTON TYPE

C	Non-magnetic	E	Magnetic

OPTION 1

X	Cushioned**

OPTION 2

Z	Fit for piston rod locking unit***	A	With non-rotating hexagonal piston rod***

OPTION 3

2	Seals for high temperatures****

* Dimensions "XC" for version "YE" is increased of 10 mm
** Supplied from Ø 16 to Ø 25
*** Supplied for Ø 20 and Ø 25
**** Supplied only with non-magnetic piston type and standard piston rod

ORDER EXAMPLES

Basic cylinder Ø16, 50 mm stroke, double acting, non-magnetic piston type 16/50 UDC

Basic cylinder Ø20, 50 mm stroke, double acting, magnetic piston type, cushioned 20/50 UDEX

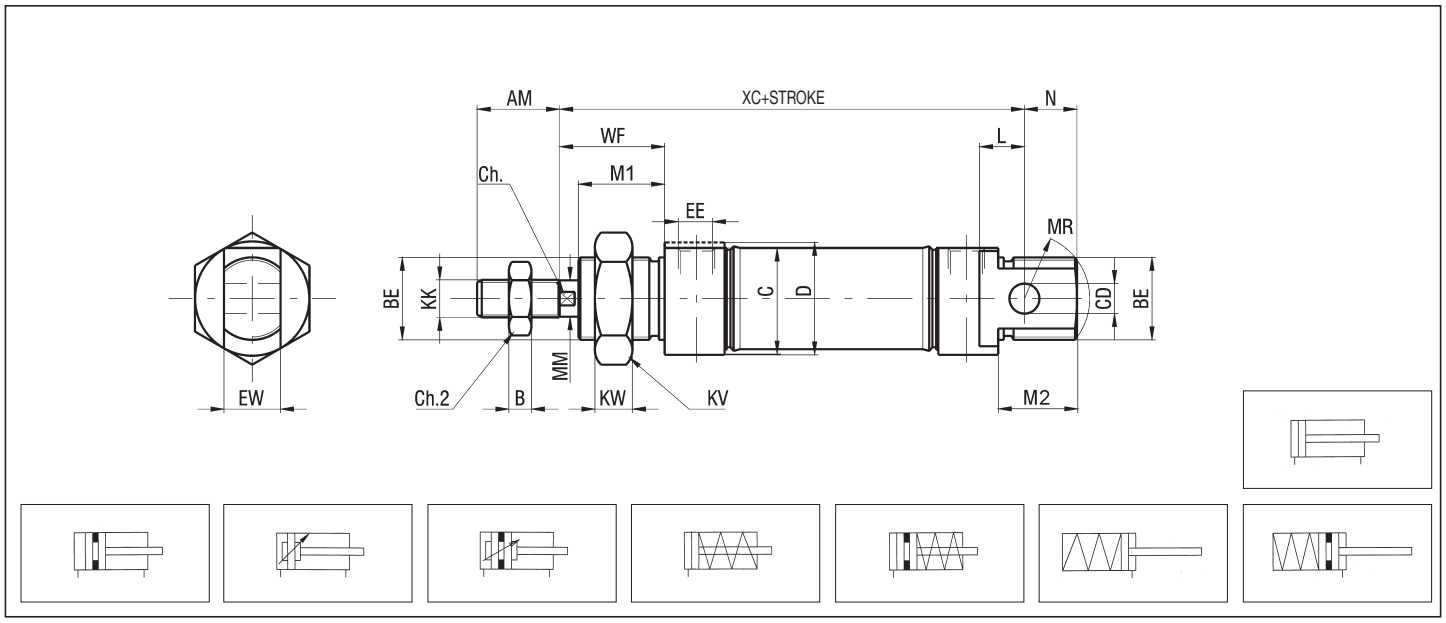
Cylinder Ø25, through rod, 100 mm stroke, double acting, magnetic piston type, cushioned 25R100 UDEX

Basic cylinder Ø25, 40 mm stroke, single acting rear spring, non-magnetic piston type, seals for high temperatures 25/40 UYC2

series U

Cylinders to ISO 6432 standard

U BASIC CYLINDER



P.S.: End cap nut and rod nut supplied as standard

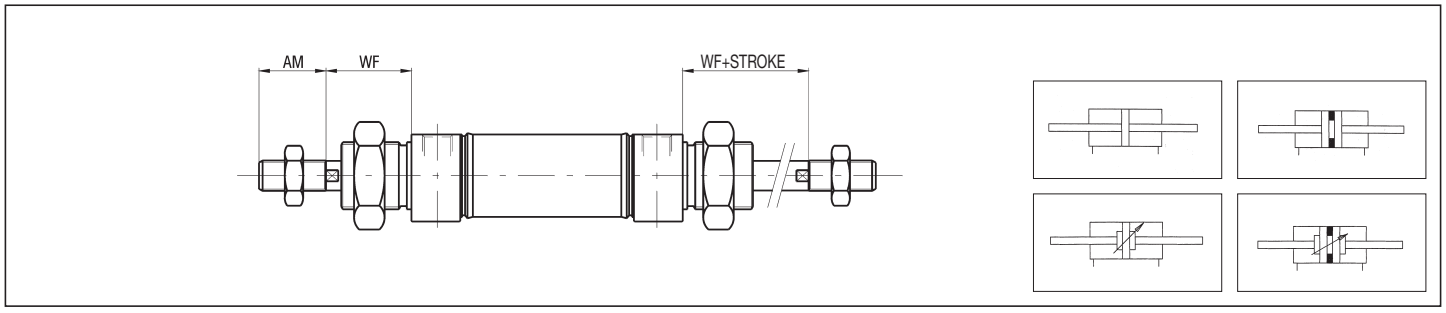
DIMENSIONS AND WEIGHTS BASIC CYLINDER

Ø	AM*	B	BE*	C	CD* *H9*	Ch*	Ch2	D*	EE*	ES	EW* *d13*	KK	KV	KW*	L*	LB	M1	M2	MM	MR*	N	WB	WF*	XC* ▲	WEIGHT *(g)*	INCR. *(g) x 10 mm*
8	12	3	M12x1,25	15	4	-	7	16	M5	-	8	M4	19	6	6	60	14	12	4	9	8	-	16	64	28,3	2
10	12	3	M12x1,25	15	4	-	7	16	M5	-	8	M4	19	6	6	60	14	12	4	9	8	-	16	64	29,2	2,3
12	16	4	M16x1,5	18	6	5	10	19	M5	-	12	M6	24	8	9	70	19	19	6	12	12	-	22	75	55,3	3,7
16	16	4	M16x1,5	18	6	5	10	21	M5	-	12	M6	24	8	9	77	18	18	6	12	12	-	22	82	63	4,2
20	20	5	M22x1,5	25	8	7	13	26	G 1/8	8	16	M8	30	10	12	91	19	20	8	15	13	71	24	95	138	9,1
25	22	6	M22x1,5	28,5	8	9	17	30	G 1/8	10	16	M10x1,25	30	10	12	100	23	22	10	18	15	73	28	104	188,5	12,5

* STANDARD DIMENSIONS

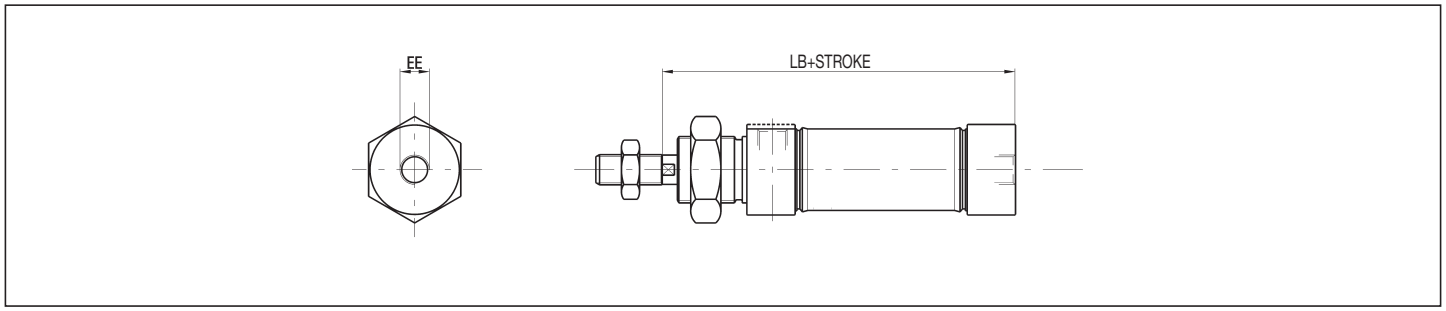
▲ Dimension “XC” for version “YE” is increased of 10 mm

THROUGH ROD



P.S.: End cap nuts and rod nuts supplied as standard

FLAT END CAP (REAR AXIAL FEED NOT INDICATED IN THE ISO 6432 STANDARD)

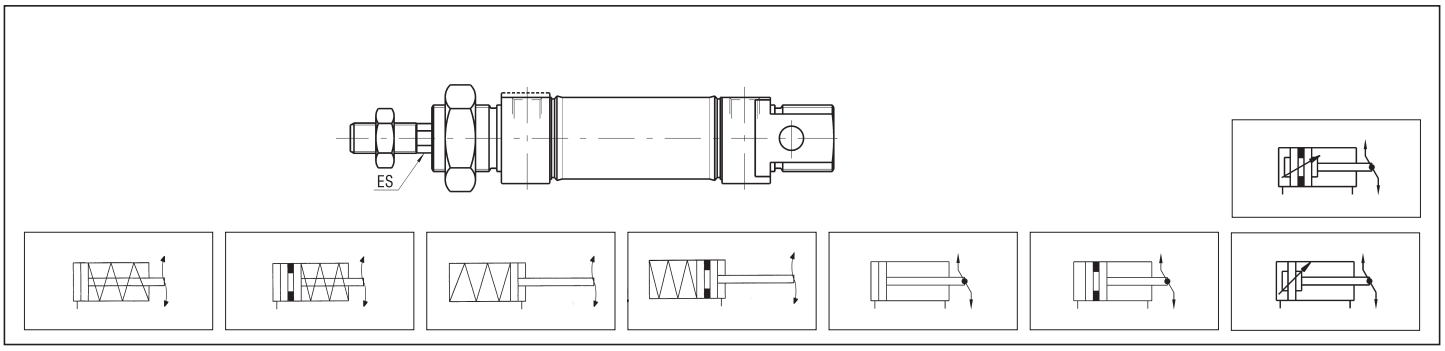


P.S.: End cap nut and rod nut supplied as standard

Cylinders to ISO 6432 standard

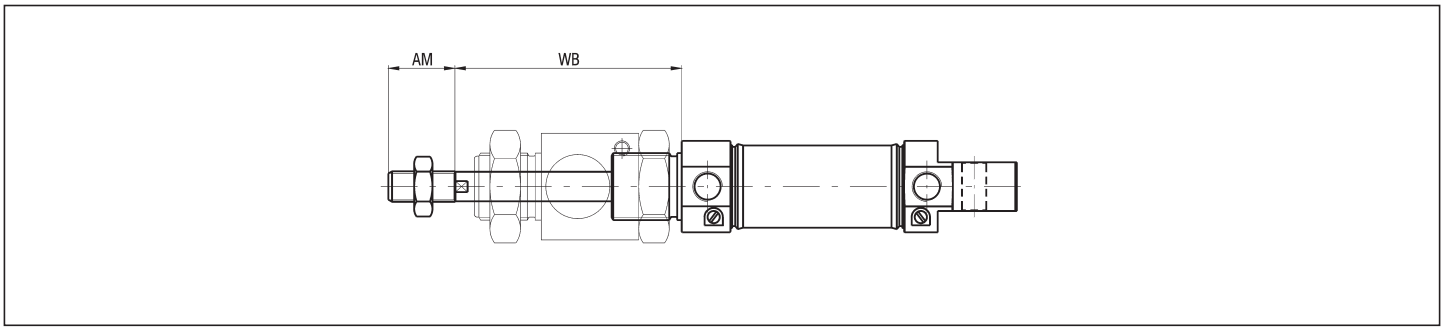
series U

NON-ROTATING HEXAGON PISTON ROD



P.S.: End cap nut and rod nut supplied as standard

FIT FOR PISTON ROD LOCKING UNIT

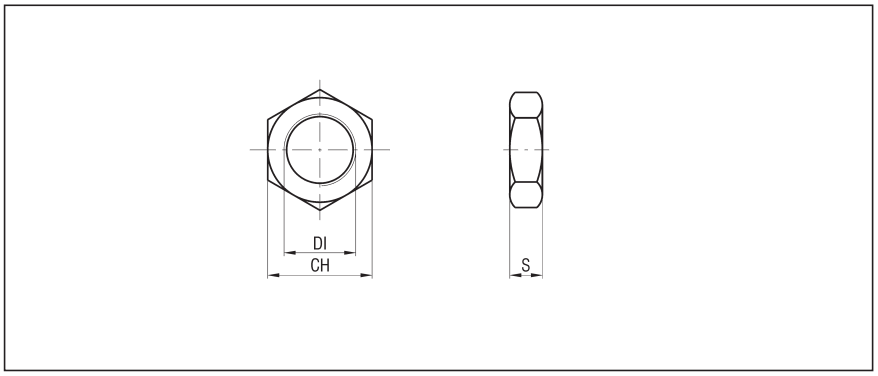


P.S.: End cap nut and rod nut supplied as standard

END CAP NUT - STEEL - UDT Ø

Ø	DI	CH	S	WEIGHT (g)
8-10	M12x1,25	19	6	7
12-16	M16x1,5	24	8	16
20-25	M22x1,5	30	10	25

AISI 304 STAINLESS STEEL
SUPPLIED UPON REQUEST
(SEE PAGE 1.17)



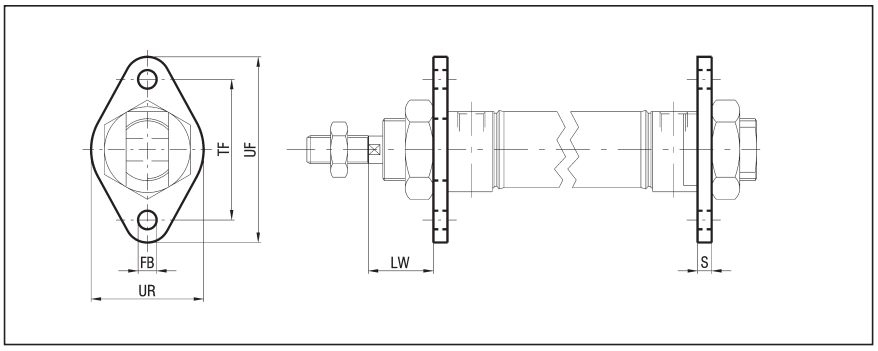
series U

Accessories
Fixings for cylinders to ISO 6432 standard

FLANGE - STEEL - UF Ø

Ø	FB *H13*	LW	S	TF *JS13*	UF	UR	WEIGHT *(g)*
8-10	4,5	13	3	30	39	19	5
12-16	5,5	18	4	40	54	30	10
20	6,6	19	5	50	64	36	20
25	6,6	23	5	50	64	36	20

AISI 304 STAINLESS STEEL SUPPLIED UPON REQUEST
(SEE PAGE 1.17)

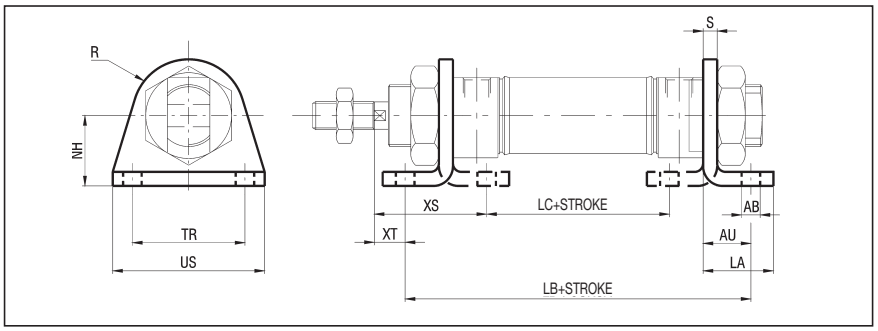


FOOT - STEEL - UP Ø

Ø	AB *H13*	AU	LA	LB	LC	NH	R
8-10	4,5	9,5	14	64	28	16	9,5
12-16	5,5	12	19	74-81	28-35	20	13
20	6,6	13	21,5	91	45,5	25	18
25	6,6	13	21,5	95	49,5	25	18

Ø	S	TR *JS13*	US	XS	XT	WEIGHT *(g)*
8-10	1,5	25	34	24	6,5	10
12-16	2	32	46	32	10	25
20	2,5	40	54	35	11	40
25	2,5	40	54	39	15	40

AISI 304 STAINLESS STEEL SUPPLIED UPON REQUEST
(SEE PAGE 1.17)

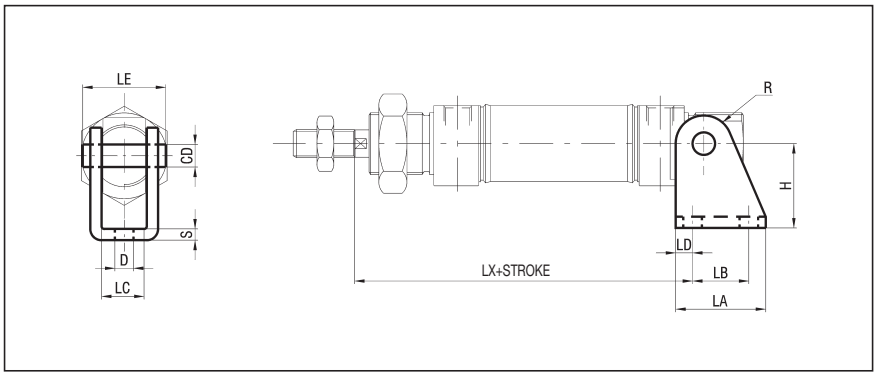


REAR HINGE - STEEL - USC Ø

Ø	CD *f8*	D *H13*	H	LA	LB *JS13*	LC *E9*	LD
8-10	4	4,5	24	20	12,5	8,1	3,75
12	6	5,5	27	25	15	12,1	5
16	6	5,5	27	25	15	12,1	5
20	8	6,6	30	32	20	16,1	6
25	8	6,6	30	32	20	16,1	6

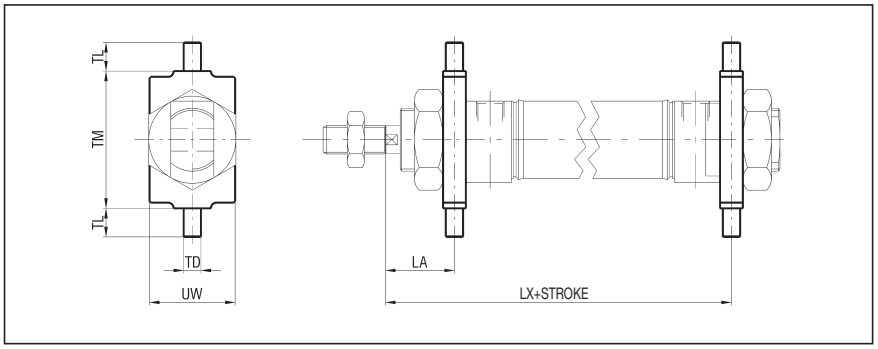
Ø	LE	LX	R	S	WEIGHT *(g)*
8-10	17	62,75	5	2,5	20
12	25	73	7	3	36
16	25	80	7	3	36
20	29,5	91	10	4	78
25	29,5	100	10	4	78

AISI 304 STAINLESS STEEL SUPPLIED UPON REQUEST
(SEE PAGE 1.17)



FLOATING HINGE - STEEL - UCT Ø

Ø	LA	LB	TD	TL	TM	UW	WEIGHT *(g)*
8-10	13	64	4	6	26	20	17
12-16	14	76-83	6	10	38	25	35
20	20	93	6	10	46	30	45
25	24	101	6	10	46	30	45



Accessories

Piston rod locking unit for cylinders to ISO 6432 standard

series WBZ

DESCRIPTION

Piston rod locking unit series "WBZ" is a mechanical device to fit on ISO 6432 cylinders (series "U" and "UP"); its function is to lock the piston rod in any position. This solution allows to lock the cylinder stroke each time that there's a pressure fall. Locking force is, in any case, higher than the force given off by the cylinder fed at 10 bar. It has static operation (cylinder piston rod not moving); it's necessary to preliminary stop the cylinder piston rod before proceeding with mechanical locking. Piston rod locking unit series "WBZ" must not be considered as a safety device.

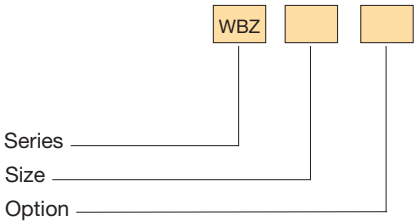
TECNICAL DATA

Operating pressure	3 ÷ 6 bar with cylinder feed pressure 0 ÷ 10 bar
Working temperature	0 ÷ +80 °C (-5 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Size	20, 25
Port size	20 - 25 = M5
Locking Type	Mechanical - Only axial (bi-directional)
Release	Through pneumatic control
Condition in absence of pressure	Locked
Locking force with static load	Size 20 25 N 490 490

MATERIALS

Body	Anodized alluminium alloy
Blades	Brass
Pistons	Acetal resin
Seals	NBR rubber
Springs	Steel

ORDER KEY



OPTION

G Fit for assembly with guide units series "WUG"*

* Feeding is rotated of 90°

ORDER EXAMPLES

Piston rod locking unit, size 20
WBZ20
Piston rod locking unit, size 25 + cylinder series "U" Ø25, fit for piston rod locking unit, 150 mm stroke, double acting, non-magnetic piston type, ASSEMBLED:
WBZ25 + 25/150 UDCZ + M/WBZ

ASSEMBLY

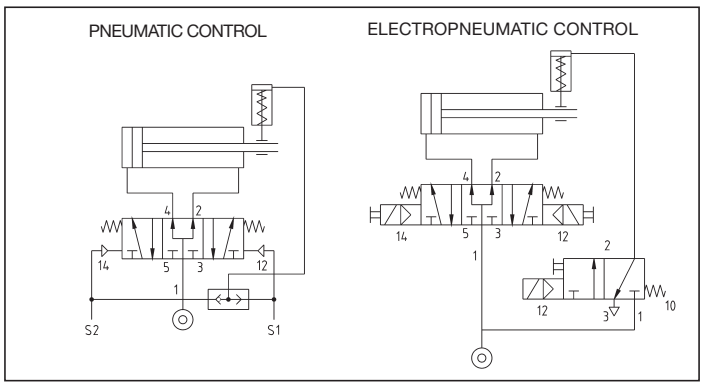
"WBZ" + cylinders series "U" or "UP", "Z" version	M/WBZ

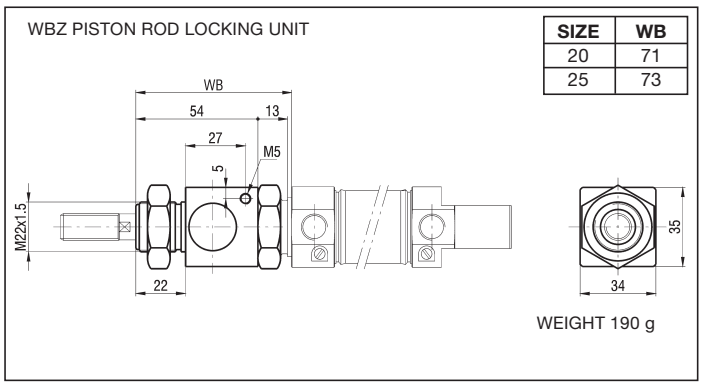
SPARE PARTS

BLADES KIT	Size /PM/WBZ
PISTON KIT	Size /SG/WBZ

TECHNICAL INFORMATION

"WBZ" operation is based on the action of two opposed blades. When these blades are opened up by suitably loaded springs, they oppose the sliding movement of the piston rod passing through them. It is advisable to balance the pressure in the cylinder chambers during piston rod locking phase in order to increase its working life with a 5/3 pressure centre valve (see the schemes here below).





SIZE	WB
20	71
25	73

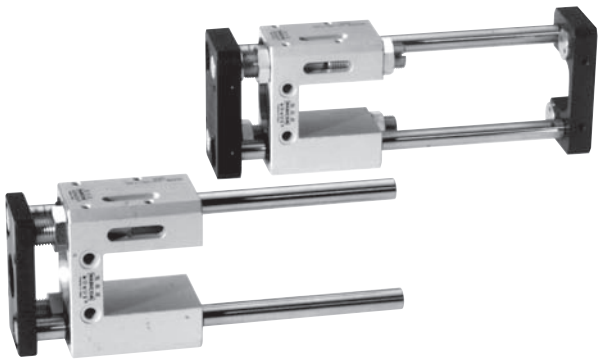
series WUG

Accessories
Guide units for cylinders to ISO 6432 standard

DESCRIPTION

Guide units series “WUG” for cylinders to ISO 6432 standard act as devices against rotation of the piston rod in the presence of torques and they are used to carry out multi-axis systems where high movement precision is required.
Guide units are available in single and double version, and are supplied with self-lubricating bushings (for low speeds or heavy loads), or with recirculating ball bearing sleeves (for high speeds).

P.S.: Cylinders series “U” (Ø 12 ÷ 25) and “UP” (Ø 16 ÷ 25) in the magnetic version, assembled with these guide units, can accept exclusively magnetic sensors type FM157 (see from page 1.97).



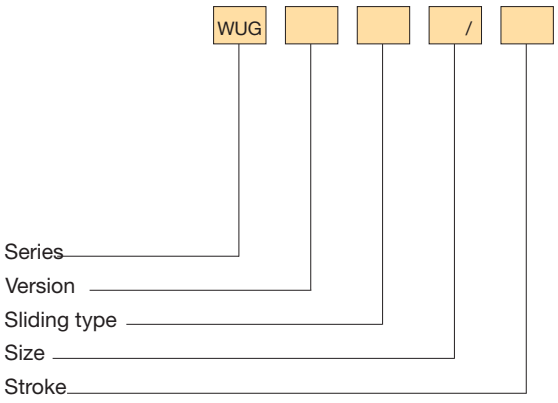
TECHNICAL DATA

Size	12 - 16, 20 - 25
Standard strokes (mm)	50, 100, 150, 200, 250, 300, 350, 400, 450, 500
Versions	Single unit Double unit

MATERIALS

Body	Anodized aluminium alloy
Self-aligning radial joint	Steel
Adjustable mechanical stop as standard	Brass
End flanges	Single unit: galvanized steel Double unit: anodized aluminium alloy
Guide bars	C45 chromium-plated steel (sliding type on bushings) Hardened steel (sliding type with sleeves)
Bushings	Self-lubricating sintered bronze with wiper ring
Sleeves	Recirculating ball bearings with wiper ring
Clamp	Brass

ORDER KEY



VERSION			
	Singler unit	D	Double unit
SLIDING TYPE			
B	On bushings	M	With sleeves*

* Supplied only with size 20 - 25

ORDER EXAMPLES

Single guide unit, size 20 - 25, 150 mm stroke, with sleeves + cylinder series ”UP” Ø 25, 150 mm stroke, double acting, magnetic piston type, ASSEMBLED
WUGM 20 - 25/150 + 25/150 UPDE + M/WUG

Single guide unit, size 12 - 16, 100 mm stroke, on bushings
WUGB 12 - 16/100

Double guide unit, size 20 - 25, 100 mm stroke, with sleeves
WUGDM 20 - 25/100

ASSEMBLY

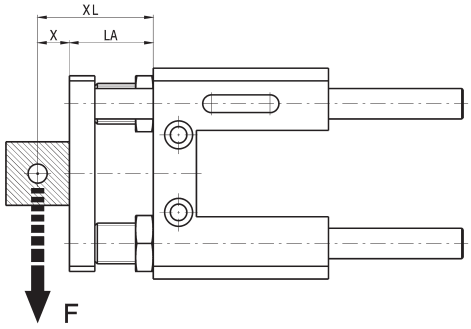
“WUG” + cylinders series “U” or “UP” (Ø 16 ÷ 25)	M/WUG

Accessories
Guide units for cylinders to ISO 6432 standard

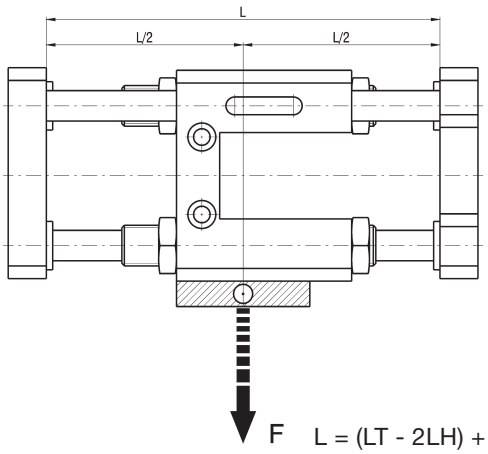
series WUG

TECHNICAL INFORMATION

WUG SINGLE GUIDE UNIT

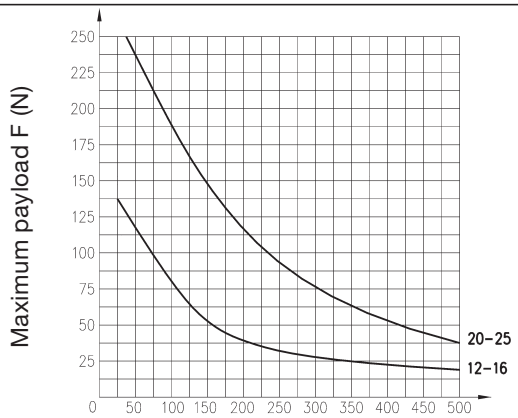


WUGD DOUBLE GUIDE UNIT

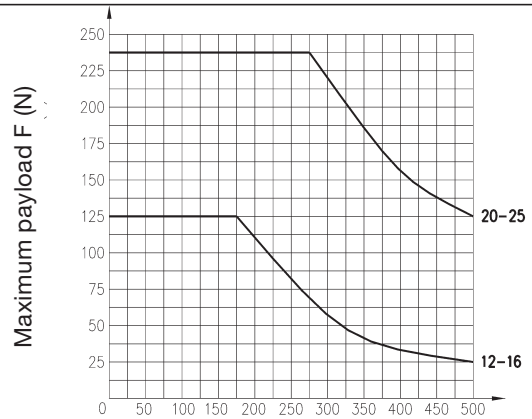


L = (LT - 2LH) + STROKE

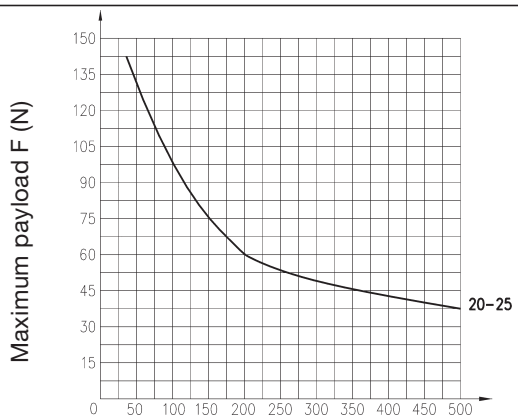
MAXIMUM PERMISSIBLE LOAD-WUG VERSION B



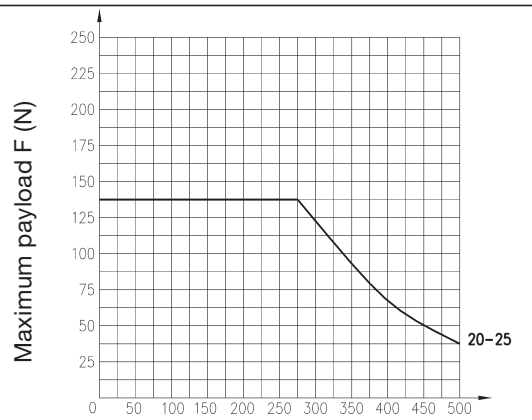
MAXIMUM PERMISSIBLE LOAD-WUGD VERSION B



MAXIMUM PERMISSIBLE LOAD-WUG VERSION M



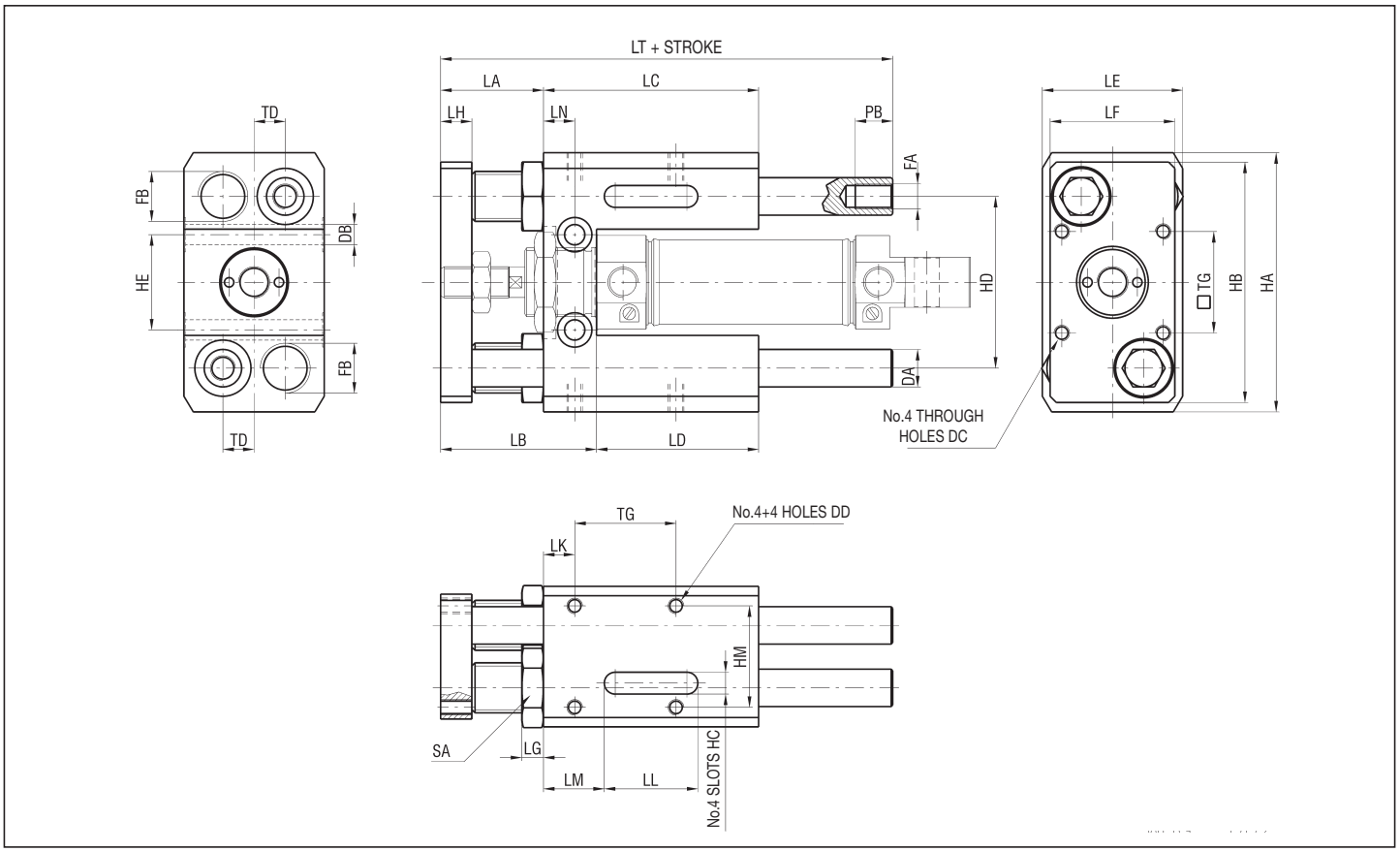
MAXIMUM PERMISSIBLE LOAD-WUGD VERSION M



series WUG

Accessories
Guide units for cylinders to ISO 6432 standard

WUG SINGLE GUIDE UNIT



DIMENSIONS AND WEIGHTS

SIZE	DA		DB	DC	DD	FA		FB	HA	HB	HC	HD	HE	HM	LA	LB	LC	LD	LE	LF	LG	LH
12-16	10		5,2	M4	M5	M6		M12x1,25	65	60	6	47	24	32,5	25	28	60	47	40	35	7	10
20	**B**12	**M**10	6,5	M4	M5	**B**M8	**M**M6	M16x1,5	83	77	7	55	30,5	32,5	27	44	69	52	45	40	7	10
25	**B**12	**M**10	6,5	M4	M5	**B**M8	**M**M6	M16x1,5	83	77	7	55	30,5	32,5	32	50	69	52	45	40	7	10

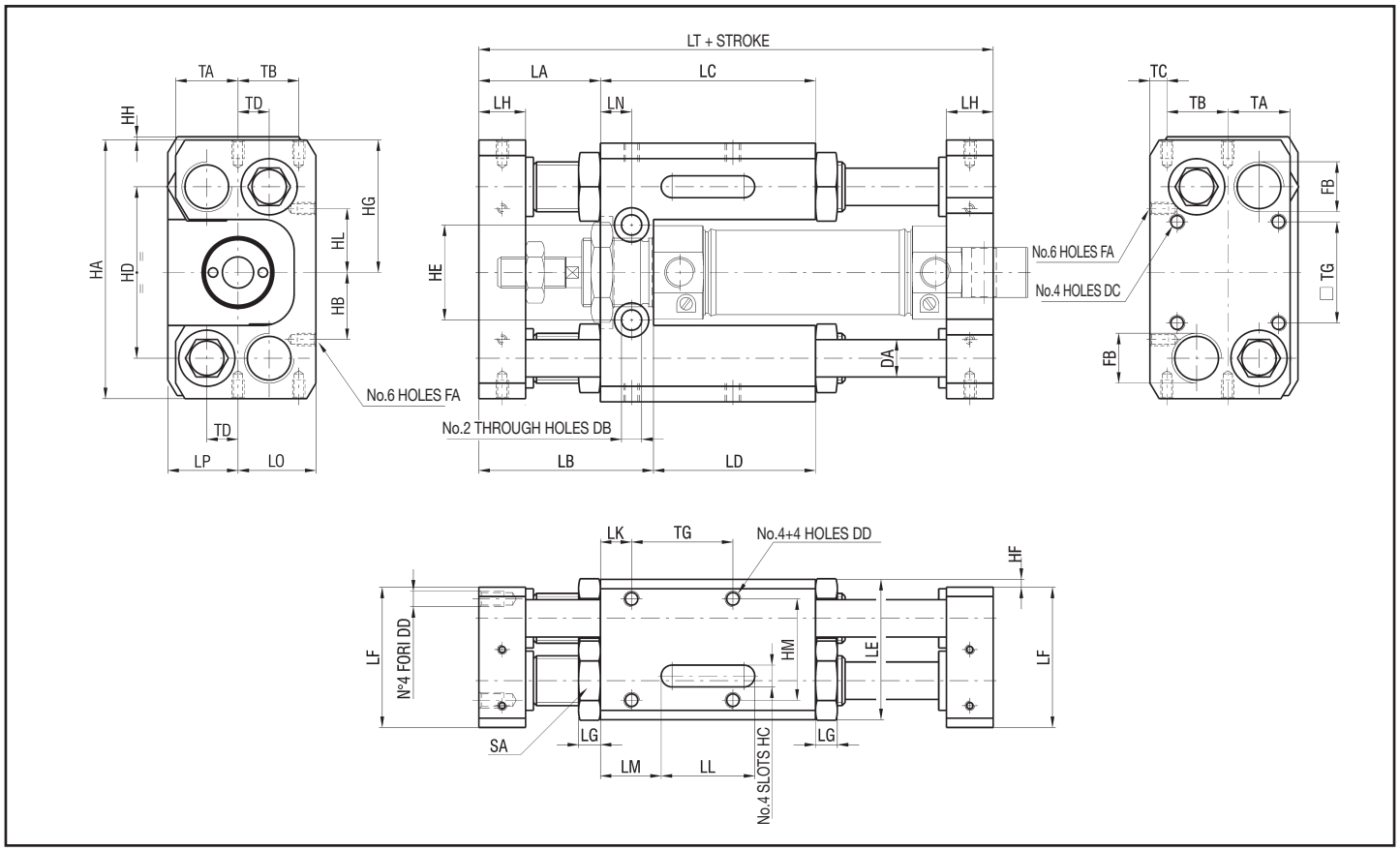
SIZE	LK	LL	LM	LN	LT	PB	SA	TD	TG	WEIGHT *(g)*		INCREM. *(g) every 10 mm*	
12-16	19	16	22	6,5	100	12	Ch.14	8,5	22	690		12	
20	10	30	19,5	10	115	12	Ch.21	10	32,5	**B**890	**M**830	**B**17	**M**12
25	10	30	19,5	10	115	12	Ch.21	10	32,5	**B**890	**M**830	**B**17	**M**12

B - Bushings
M - Sleeves

Accessories
Guide units for cylinders to ISO 6432 standard

series WUG

WUGD DOUBLE GUIDE UNIT



DIMENSIONS AND WEIGHTS

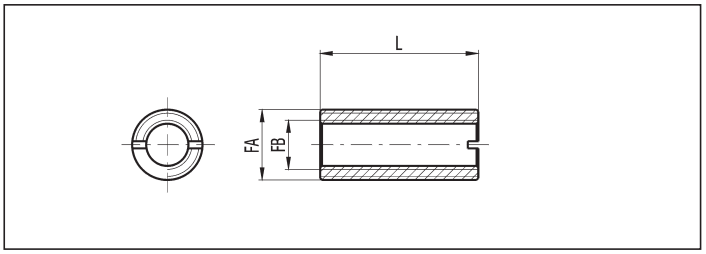
SIZE	DA		DB	DC	DD	FA	FB	HA	HB	HC	HD	HE	HF	HG	HH	HL	HM	LA	LB	LC	LD	LE
12-16	10		5,2	M4	M5	M4	M12x1,25	65	18	6	47	24	1,3	30,5	1	18	32,5	30	43	60	47	40
20	**B**12	**M**10	6,5	M4	M5	M4	M16x1,5	83	21,5	7	55	30,5	2,5	40,5	1	20,5	32,5	33	50	69	52	45
25	**B**12	**M**10	6,5	M4	M5	M4	M16x1,5	83	21,5	7	55	30,5	2,5	40,5	1	20,5	32,5	39	56	69	52	45

SIZE	LF	LG	LH	LK	LL	LM	LN	LO	LP	LT	SA	TA	TB	TC	TD	TG	WEIGHT *(g)*		INCREM. *(g) every 10 mm*	
12-16	40	7	15	19	16	22	6,5	22,5	19	120	Ch.14	17,5	17,5	5	8,5	22	740		12	
20	45	7	15	10	30	19,5	10	25	22,15	135	Ch.21	20	19,5	5,5	10	32,5	**B**1170	**M**1110	**B**18	**M**12
25	45	7	15	10	30	19,5	10	25	22,15	135	Ch.21	20	19,5	5,5	10	32,5	**B**1170	**M**1110	**B**18	**M**12

B - Bushings
M - Sleeves

CLAMP FOR DECELERATOR WUGCD SIZE

SIZE	FA	FB	L	WEIGHT *(g)*
12-16	M12x1,5	M8x1	35	20
20-25	M16x1,5	M8x1	40	50



CLAMP FOR MAGNETIC PROXIMITY WUGCP SIZE

SIZE	FA	FB	L	WEIGHT *(g)*
12-16	M12x1,5	M8x1	25	12
20-25	M16x1,5	M8x1	25	31

series P

DESCRIPTION

Cylinders series "P" are produced with a round profile design from Ø 32 to Ø 63. They are available in the basic version, with rear axial feed, with adjustable cushions and fitted for the use with magnetic sensors.

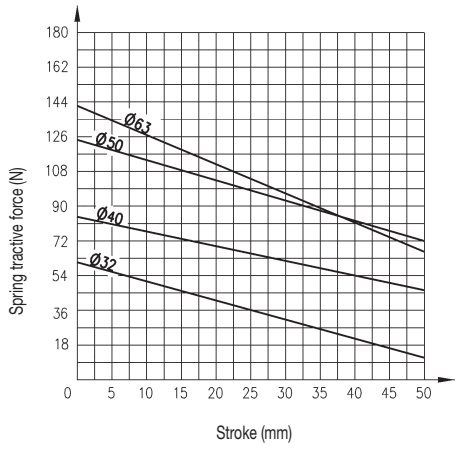
TECHNICAL DATA

Operating pressure	1÷10 bar
Working temperature	0 ÷ +80 °C (-20 °C with dry air) 0 ÷ +150 °C with seals for high temperature (-10 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Versions	Double acting; Single acting front spring; Single acting rear spring; Through rod; Flat rear cap (rear axial feed); Reduced flat rear cap
Bore	Ø 32, 40, 50, 63
Port size	Ø 32 = G 1/8 Ø 40 - 50 = G 1/4 Ø 63 = G 3/8
Standard strokes (mm)	10, 25, 50, 75, 80, 100, 125, 150, 160, 175, 200, 250, 300, 320, 350, 400, 450, 500
Decelerators lenght	Ø 32 40 50 63 mm 29 35 40 40
Max strokes (mm)	Ø 32 ÷ 63 = 1000
Max strokes single act. (mm)	Ø 32 ÷ 63 = 50

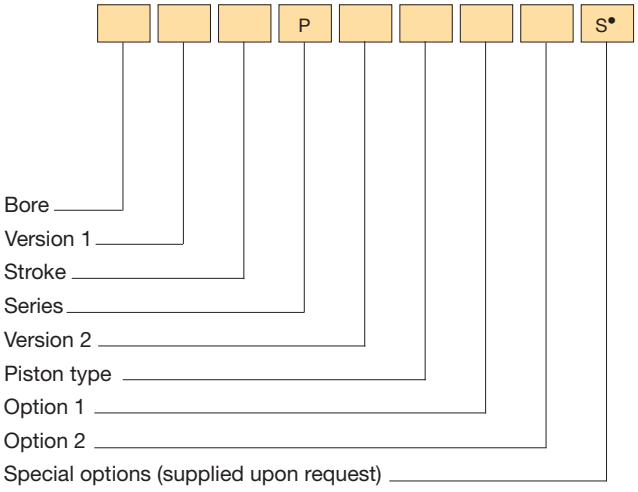
MATERIALS

End caps	Anodized alluminium alloy
Cylinder barrel	Extruded tube, AISI 304 stainless steel
Barrel-end cover fixing type	Irreversible calking with dual-seal system, mechanical and pneumatic
Piston rod	C45 chromium-plated steel AISI 303 rolled stainles steel
Rod nut and ring nut	Steel Stainless steel (supplied upon request for the ring nut)
Decelerator ogives	Anodized alluminium alloy
Piston rod bearing	Self lubricating sintered bronze
Piston	Alluminium alloy with acetal resin piston bearing (supplied with and without magnet)
Piston seals	Polyurethane - Viton®
Springs	Spring steel

SPRING THEORETICAL TRACTIVE FORCE



ORDER KEY



N.B.: *Magnetic sensors* FM 100 - FM157 (see chapter magnetic sensors from page 1.93)

• See technical data on page 0.12

VERSION 1

/	Basic cylinder	R	Through rod
H	Flat rear cap (rear axial feed)	C	Reduced flat rear cap*

VERSION 2

D	Double acting	Y	Single acting rear spring**
S	Single acting front spring		

PISTON TYPE

C	Non-magnetic	E	Magnetic

OPTION 1

X	Cushioned

OPTION 2

1	Stainless steel piston rod and rod nut	3	Stainless steel piston rod and rod nut, and seals for high temperature***
2	Seals for high temperature***		

* Not available in the option "X"

** Different dimensions from the versions "D" and "S"; contact the commercial office

*** Supplied only with non-magnetic piston type

ORDER EXAMPLES

Basic cylinder Ø32, 50 mm stroke, double acting, non magnetic piston type 32/50 PDC

Basic cylinder Ø40, 50 mm stroke, double acting, magnetic piston type, cushioned 40/50 PDEX

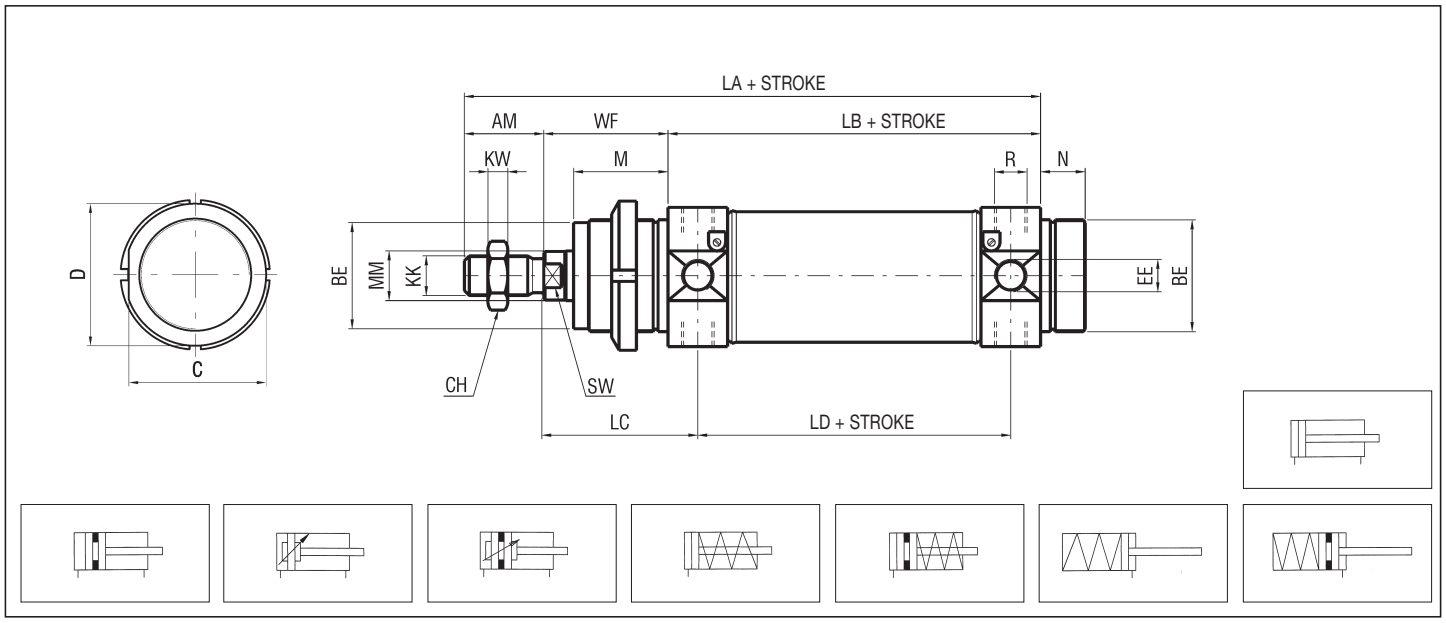
Cylinder Ø50, through rod, 100 mm stroke, double acting, magnetic piston type, cushioned 50R100 PDEX

Basic cylinder Ø50, 40 mm stroke, single acting rear spring, non magnetic piston type, seals for high temperature 50/40 PYC2

Round cylinders

series P

P BASIC CYLINDER

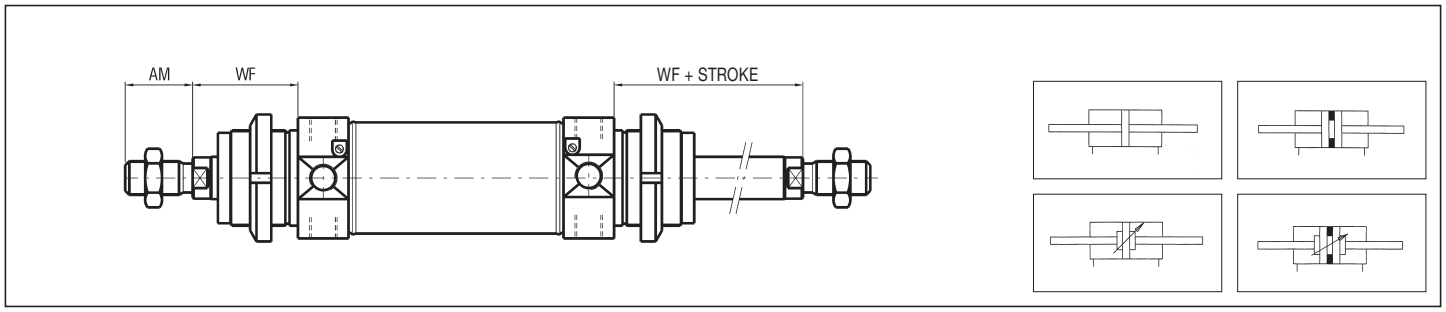


P.S.: End cap ring nut and rod nut supplied as standard

DIMENSIONS AND WEIGHTS BASIC CYLINDER

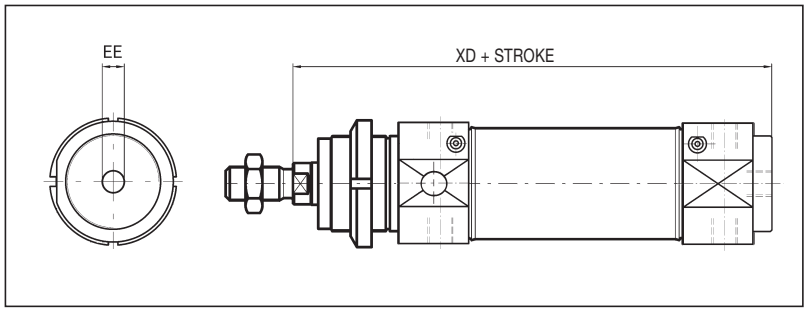
Ø	AM	BE	C	CH	D	EE	KK	KW	LA	LB	LC	LD	M	MM	N	R	SW	WF	XC	XD	WEIGHT (g)	INCR. (g) x 10 mm
32	20	M30x1,5	36,5	17	38	G1/8	M10x1,25	6	154	96	47	78	30	12	14	M8x1	10	38	134	140	386	16
40	24	M38x1,5	44	19	46	G1/4	M12x1,25	7	182	113	57	89	35	16	16	M10x1	12	45	158	163	690	26
50	32	M45x1,5	55	24	57	G1/4	M16x1,5	8	202	120	62	96	38	20	18	M12x1,5	16	50	170	176	1265	34
63	32	M45x1,5	67,5	24	70	G3/8	M16x1,5	8	206	124	63	98	38	20	18	M14x1,5	24	50	174	180	1750	50

THROUGH ROD



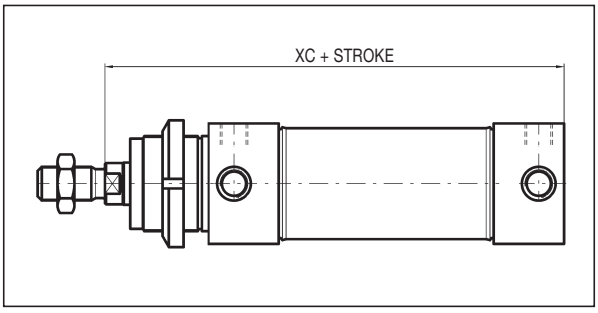
P.S.: End cap ring nuts and rod nuts supplied as standard

FLAT END CAP (REAR AXIAL FEED)



P.S.: End cap ring nut and rod nut supplied as standard

REDUCED FLAT REAR CAP

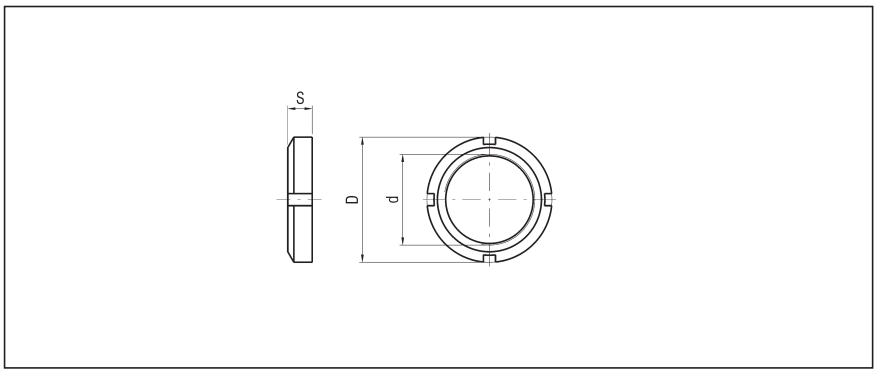


P.S.: End cap ring nut and rod nut supplied as standard

RING NUT - STEEL - PG Ø

Ø	d	D	S	WEIGHT (g)
32	M30x1,5	42	8	43
40	M38x1,5	50	10	80
50-63	M45x1,5	60	10	122

AISI 304 STAINLESS STEEL SUPPLIED UPON REQUEST
(SEE PAGE 1.19)

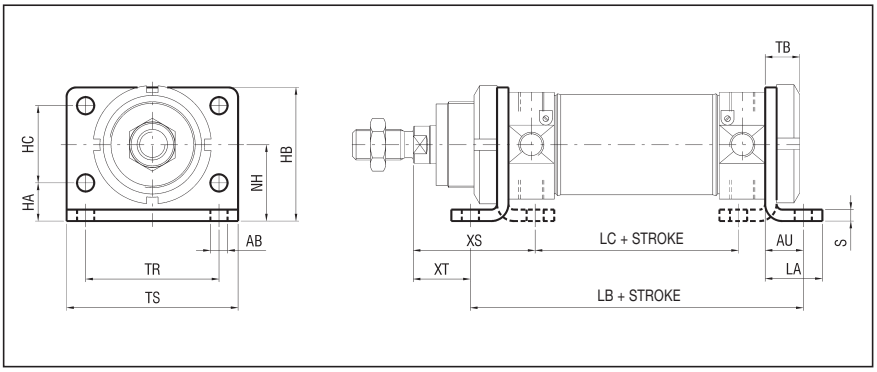


FLANGE/FOOT - STEEL - PFP Ø

Ø	AB	AU	HA	HB	HC	LA	LB	LC
32	7	14	14	49	28	21	124	76
40	9	20	18	58	30	30	153	83
50	9	20	20	70	40	30	160	92
63	9	20	20	80	50	30	164	96

Ø	NH	S	TB	TR	TS	XS	XT	WEIGHT (g)
32	28	4	14	52	66	48	24	98
40	33	5	20	60	88	60	25	183
50	40	6	20	70	90	64	30	276
63	45	6	20	76	96	64	30	395

AISI 304 STAINLESS STEEL SUPPLIED UPON REQUEST
(SEE PAGE 1.19)

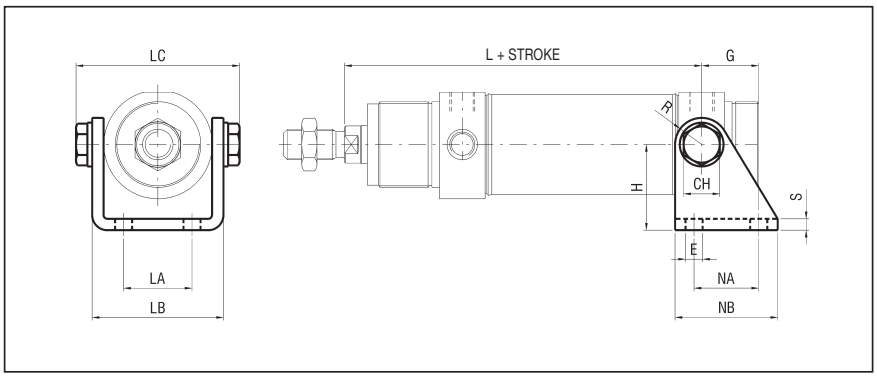


REAR HINGE - STEEL - PSC Ø

Ø	CH	E	G	H	L	LA	LB
32	13	7	20	34	125	20	46,1
40	17	9,5	27	38	146	28	56,1
50	19	10	30	44	158	36	69,1
63	19	10	34	50	161	42	82,1

Ø	LC	NA	NB	R	S	WEIGHT (g)
32	58	24	40	8	4	150
40	70	30	50	9,5	5	259
50	86	34	54	10	6	403
63	100	35	65	10	6	520

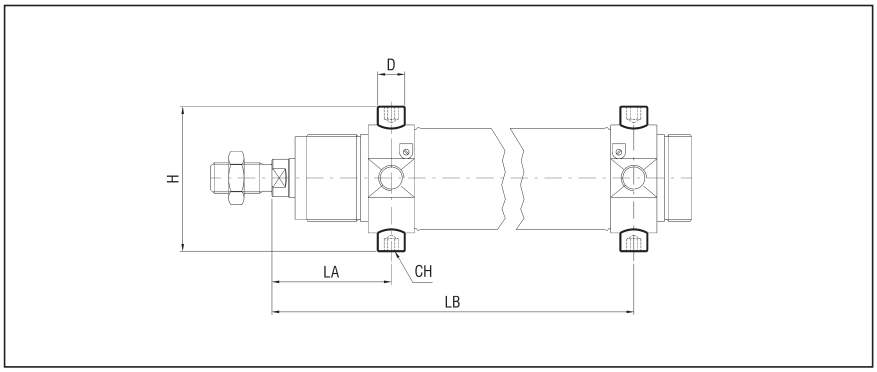
AISI 304 STAINLESS STEEL SUPPLIED UPON REQUEST
(SEE PAGE 1.19)



PIVOT (pair) - STEEL - PT Ø

Ø	D	H	LA	LB	CH	WEIGHT (g)
32	10	51	47	125	6	10
40	12	64	57	146	6	20
50	14	75	62	158	6	40
63	16	90	63	161	8	65

AISI 304 STAINLESS STEEL SUPPLIED UPON REQUEST
(SEE PAGE 1.19)



Stainless steel round cylinders with techno-polymer end caps (to ISO 6432 standard for Ø 16 ÷ 25)

series UP

DESCRIPTION

Cylinders series "UP" are born as technological efficient reply to the always new needs of different industrial fields. They are available from Ø 16 to Ø 50 among which Ø 16 ÷ 25 comply with ISO 6432 standard. These actuators set themselves as a valid yet economic alternative to cylinders completely made in stainless steel, in many "special" applications (as for example food, chemical and pharmaceutical industry...) and/or aggressive environments. In fact, the peculiar feature of this series is represented by the material used for the realization of the end caps: it's a special techno-polymer that assures adequate mechanical properties.

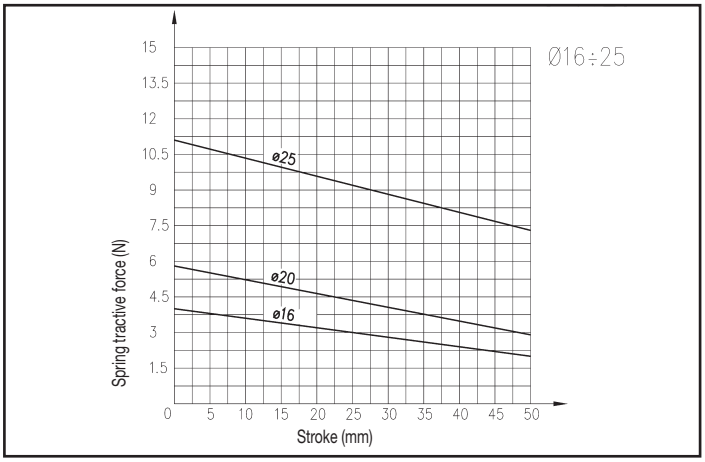
TECHNICAL DATA

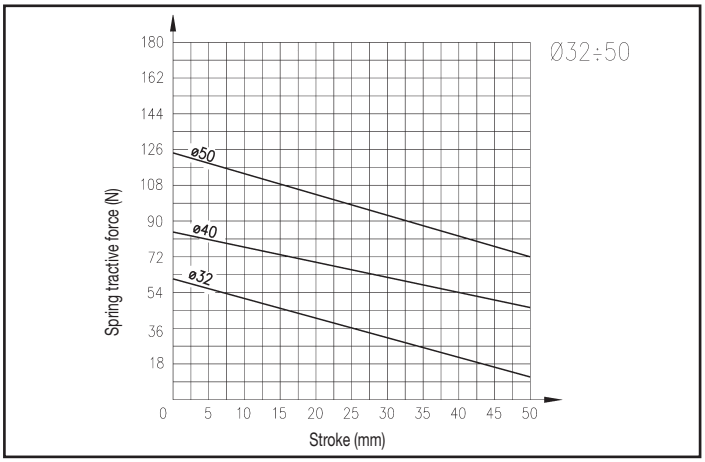
Operating pressure	1 ÷ 10 bar
Working temperature	0 ÷ +70 °C (- 20 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Versions	Double acting, Single acting front spring, Single acting rear spring, through rod
Bore	Ø 16, 20, 25, 32, 40, 50
Port size	Ø 16 = M5 Ø 20 ÷ 32 = G1/8 Ø 40 - 50 = G1/4
Standard strokes (mm)	10, 25, 50, 75, 80, 100, 125, 150, 160, 175, 200, 250, 300, 350, 400, 450, 500
Max strokes (mm)	Ø 16 = 250 Ø 20 ÷ 50 = 1000
Max strokes single act. (mm)	Ø 16 ÷ 50 = 50

MATERIALS

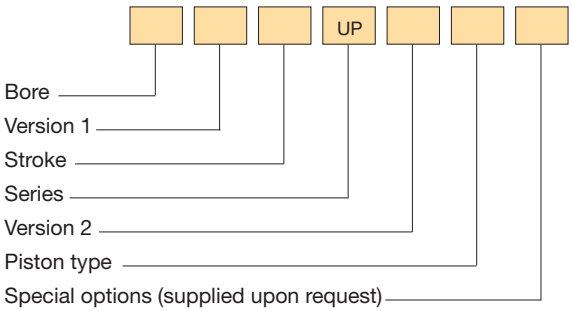
End caps	Techno-polymer
Cylinder barrel	Extruded tube, AISI 304 stainless steel
Barrel-end cover fixing type	Irreversible calking with dual-seal system, mechanical and pneumatic
Piston rod	AISI 303 rolled stainless steel
Rod, end cap and ring nuts	Stainless steel
Piston	Alluminium alloy with acetal resin piston bearing (supplied with and without magnet)
Seals	Polyurethane
Springs	Steel for springs

SPRING THEORETICAL TRACTIVE FORCE





ORDER KEY



N.B.: *Magnetic sensors* FM 100 - FM157 (see chapter magnetic sensors from page 1.93)

• See technical data on page 0.12

VERSION 1

/ Basic cylinder
R Through rod

VERSION 2

D Double acting
Y Single acting rear spring*
S Single acting front spring

PISTON TYPE

C Non-magnetic
E Magnetic

OPTION 1

Z Fit for piston rod locking unit**

* Dimension "XC" for version "YE" is increased of 10 mm for Ø 16 ÷ 25; for Ø 32 ÷ 50 contact our commercial office

** Supplied with Ø 20 and Ø 25

ORDER EXAMPLES

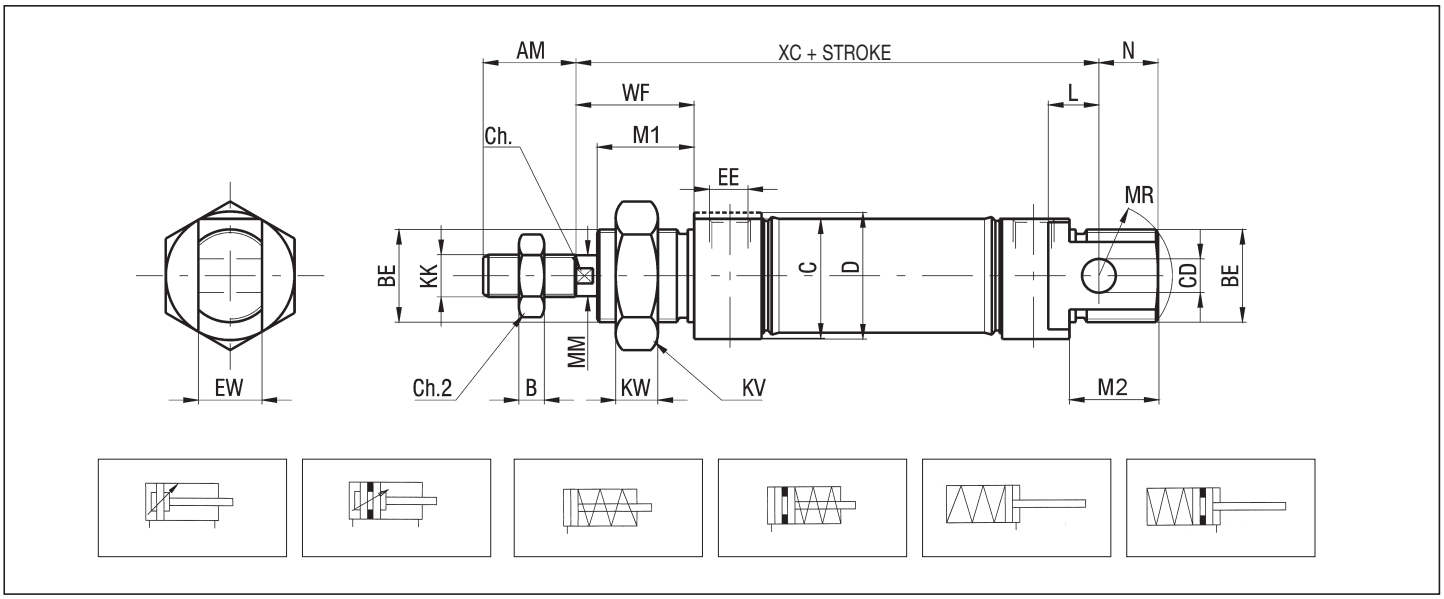
Cylinder Ø 20, through rod, 100 mm stroke, double acting, non-magnetic piston type 20R100 UPDC

Basic cylinder Ø 40, 50 mm stroke, single acting front spring, non-magnetic piston type 40/50 UPSC

series UP

Stainless steel round cylinders with techno-polymer end caps to ISO 6432 standard Ø 16 ÷ 25

UP BASIC CYLINDER Ø 16 ÷ 25 TO ISO 6432 STANDARD



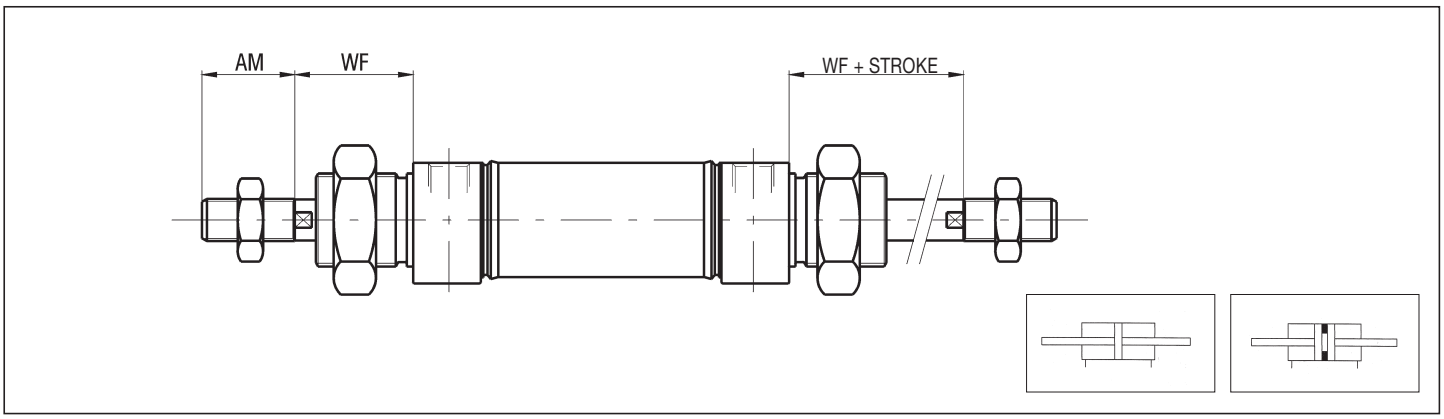
P.S.: End cap nut and rod nut supplied as standard in AISI 304 stainless steel

DIMENSIONS AND WEIGHTS BASIC CYLINDER UP Ø 16 ÷ 25

Ø	AM*	B	BE*	C	CD* *H9*	Ch*	Ch2	D*	EE*	ES	EW* *d13*	KK*	KV*	KW*	L*	LB	M1	M2	MM	MR*	N	WB	WF*	XC* ▲	PESO *(g)*	INCR.*(g) x10mm*
16	16	4	M16x1,5	18	6	5	10	21	M5	-	12	M6	24	8	9	77	18	18	6	12	12	-	22	82	63	4,2
20	20	5	M22x1,5	25	8	7	13	26	G 1/8	8	16	M8	30	10	12	91	19	20	8	15	13	71	24	95	138	9,1
25	22	6	M22x1,5	28,5	8	9	17	30	G 1/8	10	16	M10x1,25	30	10	12	100	23	22	10	18	15	73	28	104	188,5	12,5

* STANDARDIZED DIMENSIONS
▲ Dimension “XC” for version “YE” is increased of 10 mm

THROUGH ROD Ø 16 ÷ 25



P.S.: End cap nuts and rod nuts supplied as standard in AISI 304 stainless steel

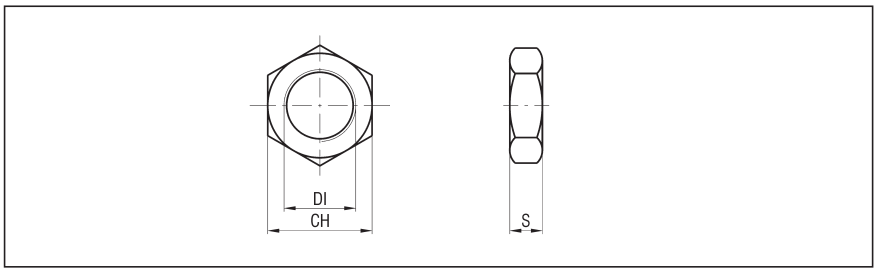
Accessories

AISI 304 stainless steel fixings for round cylinders to ISO 6432 standard Ø 16 ÷ 25

series UP

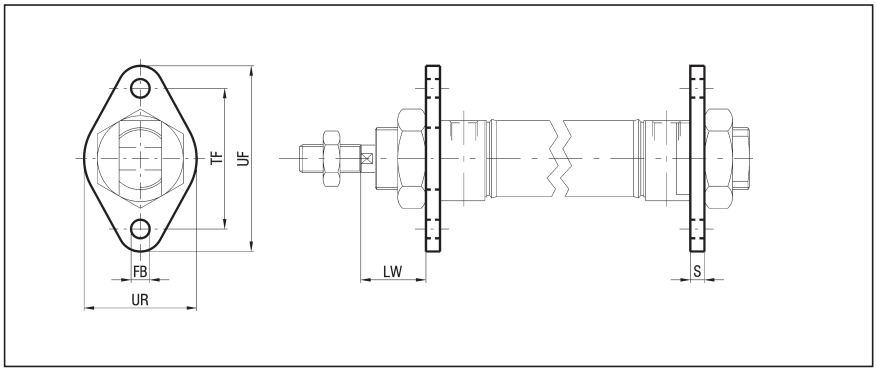
END CAP NUT - STAINLESS STEEL - UPDT Ø

Ø	DI	CH	S	WEIGHT (g)
16	M16x1,5	24	8	16
20-25	M22x1,5	30	10	25



FLANGE - STAINLESS STEEL - UPF Ø

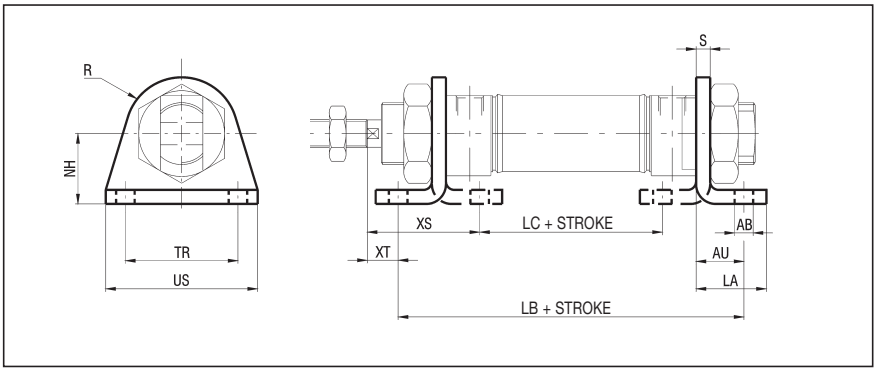
Ø	FB H13	LW	S	TF JS13	UF	UR	WEIGHT (g)
16	5,5	18	4	40	54	30	10
20	6,6	19	5	50	64	36	20
25	6,6	23	5	50	64	36	20



FOOT - STAINLESS STEEL - UPP Ø

Ø	AB H13	AU	LA	LB	LC	NH	R
16	5,5	12	19	74-81	28-35	20	13
20	6,6	13	21,5	91	45,5	25	18
25	6,6	13	21,5	95	45,5	25	18

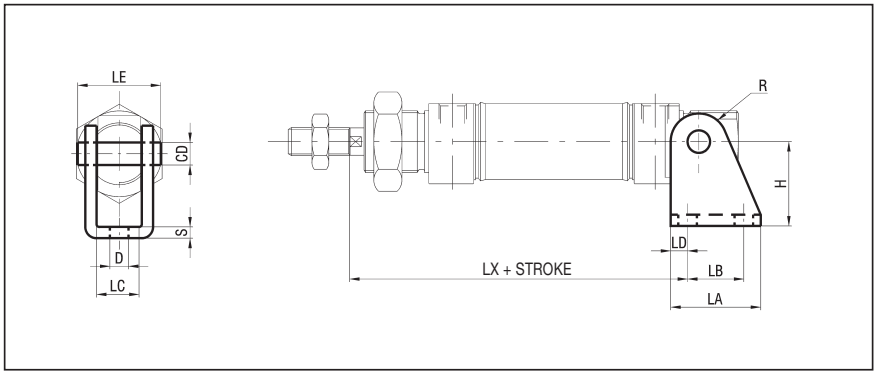
Ø	S	TR	US	XS	XT	WEIGHT (g)
16	2	32	46	32	10	25
20	2,5	40	54	35	11	40
25	2,5	40	54	39	15	40



REAR HINGE - STAINLESS STEEL - UPSC Ø

Ø	CD f8	D H13	H	LA	LB	LC E9	LD
16	6	5,5	27	25	15	12,1	5
20	8	6,6	30	32	20	16,1	6
25	8	6,6	30	32	20	16,1	6

Ø	LE	LX	R	S	WEIGHT (g)
16	25	80	7	3	36
20	29,5	91	10	4	78
25	29,5	100	10	4	78



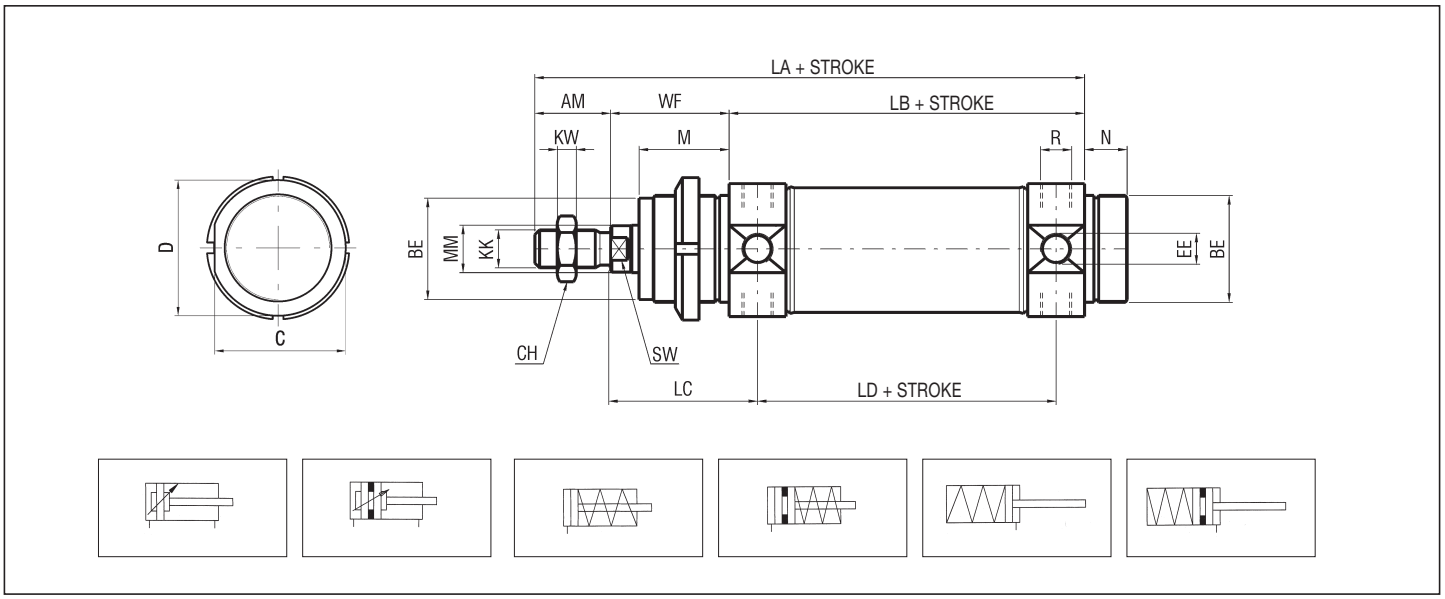
OTHER ACCESSORIES

- Piston rod locking unit series “WBZ” (see page 1.7)
- Guide unit series “WUG” (see page 1.8)

series UP

Stainless steel round cylinders with techno-polymer end caps Ø 32 ÷ 50

UP BASIC CYLINDER Ø 32 ÷ 50

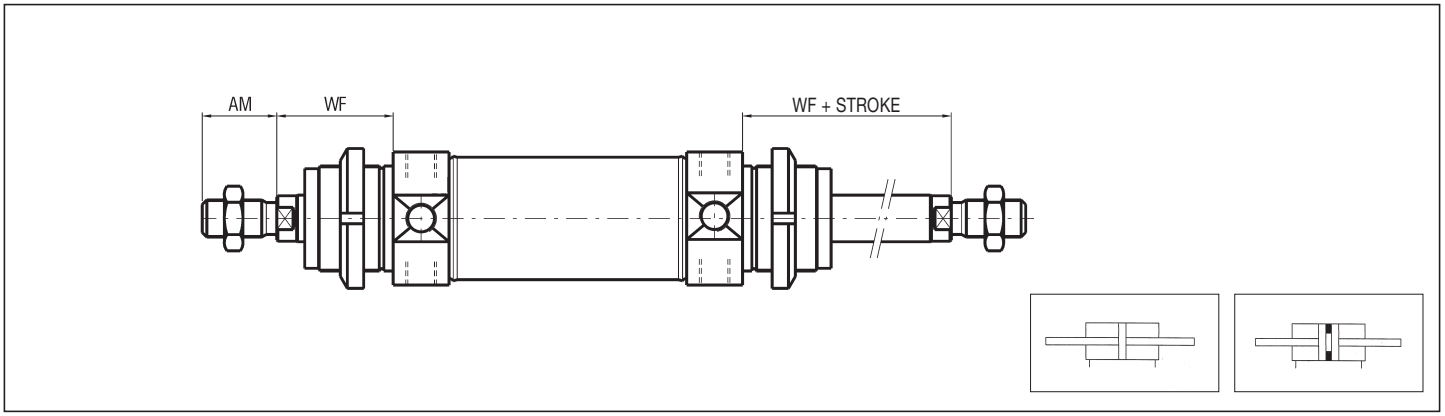


P.S.: End cap ring nut and rod nut supplied as standard in AISI 304 stainless steel

DIMENSIONS AND WEIGHTS BASIC CYLINDER UP Ø 32 ÷ 50

Ø	AM	BE	C	CH	D	EE	KK	KW	LA	LB	LC	LD	M	MM	N	R	SW	WF	XC	WEIGHT (g)	INCR. *(g) x 10 mm*
32	20	M30x1,5	36,5	17	38	G1/8	M10x1,25	6	154	96	47	78	30	12	14	M8x1	10	38	134	386	16
40	24	M38x1,5	44	19	46	G1/4	M12x1,25	7	182	113	57	89	35	16	16	M10x1	12	45	158	690	26
50	32	M45x1,5	55	24	57	G1/4	M16x1,5	8	202	120	62	96	38	20	18	M12x1,5	16	50	170	1265	34

THROUGH ROD Ø 32 ÷ 50



P.S.: End cap ring nuts and rod nuts supplied as standard in AISI 304 stainless steel

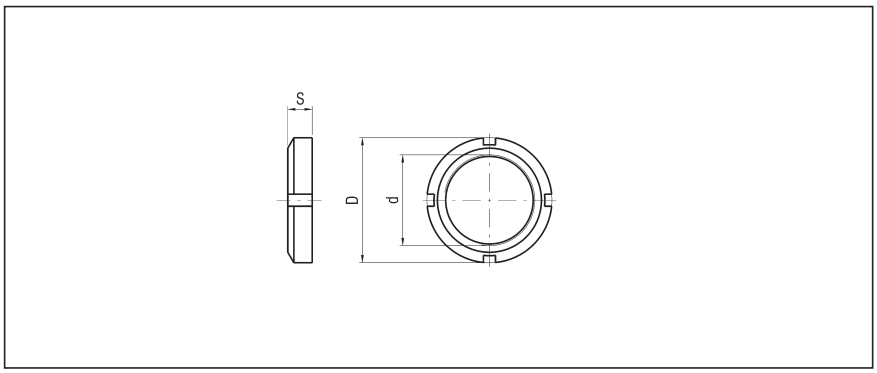
Accessories

AISI 304 stainless steel fixings for round cylinders Ø 32 ÷ 50

series **UP**

RING NUT - STAINLESS STEEL - UPG Ø

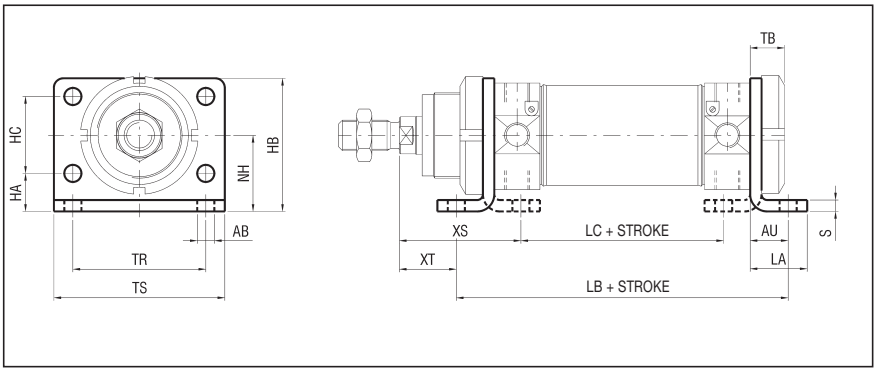
Ø	d	D	S	WEIGHT (g)
32	M30x1,5	45	7	43
40	M38x1,5	50	8	80
50	M45x1,5	58	9	122



FLANGE/FOOT - STAINLESS STEEL - UPFP Ø

Ø	AB	AU	HA	HB	HC	LA	LB	LC
32	7	14	14	49	28	21	124	76
40	9	20	18	58	30	30	153	83
50	9	20	20	70	40	30	160	92

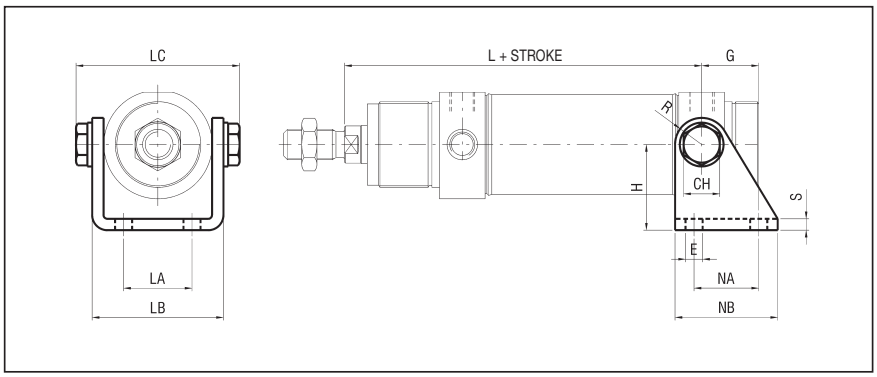
Ø	NH	S	TB	TR	TS	XS	XT	WEIGHT (g)
32	28	4	14	52	66	48	24	98
40	33	5	20	60	88	60	25	183
50	40	6	20	70	90	64	30	276



REAR HINGE - STAINLESS STEEL - UPSC Ø

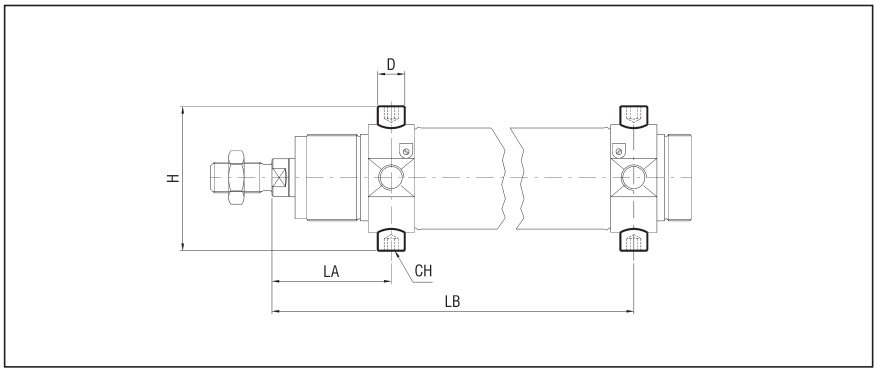
Ø	CH	E	G	H	L	LA	LB
32	13	7	20	35	125	20	46,1
40	17	9,5	27	40	146	28	56,1
50	19	10	30	45	158	36	69,1

Ø	LC	NA	NB	R	S	WEIGHT (g)
32	58	24	40	8	4	150
40	70	30	50	9,5	5	259
50	86	34	54	10	6	403



PIVOT (pair) - STAINLESS STEEL - UPT Ø

Ø	D	H	LA	LB	CH	WEIGHT (g)
32	10	51	47	125	5	10
40	12	61	57	146	6	20
50	14	75	62	158	6	40



"Clean profile" cylinders to ISO 15552 standard

series X

DESCRIPTION

Pneumatic cylinders series "X" comply with ISO 15552 standard, being in this way completely interchangeable with the well-known cylinders to ISO 6431 standard, defining the dimensions of both the "nude" cylinder than assembled with fixings. They're available in the bores from Ø 32 to Ø 100 and the cylinder barrel, made in extruded aluminium alloy, has some pits ("T"-shaped slots) on three sides where it's possible to mount directly the new magnetic sensors series FM100. This peculiarity allows to leave the dimensions of the cylinders unchanged, keeping the mentioned sensors, completely embedded and granting them a better protection. The dynamic seals are made in high performances polyurethane with standard working temperature between -35°C and +80°C. Among all the available versions, a special mention deserves the non-rotating piston rod one with a particular section, made of AISI 304 stainless steel supplied as standard. The compact and advanced design makes the series "X" a product aesthetically appealing yet useful. In fact, thanks to proper cover strips that give the cylinders a really "clean profile", the cylinders are not subject to receive dirt and so they result suitable also for "difficult" environments like the food one. A further feature is the possibility to assemble some series of valves directly on the cylinder barrel thanks to the brackets type "X/P/M.." (see page 1.24).

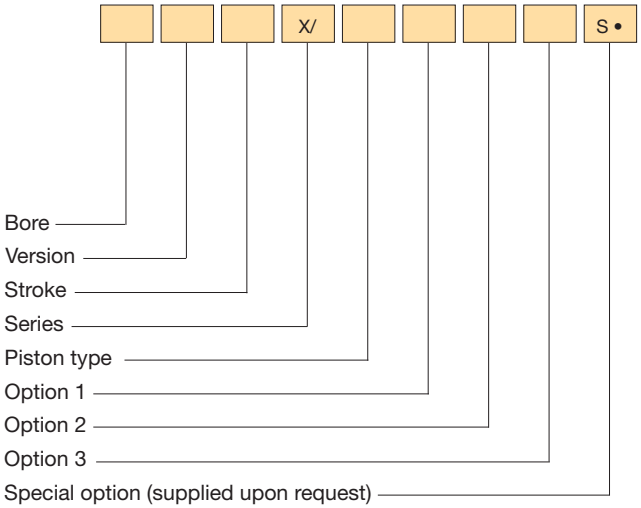
MATERIALS

End caps	Painted die-cast aluminium alloy
Cylinder barrel	Extruded profile, 20 µm anodized aluminium alloy
Screws	Steel (self-forming)
Piston rod	C45 chromium-plated steel AISI 303 rolled stainless steel
Rod nut	Steel Stainless steel
Piston rod bearing	Bronze-iron 20%, sintered, self-lubricating
Piston	Techno-polymer (supplied with and without magnet) Aluminium alloy for high temperatures
Seals	Polyurethane Viton®
Cover strips	Polyvinyl chloride

TECHNICAL DATA

Operating pressure	1÷10 bar
Working temperature	0 ÷ +80°C (with dry air –35°C) 0 ÷ +150 °C with seals for high temperature (with dry air –10°C)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Versions	Double acting; Single acting front spring; Single acting rear spring; Through rod; Double push tandem; Double stroke tandem; Opposed tandem
Bore	Ø 32,40,50,63,80,100
Port size	Ø 32 = G 1/8 Ø 40 - 50 = G 1/4 Ø 63 - 80 = G 3/8 Ø 100 = G 1/2
Standard strokes (mm)	25, 50, 75, 80, 100, 125, 150, 160, 200, 250, 300, 400 320, 350, 500, 550, 600, 650, 700, 800, 900, 1000
Decelerators lenght	Ø 32 40 50 60 80 100 mm 24 29 29 35 35 40
Maximum stroke (mm)	Ø 32 ÷ 100 = 3000
Max. stroke single acting (mm)	Ø 32 ÷ 100 = 50

ORDER KEY



P.S.: Magnetic sensors FM100-FM157-FM158 (see chapter magnetic sensors from page 1.93)
• See technical data on page 0.12

VERSION

/	Double acting	T	Double push tandem
S	Single acting front spring	P	Double stroke tandem
Y	Single acting rear spring	V	Opposed tandem
R	Through rod		

PISTON TYPE

N	Non-magnetic	M	Magnetic

OPTION 1

Z	Fit for piston rod locking unit	A	Stainless steel non-rotating piston rod

OPTION 2

1	Stainless steel piston rod and rod nut*	3	Stainless steel piston rod and rod nut and seals for high temperatures**
2	Seals for high temperatures**		

OPTION 3

4	Cover strips for magnetic sensors slots***

* Supplied as standard with option "A" (non-rotating piston rod)
** Supplied only with non-magnetic piston type and standard piston rod
*** Supplied as standard for big slot

ORDER EXAMPLES

Cylinder Ø 50, double acting, 100 mm stroke, non-magnetic piston type, fit for piston rod locking unit 50/100 X/NZ

Cylinder Ø 63, through rod, 150 mm stroke, magnetic piston type, stainless steel piston rod with cover strips 63R150 X/M14

Cylinder Ø 80, double stroke tandem, 50 mm stroke 1 + 100 mm stroke 2, magnetic piston type 80P50+100 X/M

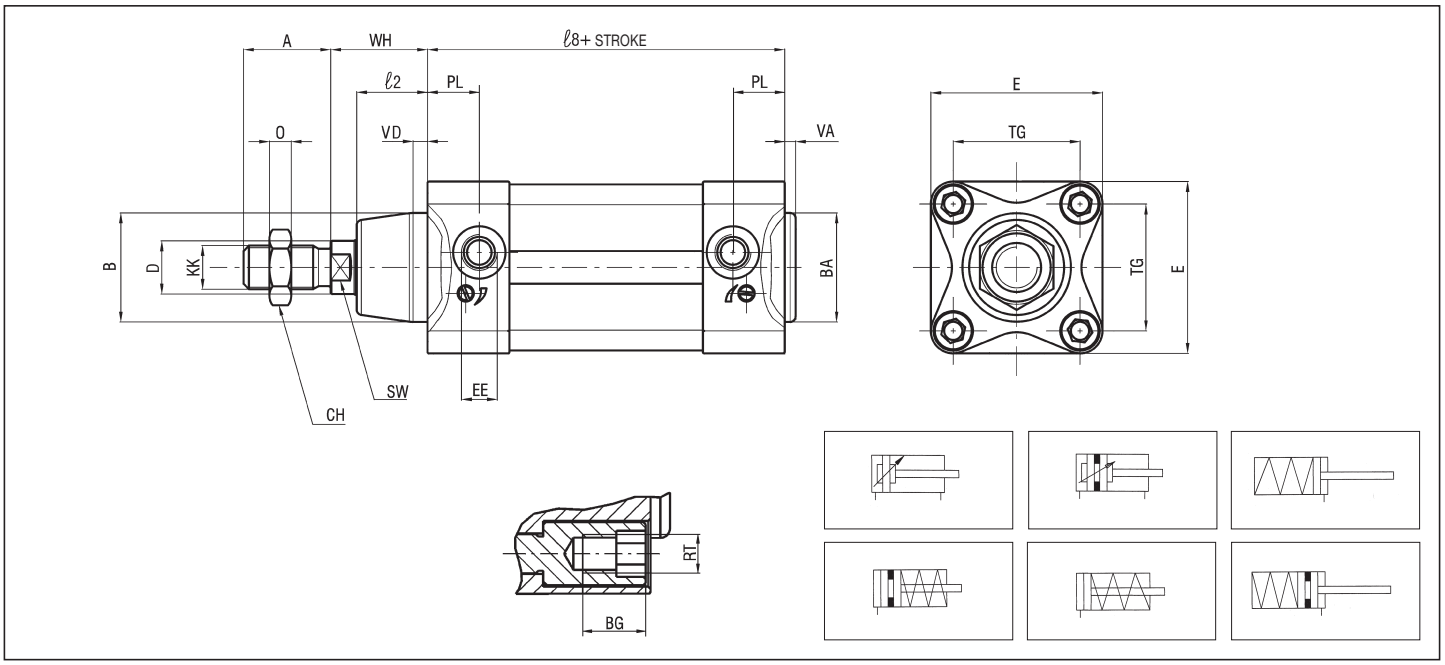
SPARE PARTS

SEALS KIT	
Polyurethane	Ø/SG/X
Through rod polyurethane	Ø/SG/R/X
For high temperatures	Ø/SG/X2
Through rod for high temperatures	Ø/SG/R/X2

series X

"Clean profile" cylinders to ISO 15552 standard

X BASIC CYLINDER



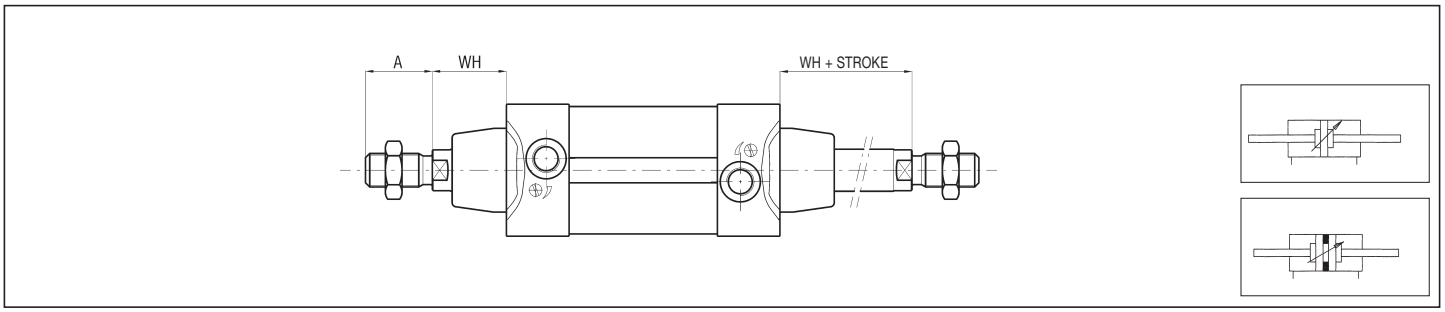
P.S.: Rod nut supplied as standard

DIMENSIONS AND WEIGHTS BASIC CYLINDER

Ø	A*	BA* B*	BG*	CH	RT*	E*	EE*	G	D	KK*	ℓ	ℓ2*	ℓ8*	O	PL*	R	SW*	TG*	VA* VD*	WB	WH*	WEIGHT (g)	INCR. (g) every 10 mm
32	22	30	16	17	M6	47	G1/8	27	12	M10x1,25	160	20	94	6	18	9	10	32,5	3	86	26	690	30
40	24	35	16	19	M6	52	G1/4	31	16	M12x1,25	185	22	105	7	20,5	9	13	38	3	100	30	900	45
50	32	40	16	24	M8	63	G1/4	30	20	M16x1,5	172	26	106	8	19	9	17	46,5	3	127	37	1240	60
63	32	45	16	24	M8	75	G3/8	35,5	20	M16x1,5	197	27	121	8	22	9	17	56,5	4	127	37	1750	80
80	40	45	16	30	M10	93	G3/8	36	25	M20x1,5	216	29	128	9	23	9	22	72	4	156	46	3580	100
100	40	55	16	30	M10	113	G1/2	39	25	M20x1,5	234	35	138	9	24	9	22	89	4	161	51	5270	120

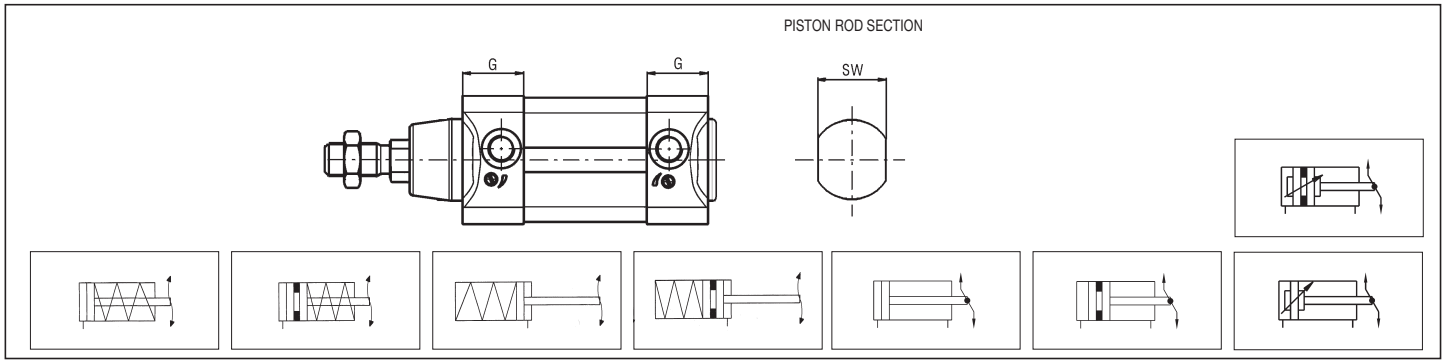
* STANDARDIZED DIMENSIONS

THROUGH ROD



P.S.: Rod nuts supplied as standard

NON-ROTATING PISTON ROD

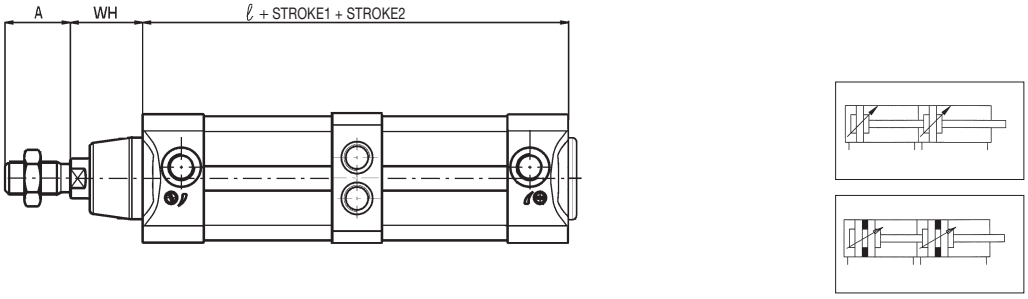


P.S.: Rod nut supplied as standard

"Clean profile" cylinders to ISO 15552 standard

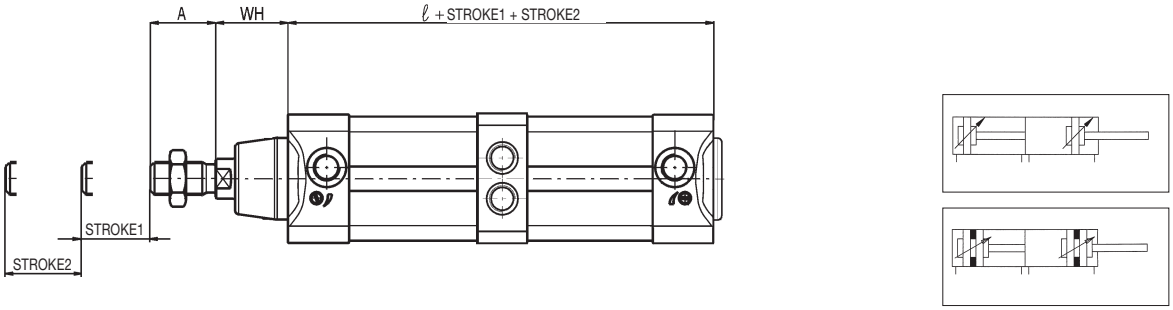
series X

DOUBLE PUSH TANDEM



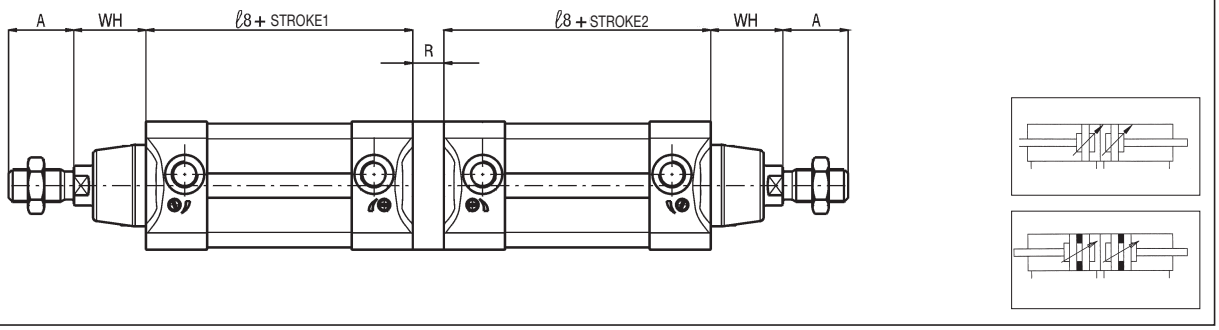
P.S.: Rod nut supplied as standard

DOUBLE STROKE TANDEM



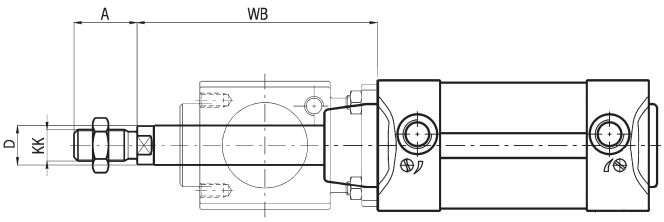
P.S.: Rod nut supplied as standard

OPPOSED TANDEM



P.S.: Rod nuts supplied as standard

FIT FOR PISTON ROD LOCKING UNIT



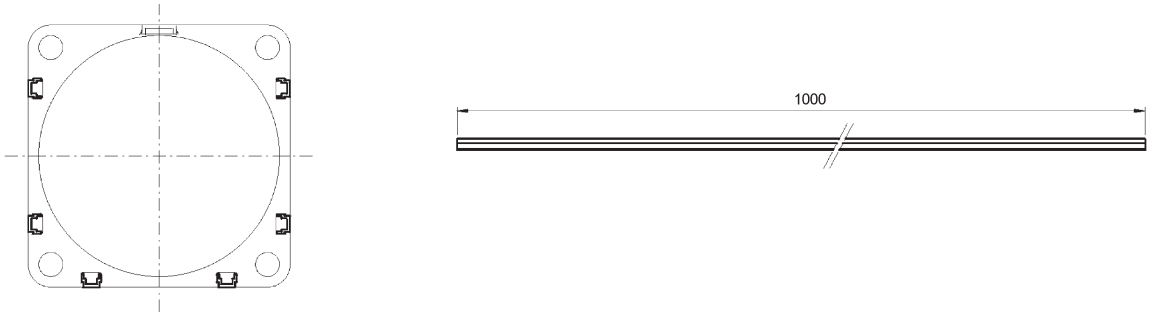
P.S.: Rod nut supplied as standard

series X

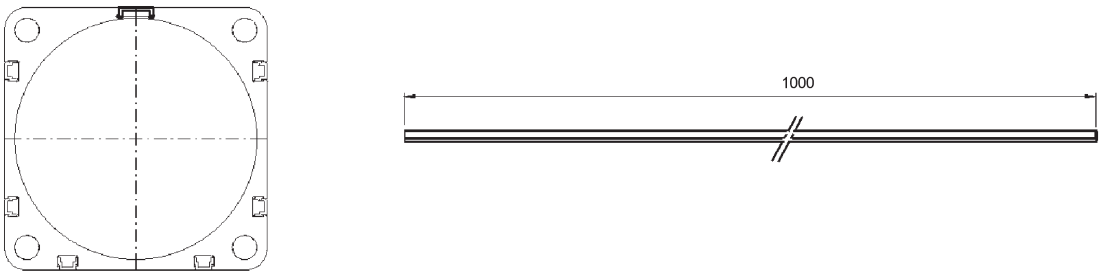
Accessories

Cover strips and fixing brackets for “clean profile” cylinders to ISO 15552 standard

SMALL SLOT COVER STRIP - X/CP

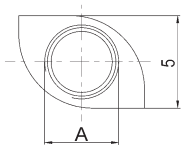


BIG SLOT COVER STRIP - X/CG

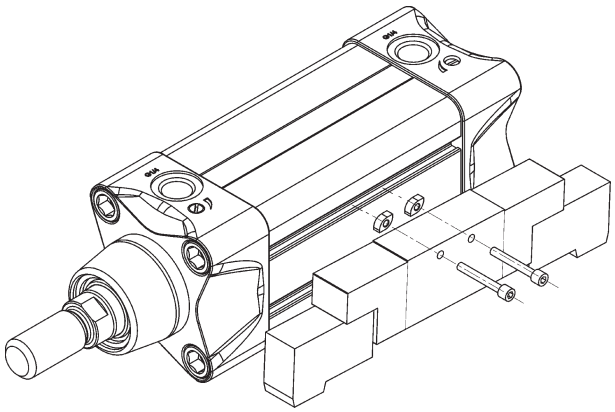


FIXING BRACKETS FOR “T” SLOTS - X/P/M..

TYPE	A
X/P/M3	M3
X/P/M4	M4



EXAMPLE OF ASSEMBLING OF VALVES MEV-MEK/CYLINDER



TECHNICAL INFORMATION FIXING BRACKETS

These brackets, with vertical insertion, allow to assembling directly on the cylinder barrel some series of valves and can be used even as reference point for the replacement of magnetic sensors.

Tie rods cylinders to ISO 15552 standard

series CPUI

DESCRIPTION

Cylinders series “CPUI” comply with ISO 15552 standard, being in this way completely interchangeable with the well-known cylinders to ISO 6431 standard. They’re available from Ø 32 to Ø 200. These cylinders are supplied cushioned as standard and, in the version with magnetic piston type can be supplied with magnetic sensors.

TECHNICAL DATA

Operatin pressure	1 ÷ 10 bar
Working temperature	0 ÷ +80 °C (-20 °C with dry air) 0 ÷ +150 °C with seals for high temperatures (-10 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Versions	Double acting; Single acting front spring; Single acting rear spring; Trough rod; Double push tandem; Double stroke tandem; Opposed tandem
Bore	Ø 32, 40, 50, 63, 80, 100, 125, 160, 200
Port size	Ø 32 = G 1/8 Ø 40 - 50 = G 1/4 Ø 63 - 80 = G 3/8 Ø 100 - 125 = G 1/2 Ø 160 - 200 = G 3/4
Standard strokes (mm)	25, 50, 75, 80, 100, 125, 150, 160, 175, 200, 250, 300, 320, 350, 400, 450, 500, 550, 600, 650, 700, 800, 900, 1000
Decelerators lenght	Ø 32 40 50 63 80 100 125 160 200 mm 21 23 26 30 33 37 37 40 40
Max strokes (mm)	Ø 32 ÷ 200 = 3000
Max strokes single act. (mm)	Ø 32 ÷ 63 = 50; Ø 80 - 100 = 100

MATERIALS

End caps	Alluminium alloy, cataphoresis-treated
Cylinder barrel	Ø 32 ÷ 125: extruded profile, 20 µm anodized allumium alloy Ø 125 ÷ 200: extruded tube, 20 µm anodized allumium alloy
Tie rods, tie and rod nuts	Steel Stainless steel (supplied upon request for tie rods and tie nuts)
Piston rod	C45 chromium-plated steel AISI 303 rolled stainles steel
Piston rod bearing	Bronze-Iron 20%, sintered, self-lubricating
Decelerator ogives	Alluminium alloy
Piston	NBR rubber block (supplied with and without magnet) Viton® (supplied only without non-magnetic piston)
Seals	NBR rubber Viton®

ORDER KEY

			CPUI/					S•

- Bore
- Version
- Stroke
- Series
- Piston type
- Option 1
- Option 2
- Option 3
- Special option (supplied upon request)

N.B.: *Magnetic sensors* FM 100 - FM157 - FM158 (see chapter magnetic sensors from page1.93)

• See technical data on page 0.12

VERSION

/	Double acting	T	Double push tandem
S	Single acting front spring	P	Double stroke tandem
Y	Single acting rear spring	V	Opposed tandem
R	Through rod		

PISTON TYPE

N	Non-magnetic	M	Magnetic

OPTION 1

Z	Fit for piston rod locking unit *

OPTION 2

1	Stainless steel piston rod and rod nut	3	Stainless steel piston rod and rod nut and seals for high temperatures**
2	Seals for high temperatures**		

OPTION 3

5	Extruded profile barrel (only for Ø 125)

* Supplied from Ø 32 al Ø 125
** Supplied only with non-magnetic piston type

ORDER EXAMPLES

Cylinder Ø50, double acting, 100 mm stroke, magnetic piston type, fit for piston rod locking unit 50/100 CPUI/MZ

Cylinder Ø63, through rod, 150 mm stroke, magnetic piston type, stainless steel piston rod 63R150 CPUI/M1

Cylinder Ø80, double push tandem, 50 mm stroke, magnetic piston type 80T50 CPUI/M

Cylinder Ø80, double stroke tandem, 50 mm stroke 1 + 100 mm stroke 2, magnetic piston type 80P50+100 CPUI/M

Cylinder Ø80, opposed tandem, 50 mm stroke 1 + 50 mm stroke 2, magnetic piston type, stainless steel piston rod 80V50+50 CPUI/M1

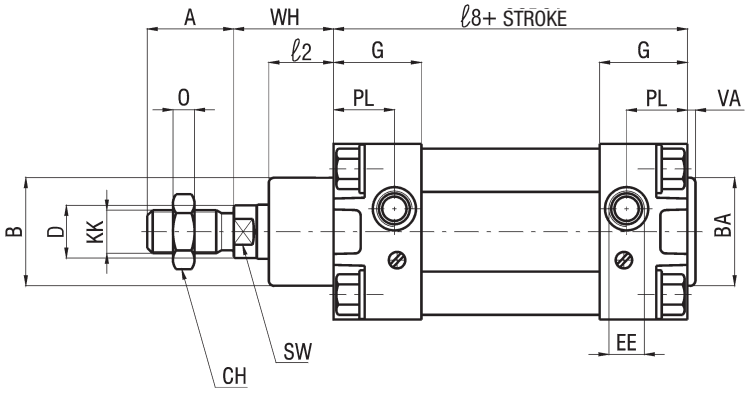
SPARE PARTS

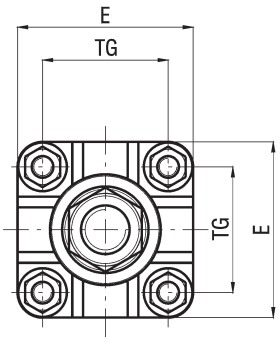
SEALS KIT		
Non-magnetic piston type	NBR	Ø/SG/CPUI/N
	Through rod, NBR	Ø/SG/R/CPUI/N
	For high temperature	Ø/SG/CPUI/N2
	Through rod for high temperature	Ø/SG/R/CPUI/N2
Magnetic piston type	NBR	Ø/SG/CPUI/M
	Through rod, NBR	Ø/SG/R/CPUI/M

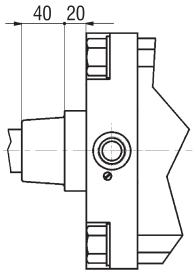
series CPUI

Tie rods cylinders to ISO 15552 standard

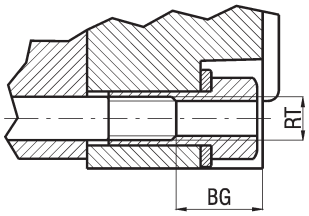
CPUI BASIC CYLINDER

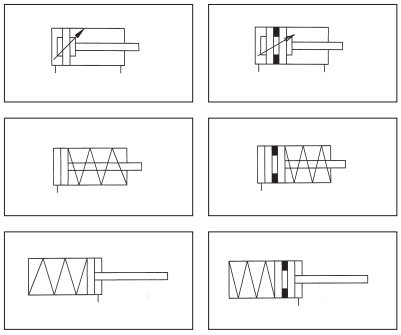






Detail of the front centering Ø 200





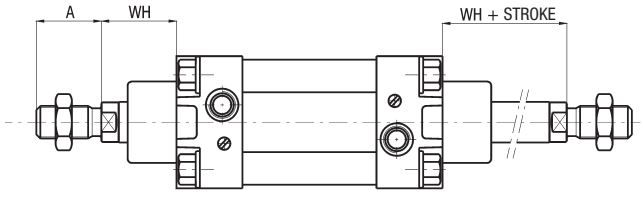
P.S.: Rod nuts supplied as standard

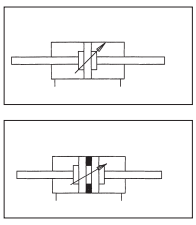
DIMENSIONS AND WEIGHTS BASIC CYLINDER

Ø	A*	BA* B*	BG*	CH	RT*	E*	EE*	G	D	KK*	ℓ	ℓ 2*	ℓ 8*	O	PL*	R	SW*	TG*	VA*	WB	WH*	WEIGHT *(g)*	INCREMENT *(g) every 10 mm*
32	22	30	16	17	M6	47	G 1/8	27	12	M10x1,25	160	15	94	6	18	7	10	32,5	3	86	26	520	28
40	24	35	16	19	M6	54	G 1/4	30	16	M12x1,25	185	20	105	7	20	7	13	38	3	100	30	810	36
50	32	40	16	24	M8	65	G 1/4	32,5	20	M16x1,5	172	24	106	8	22,5	7	17	46,5	3	127	37	1235	55
63	32	45	16	24	M8	75	G 3/8	37	20	M16x1,5	197	24	121	8	23,5	9	17	56,5	4	127	37	1790	58
80	40	45	16	30	M10	95	G 3/8	37	25	M20x1,5	216	32	128	9	23	9	22	72	4	156	46	2900	80
100	40	55	16	30	M10	114	G 1/2	40	25	M20x1,5	234	36	138	9	24,5	9	22	89	4	161	51	4080	104
125	54	60	20	41	M12	140	G 1/2	46	32	M27x2	268	50	160	12	24	-	27	110	6	205	65	6070	126
160	72	65	24	55	M16	180	G 3/4	50	40	M36x2	310	60	180	15	24	-	36	140	6	-	80	13100	210
200	72	75	24	55	M16	220	G 3/4	48	40	M36x2	310	60	180	15	24	-	36	175	6	-	95	18200	290

* STANDARDIZED DIMENSIONS

THROUGH ROD



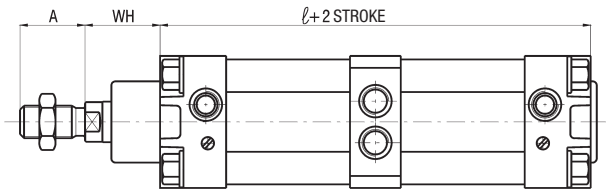


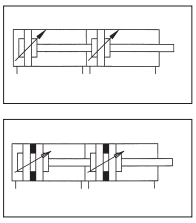
P.S.: Rod nuts supplied as standard

Tie rods cylinders to ISO 15552 standard

series CPUI

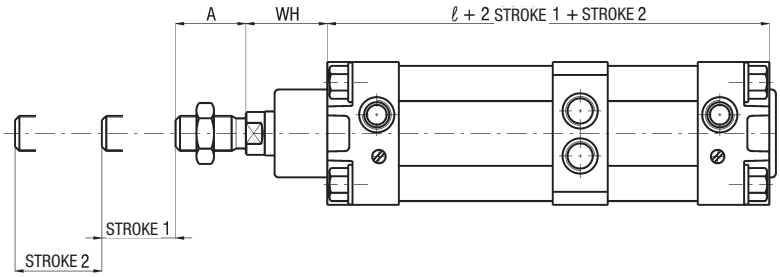
DOUBLE PUSH TANDEM

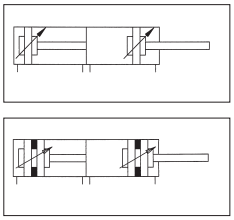




P.S.: Rod nut supplied as standard

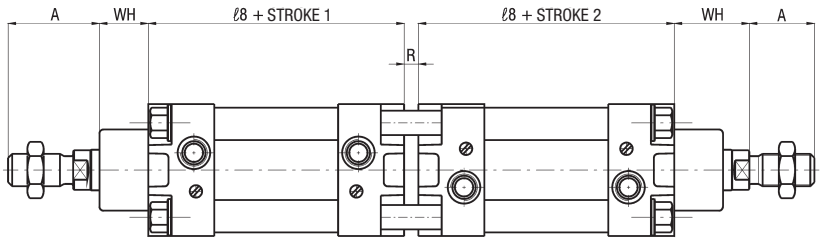
DOUBLE STROKE TANDEM

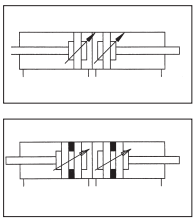




P.S.: Rod nut supplied as standard

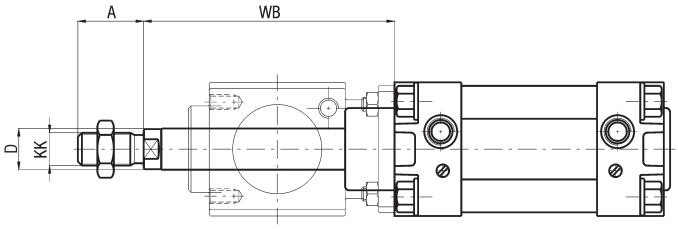
OPPOSED TANDEM





P.S.: Rod nuts supplied as standard

FIT FOR PISTON ROD LOCKING UNIT



P.S.: Rod nut supplied as standard

series CPUI

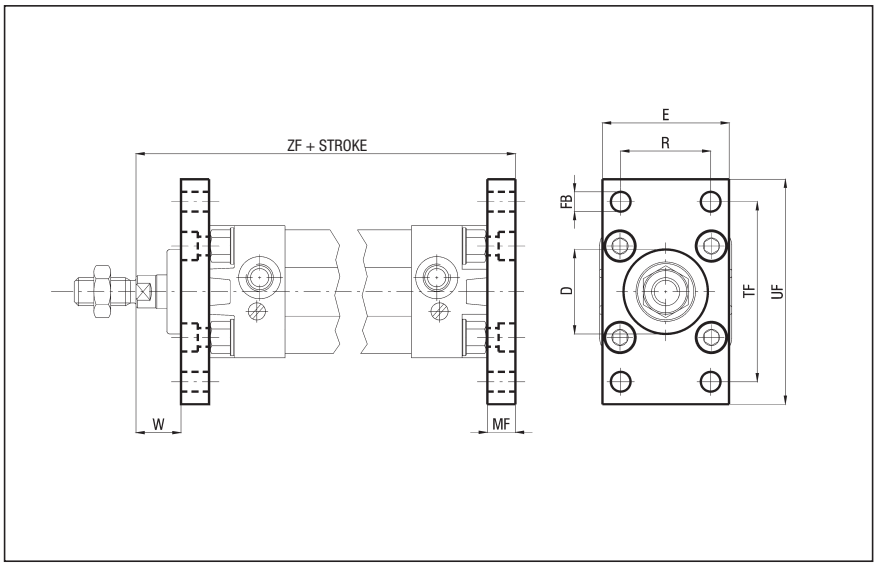
Accessories

Fixings for cylinders series X and series CPUI to ISO 15552 standard

FLANGE - STEEL - CPUI/F Ø (supplied with screws)

Ø	D *H11*	FB *H13*	E	MF *JS14*	R *JS14*	TF *JS14*	UF
32	30	7	45	10	32	64	80
40	35	9	52	10	36	72	90
50	40	9	65	12	45	90	110
63	45	9	75	12	50	100	120
80	45	12	95	16	63	126	150
100	55	14	115	16	75	150	170
125	60	16	140	20	90	180	205
160	65	18	180	20	115	230	260
200	75	22	220	25	135	270	300

Ø	W	ZF	WEIGHT *(g)*
32	16	130	190
40	20	145	246
50	25	155	478
63	25	170	622
80	30	190	1430
100	35	205	1986
125	45	245	3750
160	60	280	6350
200	70	300	11350

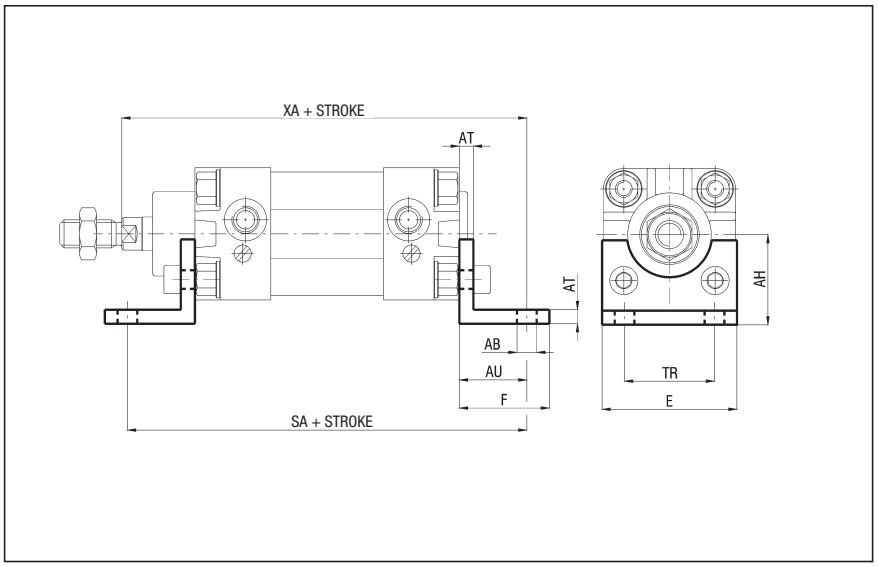


AVAILABLE IN AISI 316 STAINLESS STEEL FROM Ø 32 TO Ø 100, SCREWS EXCLUDED

FOOT - STEEL - CPUI/PB Ø (supplied with screws)

Ø	AB *H14*	AH *JS15*	AT	AU	E	F	SA
32	7	32	4	24	45	35	142
40	9	36	4	28	52	36	161
50	9	45	5	32	65	47	170
63	9	50	5	32	75	45	185
80	12	63	6	41	95	55	210
100	14	71	6	41	115	57	220
125	16	90	8	45	140	70	250
160	18	115	10	60	180	75	300
200	22	135	12	70	220	100	320

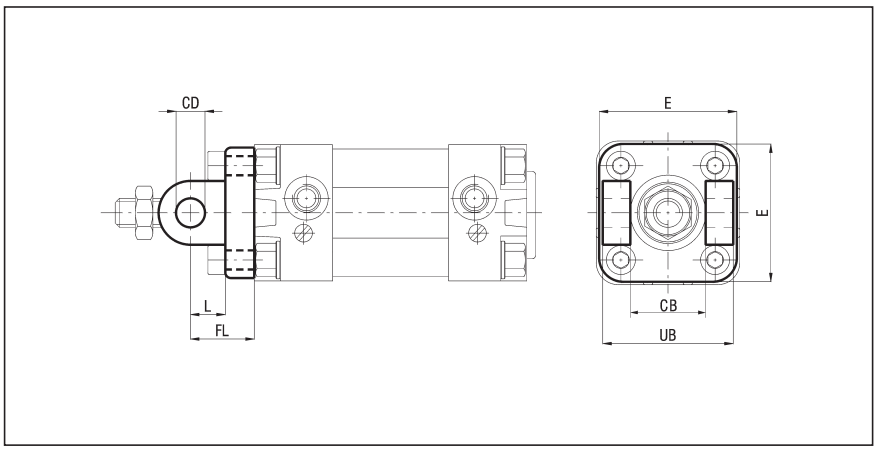
Ø	TR *JS14*	XA	WEIGHT *(g)*
32	32	144	66
40	36	163	78
50	45	175	168
63	50	190	190
80	63	215	382
100	75	230	452
125	90	270	1090
160	115	320	1188
200	135	345	3450



AVAILABLE IN AISI 316 STAINLESS STEEL FROM Ø 32 TO Ø 100, SCREWS EXCLUDED

FRONT FEMALE HINGE - NOT CONFORM TO ISO STANDARD - ALUMINIUM - CPUI/CFA Ø (supplied with screws)

Ø	CB	CD *H9*	E	FL	L	UB *h14*	WEIGHT *(g)*
32	26	10	45	22	13	45	48
40	28	12	52	25	16	52	75
50	32	12	65	27	16	60	124
63	40	16	75	32	21	70	192
80	60	16	95	36	22	90	380
100	70	20	115	41	27	110	620
125	90	25	140	50	30	130	1180
160	90	30	180	55	35	170	1780
200	110	30	220	60	35	170	2900



Accessories

Fixings for cylinders series X and series CPUI to ISO 15552 standard

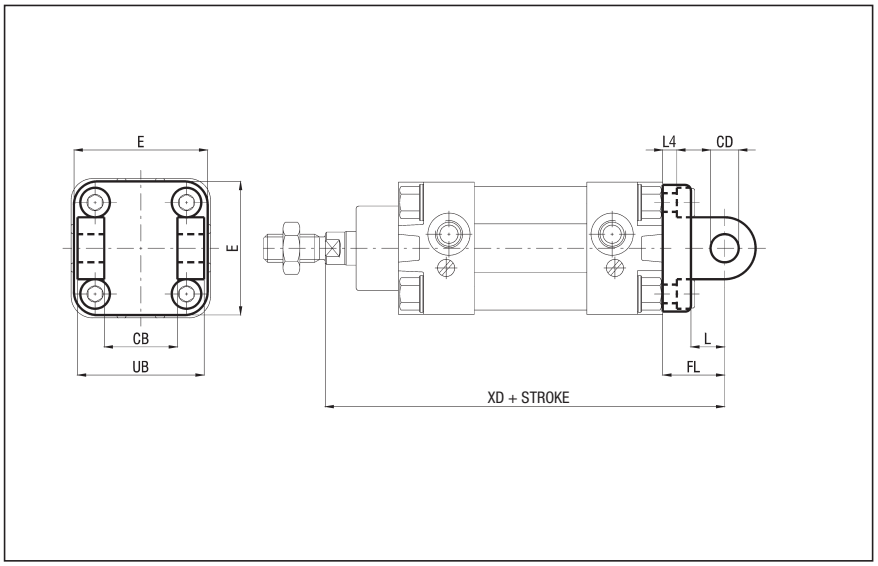
series CPUI

REAR FEMALE HINGE
(Supplied with screws)

- ALUMINIUM - CPUI/CF Ø
- ALUMINIUM WITH BUSHINGS - CPUI/CF Ø B
- STEEL - CPUI/CF Ø AC

Ø	CB *H14*	CD *H9*	E	FL	L	L4	UB *h14*
32	26	10	45	22	13	5,5	45
40	28	12	52	25	16	5,5	52
50	32	12	65	27	16	6,5	60
63	40	16	75	32	21	6,5	70
80	50	16	95	36	22	10	90
100	60	20	115	41	27	10	110
125	70	25	140	50	30	10	130
160	90	30	180	55	35	10	170
200	90	30	220	60	35	11	170

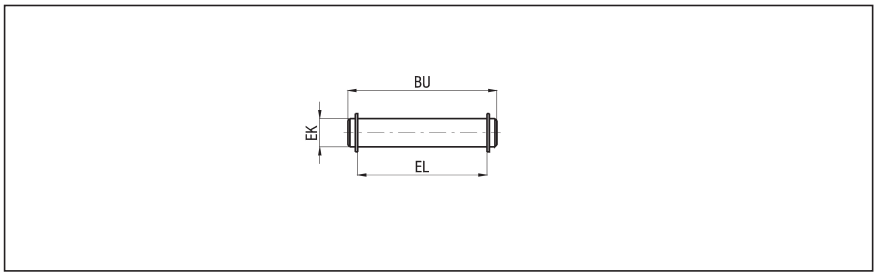
Ø	XD	WEIGHT *ALL. (g)*	WEIGHT *STEEL (g)*
32	142	48	138
40	160	75	230
50	170	124	338
63	190	192	540
80	210	380	1000
100	230	620	1700
125	275	1180	3350
160	315	1780	5750
200	335	2900	8900



AVAILABLE IN AISI 316 STAINLESS STEEL FROM Ø 32 TO Ø 125, SCREWS EXCLUDED

PIVOT FOR REAR FEMALE HINGE (ALUMINIUM) - STEEL - CPU/CPUI/SEC Ø
(STEEL) - GALVANIZED NITRIDED STEEL - CPUI/SEC Ø AC

Ø	BU	EK *f7*	EL	WEIGHT *(g)*
32	53	10	46	32
40	60	12	53	52
50	68	12	61	60
63	78	16	71	122
80	98	16	91	152
100	118	20	111	290
125	139	25	132	530
160	178	30	171,5	978
200	178	30	171,5	978



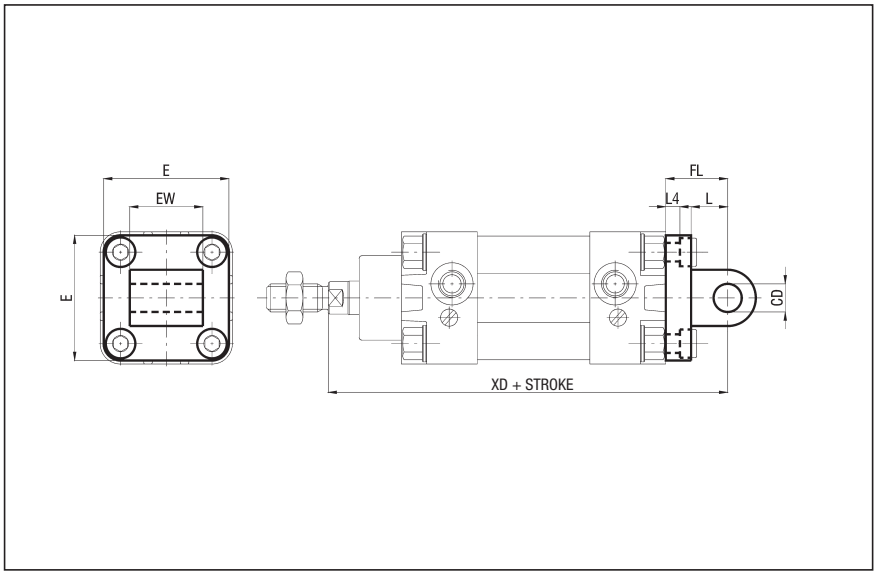
AVAILABLE IN AISI 316 STAINLESS STEEL FROM Ø 32 TO Ø 125

MALE HINGE
(Supplied with screws)

- ALUMINIUM - CPUI/CM Ø
- ALUMINIUM WITH BUSHINGS - CPUI/CM Ø B
- STEEL - CPUI/CM Ø AC

Ø	CD *H9*	E	EW	FL	L	L4	XD
32	10	45	26	22	13	5,5	142
40	12	52	28	25	16	5,5	160
50	12	65	32	27	16	6,5	170
63	16	75	40	32	21	6,5	190
80	16	95	50	36	22	10	210
100	20	115	60	41	27	10	230
125	25	140	70	50	30	10	275
160	30	180	90	55	35	10	315
200	30	220	90	60	35	11	335

Ø	WEIGHT *ALL. (g)*	WEIGHT *STEEL (g)*
32	54	176
40	76	274
50	124	368
63	212	682
80	420	1196
100	666	2100
125	1264	3740
160	1846	5890
200	2950	8470



AVAILABLE IN AISI 316 STAINLESS STEEL FROM Ø 32 TO Ø 125, SCREWS EXCLUDED

series CPUI

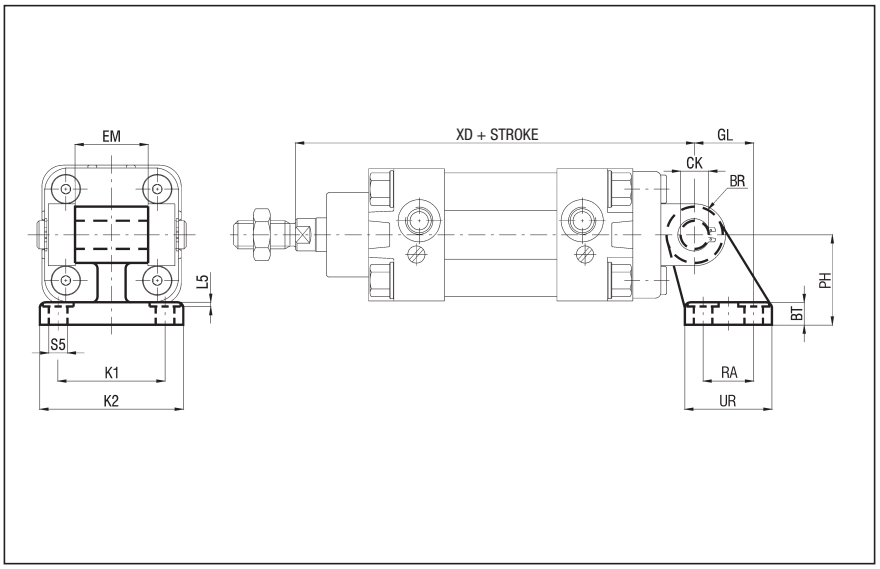
Accessories

Fixings for cylinders series X and series CPUI to ISO 15552 standard

SQUARE JOINT - ALUMINIUM - CPUI/AS Ø
- STEEL - CPUI/AS Ø AC (FOR Ø 32 ÷ 125)

Ø	PH *JS15*	CK *H9*	EM	GL *JS14*	RA *JS14*	UR	BT	L5
32	32	10	26	21	18	31	8	1,6
40	36	12	28	24	22	35	10	1,6
50	45	12	32	33	30	45	12	1,6
63	50	16	40	37	35	50	14	1,6
80	63	16	50	47	40	60	14	2,5
100	71	20	60	55	50	70	17	2,5
125	90	25	70	70	60	90	20	3,2
160	115	30	90	97	88	126	25	4
200	135	30	90	105	90	130	30	4

Ø	BR	S5 *H13*	K1 *JS14*	K2	XD	WEIGHT *ALL. (g)*	WEIGHT *STEEL (g)*
32	10	6,6	38	51	142	56	158
40	11	6,6	41	54	160	139	238
50	13	9	50	65	170	142	418
63	15	9	52	67	190	200	526
80	15	11	66	86	210	312	1055
100	19	11	76	96	230	656	1360
125	22,5	14	94	124	275	826	-
160	31,5	14	118	156	315	2600	-
200	31,5	18	122	162	335	3250	-

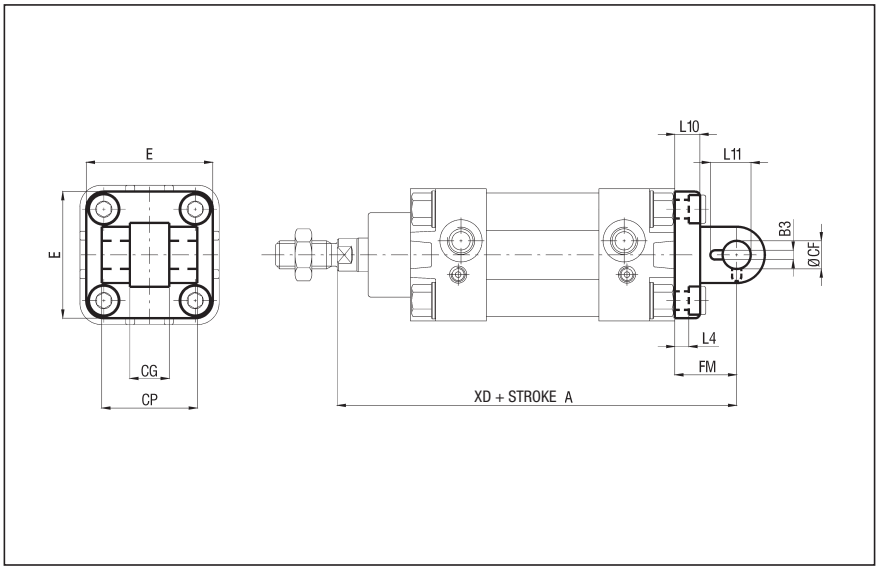


AVAILABLE IN AISI 316 STAINLESS STEEL FROM Ø 32 TO Ø 125

NARROW REAR FEMALE HINGE - ALUMINIUM - CPUI/CFS Ø
(Supplied with screws) - STEEL - CPUI/CFS Ø AC (FOR Ø 32 ÷ 125)

Ø	CG *D10*	CP *d12*	B3	Ø CF *F7*	E	FM	L10	L11
32	14	34	3,3	10	45	22	9	16,5
40	16	40	4,3	12	52	25	9	18
50	21	45	4,3	16	65	27	11	22
63	21	51	4,3	16	75	32	11	22
80	25	65	4,3	20	95	36	14	26
100	25	75	6,3	20	115	41	14	26
125	37	97	6,3	30	140	50	20	39
160	43	122	6,3	35	180	55	20	44
200	43	122	6,3	35	220	60	25	44

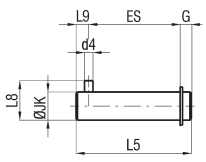
Ø	L4	XD	WEIGHT *ALL. (g)*	WEIGHT *STEEL (g)*
32	5,5	142	42	140
40	5,5	160	70	230
50	6,5	170	112	336
63	6,5	190	194	546
80	10	210	382	1190
100	10	230	610	1840
125	10	275	1100	3550
160	10	315	2000	-
200	11	335	3300	-



AVAILABLE IN AISI 316 STAINLESS STEEL FROM Ø 32 TO Ø 125, SCREWS EXCLUDED

NON-ROTATING PIVOT FOR NARROW REAR FEMALE HINGE - GALVANIZED NITRIDED STEEL - CPUI/SEC Ø AT

Ø	d4 *H12*	ØJK *f7*	L8	ES	L9	L5	G	WEIGHT *(g)*
32	3	10	14	32,5	4,5	41	4	26
40	4	12	16	38	6	48	4	42
50	4	16	20	43	6	54	5	84
63	4	16	20	49	6	60	5	94
80	4	20	24	63	6	75	6	184
100	4	20	24	73	6	85	6	208
125	6	30	36	94	9	110	7	606
160	6	35	41	119	9	135	7	974
200	6	35	41	119	9	135	7	974



AVAILABLE IN AISI 316 STAINLESS STEEL FROM Ø 32 TO Ø 125

Accessories

Fixings for cylinders series X and series CPUI to ISO 15552 standard

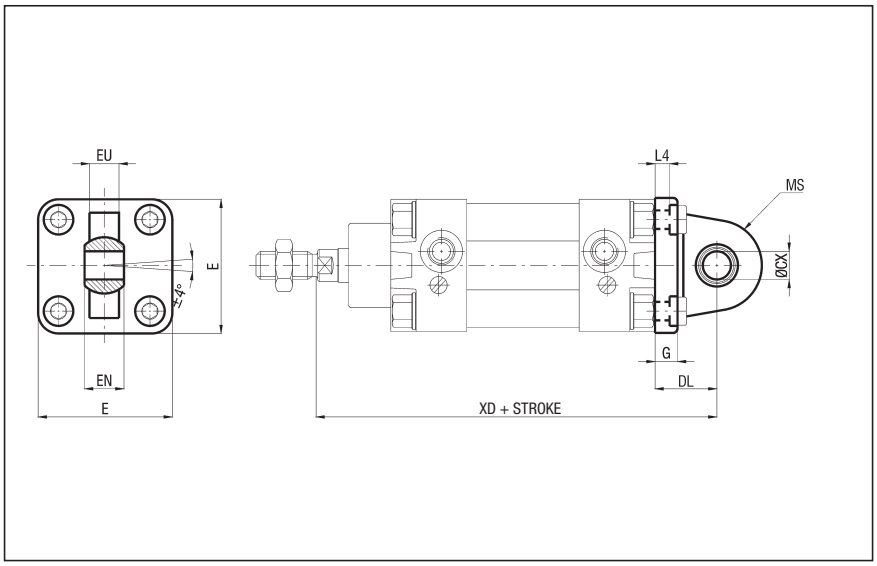
series CPUI

NARROW MALE HINGE WITH ARTICULATED HEAD (ISO 12240) (Supplied with screws)

- ALUMINIUM - CPUI/CMSS Ø
- STEEL - CPUI/CMSS Ø AC (FOR Ø 32 ÷ 125)

Ø	ØCX *H7*	E	EN	MS	EU	G	DL
32	10	45	14	16	10,5	9	22
40	12	52	16	19	12	9	25
50	16	65	21	21	15	11	27
63	16	75	21	24	15	11	32
80	20	95	25	28,5	18	14	36
100	20	115	25	30	18	14	41
125	30	140	37	40	25	20	50
160	35	180	43	45	28	20	55
200	35	220	43	48	28	25	60

Ø	L4	XD	WEIGHT *ALL. (g)*	WEIGHT *ACC. (g)*
32	5,5	142	62	158
40	5,5	160	100	254
50	6,5	170	180	360
63	6,5	190	244	588
80	10	210	476	1118
100	10	230	646	1810
125	10	275	1410	3500
160	10	315	2385	-
200	11	335	3860	-

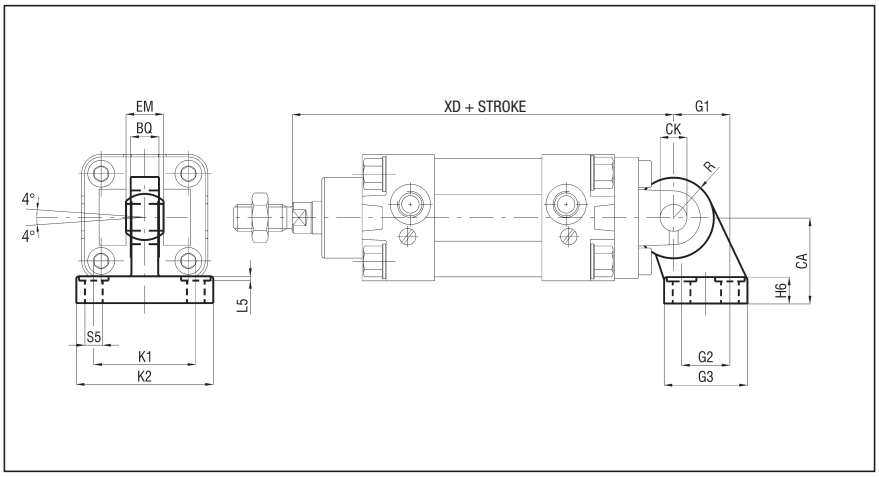


AVAILABLE IN AISI 316 STAINLESS STEEL FROM Ø 32 TO Ø 125, SCREWS EXCLUDED

SQUARE JOINT WITH ARTICULATED HEAD (ISO 12240) - STEEL- CPUI/ASSS Ø AC

Ø	CA *JS15*	BQ	CK *H7*	EM	G1 *JS14*	G2 *JS14*	G3	H6
32	32	10,5	10	14	21	18	31	10
40	36	12	12	16	24	22	35	10
50	45	15	16	21	33	30	45	12
63	50	15	16	21	37	35	50	12
80	63	18	20	25	47	40	60	14
100	71	18	20	25	55	50	70	15
125	90	25	30	37	70	60	90	20

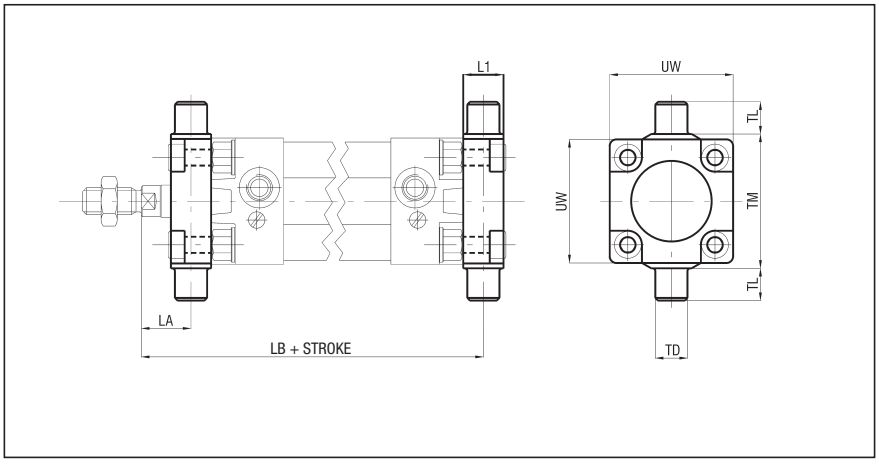
Ø	K1 *JS14*	K2	L5	R	S5 *H13*	XD	WEIGHT *(g)*
32	38	51	1,6	15	6,6	142	178
40	41	54	1,6	18	6,6	160	268
50	50	65	1,6	20	9	170	458
63	52	67	1,6	23	9	190	550
80	66	86	2,5	27	11	210	970
100	76	96	2,5	30	11	230	1326
125	94	124	3,2	40	13,5	275	3000



AVAILABLE IN AISI 316 STAINLESS STEEL FROM Ø 32 TO Ø 125

FLOATING HINGE - STEEL - CPUI/CTA Ø (Supplied with screws)

Ø	L1	LA	LB	TD *e9*	TL *h14*	TM *h14*	UW	WEIGHT *(g)*
32	14	19	127	12	12	50	46	137
40	19	20,5	144,5	16	16	63	59	385
50	19	27,5	152,5	16	16	75	69	513
63	24	25	170	20	20	90	84	1041
80	24	34	186	20	20	110	102	1563
100	29	37,6	203,5	25	25	132	125	3000



series CPUI

Accessories

Fixings for cylinders series X and series CPUI to ISO 15552 standard

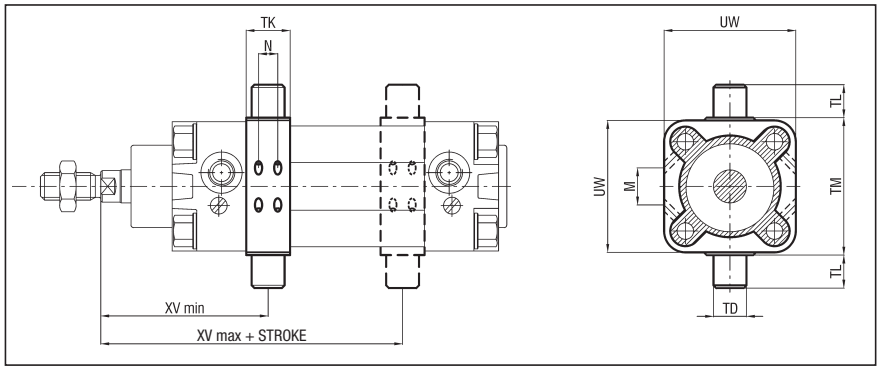
INTERMEDIATE HINGE - STEEL - EXTRUDED PROFILE - CPUI/CT Ø (Supplied with dowels)

Ø	M ± 0,3	N ± 0,3	TD e9	TK max	TL h14	TM h14	UW max	XV min	XV max	WEIGHT (g)
32	13,5	7	12	18	12	50	48,5	62	84	130
40	19	8	16	20	16	63	59	70	95	238
50	24,5	8	16	20	16	75	71	79,5	100,5	318
63	28	12	20	26	20	90	85	87	108	608
80	36,5	12	20	26	20	110	105	96	124	928
100	42,5	15	25	32	25	132	129	107	133	1562
125	59,5	15	25	33	25	160	154	127,5	163	2600

AVAILABLE IN AISI 316 STAINLESS STEEL FROM Ø 32 TO Ø 100, SCREWS EXCLUDED

P.S.: ADJUSTABLE POSITION (fixing through dowels)

ASSEMBLY: CPUI/CT Ø + cylinder series "CPUI" type **M/CPUI/CT Ø**



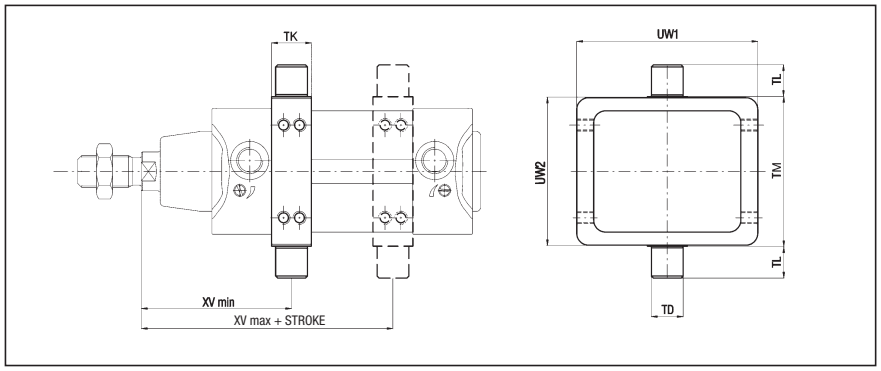
INTERMEDIATE HINGE - STEEL - "CLEAN PROFILE" - X/CT Ø (Supplied with dowels)

Ø	TK	TD e9	TL h14	TM 0/-0,3	UW1	UW2	XV min	XV max	WEIGHT (g)
32	18	12	12	50	70	50	56	85	250
40	20	16	16	63	78	62	63	95	410
50	20	16	16	75	91	74	66	96	530
63	25	20	20	90	94	88	75	108,5	775
80	25	20	20	110	130	109	78,5	115,5	1430
100	30	25	25	132	145	130	89	123	1950

AVAILABLE IN AISI 316 STAINLESS STEEL FROM Ø 32 TO Ø 100

P.S.: ADJUSTABLE POSITION (fixing through dowels)

ASSEMBLY: X/CT Ø + cylinder series "X" type **M/X/CT Ø**



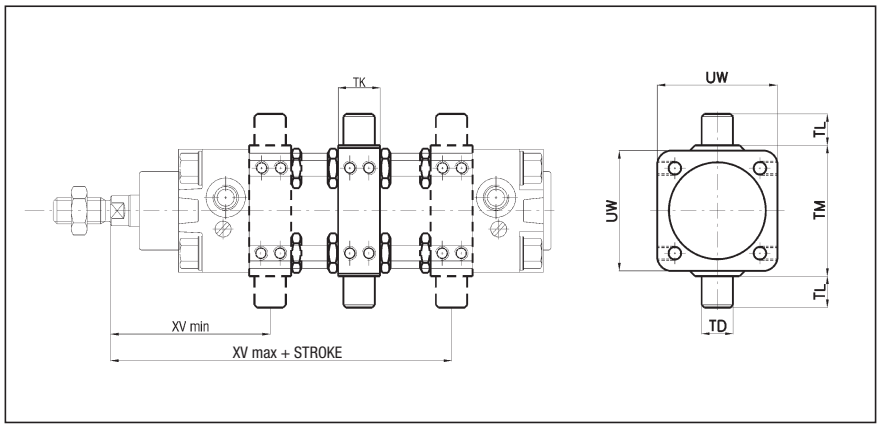
INTERMEDIATE HINGE - STEEL - EXTRUDED TUBE WITH TIE RODS - CX/CPUI/CT Ø (Supplied with dowels)

Ø	TK	M	TD e9	TL h14	TM h14	UW	XV min
125	32	12,25	25	25	160	155	127
160	40	16,25	32	32	200	190	150
200	40	16,25	32	32	250	240	163

Ø	XV max	WEIGHT (g)
125	163	2600
160	190	4300
200	207	7450

P.S.: - FIXED POSITION (specify dimension "XV", fixed on cylinder with completed threaded and galvanized tie rods type "S6", see on page 0.12)
- ADJUSTABLE POSITION (fixing through dowels)

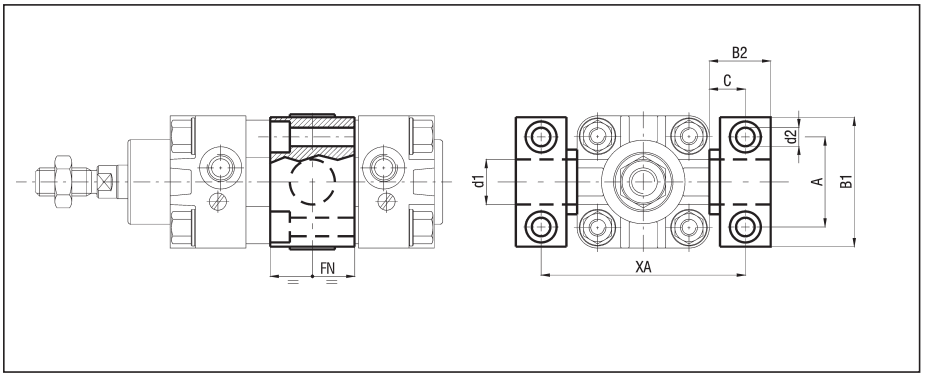
ASSEMBLY (FIXED): CX/CPUI/CT Ø + cylinders series "CPUI S6" type **MF/CX/CPUI/CT Ø**



SUPPORT FOR INTERMEDIATE HINGE - STEEL - CPUI/SCT Ø

Ø	A	B1	B2	C	d1 F7	d2 H13	FN
32	32	46	18	10,5	12	6,6	30
40-50	36	55	21	12	16	9	36
63-80	42	65	23	13	20	11	40
100-125	50	75	28,5	16	25	14	50
160-200	60	92	40	22,5	32	18	60

Ø	XA	WEIGHT (g)
32	71	100
40-50	87-99	150
63-80	116-136	234
100-125	164-192	435
160-200	245-295	850



Accessories

Piston rod locking unit for cylinders to ISO 15552 standard

series WBZ

DESCRIPTION

Piston rod locking unit series "WBZ" is a mechanical device to fit on ISO 15552 cylinders (series X and CPUI); its function is to lock the piston rod in any position. This solution allows to lock the cylinder stroke each time that there's a pressure fall. Locking force is, in any case, higher than the force given off by the cylinder fed at 10 bar. It has static operation (cylinder piston rod not moving); it's necessary to preliminary stop the cylinder piston rod before proceeding with mechanical locking.
Piston rod locking unit series "WBZ" must not be considered as a safety device.

TECHNICAL DATA

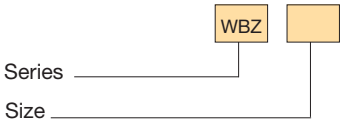
Release pressure	3 ÷ 6 bar with cylinder feed pressure 0 ÷ 10 bar
Working temperature	0 ÷ +80 °C (-5 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Size	32, 40, 50, 63, 80, 100, 125
Port size	Ø 32 ÷ 63 = G 1/8 Ø 80 ÷ 125 = G 1/4
Locking type	Mechanical – Only axial (bi-directional)
Release	Through pneumatic control
Condition in absence of pressure	Locked

Locking force with static load	Size	32	40	50	63	80	100	125
	N	790	1240	1930	3060	5400	7700	12040

MATERIALS

Body	Anodized aluminium alloy
Blades	Brass
Pistons	Acetal resin
Seals	NBR rubber
Springs	Steel

ORDER KEY



ORDER EXAMPLES

Piston rod locking unit, size 50 WBZ50
Piston rod locking unit, size 80 + cylinder series "CPUI" Ø80, 150 mm stroke, fit for piston rod locking unit, non-magnetic piston type, ASSEMBLED: WBZ80 + 80/150 CPUI/NZ + M/WBZ

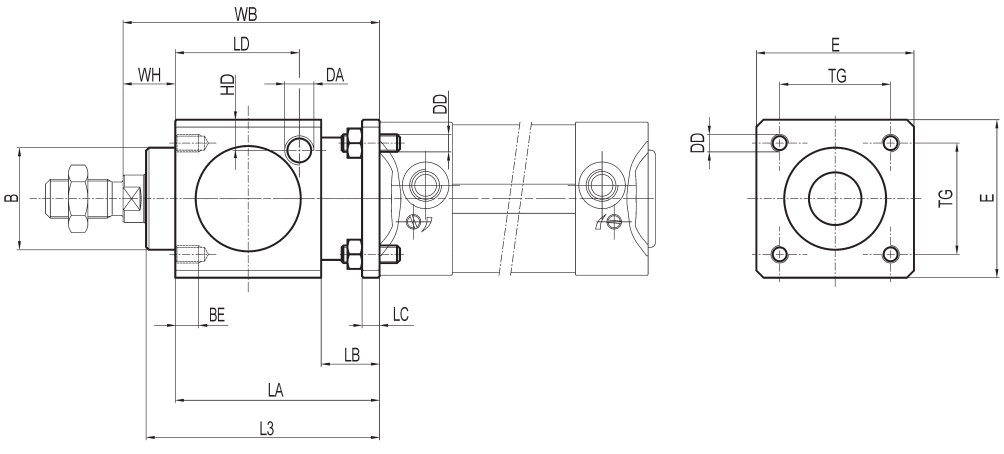
ASSEMBLY

"WBZ" + cylinder series "X" or "CPUI", "Z" version	M/WBZ

SPARE PARTS

BLADES KIT	Size/PM/WBZ
PISTON KIT	Size/SG/WBZ

WBZ PISTON ROD LOCKING UNIT



DIMENSIONS AND WEIGHTS

SIZE	B	BE	E	DA	DD	HD	L3	LA	LB	LC	LD	TG	WB	WH	WEIGHT (g)
32	30	8	47	G 1/8	M6	9	67,5	60	20	6	33,25	32,5	86	26	400
40	34,9	8	54	G 1/8	M6	9	80	70	20	6	42,5	38	100	30	600
50	40	12	65	G 1/8	M8	12,5	100	90	24	8	58	46,5	127	37	1100
63	45	12	75	G 1/8	M8	17,5	100	90	24	8	59	56,5	127	37	1500
80	45	16	95	G 1/4	M10	17,5	120	110	32	12	69	72	156	46	2600
100	55	16	114	G 1/4	M10	20	120	110	32	12	69	89	161	51	3500
125	60	20	138	G 1/4	M12	19	156	140	45	20	84,5	110	205	65	6500

P.S.: TECHNICAL INFORMATION (see the same ones for cylinders series "U" on page 1.7)

series WUG

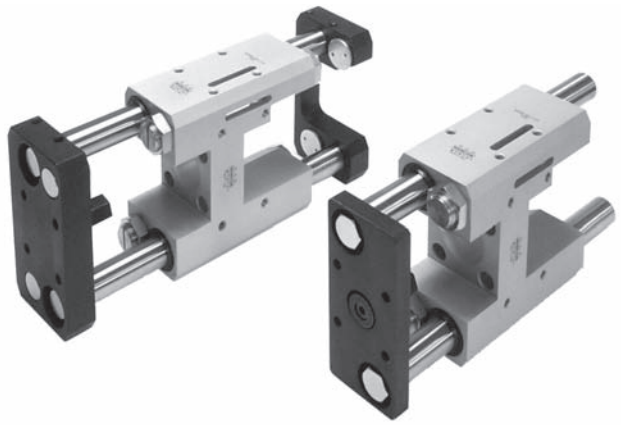
Accessories

Guide unit for cylinders series X and series CPUI to ISO 15552 standard

DESCRIPTION

Guide unit series “WUG” for cylinders to ISO 15552 standard (series “X “ and “CPUI”) act as devices against rotation of the piston rod in the presence of torques and they are used to carry out multi-axis systems where high movement precision is required.
Guide units are available in single and double version, and are supplied with self-lubricating bushings (for low speeds or heavy loads), or with recirculating ball bearing sleeves (for high speeds).

P.S.: Cylinders series “X” and “CPUI” (Ø 32 ÷ 63) in the magnetic version, assembled with these guide units, can accept rispectively magnetic sensors types FM100 and FM157 only (see from page 1.93).



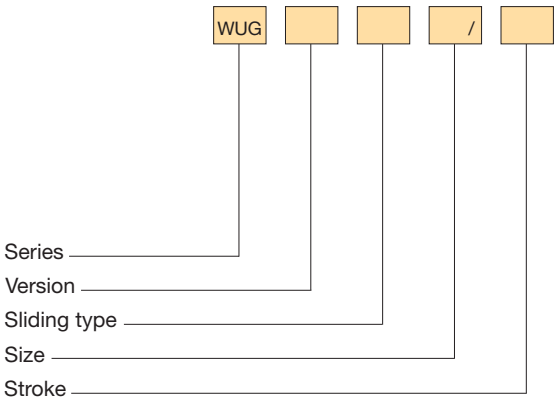
TECHNICAL DATA

Size	32, 40, 50, 63
Standard strokes (mm)	25, 50, 100, 150, 200, 250, 300, 350, 400, 500
Versions	Single unit Double unit

MATERIALS

Body	Anodized aluminium alloy
Self-aligning radial joint	Steel
Adjustable mechanical stop as standard	Brass
End flanges	Single unit: galvanized steel Double unit: anodized aluminium alloy
Guide bars	C45 chromium-plated steel (sliding type on bushings); Hardened steel (sliding type with sleeves)
Bushings	Self-lubricating sintered bronze with wiper ring
Sleeves	Recirculating ball bearings with wiper ring
Clamp	Brass

ORDER KEY



VERSION

	Single unit	D	Double unit

SLIDING TYPE

B	On bushings	M	With sleeves

ORDER EXAMPLES

Single guide unit, size 63, 150 mm stroke, with sleeves plus cylinder series “X” Ø 63, double acting, 150 mm stroke, magnetic piston type, ASSEMBLED
WUGM 63/150 + 63/150 X/M + M/WUG

Single guide unit, size 40, 250 mm stroke, with sleeves
WUGM 40/250

Double guide unit, size 50, 100 mm stroke, with bushings
WUGDB 50/100

ASSEMBLY

”WUG“ + cylinders series “X” or ”CPUI“	M/WUG

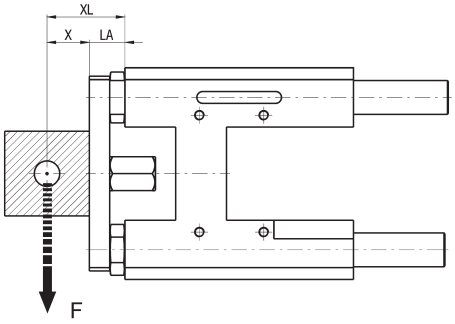
Accessories

Guide unit for cylinders series X and series CPUI to ISO 15552 standard

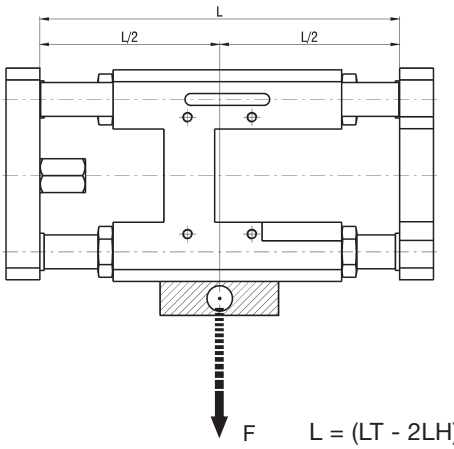
series WUG

TECHNICAL INFORMATION

WUG SINGLE GUIDE UNIT

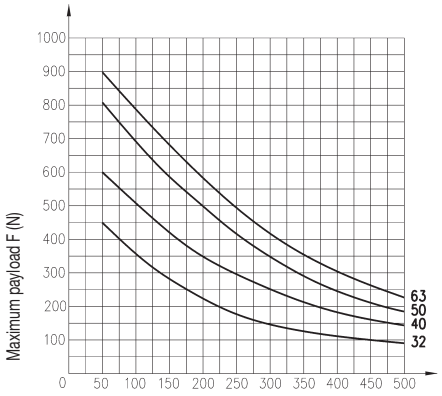


WUGD DOUBLE GUIDE UNIT

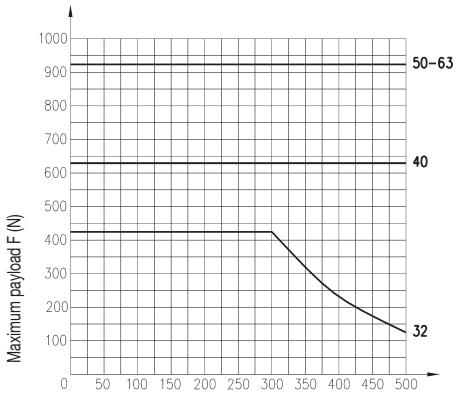


L = (LT - 2LH) + STROKE

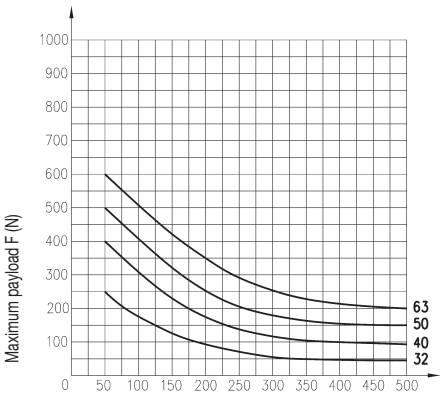
MAXIMUM PERMISSIBLE LOAD-WUG VERSION B



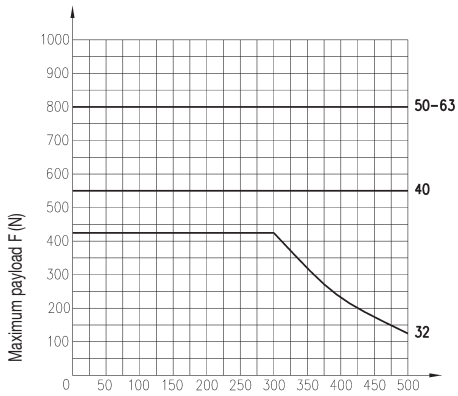
MAXIMUM PERMISSIBLE LOAD-WUGD VERSION B



MAXIMUM PERMISSIBLE LOAD-WUG VERSION M



MAXIMUM PERMISSIBLE LOAD-WUGD VERSION M

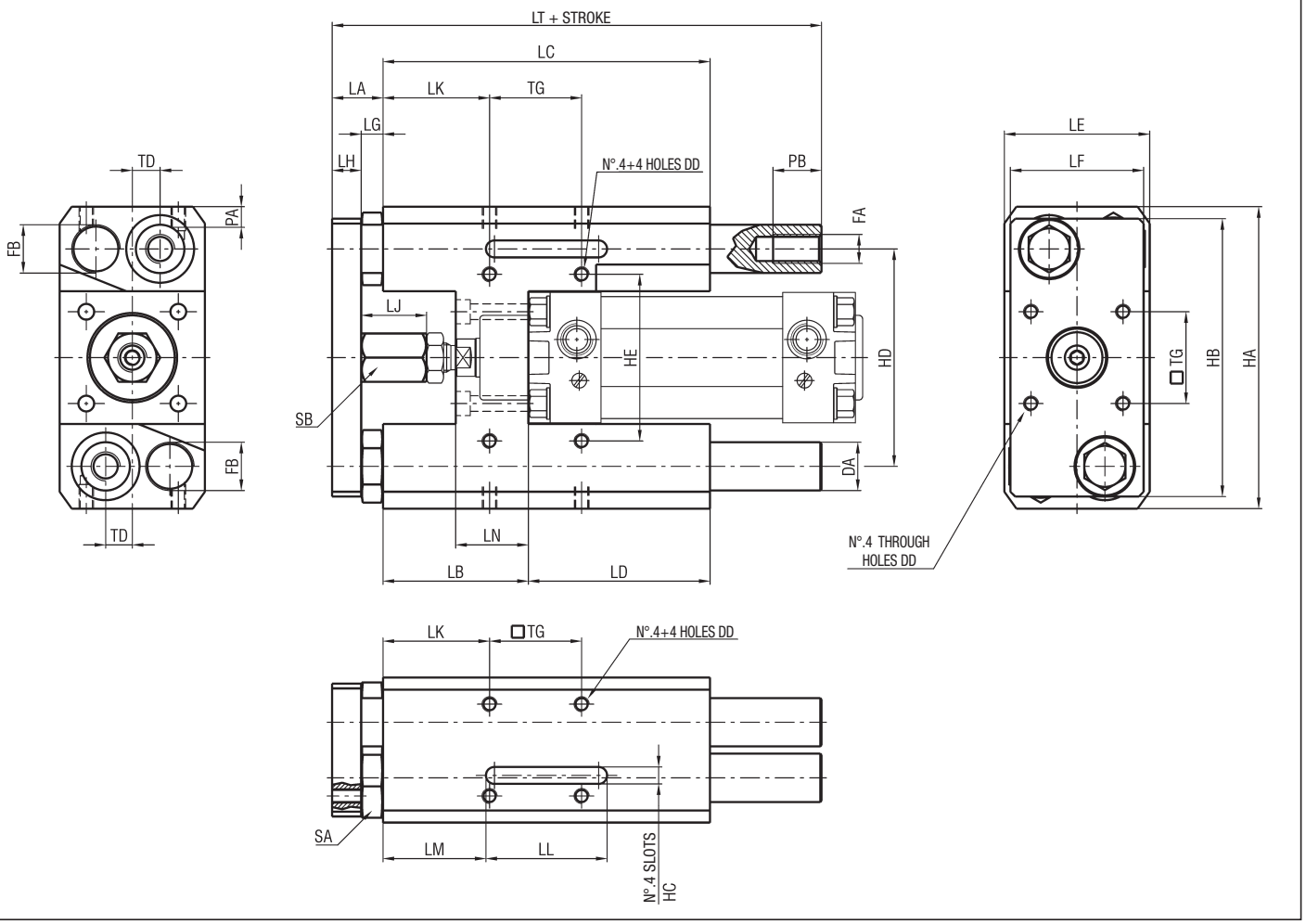


series WUG

Accessories

Guide unit for cylinders series X and series CPUI to ISO 15552 standard

WUG SINGLE GUIDE UNIT



DIMENSIONS AND WEIGHTS

SIZE	DA	DD	FA	FB	HA	HB	HC	HD	HE	LA	LB	LC	LD	LE	LF	LG	LH
32	16	M6	M10x1,25	M18x1,5	112	100	7	79	61	20	50	120	70	50	45	8	12
40	20	M6	M12x1,25	M20x1,5	125	115	7	90	69	21	60	135	75	60	55	9	12
50	25	M8	M16x1,5	M24x2	150	144	7	108	85	25	70	150	80	70	65	10	15
63	25	M8	M16x1,5	M27x2	162	155	7	119	100	27	73	180	107	80	75	12	15

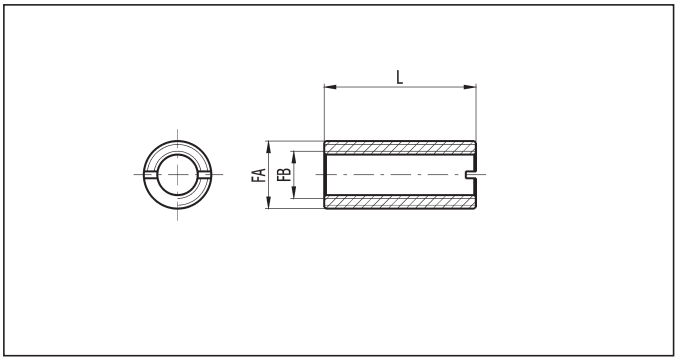
SIZE	LJ	LK	LL	LM	LN	LT	PA	PB	SA	SB	TD	TG	WEIGHT *WUGB (g)*	INCREM. *(g) every 10 mm*	WEIGHT *WUGM (g)*	INCREM. *(g) every 10 mm*
32	22	38	50	34,5	25	157	6	15	Ch.23	Ch.17	12	32,5	2060	29	1815	31
40	27	44	50	42,5	30	172	8	20	Ch.26	Ch.20	15	38	2905	45	2760	50
50	32	47	50	50	35	190	8	25	Ch.30	Ch.20	17,5	46,5	4780	65	4525	76
63	32	49,5	50	65	35	225	9,5	25	Ch.36	Ch.20	17	56,5	6315	65	5950	87

CLAMP FOR DECELERATOR - WUGCD SIZE

SIZE	FA	FB	L	WEIGHT *(g)*
32	M18x1,5	M12x1	40	50
40	M20x1,5	M14x1,5	45	60
50	M24x2	M16x1,5	50	105
63	M27x2	M20x1,5	60	130

CLAMP FOR MAGNETIC PROXIMITY SWITCH - WUGCP SIZE

SIZE	FA	FB	L	WEIGHT *(g)*
32	M18x1,5	M12x1	40	47
40	M20x1,5	M12x1	40	67
50	M24x2	M12x1	45	128
63	M27x2	M12x1	45	173

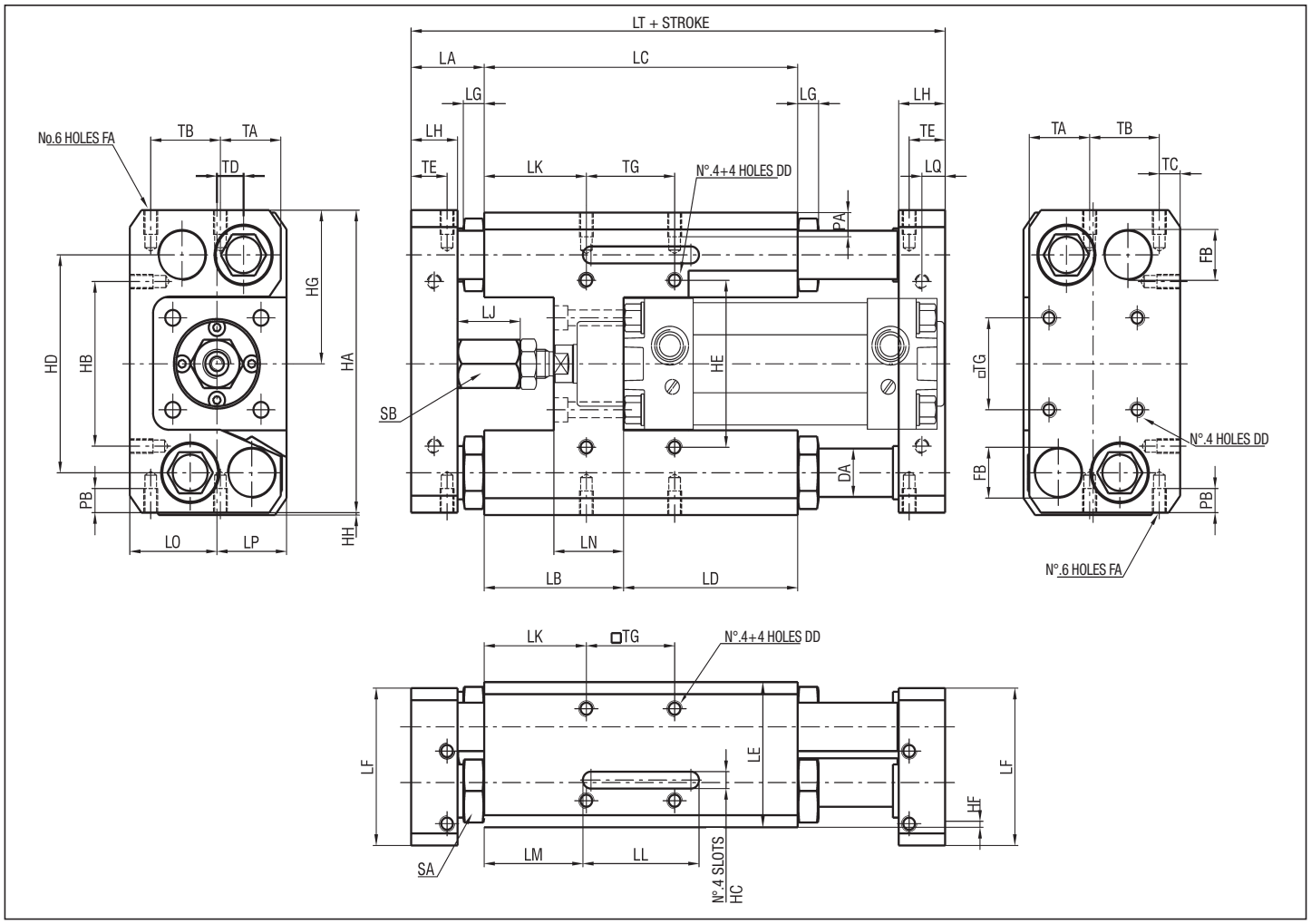


Accessories

Guide unit for cylinders series X and series CPUI to ISO 15552 standard

series WUG

WUGD DOUBLE GUIDE UNIT



DIMENSIONS AND WEIGHTS

SIZE	DA	DD	FA	FB	HA	HB	HC	HD	HE	HF	HG	HH	LA	LB	LC	LD	LE
32	16	M6	M5	M18x1,5	112	60	7	79	61	1	57	1	28,5	50	120	70	50
40	20	M6	M6	M20x1,5	125	68	7	90	69	2,5	63,5	1	31,5	60	135	75	60
50	25	M8	M8	M24x2	150	79	7	108	85	1	76	1	37,5	70	150	80	70
63	25	M8	M8	M27x2	162	89	7	119	100	1	82	1	39,5	73	180	107	80

SIZE	LF	LG	LH	LJ	LK	LL	LM	LN	LO	LP	LQ	LT	PA	PB	SA	SB	TA
32	58	8	18	22	38	50	34,5	25	34	25	9	181	6	10	Ch.23	Ch.17	24
40	65	9	20	27	44	50	42,5	30	37,5	30	10	200	8	10	Ch.26	Ch.20	26
50	78,5	10	25	32	47	50	50	35	44,5	35	12,5	225	8	12	Ch.30	Ch.20	33,5
63	93	12	25	32	49,5	50	65	35	54	40	12,5	260	9,5	12	Ch.36	Ch.20	40

SIZE	TB	TC	TD	TE	TG	WEIGHT *WUGDB (g)*	INCREM. *(g) every 10 mm*	WEIGHT *WUGDM (g)*	INCREM. *(g) every 10 mm*
32	24,5	9,5	9,5	14	32,5	2320	29	2250	31
40	30	9	11,5	15,5	38	3480	45	3340	50
50	33	12	13	19	46,5	5750	65	5480	76
63	41	12	17	19	56,5	6445	65	6065	87

series CPA

Twin rod cylinders

1

DESCRIPTION

Twin rod cylinders series “CPA” act as devices against rotation in the presence of torques. They have been designed to be interchangeable with cylinders that comply with ISO 15552 standard (series “X” and “CPUI”) and so they can be used with the standardized rear mountings of those cylinders. The cylinders series “CPA” are cushioned at both ends and with magnetic piston type as standard.

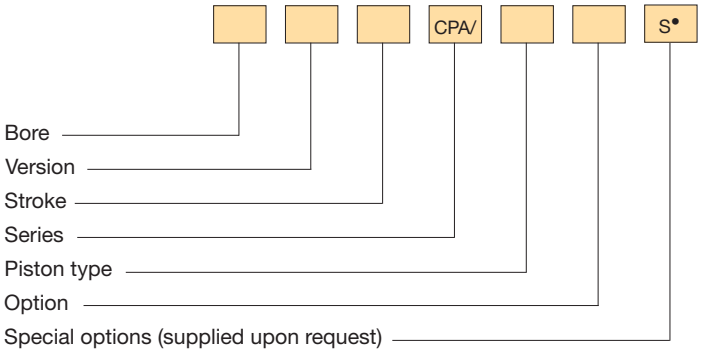
TECHNICAL DATA

Operating pressure	1÷10 bar
Working temperature	0 ÷ +80 °C (-20 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Versions	Double acting; Through ISO rod
Bore	Ø 32, 40, 50, 63, 80, 100
Port size	Ø 32 = G 1/8 Ø 40 - 50 = G 1/4 Ø 63 - 80 = G 3/8 Ø 100 = G 1/2
Standard strokes (mm)	25, 50, 75, 80, 100, 125, 150, 160, 175, 200, 250, 300, 320, 350, 400, 500
Decelerators length	Ø 32 40 50 63 80 100 mm 25 25 25 30 35 35
Maximum strokes (mm)	Ø 32 - 40 = 200; Ø 50 - 63 = 350; Ø 80 - 100 = 500

MATERIALS

End caps	Anodized aluminium alloy
Cylinder barrel	Extruded profile, 20µm anodized aluminium alloy
Tie rods and nuts	Steel
Flange	Anodized aluminium alloy
Piston rod	C45 chromium-plated steel AISI 303 rolled stainless steel
Rod nut	Steel Stainless steel
Piston rod bearing	Bronze, sintered, self-lubricating
Decelerators ogives	Aluminium alloy
Piston	Aluminium alloy, Derling with magnet
Seals	Polyurethane

ORDER KEY



P.S.: *Magnetic sensors* FM100-FM157–FM158 (see chapter magnetic sensors from page 1.93)

• See technical data on page 0.12

VERSION

/	Double acting	RA	Through ISO rod

PISTON TYPE

–		M	Magnetic

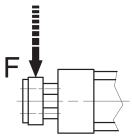
OPTION

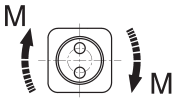
1	Stainless steel piston rods and rod nut

SPARE PARTS

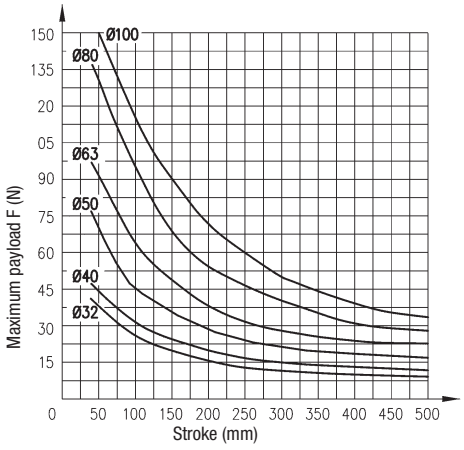
SEALS KIT	
Polyurethane	Ø/SG/CPA/M
Through ISO rod, polyurethane	Ø/SG/RA/CPA/M

TECHNICAL INFORMATION

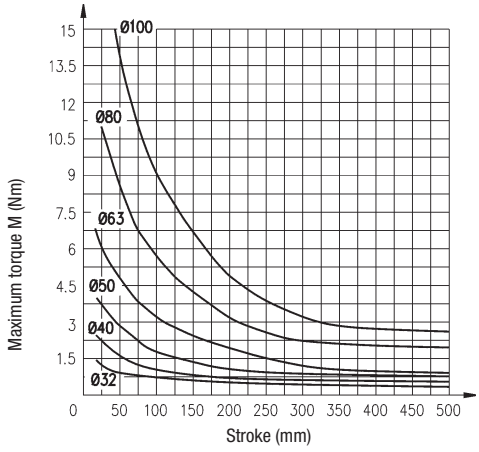




MAXIMUM PERMISSIBLE TRANSVERSE FORCE



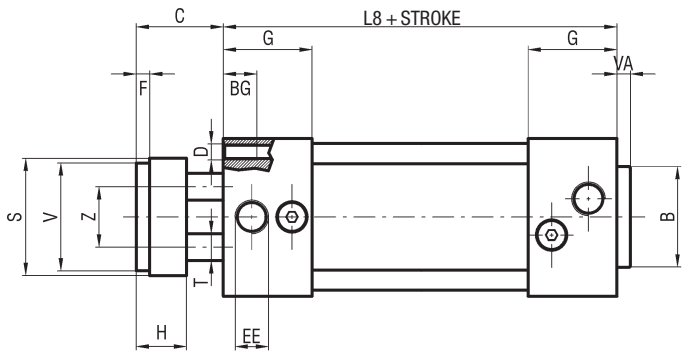
MAXIMUM PERMISSIBLE TORQUE

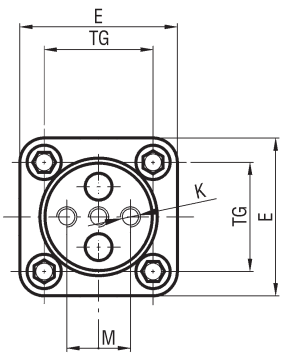


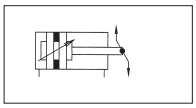
Twin rod cylinders

series CPA

CPA BASIC CYLINDER



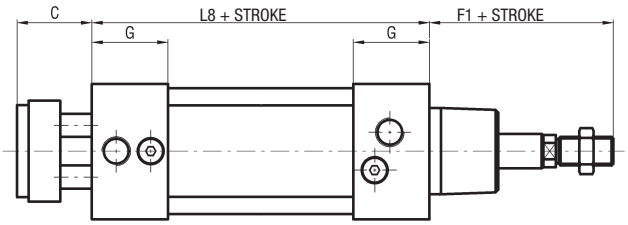


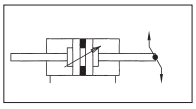


DIMENSIONS AND WEIGHTS BASIC CYLINDER

Ø	B	BG	C	D	E	EE	F	F1	G	H	K	L8	M	S	T	TG	V	VA	Z	WEIGHT (g)	INCR. (g) x 10 mm
32	30	16	26	M6	47	G1/8	4	48	28	15	M6	94	19	35	8	32,5	32	4	18	770	30
40	35	16	30	M6	53	G1/4	4	54	31,5	15	M8	105	22,5	45	10	38	40	4	22	980	43
50	40	16	37	M8	65	G1/4	5	69	31,5	18	M8	106	30	55	12	46,5	50	4	26	1570	70
63	45	16	37	M8	75	G3/8	5	69	35	22	M10	121	38	70	16	56,5	63	4	35	2320	128
80	45	16	46	M10	95	G3/8	5	86	36	22	M12	128	50	85	20	72	80	4	40	3830	132
100	55	16	51	M10	115	G1/2	5	91	41	22	M12	138	70	105	20	89	100	4	50	5600	139

THROUGH ISO ROD





P.S.: Rod nut supplied as standard

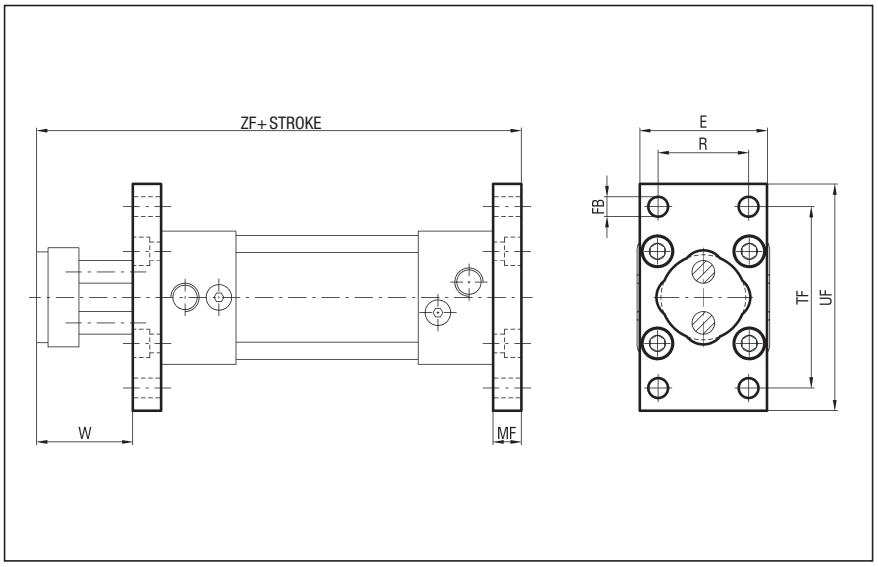
series CPA

FLANGE - STEEL (Supplied with screws)

- Ø 32 ÷ 50 - CPUI/F Ø
- Ø 63 ÷ 100 - CPA/F Ø

Ø	FB *H13*	E	MF *JS14*	R *JS14*	TF *JS14*	UF	W
32	7	45	10	32	64	80	16
40	9	52	10	36	72	90	20
50	9	65	12	45	90	110	25
63	9	75	12	50	100	120	25
80	12	95	16	63	126	150	30
100	14	115	16	75	150	170	35

Ø	ZF	WEIGHT *(g)*
32	130	190
40	145	246
50	155	478
63	170	622
80	190	1430
100	205	1986

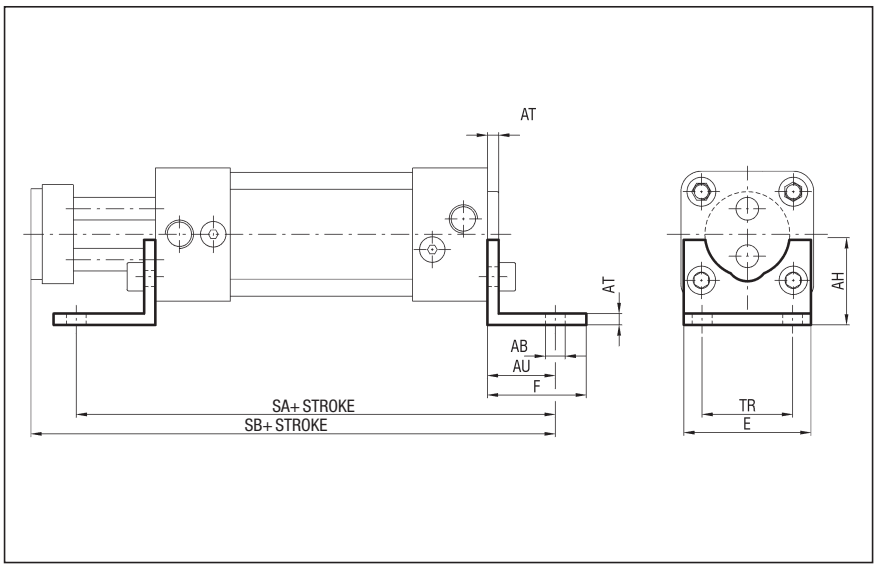


FOOT - STEEL (Supplied with screws)

- Ø 32 ÷ 50 - CPUI/PB Ø
- Ø 63 ÷ 100 - CPA/PB Ø

Ø	AB *H14*	AH *JS15*	AT	AU	E	F	SA
32	7	32	4	24	45	35	142
40	9	36	4	28	52	36	161
50	9	45	5	32	65	47	170
63	9	50	5	32	75	45	185
80	12	63	6	41	95	55	210
100	14	71	6	41	115	57	220

Ø	SB	TR *JS14*	WEIGHT *(g)*
32	144	32	66
40	163	36	78
50	175	45	168
63	190	50	190
80	215	63	382
100	230	75	452



P.S.: REAR MOUNTINGS ACCESSORIES SAME OF THE CYLINDERS SERIES “X” AND “CPUI” (see from page 1.29)

Cylinders to AFNOR NF E49-001 (ex CNOMO) standard

series CX

DESCRIPTION

Cylinders series "CX" comply with AFNOR NF E49-001 (ex CNOMO) standard and so they result interchangeable.
Cylinders series "CX" with magnetic piston type can be supplied with magnetic sensors.

TECHNICAL DATA

Operating pressure	1 ÷ 10 bar
Working temperature	0 ÷ +80 °C (-20 °C with dry air) 0 ÷ +150 °C with seals for high temperatures (-20 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Versions	Double acting; Single acting front spring; Single acting rear spring; Through rod; Double push tandem; Double stroke tandem; Opposed tandem
Bore	Ø 32, 40, 50, 63, 80, 100, 125, 160, 200
Port size	Ø 32 = G 1/8 Ø 40 - 50 = G 1/4 Ø 63 - 80 = G 3/8 Ø 100 - 125 = G 1/2 Ø 160 - 200 = G 3/4
Standard strokes (mm)	25, 50, 75, 100, 125, 150, 200, 250, 300, 350, 400, 500, 600, 700, 800, 900, 1000
Decelerators length	Ø 32 40 50 63 80 100 125 160 200 mm 25 30 30 35 35 40 40 50 50
Maximum strokes (mm)	Ø 32 ÷ 200 = 3000
Max. strokes single acting (mm)	Ø 32 ÷ 100 = 50

MATERIALS

End caps	Anodized aluminium alloy
Cylinder barrel	Extruded tube, anodized aluminium alloy
Tie rods, tie and rod nuts	Steel Stainless steel (supplied upon request for tie rods and tie nuts)
Piston rod	C45 chromium-plated steel AISI 303 rolled stainless steel
Piston rod bearing	Bronze-iron 20%, sintered, self-lubricating
Decelerators ogives	Aluminium alloy
Piston	NBR rubber block (supplied with and without magnet) Viton® (supplied only with non-magnetic piston type)
Seals	NBR rubber Viton®

ORDER KEY

			CX				S•

Bore
Version
Stroke
Series
Piston type
Option 1
Option 2
Special options (supplied upon request)

P.S.: *Magnetic sensors* FM 100 - FM157 - FM158 (see chapter magnetic sensors from page 1.93)
• See technical data on page 0.12

VERSION

/	Double acting	T	Double push tandem
S	Single acting front spring	P	Double stroke tandem
Y	Single acting rear spring	V	Opposed tandem
R	Through rod		

PISTON TYPE

	Non-magnetic	/FM	Magnetic

OPTION 1

1	Stainless steel piston rod and rod nut	3	Stainless steel piston rod and rod nut and seals for high temperatures*
2	Seals for high temperatures**		

OPTION 2

4	Brass cylinder barrel**	6	Inner chromium-plated steel cylinder barrel**

* Supplied only with non-magnetic piston type
** Supplied from Ø 32 to Ø 100

ORDER EXAMPLES

Cylinder Ø50, double acting, 100 mm stroke, non-magnetic piston type 50/100 CX

Cylinder Ø63, through rod, 150 mm stroke, magnetic piston type, stainless steel piston rod 63R150 CX/FM1

Cylinder Ø80, double push tandem, 50 mm stroke, magnetic piston type 80T50 CX/FM

Cylinder Ø80, double stroke tandem, 50 mm stroke 1 + 100 mm stroke 2, magnetic piston type 80P50+100 CX/FM

Cylinder Ø80, opposed tandem, 50 mm stroke 1 + 50 mm stroke 2, magnetic piston type, brass cylinder barrel 80V50+50 CX/FM4

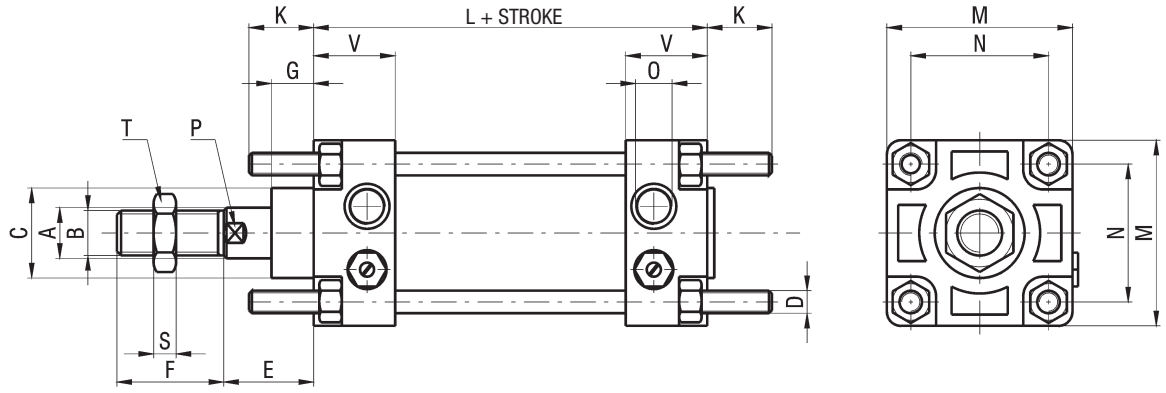
SPARE PARTS

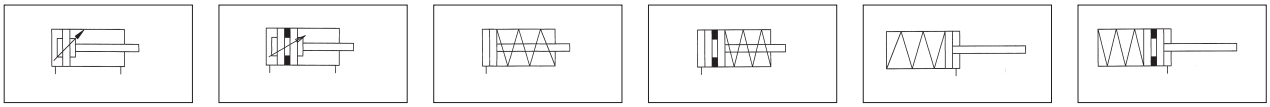
SEALS KIT		
Non-magnetic piston type	NBR	Ø/SG/CX
	Through rod, NBR	Ø/SG/R/CX
	For high temperatures	Ø/SG/CX2
	Through rod, for high temperatures	Ø/SG/R/CX2
Magnetic piston type	NBR	Ø/SG/CX/FM
	Through rod, NBR	Ø/SG/R/CX/FM

series CX

Cylinders to AFNOR NF E49-001 (ex CNOMO) standard

CX BASIC CYLINDER



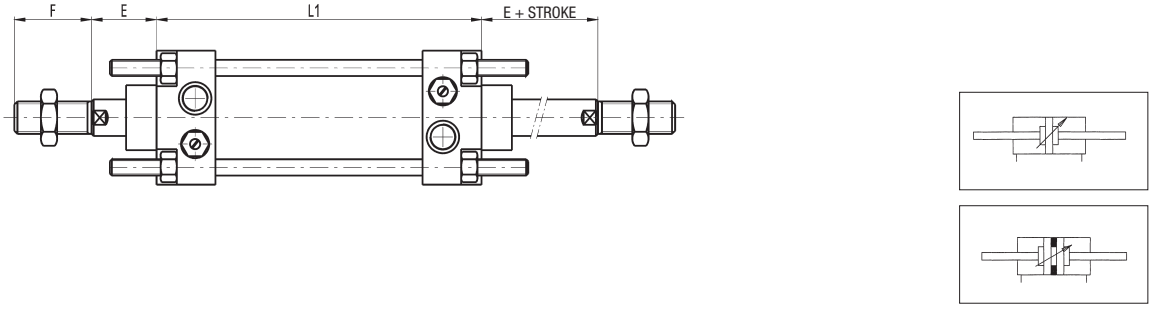


P.S.: Rod nut supplied as standard

DIMENSIONS AND WEIGHTS BASIC CYLINDER

Ø	A	B	C	D	E	F	G	H	K	L	L1	M	N	O	P	R	S	T	V	WEIGHT (g)	INCREMENT (g) every 10 mm
32	12	M10	25	M6	25	20	15	134	17	80	90	45	33	G 1/8	10	7	5	17	26	482	23
40	18	M16x1,5	32	M6	34	36	15	191	17	110	129	52	40	G 1/4	16	7	8	24	29	907	35
50	18	M16x1,5	32	M8	34	36	15	191	23	110	129	65	49	G 1/4	16	7	8	24	29	1170	46
63	22	M20x1,5	45	M8	39	46	20	216	23	125	143	75	59	G 3/8	20	9	10	30	34	1817	59
80	22	M20x1,5	45	M10	39	46	20	215	28	125	143	95	75	G 3/8	20	9	10	30	35	2680	66
100	30	M27x2	55	M10	47	63	20	251	28	145	164	115	90	G 1/2	27	9	13,5	41	39	4422	93
125	30	M27x2	55	M12	47	63	20	248	34	145	164	140	110	G 1/2	27	9	13,5	41	42	6630	110
160	40	M36x2	65	M16	50	85	25	310	42	180	200	180	140	G 3/4	36	13	18	55	50	13820	210
200	40	M36x2	65	M16	50	85	25	310	42	180	200	220	175	G 3/4	36	13	18	55	50	18840	290

THROUGH ROD

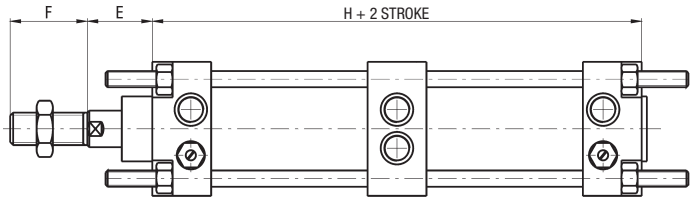


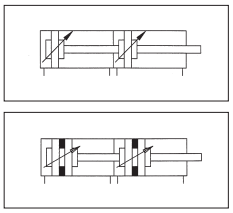
P.S.: Rod nuts supplied as standard

Cylinders to AFNOR NF E49-001 (ex CNOMO) standard

series CX

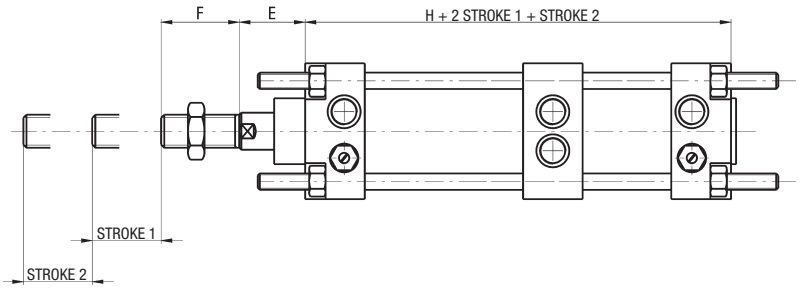
DOUBLE PUSH TANDEM

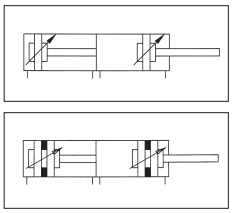




P.S.: Rod nut supplied as standard

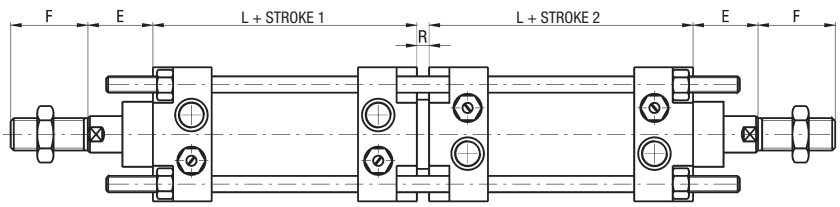
DOUBLE STROKE TANDEM

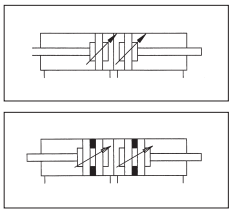




P.S.: Rod nut supplied as standard

OPPOSED TANDEM





P.S.: Rod nuts supplied as standard

series CX

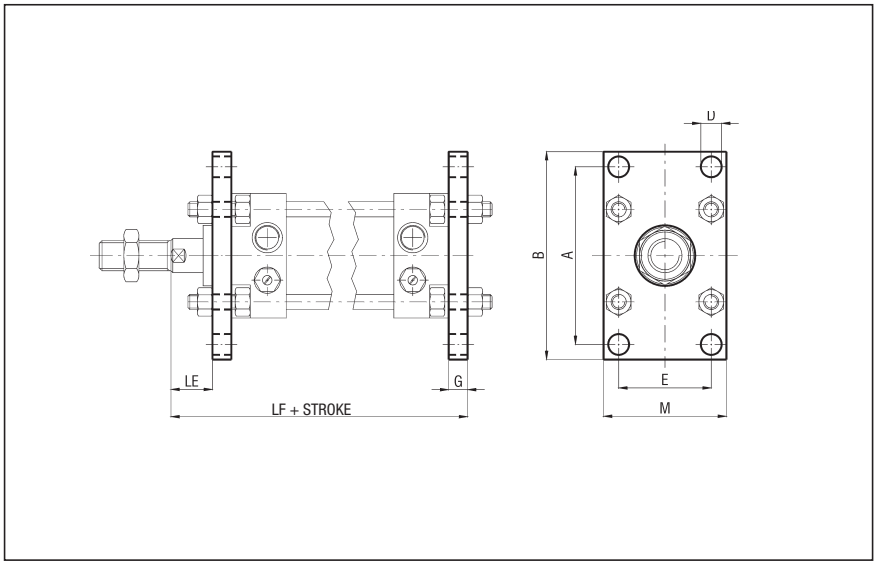
Accessories

Fixings for cylinders to AFNOR NF E49-001 (ex CNOMO) standard

FLANGE - STEEL - CX/F Ø

Ø	A	B	D *H13*	E	G	LE	LF
32	68	80	9	33	8	17	113
40	78	90	9	40	8	26	152
50	94	110	11	49	10	24	154
63	104	120	11	59	10	29	174
80	130	150	14	75	12	27	176
100	150	170	14	90	12	35	204
125	180	205	18	110	16	31	208
160	228	260	22	140	20	30	250
200	268	300	22	170	20	30	250

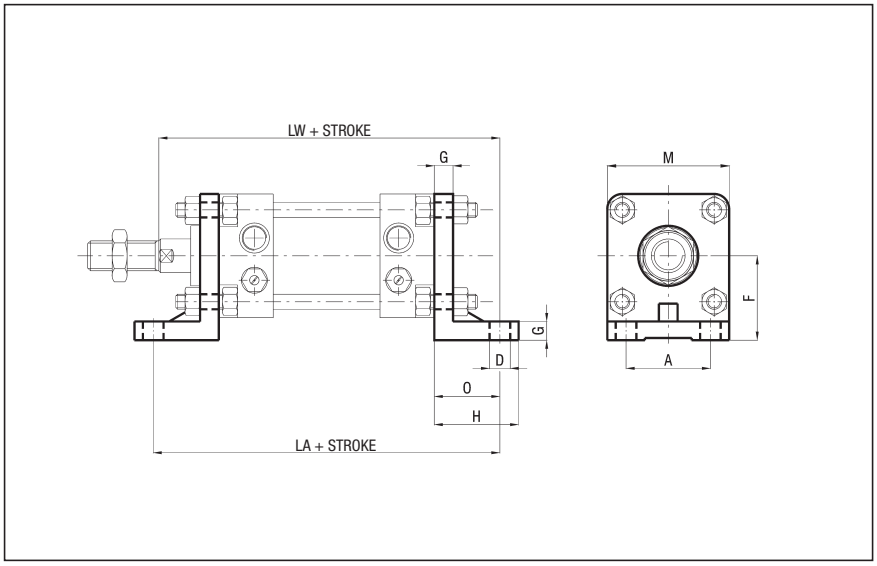
Ø	M	WEIGHT *(g)*
32	45	158
40	52	206
50	65	424
63	75	504
80	95	1046
100	115	1480
125	140	3000
160	180	6300
200	220	9300



HIGH FOOT - ALUMINIUM - CX/P Ø

Ø	A	D *H13*	F	G	H	LA	LW
32	28	9	32	8	35	134	132
40	36	9	36	8	35	164	171
50	45	11	45	10	45	180	179
63	55	11	50	10	45	195	199
80	70	14	63	12	55	211	207
100	90	14	73	12	55	231	235
125	100	18	91	16	68	249	244
160	130	22	115	20	82	304	292
200	170	22	135	20	92	304	292

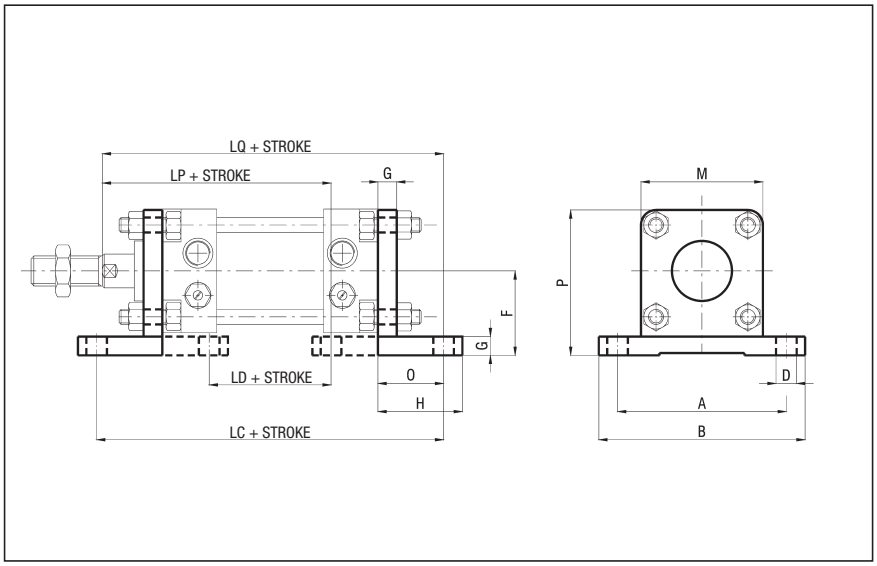
Ø	M	O	WEIGHT *(g)*
32	45	27	54
40	52	27	70
50	65	35	150
63	75	35	170
80	95	43	354
100	115	43	470
125	140	52	918
160	180	62	2300
200	220	62	3450



LARGE HIGH FOOT - ALUMINIUM - CX/PL Ø

Ø	A	B	D *H13*	F	G	H	LC
32	65	82	9	32	8	35	116
40	72	90	9	36	8	35	146
50	90	110	11	45	10	45	154
63	100	120	11	50	10	45	169
80	126	154	14	63	12	55	181
100	148	180	14	73	12	55	201
125	180	216	18	91	16	67,5	209
160	230	275	22	115	20	80	260
200	270	318	22	135	20	80	260

Ø	LD	LP	LQ	M	O	P	WEIGHT *(g)*
32	60	95	123	45	18	54,5	76
40	90	134	162	52	18	62	90
50	86	132	166	65	22	77,5	188
63	101	152	186	75	22	87,5	206
80	93	148	192	95	28	110	410
100	113	176	220	115	28	130	576
125	113	176	224	140	32	161	1058
160	140	210	270	180	40	206	2350
200	140	210	270	220	40	246	3100



Accessories

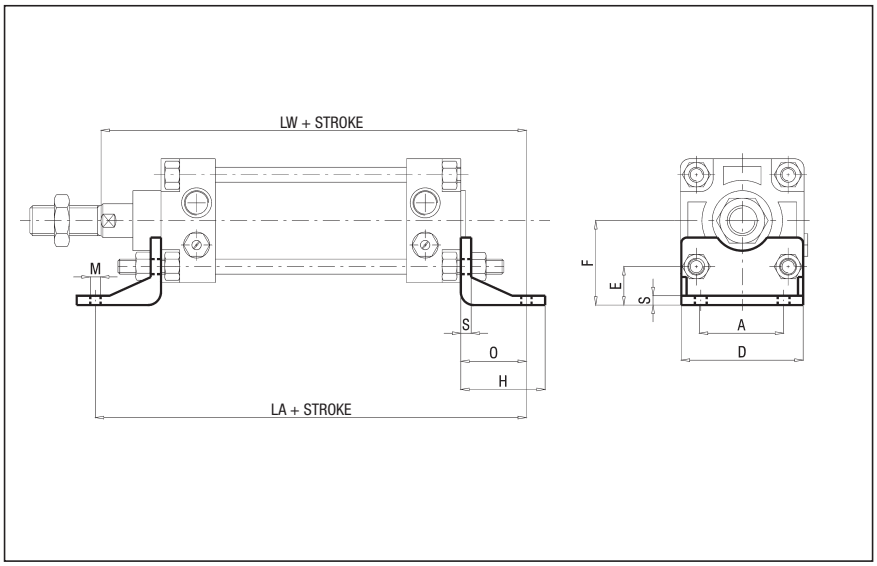
Fixings for cylinders to AFNOR NF E49-001 (ex CNOMO) standard

series CX

LOW FOOT - STEEL - CX/PB Ø

Ø	A	D	E	F	H	LA	LW
32	28	45	15,5	32	35	134	132
40	36	52	16	36	36	164	171
50	45	65	20,5	45	45	180	179
63	55	75	20,5	50	45	195	199
80	70	95	25,5	63	55	211	207
100	90	115	27	73	56	231	235
125	100	140	36	91	70	249	244
160	130	180	45	115	75	304	292
200	170	220	47	135	100	304	292

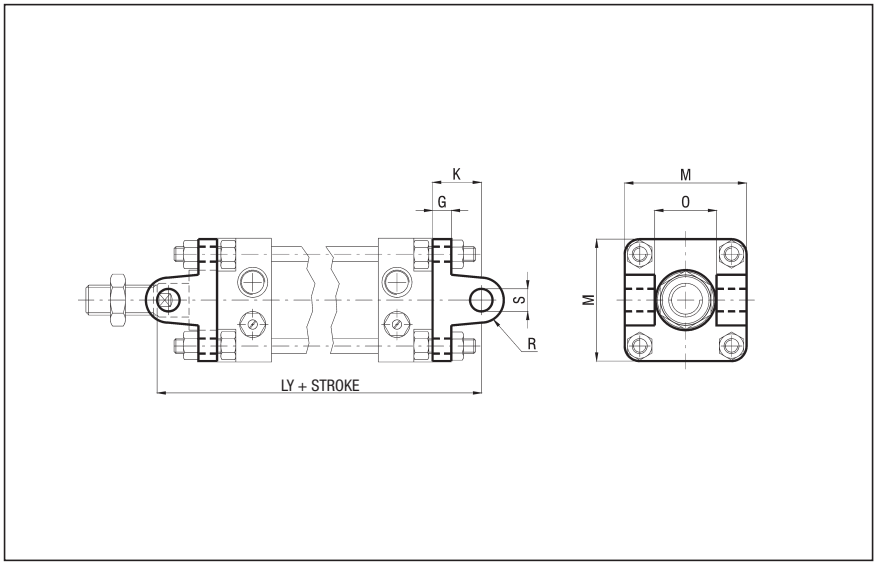
Ø	M *H13*	O	S	WEIGHT *(g)*
32	4,5	27	4	66
40	4,5	27	4	78
50	5,5	35	5	168
63	5,5	35	5	190
80	7	43	6	382
100	7	43	6	452
125	9	52	8	1090
160	11	62	10	1180
200	11	62	12	3450



FEMALE HINGE - ALUMINIUM - CX/CF Ø

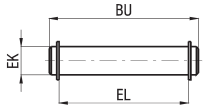
Ø	G	K	LY	M	O	R	S *H9*
32	8	18	123	45	26	8	8
40	8	24	168	52	33	12	12
50	10	26	170	65	33	12	12
63	10	30	194	75	47	16	16
80	12	32	196	95	47	16	16
100	12	37	229	115	57	20	20
125	16	41	233	140	57	21	20
160	20	55	285	180	72	25	25
200	20	55	285	220	72	25	25

Ø	WEIGHT *(g)*
32	38
40	58
50	118
63	146
80	324
100	492
125	978
160	1872
200	2800



PIVOT FOR REAR FEMALE HINGE - STEEL - CX/SEC Ø

Ø	EK *f7*	EL	BU	WEIGHT *(g)*
32	8	46	53	21
40	12	53	60	52
50	12	66	73	64
63	16	76	83	130
80	16	96	103	160
100	20	117	124	304
125	20	142	149	364
160	25	182	189	720
200	25	222	229	872



series CX

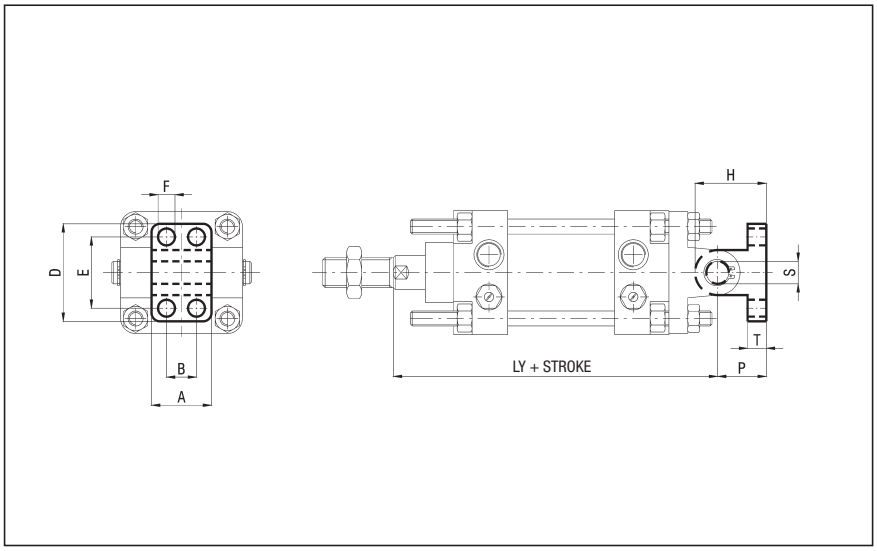
Accessories

Fixings for cylinders to AFNOR NF E49-001 (ex CNOMO) standard

NORMAL ARTICULATED JOINT - ALUMINIUM - CX/AN Ø

Ø	A	B	D	E	F	H	LY
32	25	0	40	28	7	26	123
40	32	16	52	38	9	38	168
50	32	16	52	38	9	38	170
63	46	25	75	54	11	52	194
80	46	25	75	54	11	52	196
100	56	32	115	90	14	61	229
125	56	32	115	90	14	61	233
160	71	43	180	150	18	80	285
200	71	43	180	150	18	80	285

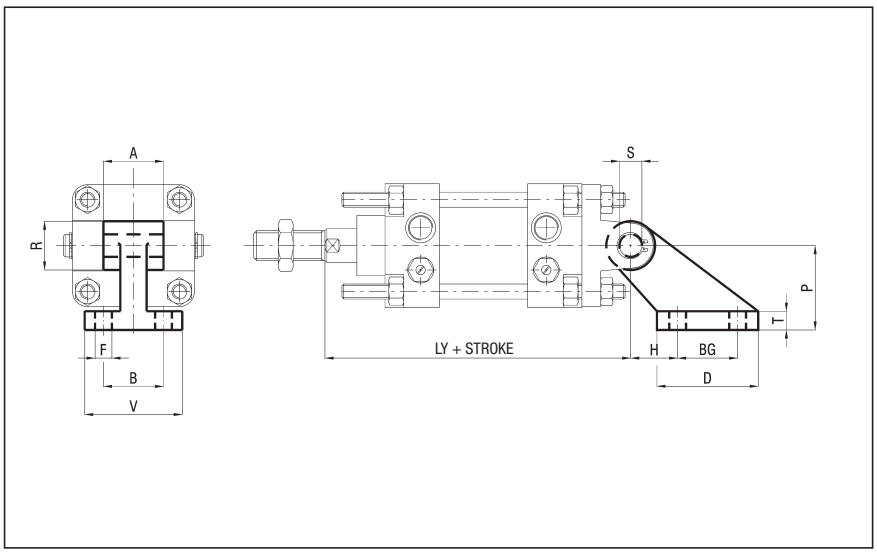
Ø	P	S *H9*	T	WEIGHT *(g)*
32	18	8	8	26
40	26	12	10	56
50	26	12	10	56
63	34	16	12	176
80	34	16	12	176
100	41	20	16	376
125	41	20	16	376
160	55	25	20	924
200	55	25	20	924



SQUARE JOINT - ALUMINIUM - CX/AS Ø/SQ

Ø	A	B	BG	D	F *H13*	H	LY
32	25	25	20	37	7	18	123
40	32	32	32	54	9	25	168
50	32	32	32	54	9	25	170
63	46	40	50	75	11	32	194
80	46	40	50	75	11	32	196
100	56	50	70	103	14	40	229
125	56	50	70	103	14	40	233
160	70	63	110	154	18	50	285
200	70	63	110	154	18	50	285

Ø	P	R	S *H9*	T	V	WEIGHT *(g)*
32	32	19,5	8	8	41	58
40	45	26	12	10	52	144
50	45	26	12	10	52	144
63	63	32	16	13	63	300
80	63	32	16	13	63	300
100	90	42	20	17	80	649
125	90	42	20	17	80	649
160	140	54	25	20	111	1922
200	140	54	25	20	111	1922



INTERMEDIATE HINGE (Supplied with dowels)

- Ø 32 ÷ 100 - STEEL - CX/CPU/CT Ø
- Ø 125 ÷ 200 - STEEL - CX/CPUI/CT Ø

Ø	A	B *h14*	D *e9*	E *h14*	G	M	Q *min*
32	46	50	12	12	15	6,25	58,5
40	59	63	16	16	20	6,25	73
50	69	73	16	16	20	8,25	73
63	84	90	20	20	25	8,25	85,5
80	102	108	20	20	25	10,25	86,5
100	125	131	25	25	30	10,25	101
125	155	160	25	25	32	12,25	105
160	190	200	32	32	40	16,25	120
200	240	250	32	32	40	16,25	120

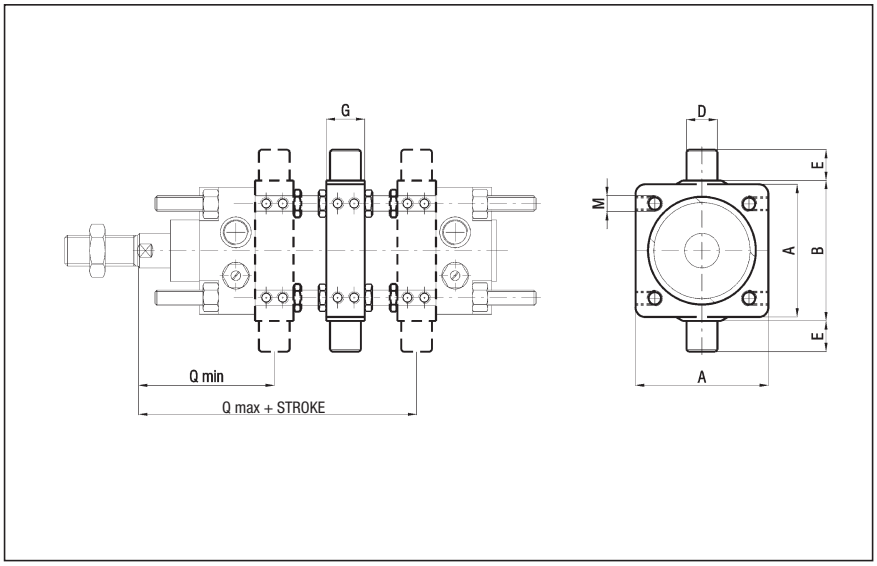
Ø	Q *max*	WEIGHT *(g)*
32	71,5	130
40	105	306
50	105	370
63	117,5	702
80	116,5	894
100	138	1590
125	134	2600
160	160	4300
200	160	7450

P.S.:
- ADJUSTABLE POSITION (fixing through dowels)

ASSEMBLY:
CX/CPU/CT Ø + cylinder CX type M/CX/CPU/CT Ø

- FIXED POSITION
(specify dimension "Q"; fixed on cylinder with completed threaded and galvanized tie rods type "S6", see on page 0.12)

ASSEMBLY:
CX/CPU/CT Ø or CX/CPUI/CT Ø
+ cylinder CX S6 type MF/CX/CPUI/CT Ø



Cylinders to ex CETOP RP 43 P standard

series CPU

DESCRIPTION

Cylinders series "CPU" comply with ex CETOP RP 43 P standard. The versions with magnetic piston type can be supplied with magnetic sensors.

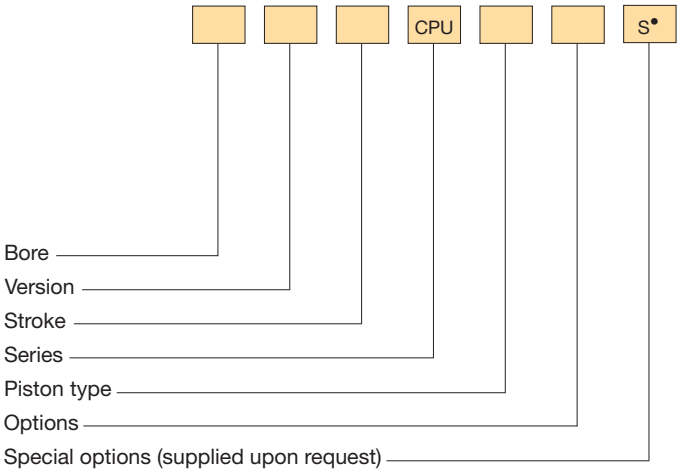
TECHNICAL DATA

Operating pressure	1 ÷ 10 bar
Working temperature	0 ÷ +80 °C (-20 °C with dry air) 0 ÷ +150 °C with seals for high temperatures (-10 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Versions	Double acting; Single acting front spring; Single acting rear spring; Through rod
Bore	Ø 32, 40, 50, 63, 80, 100
Port size	Ø 32 = G 1/8 Ø 40 - 50 = G 1/4 Ø 63 - 80 = G 3/8 Ø 100 = G 1/2
Standard strokes (mm)	25, 50, 75, 100, 125, 150, 200, 250, 300, 350, 400, 500, 600, 700, 800, 900, 1000
Decelerators length	Ø 32 40 50 63 80 100 mm 25 30 30 35 35 40
Maximum strokes (mm)	Ø 32 ÷ 100 = 3000
Max. strokes single acting (mm)	Ø 32 ÷ 100 = 50

MATERIALS

End caps	Anodized aluminium alloy
Cylinder barrel	Extruded tube, anodized aluminium alloy
Tie rods, tie and rod nuts	Steel Stainless steel (supplied upon request for tie rods and tie nuts)
Piston rod	C45 chromium-plated steel AISI 303 rolled stainless steel
Piston rod bearing	Bronze-iron 20%, sintered, self-lubricating
Decelerators ogives	Aluminium alloy
Piston	NBR rubber block (supplied with and without magnet) Viton® (supplied only with non-magnetic piston)
Seals	NBR rubber Viton®

ORDER KEY



P.S.: *Magnetic sensors* FM 100 - FM157 - FM158 (see chapter magnetic sensors from page 1.93)

• See technical data on page 0.12

VERSION

/	Duoble acting	Y	Single acting rear spring
S	Single acting front spring	R	Through rod

PISTON TYPE

	Non-magnetic	/FM	Magnetic

OPTIONS

1	Stainless steel piston rod and rod nut	3	Stainless steel piston rod and rod nut and seals for high temperatures*
2	Seals for high temperatures*		

* Supplied only with non-magnetic piston type

ORDER EXAMPLES

Cylinder Ø50, double acting, 100 mm stroke, non-magnetic piston type 50/100 CPU

Cylinder Ø63, through rod, 150 mm stroke, magnetic piston type, stainless steel piston rod 63R150 CPU/FM1

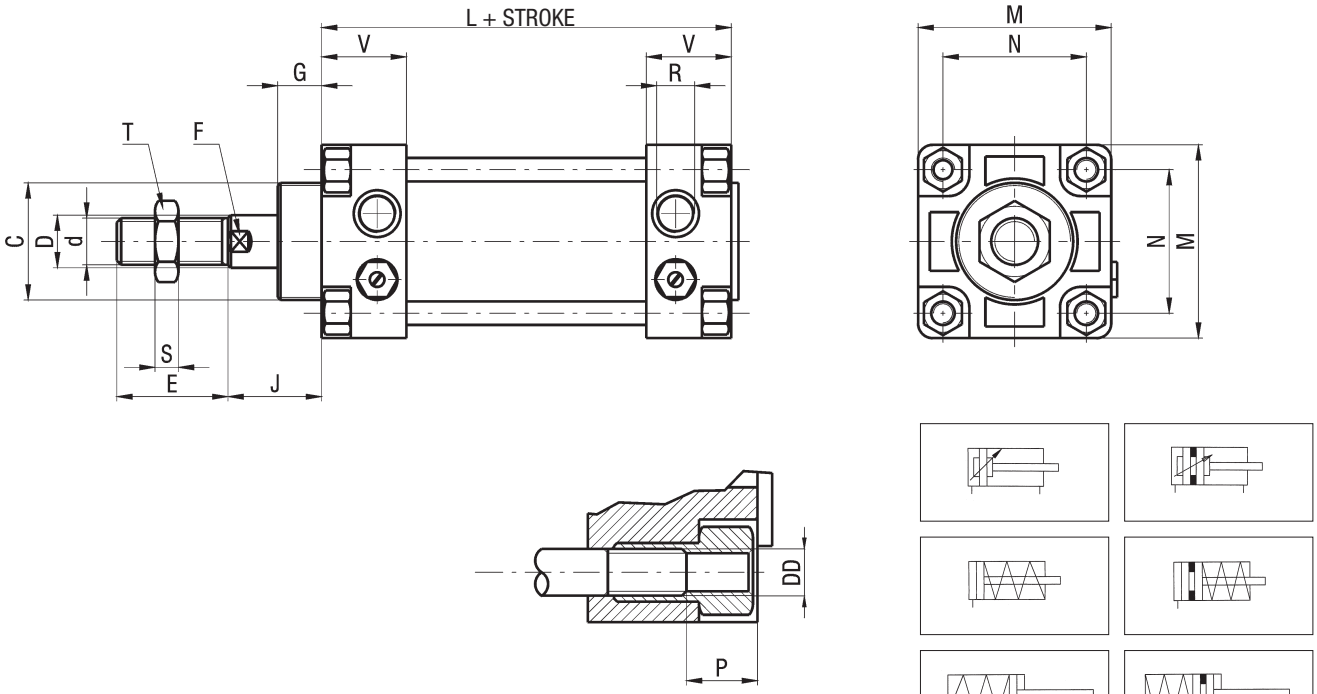
SPARE PARTS

SEALS KIT		
Non-magnetic piston type	NBR	Ø/SG/CPU
	Through rod, NBR	Ø/SG/R/CPU
	For high temperatures	Ø/SG/CPU2
	Through rod, for high temperatures	Ø/SG/R/CPU2
Magnetic piston type	NBR	Ø/SG/CPU/FM
	Through rod, NBR	Ø/SG/R/CPU/FM

series CPU

Cylinders to ex CETOP RP 43 P standard

CPU BASIC CYLINDER

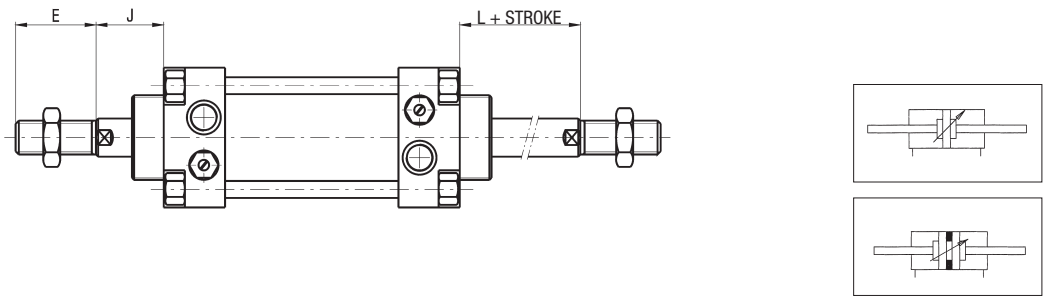


P.S.: Rod nuts supplied as standard

DIMENSIONS AND WEIGHTS BASIC CYLINDER

Ø	C	d	D	DD	E	F	G	J	L	M	N	P	R	S	T	V	WEIGHT (g)	INCR. (g) x 10 mm
32	M30x1,5	M10x1,25	12	M6	20	10	15	24	98	45	33	14	G 1/8	6	17	26	517	21
40	M35x1,5	M12x1,25	18	M6	24	13	18	28	110	52	40	14	G 1/4	7	19	29	810	36
50	M40x1,5	M16x1,5	18	M8	32	16	20	35	110	65	49	15	G 1/4	8	24	29	1210	44
63	M40x1,5	M16x1,5	22	M8	32	17	20	35	125	75	59	15	G 3/8	8	24	34	1727	61
80	M45x1,5	M20x1,5	22	M10	40	20	20	42	136	95	75	16	G 3/8	9	30	35	2590	64
100	M55x2	M20x1,5	25	M10	40	22	28	47	145	115	90	16	G 1/2	9	30	39	3970	76

THROUGH ROD



P.S.: Rod nuts supplied as standard

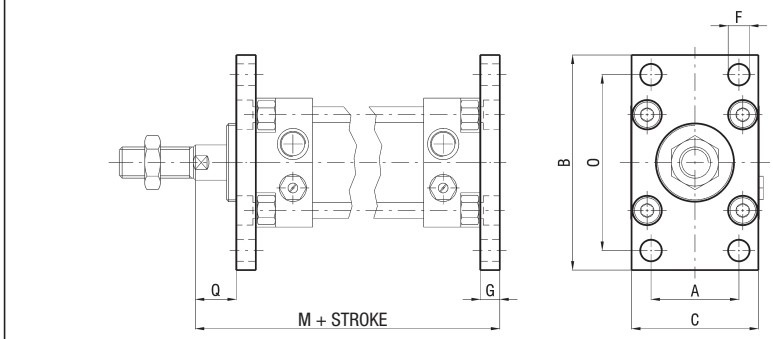
Cylinders to ex CETOP RP 43 P standard

series CPU

FLANGE - STEEL - CPU/F Ø (Supplied with screws)

Ø	A	B	C	F	G	Q	M
32	32	80	45	7	8	16	130
40	36	90	52	9	8	20	146
50	45	110	65	9	10	25	155
63	50	120	75	9	10	25	170
80	63	150	95	12	12	30	190
100	75	170	115	14	12	35	204

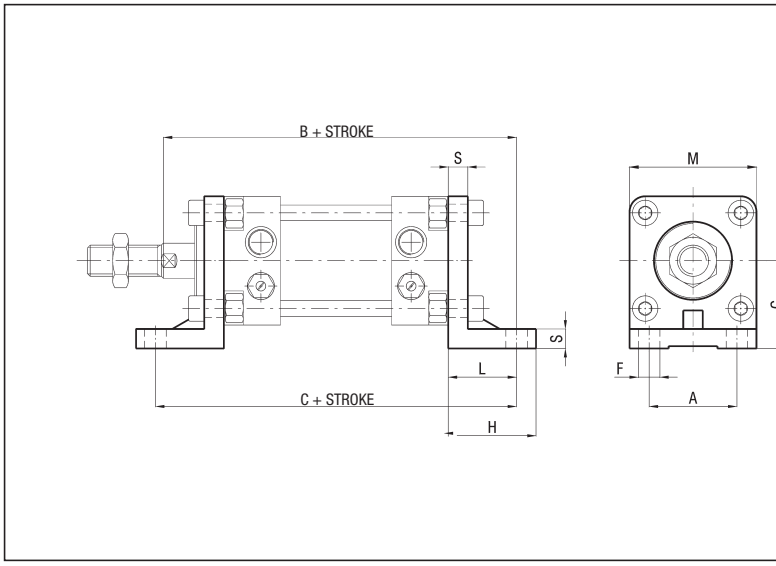
Ø	O	WEIGHT *(g)*
32	64	145
40	72	195
50	90	390
63	100	530
80	126	1045
100	150	1450



HIGH FOOT - ALUMINIUM - CPU/P Ø (Supplied with screws)

Ø	A	B	C	F *H13*	G	H	L
32	32	144	142	7	32	35	22
40	36	164	162	9	36	35	26
50	45	173	166	9	45	43	28
63	50	190	185	9	50	45	30
80	63	215	210	12	63	55	37
100	75	229	219	14	71	55	37

Ø	M	S	WEIGHT *(g)*
32	45	8	55
40	52	8	65
50	65	10	140
63	75	10	190
80	95	12	370
100	115	12	500

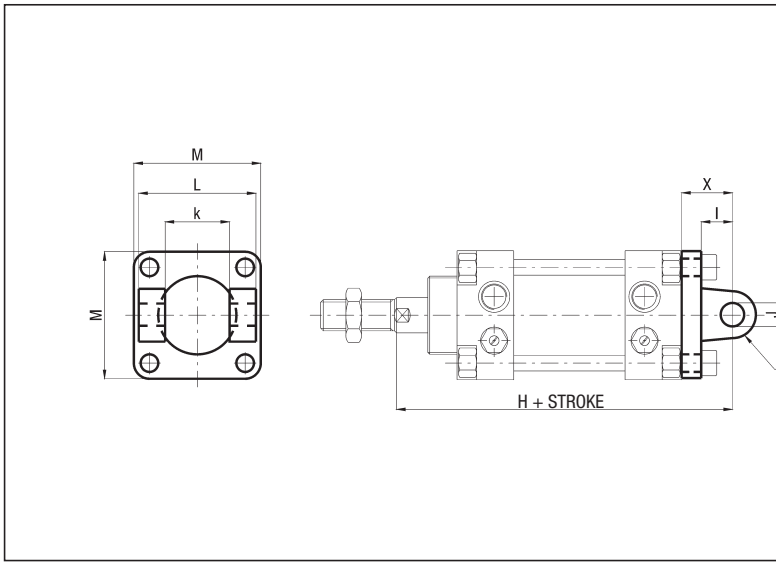


REAR FEMALE HINGE - ALUMINIUM - CPU/CF Ø (Supplied with screws)

Ø	F	I	H	J *H9*	k	L	M
32	9	12	142	10	26	45	45
40	12	15	161	12	28	52	52
50	12	17	172	12	32	60	65
63	17	20	190	16	40	70	75
80	17	20	210	16	50	90	95
100	21	25	229	20	60	110	115

Ø	X	WEIGHT *(g)*
32	20	35
40	23	55
50	27	105
63	30	170
80	32	300
100	37	455

P.S.: This hinge can be used also with square joint of series "X" and "CPUI" (see page 1.30)

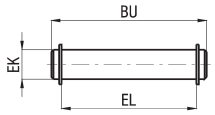


series CPU

Accessories
Fixings for cylinders to ex CETOP RP 43 P standard

PIVOT FOR REAR FEMALE HINGE - STEEL - CPU/CPUI/SEC Ø

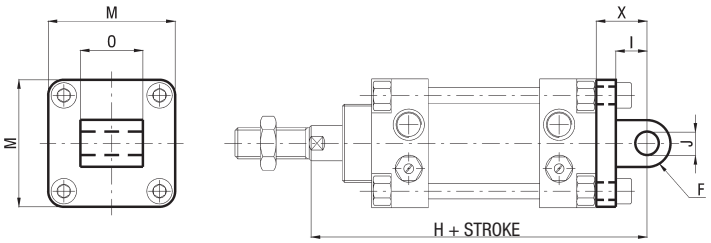
Ø	BU	EK f7	EL	WEIGHT (g)
32	53	10	46	32
40	60	12	53	52
50	68	12	61	60
63	78	16	71	122
80	98	16	91	152
100	118	20	111	290



MALE HINGE - ALUMINIUM - CPU/CM Ø

Ø	F	I	H	J H9	M	O	X
32	10	12	142	10	45	26	20
40	12	15	161	12	52	28	23
50	12	17	172	12	65	32	27
63	16	20	190	16	75	40	30
80	16	20	210	16	95	50	32
100	20	25	229	20	115	60	37

Ø	WEIGHT (g)
32	50
40	70
50	140
63	210
80	350
100	565



INTERMEDIATE HINGE - STEEL - CX/CPU/CT Ø (Supplied with dowels)

Ø	A	B h14	D e9	E h14	G	M	Q min
32	46	50	12	12	15	6,25	57,5
40	59	63	16	16	20	6,25	67
50	69	73	16	16	20	8,25	74
63	84	90	20	20	25	8,25	81,5
80	102	108	20	20	25	10,25	89,5
100	125	131	25	25	30	10,25	101

Ø	Q max	WEIGHT (g)
32	88,5	130
40	99	306
50	106	370
63	113,5	702
80	130,5	894
100	138	1590

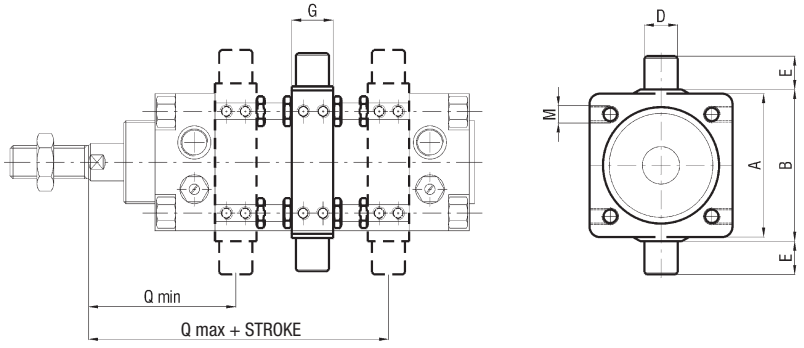
P.S.:

- ADJUSTABLE POSITION (fixing through dowels)

ASSEMBLY:
CX/CPU/CT Ø + cylinder series CPU type M/CX/CPU/CT Ø

- FIXED POSITION
(specify dimension "Q"; fixed on cylinder with completed threaded and galvanized tie rods type "S6", see on page 0.12)

ASSEMBLY:
CX/CPU/CT Ø + cylinder series CPU S6 type MF/CX/CPU/CT Ø



Compact cylinders to AFNOR NF E49-004-1 and NF E49-004-2 standards

series BU

DESCRIPTION

Cylinders series "BU" are available from Ø 20 to Ø 100 and, complying with AFNOR NF E49-004-1 and NF E49-004-2 standards, they're interchangeable also without using anchorages. Besides from Ø 32 to Ø 100 they are available even with end caps distance between centers to ISO 15552 standard. Cylinder series "BU" with magnetic piston type can be supplied with magnetic sensors inserted in the slots arranged on the extruded profile.

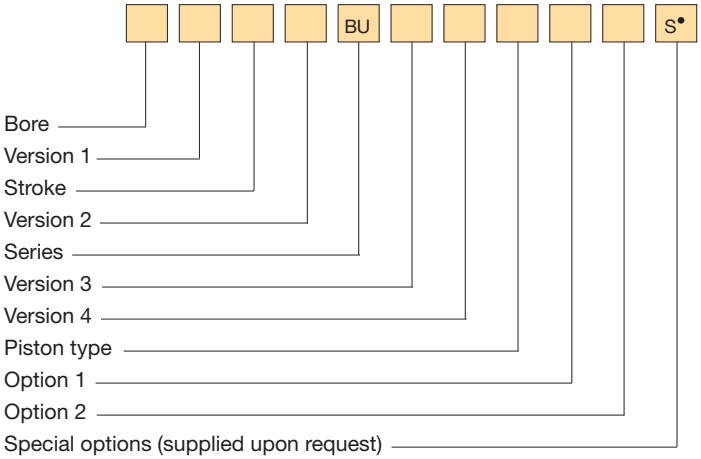
TECHNICAL DATA

Operating pressure	Single acting: 2 ÷ 10 bar; Double acting: 1 ÷10 bar.
Working temperature	0 ÷ +80 °C (-20 °C with dry air) 0 ÷ +130 °C with seals for high temperatures (-10°C with dry air; for single acting versions: max 100°C)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Versions	Double acting; Single acting front spring; Single acting rear spring; Through rod; Double push tandem; Double stroke tandem; Opposed tandem; Non-rotating piston rod device; Hollow through rod; Distance between centers to ISO standard
Bore	Ø 20, 25, 32, 40, 50, 63, 80, 100
Port size	Ø 20 - 25 = M 5; Ø 32 ÷ 100 = G 1/8
Standard strokes (mm)	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 100, 125, 150, 160, 200, 250, 300, 320, 350, 400
Maximum strokes (mm)	Ø 20 - 25 = 200; Ø 32 ÷ 63 = 300; Ø 80 - 100 = 400
Max. strokes single acting (mm)	Ø 20 ÷ 100 = 25
Max. strokes hollow through rod (mm)	Ø 20 ÷ 32 = 40; Ø 40 ÷ 63 = 60; Ø 80 - 100 = 80
Max. strokes non-rotating (mm)	Ø 20 - 25 = 40; Ø 32 ÷ 100 = 80

MATERIALS

End caps	Extruded profile, anodized aluminium alloy
Cylinder barrel	Extruded profile, 20 µm anodized aluminium alloy
Screws	Steel
Piston rod	Ø 20 - 25 = AISI 303 rolled stainless steel Ø 32 ÷ 100 = C45 chromium-plated steel
Rod nut	Steel Stainless steel
Piston rod bearing	Self-lubricating sintered bronze
Piston	Ø 20 - 25 = galvanized steel (supplied with and without magnet) Ø 32 ÷ 100 = aluminium alloy (supplied with and without magnet)
Seals	Polyurethane
Springs	Springs steel

ORDER KEY



P.S.: *Magnetic sensors* FM 100 (see chapter magnetic sensors from page 1.93)
• See technical data on page 0.12

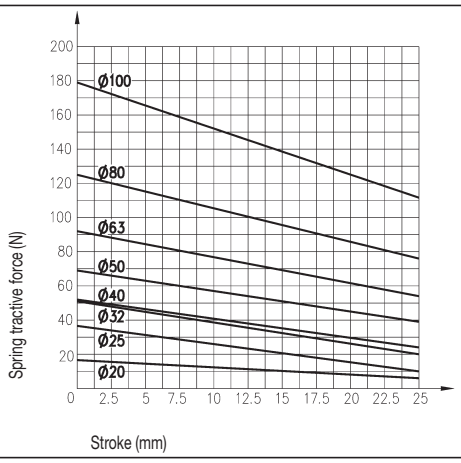
ORDER EXAMPLES

Basic cylinder Ø50, 50 mm stroke, double acting, magnetic piston type, female threaded piston rod 50/50 DBU/M8

Cylinder Ø63, through rod, 80 mm stroke, double acting, magnetic piston type, stainless steel and male threaded piston rod 63R80 DBU/M17

Cylinder Ø80, double stroke tandem, 50 mm stroke 1 + 100 mm stroke 2, double acting, magnetic piston type, female threaded piston rod 80P50+100 DBU/M8

SPRING THEORETICAL TRACTIVE FORCE



VERSION 1

/	Basic cylinder	T	Double push tandem
R	Through rod	P	Double stroke tandem
F	Hollow through rod	V	Opposed tandem

VERSION 2

D	Double acting	Y	Single acting rear spring
S	Single acting front spring		

VERSION 3

I End caps distance between centers to ISO 15552 standard*

VERSION 4

A Non-rotating piston rod device (supplied only with female threaded piston rod option)

PISTON TYPE

	Non-magnetic	/M	Magnetic

OPTION 1

1	Stainless steel piston rod and rod nut**	3	Stainless steel piston rod and rod nut and seals for high temperatures***
2	Seals for high temperatures***		

OPTION 2

7	Male threaded piston rod	8	Female threaded piston rod

* Supplied only from Ø 32 to Ø 100
For versions "T", "P" and "V" contact our commercial office
** Supplied as standard for Ø 20 and Ø 25
*** Supplied only with non-magnetic piston type

P.S.: End caps mountings accessories of Version No. 3 (end caps distance between centers to ISO standard) are the same of the cylinders series "X" and "CPUI" (see from page 1.28)

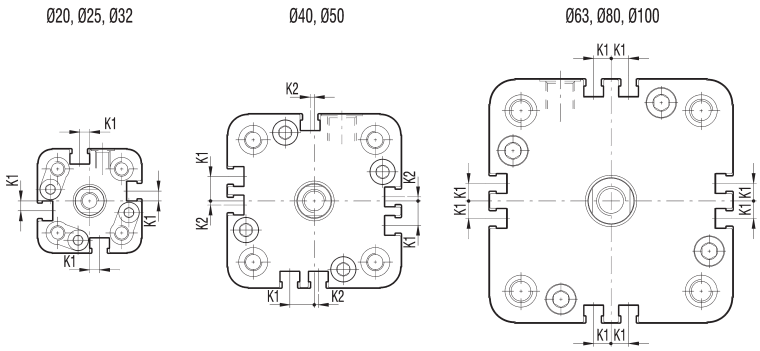
SPARE PARTS

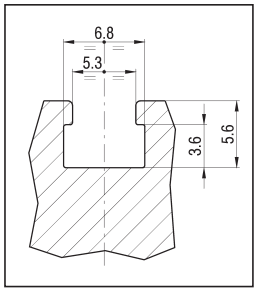
SEALS KIT			
Polyurethane	Ø/SG/BU	Through rod, polyurethane	Ø/SG/R/BU
For high temperatures	Ø/SG/BU2	Through rod, for high temperatures	Ø/SG/R/BU2

series BU

Compact cylinders to AFNOR NF E49-004-1 and NF E49-004-2 standards

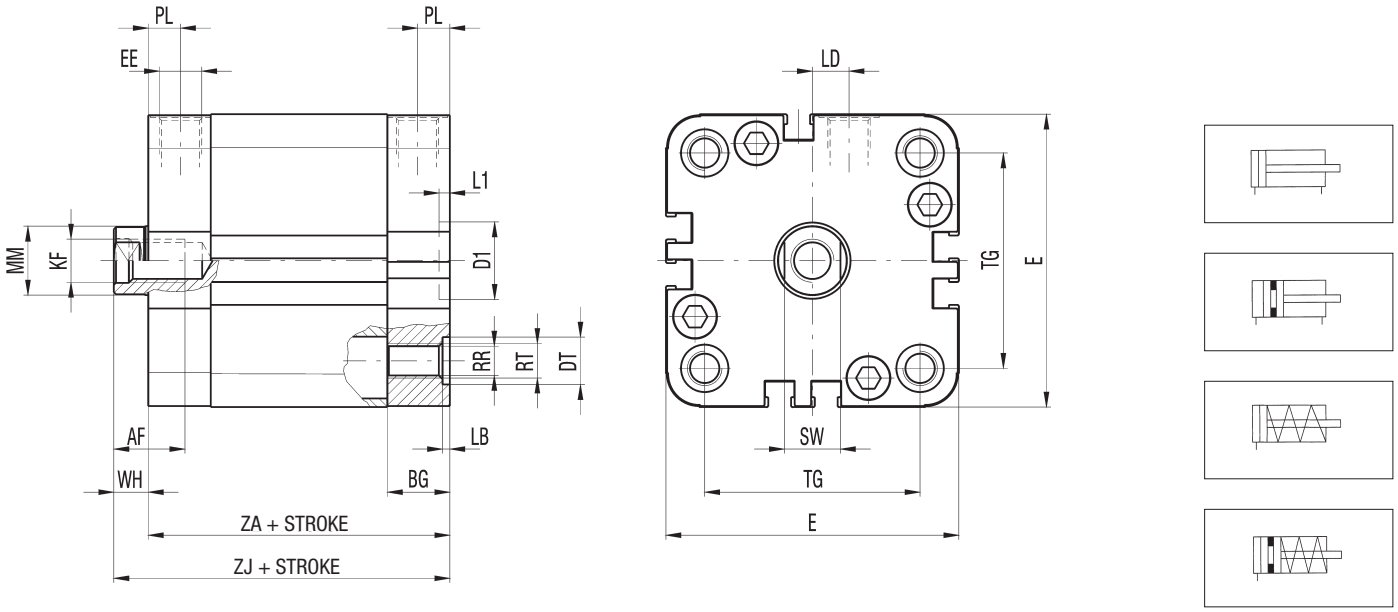
DISPOSITION OF THE SLOTS FOR MAGNETIC SENSORS





Ø	K1	K2
20	3,4	-
25	4	-
32	4	-
40	8,4	1,4
50	7,6	3,2
63	6	-
80	8	-
100	8	-

BU BASIC CYLINDER, FEMALE THREADED PISTON ROD



DIMENSIONS AND WEIGHTS BASIC CYLINDER FEMALE THREADED PISTON ROD

Ø	AF	BG*	D	D1 *H11*	DT *H13*	E	EE	KF	LB	LD	L1	MM	PL	RR	RT	SW	TG**		WH	ZA	ZB	ZJ	WEIGHT *(g)*	INCR. *(g) x 5 mm*
																	A	I						
20	11,5	12	3,8	12	8	36	M5	M6	4,4	4,5	2,5	10	7	4,3	M5	8	22	-	6	37	62	43	130	10
25	11,5	13	3,8	12	8	40	M5	M6	4,4	5,5	2,5	10	8	4,3	M5	8	26	-	6	39	65	45	160	11
32	13	14,5	4,5	14	10,5	50	G 1/8	M8	5,4	5	2,5	12	7,5	5,3	M6	10	32	32,5	7	44	73,5	51	215	16
40	13	14,5	4,5	14	10,5	60	G 1/8	M8	5,4	9,5	2,5	12	7,5	5,3	M6	10	42	38	7	45	75,5	52	330	20
50	16,5	14,5	6	18	11	68	G 1/8	M10	1,7	8,5	2,5	16	7,5	6,4	M8	13	50	46,5	8	45	75,5	53	470	25
63	16,5	14,5	6	18	11	84	G 1/8	M10	1,7	-17,5	2,5	16	7,5	6,4	M8	13	62	56,5	8	50	85,5	58	710	37
80	21	16,5	8	23	15	102	G 1/8	M12	1	-21	3	20	8,5	8,4	M10	16	82	72	8	56	95,5	64	1295	50
100	24,5	19,5	10	28	15	123	G 1/8	M16	3,5	-25	3	25	10	8,4	M10	21	103	89	10	67	114,5	77	2250	70

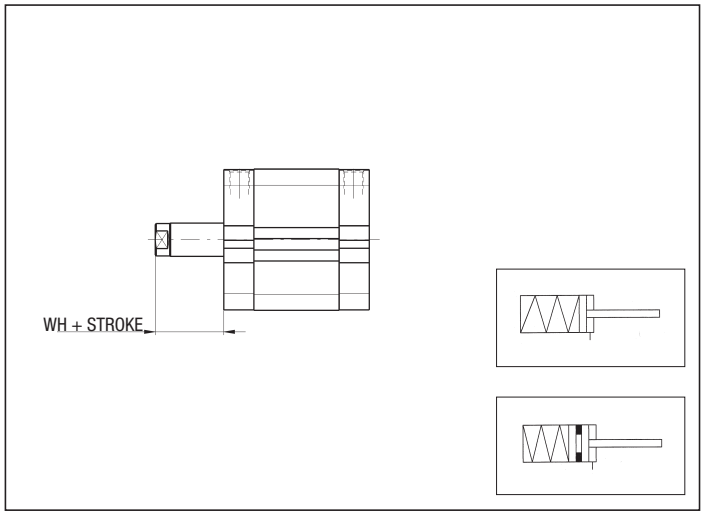
* IN THE TANDEM VERSIONS (T, P, V), DIMENSION (BG - LB) IS REDUCED OF 5 mm

** **A** - AFNOR
I - ISO

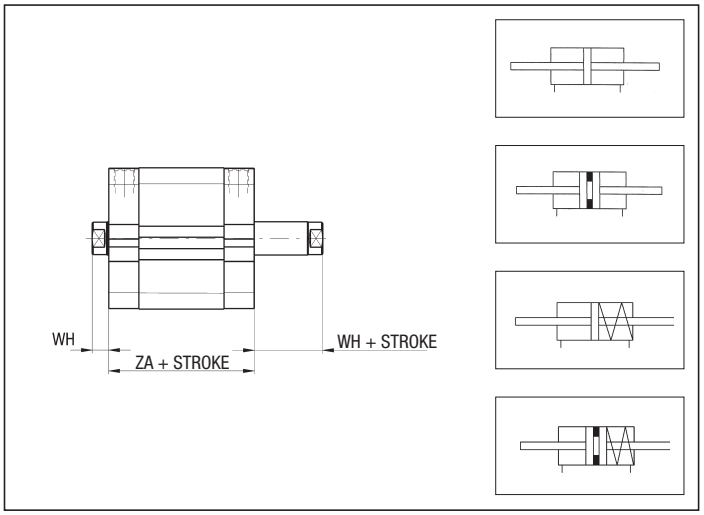
Compact cylinders to AFNOR NF E49-004-1 and NF E49-004-2 standards

series BU

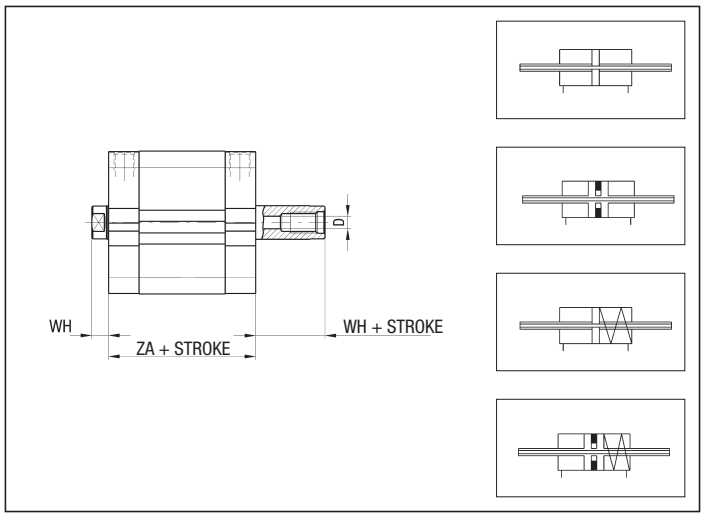
SINGLE ACTING, REAR SPRING, FEMALE THREADED PISTON ROD



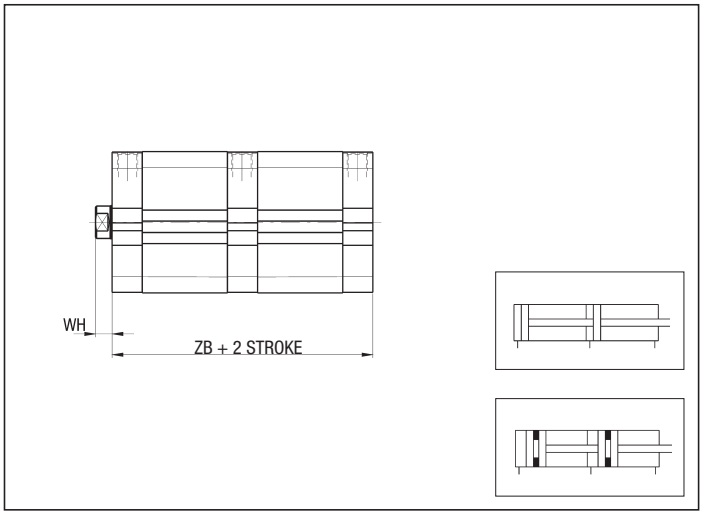
FEMALE THREADED THROUGH ROD AND SINGLE ACTING, FEMALE THREADED THROUGH ROD



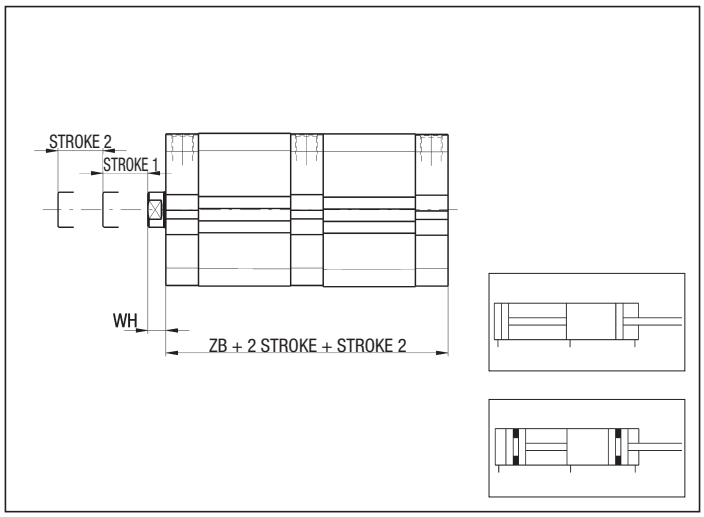
HOLLOW FEMALE THREADED THROUGH ROD AND SINGLE ACTING, HOLLOW FEMALE THREADED THROUGH ROD



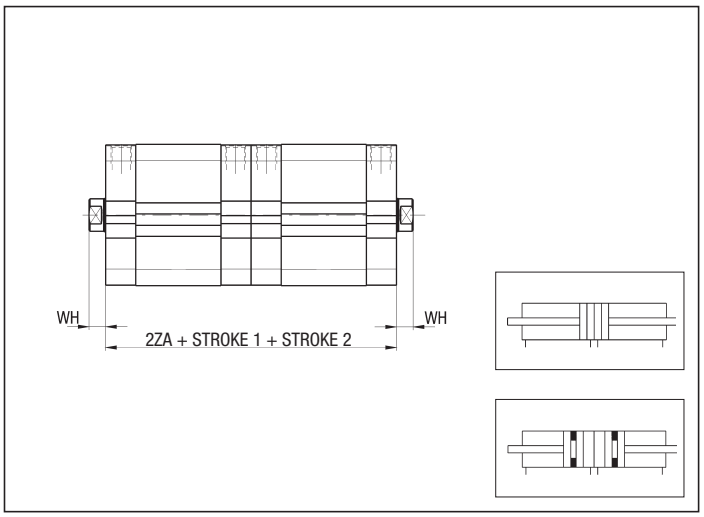
DOUBLE PUSH TANDEM, FEMALE THREADED PISTON ROD



DOUBLE STROKE TANDEM, FEMALE THREADED PISTON ROD



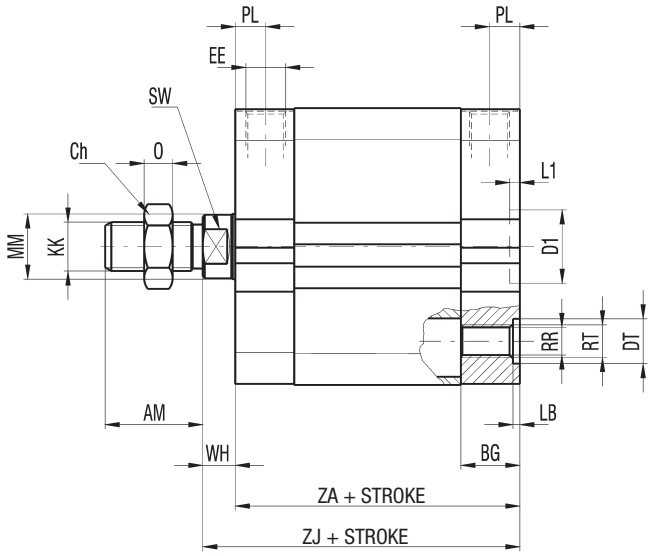
OPPOSED TANDEM, FEMALE THREADED PISTON ROD

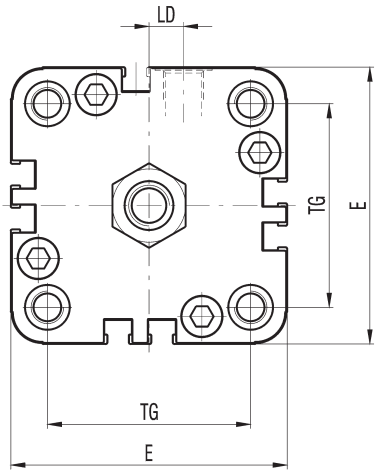


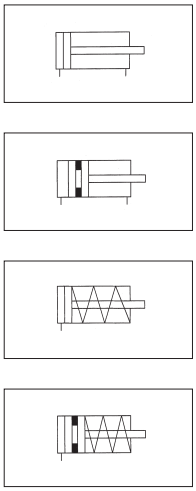
series BU

Compact cylinders to AFNOR NF E49-004-1 and NF E49-004-2 standards

BU BASIC CYLINDER, MALE THREADED PISTON ROD







P.S.: Rod nut supplied as standard

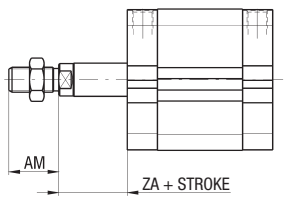
DIMENSIONS AND WEIGHTS BASIC CYLINDER MALE THREADED PISTON ROD

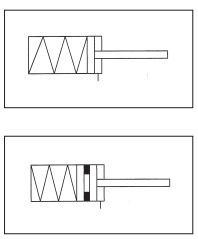
Ø	AM	BG*	Ch	D	D1 *H11*	DT *H13*	E	EE	KK	LB	LD	L1	MM	O	PL	RR	RT	SW	TG** A	TG** I	WH	ZA	ZB	ZJ	WEIGHT *(g)*	INCR. *(g) x 5 mm*
20	22	12	17	3,8	12	8	36	M5	M10x1,25	4,4	4,5	2,5	10	6	7	4,3	M5	8	22	-	6	37	62	43	150	10
25	22	13	17	3,8	12	8	40	M5	M10x1,25	4,4	5,5	2,5	10	6	8	4,3	M5	8	26	-	6	39	65	45	180	11
32	22	14,5	17	4,5	14	10,5	50	G 1/8	M10x1,25	5,4	5	2,5	12	6	7,5	5,3	M6	10	32	32,5	7	44	73,5	51	240	16
40	22	14,5	17	4,5	14	10,5	60	G 1/8	M10x1,25	5,4	9,5	2,5	12	6	7,5	5,3	M6	10	42	38	7	45	75,5	52	355	20
50	24	14,5	19	6	18	11	68	G 1/8	M12x1,25	1,7	8,5	2,5	16	7	7,5	6,4	M8	13	50	46,5	8	45	75,5	53	505	25
63	24	14,5	19	6	18	11	84	G 1/8	M12x1,25	1,7	-17,5	2,5	16	7	7,5	6,4	M8	13	62	56,5	8	50	85,5	58	745	37
80	32	16,5	24	8	23	15	102	G 1/8	M16x1,5	1	-21	3	20	8	8,5	8,4	M10	16	82	72	8	56	95,5	64	1360	50
100	40	19,5	30	10	28	15	123	G 1/8	M20x1,5	3,5	-25	3	25	9	10	8,4	M10	21	103	89	10	67	114,5	77	2390	70

* IN THE TANDEM VERSIONS (T, P, V), DIMENSION (BG - LB) IS REDUCED OF 5 mm

** **A** - AFNOR
I - ISO

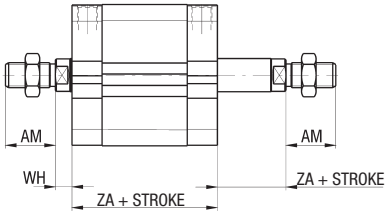
SINGLE ACTING, REAR SPRING, MALE THREADED PISTON ROD

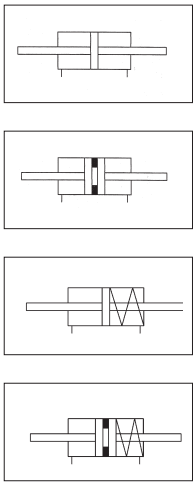




P.S.: Rod nut supplied as standard

MALE THREADED THROUGH ROD AND SINGLE ACTING, MALE THREADED THROUGH ROD



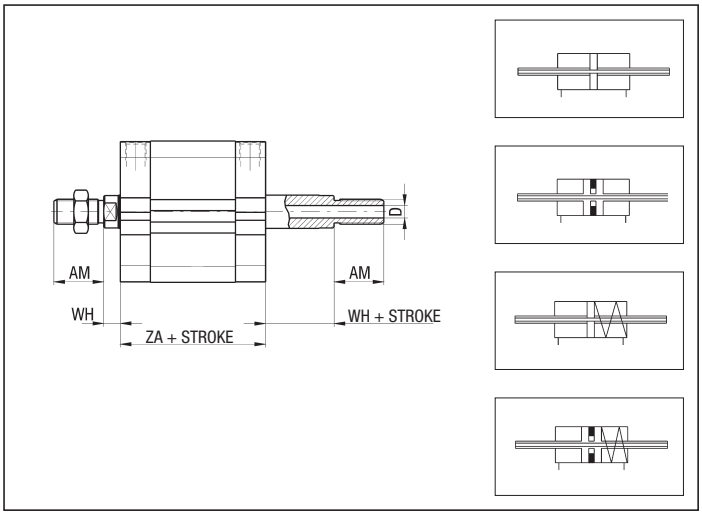


P.S.: Rod nuts supplied as standard

Compact cylinders to AFNOR NF E49-004-1 and NF E49-004-2 standards

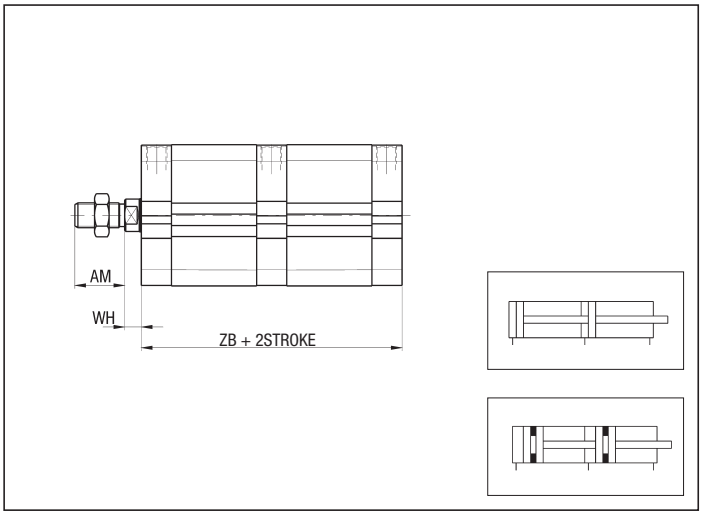
series BU

HOLLOW MALE THREADED THROUGH ROD AND SINGLE ACTING, HOLLOW MALE THREADED THROUGH ROD



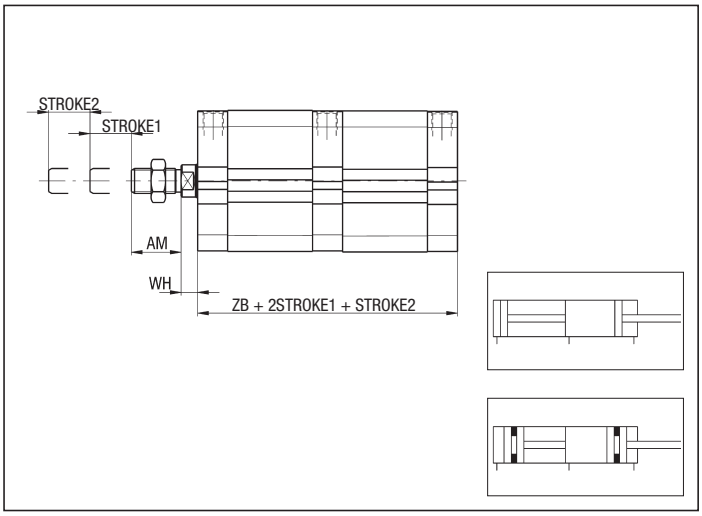
P.S.: Rod nuts supplied as standard

DOUBLE PUSH TANDEM, MALE THREADED PISTON ROD



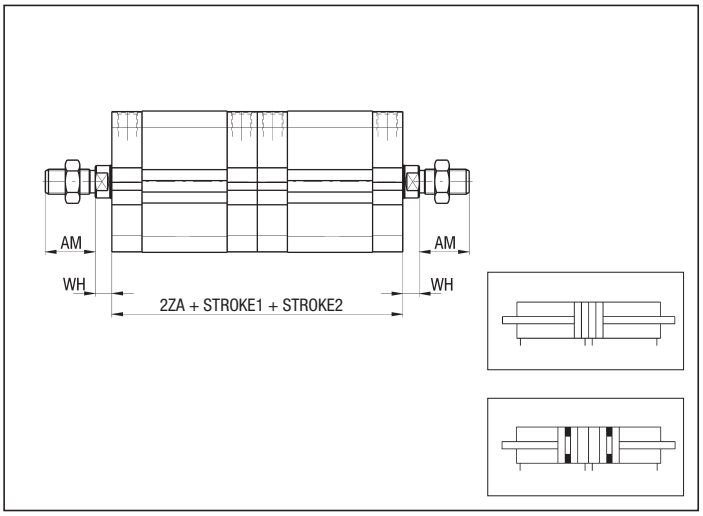
P.S.: Rod nut supplied as standard

DOUBLE STROKE TANDEM, MALE THREADED PISTON ROD



P.S.: Rod nut supplied as standard

OPPOSED TANDEM, MALE THREADED PISTON ROD

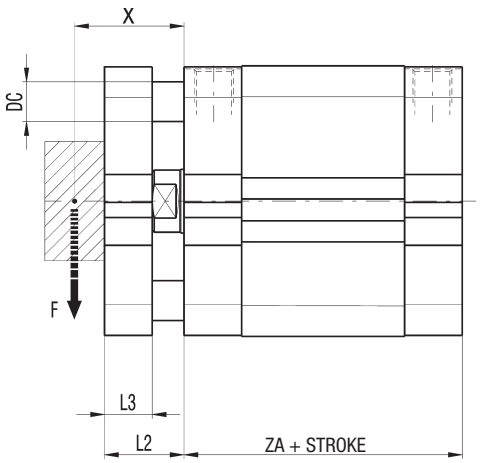


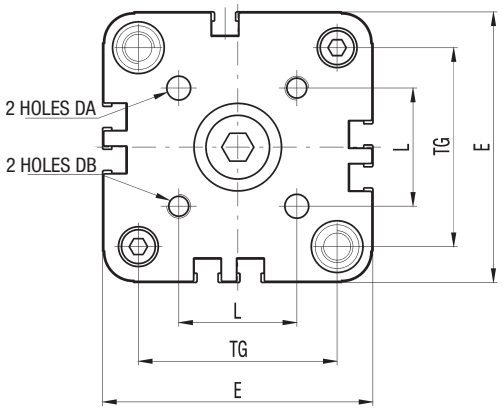
P.S.: Rod nuts supplied as standard

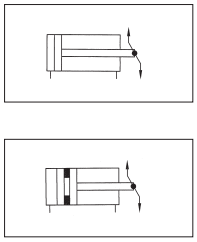
series BU

Compact cylinders to AFNOR NF E49-004-1 and NF E49-004-2 standards

BU NON-ROTATING BASIC CYLINDER





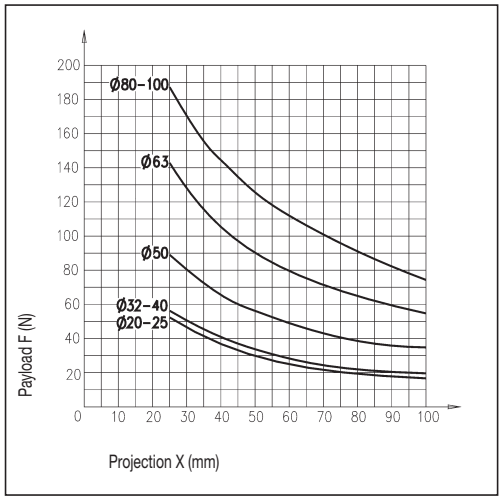


DIMENSIONS AND WEIGHTS

Ø	DA	DB	DC	E	L	L2	L3	TG**		ZA	WEIGHT (g)	INCR. (g) x 5 mm
								A	I			
20	4	M4	6	36	12	14	8	22	-	37	170	15
25	5	M5	6	40	15,6	14	8	26	-	39	210	16
32	5	M5	8	50	19,8	17	10	32	32,5	44	300	25
40	5	M5	8	60	23,3	17	10	42	38	45	440	30
50	6	M6	10	68	29,7	20	12	50	46,5	45	610	40
63	6	M6	10	84	35,4	20	12	62	56,5	50	930	55
80	8	M8	12	102	46	22	14	82	72	56	1690	75
100	10	M10	12	123	56,6	24	14	103	89	67	2950	105

** **A** - AFNOR
I - ISO

MAX. PERMISSIBLE LOAD - NON-ROTATING BU

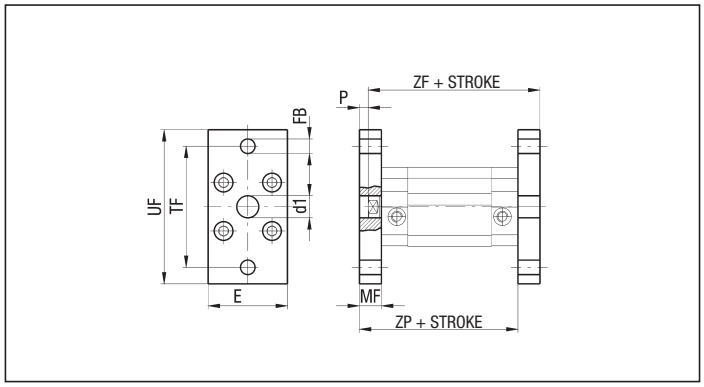


Accessories

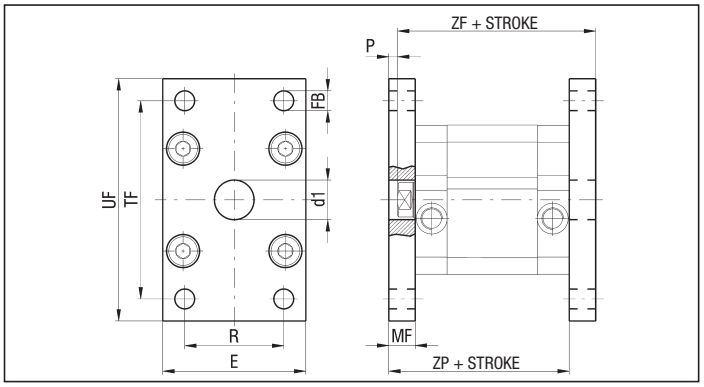
Fixings for compact cylinders to AFNOR NF E49-004-1 and NF E49-004-2 standards

series BU

FLANGE Ø 20 - 25 - ALUMINIUM - BU/F Ø
(Supplied with screws) - STEEL - BU/F Ø AC



FLANGE Ø 32 ÷ 100 - ALUMINIUM - BU/F Ø
(Supplied with screws) - STEEL - BU/F Ø AC



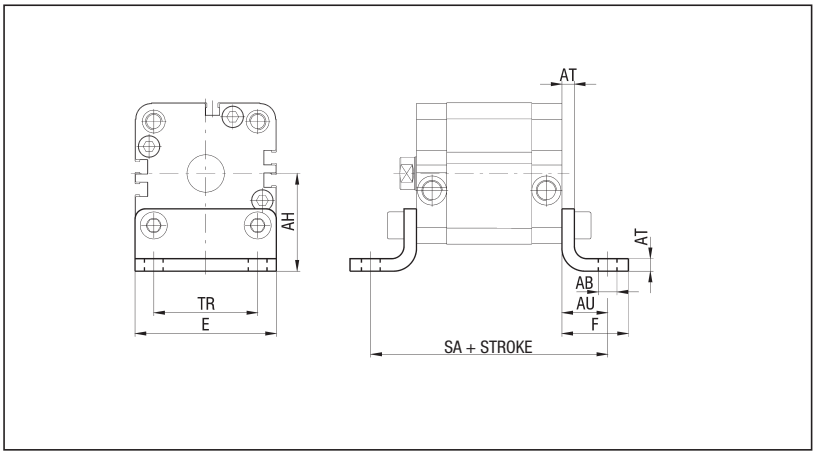
Ø	d1 *H11*	E	FB *H13*	MF	P	R	TF	UF	ZF	ZP	WEIGHT *ALL. (g)*	WEIGHT *STEEL (g)*
20	12	36	6,6	10	4	-	55	70	53	47	70	160
25	12	40	6,6	10	4	-	60	76	55	49	80	200
32	14	50	7	10	3	32	65	80	61	54	100	260
40	14	60	9	10	3	36	82	102	62	55	160	420
50	18	68	9	12	4	45	90	110	65	57	240	600
63	18	87	9	15	7	50	110	130	73	65	450	1200
80	23	107	12	15	7	63	135	160	79	71	690	1800
100	28	128	14	15	5	75	163	190	92	82	980	2550

IN THE TANDEM VERSIONS (T, P, V),
ADD THE READING “TANDEM” TO THE CODE.
EXAMPLE: BU/F Ø TANDEM

LOW FOOT - STEEL - BU/PB Ø

Ø	AB *H13*	AH	AU	AT	E	F	SA	TR	WEIGHT *(g)*
20	6,6	27	16	4	36	22	69	22	32
25	6,6	30	16	4	40	22	71	26	38
32	6,6	32	18	5	50	26	80	32	66
40	9	42,5	20	5	60	28	85	42	100
50	9	47	24	6	68	32	93	50	150
63	11	59,5	27	6	84	39	104	62	250
80	11	65,5	30	8	102	42	116	82	380
100	13,5	78,5	33	8	123	45	133	103	500

IN THE TANDEM VERSIONS (T, P, V), ADD THE READING
“TANDEM” TO THE CODE.
EXAMPLE: BU/PB Ø TANDEM

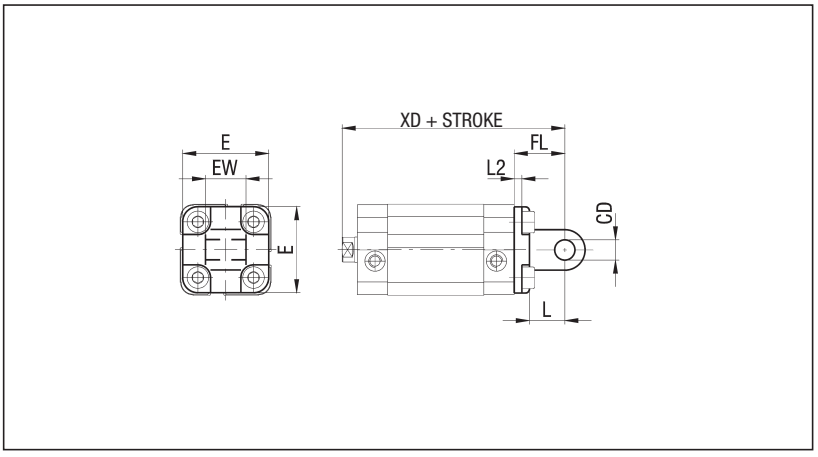


REAR MALE HINGE - ALUMINIUM - BU/CM Ø
(Supplied with screws) - STEEL - BU/CM Ø AC

Ø	CD *H9*	E	EW *h14*	FL	L	L2	XD	WEIGHT *ALL. (g)*	WEIGHT *STEEL (g)*
20	8	34	16	20	14	2,6	63	21	80
25	8	38	16	20	14	2,6	65	27	85

P.S.: THIS MOUNTING CAN BE USED WITH THE REAR HINGE
MOUNTING OF CYLINDERS SERIES “U” (SEE ON PAGE 1.6)

IN THE TANDEM VERSIONS (T, P),
ADD THE READING “TANDEM” TO THE CODE.
EXAMPLE: BU/CM Ø AC TANDEM



series BU

Accessories

Fixings for compact cylinders to AFNOR NF E49-004-1 and NF E49-004-2 standards

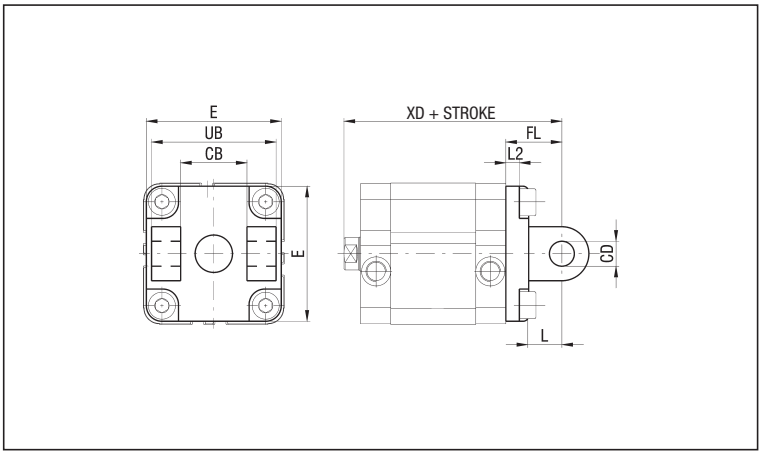
REAR FEMALE HINGE - ALUMINIUM - BU/CF Ø
(Supplied with screws) - STEEL - BU/CF Ø AC

Ø	CB H14	CD H9	E	FL	L	L2	UB h14	XD	WEIGHT ALL. (g)	WEIGHT ACC. (g)
32	26	10	48	22	13	5,5	45	73	60	170
40	28	12	58	25	16	5,5	52	77	104	270
50	32	12	66	27	16	6,5	60	80	142	378
63	40	16	83	32	21	6,5	70	90	240	645
80	50	16	102	36	23	10	90	100	420	1070
100	60	20	123	41	26	10	110	118	721	1730

P.S.: THIS HINGE CAN BE USED ALSO WITH PIVOT AND MALE HINGE OR SQUARE JOINT OF SERIES “X” AND “CPUI” (SEE FROM PAGE 1.29)

IN THE TANDEM VERSIONS (T, P, V),
ADD THE READING “TANDEM” TO THE CODE.

EXAMPLE: BU/CF Ø TANDEM

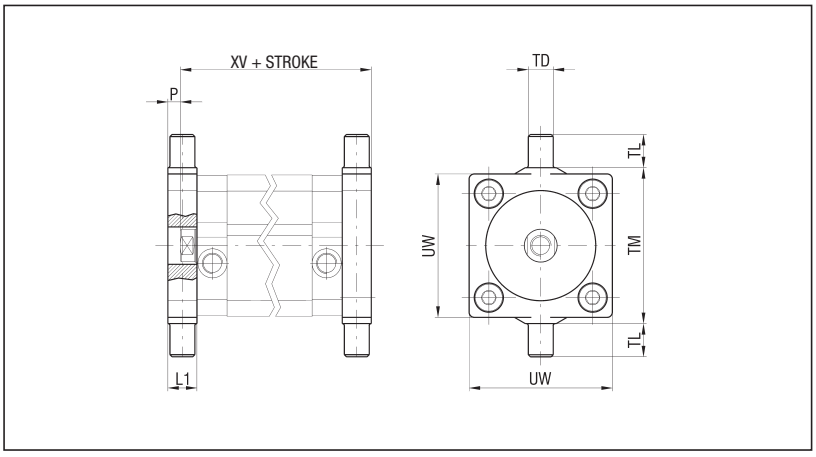


FLOATING HINGE - STEEL - BU/CTA Ø (Supplied with screws)

Ø	L1	P	TD e9	TL h14	TM h14	UW	XV	WEIGHT (g)
20	14	8	12	12	38	35	57	100
25	14	8	12	12	42	39	59	114
32	14	7	12	12	52	46	65	132
40	19	12	16	16	63	59	71	278
50	19	11	16	16	75	69	72	362
63	24	16	20	20	90	84	82	624
80	24	16	20	20	110	102	88	765
100	29	19	25	25	132	125	106	1464

IN THE TANDEM VERSIONS (T, P, V),
ADD THE READING “TANDEM” TO THE CODE.

EXAMPLE: BU/CTA Ø TANDEM



ACCESSORIES FOR CYLINDERS WITH END CAPS DISTANCE BETWEEN CENTERS TO ISO 15552 STANDARD

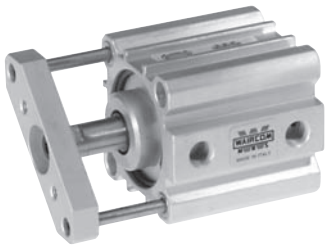
The accessories of Version No. 3 (end caps distance between centers to ISO standard) are the same of the cylinders series “X” and “CPUI” to ISO 15552 standard (see from page 1.28)

Compact cylinders

series B

DESCRIPTION

Cylinders series “B” are widely used in locking applications thanks to compact design and to easy mounting through holes on cylinder body. In the version with magnetic piston type, cylinders series “B” are supplied with magnetic sensors.



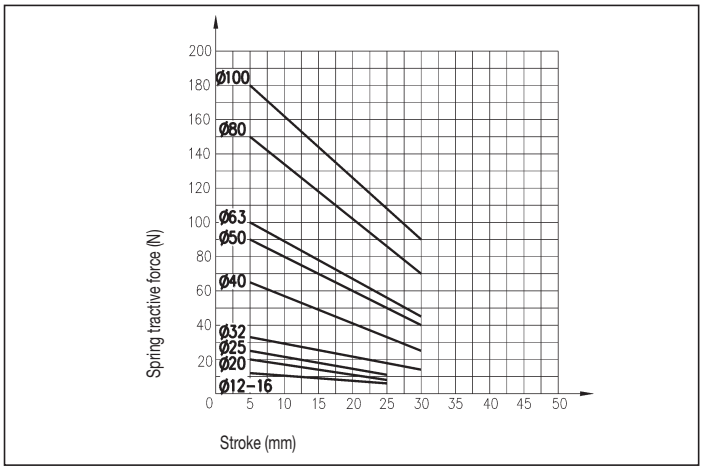
TECHNICAL DATA

Operating pressure	1÷10 bar
Working temperature	0 ÷ +80 °C (-20 °C with dry air) 0 ÷ +150 °C with seals for high temperatures (-10 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Versions	Double acting; Single acting front spring; Single acting rear spring; Through rod; Non-rotating piston rod device.
Bore	Ø 12, 16, 20, 25, 32, 40, 50, 63, 80, 100
Port size	Ø 12 ÷ 20 = M5 Ø 25 ÷ 63 = G 1/8 Ø 80 - 100 = G 1/4
Standard strokes	See tables

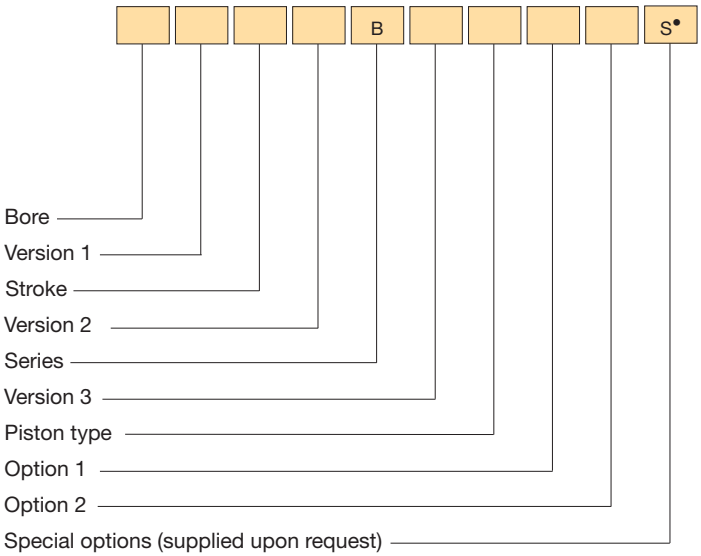
MATERIALS

Front end cap	Ø 12 ÷ 25: Brass Ø 32 ÷ 100: Aluminium
Rear end cap	Anodized aluminium alloy
Cylinder barrel	Extruded profile, 15 µm anodized aluminium alloy
Piston rod	AISI 303 stainless steel
Piston rod bearing	Bronze + PTFE
Piston	Ø 12 ÷ 32: Delrin (supplied with and without magnet) Ø 40 ÷ 100: Aluminium (supplied with and without magnet)
Seals	Ø 12 ÷ 32: NBR rubber Ø 40 ÷ 100: Polyurethane Ø 12 ÷ 100: Viton®
Cushioning washer	Vulkollan
Spring	AISI 303 stainless steel

SPRING THEORETICAL TRACTIVE FORCE



ORDER KEY



P.S.: *Magnetic sensors* FM 100 (see chapter magnetic sensors from page 1.93)

• See technical data on page 0.12

VERSION 1

/ Basic cylinder

R Through rod

VERSION 2

D Double acting

S Single acting front spring

Y Single acting rear spring

VERSION 3

A Non-rotating piston rod device*

PISTON TYPE

Non-magnetic

/M Magnetic

OPTION 1

1 Male hinge mounting

OPTION 2

2 Seals for high temperatures

* Supplied only from Ø 20 to Ø 100

ORDER EXAMPLES

Basic cylinder Ø16, 50 mm stroke, double acting, non-magnetic piston type 16/50 DB

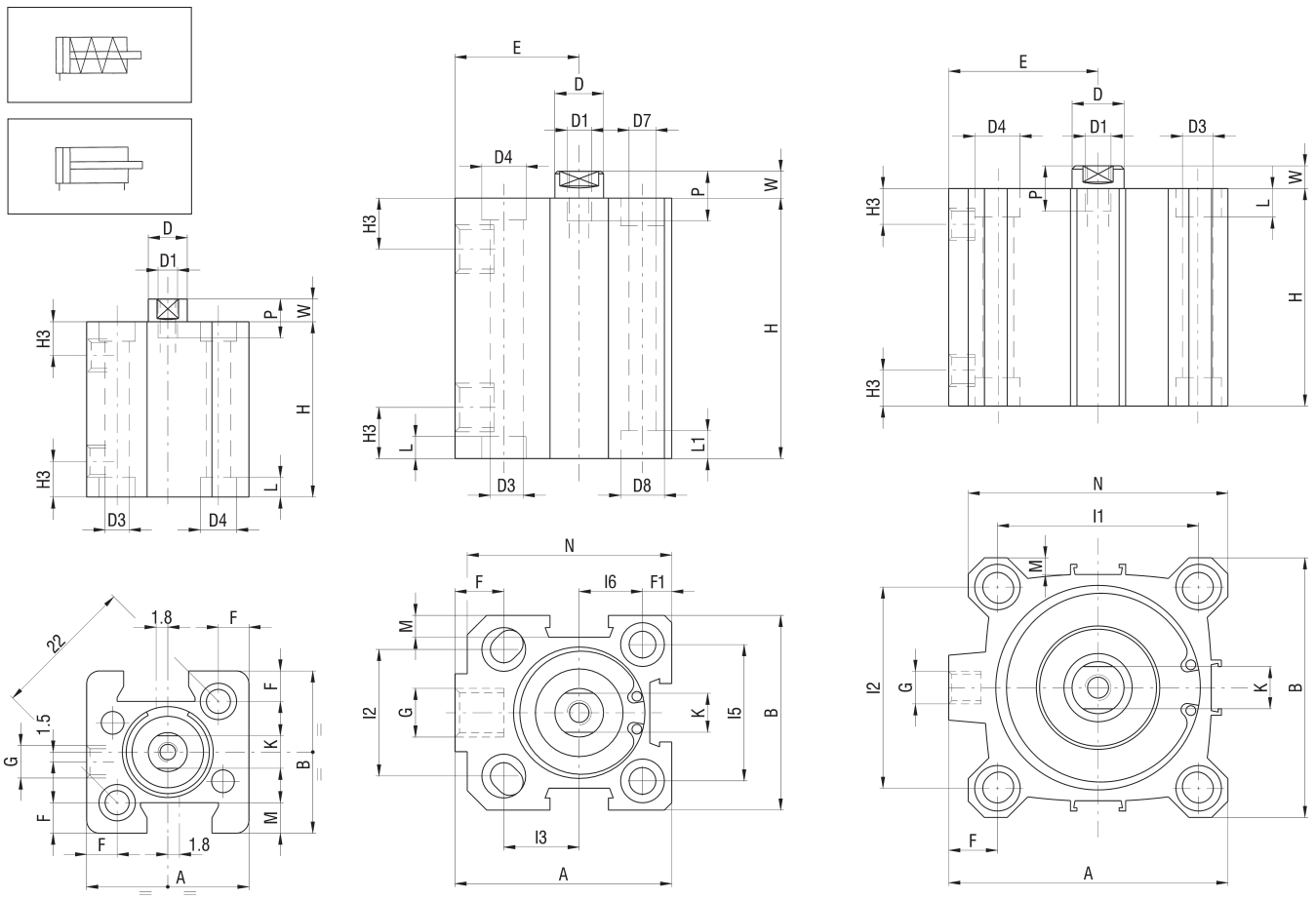
Basic cylinder Ø20, 60 mm stroke, double acting, non-magnetic piston type, seals for high temperatures 20/60 DB2

Cylinder Ø32, through rod, 80 mm stroke, double acting, magnetic piston type 32R80 DB/M

SPARE PARTS

Contact the commercial office

SINGLE AND DOUBLE ACTING



Ø 12 Ø 16 ÷ 25 Ø 32 ÷100

DIMENSIONS AND WEIGHTS

Ø	A	B	D	D1	D3	D4	D7	D8	E	F	F1	G	H3	I1	I2	I3	I5	I6	K	L	L1	M	N	P	W	WEIGHT (g)	INCR. (g) x10 mm
12	25	25	6	M3	3,7	5,6	-	-	-	4,7	-	M5	5,5	-	-	-	-	-	5	3,5	-	4,7	-	6	3,5	33,5	11,5
16	34	30	8	M4	4,7	7,5	3,7	5,6	19	7	5	M5	8	-	18	12	20	10	6	4,6	3,5	4	32	8	4,5	74	16,5
20	40	36	10	M5	5,8	9	5,8	9	22	7	5,2	M5	8	-	20	15	25,5	12,7	8	5,7	5,7	5,7	38,5	10	5	106	24,5
25	44,5	40	10	M5	5,8	9	5,8	9	24,5	9	6	G 1/8	10,5	-	26	15,5	28	14	8	5,7	5,7	4,5	42	10	5,5	145	32
32	51	46	12	M6	5,8	9	-	-	27	9	-	G 1/8	11,5	36	32	-	-	-	10	5,7	-	4	48	12	6	172	36
40	58	55	12	M6	5,8	9	-	-	30,5	9,5	-	G 1/8	11	42	42	-	-	-	10	5,7	-	4	55	12	6	225	40
50	70	65	16	M8	6,8	11	-	-	37,5	12,5	-	G 1/8	11,5	50	50	-	-	-	13	6,8	-	4	65	12	7,5	359	63
63	86	80	16	M8	9	14	-	-	46	15	-	G 1/8	11	62	62	-	-	-	13	8,8	-	5	80	14	7	552	70
80	105	100	20	M10	9	14	-	-	55	14	-	G 1/4	14	82	82	-	-	-	17	9	-	6	100	15	8	1072	105
100	131	124	25	M12	11	17,2	-	-	69	17,5	-	G 1/4	16	103	103	-	-	-	22	11	-	7,5	124	20	10	1920	160

"H" DIMENSION-SINGLE ACTING

Ø	STROKE (mm)					
	5	10	15	20	25	30
12	22	27	-	-	-	-
16	32	37	42	47	52	-
20	32	37	42	47	52	-
25	33,5	38,5	43,5	48,5	53,5	-
32	34,5	39,5	44,5	49,5	54,5	59,5
40	34,5	39,5	44,5	49,5	54,5	59,5
50	-	44,5	49,5	54,5	59,5	64,5
63	-	47	52	57	62	67
80	-	56	61	66	71	76
100	-	66	71	76	81	86

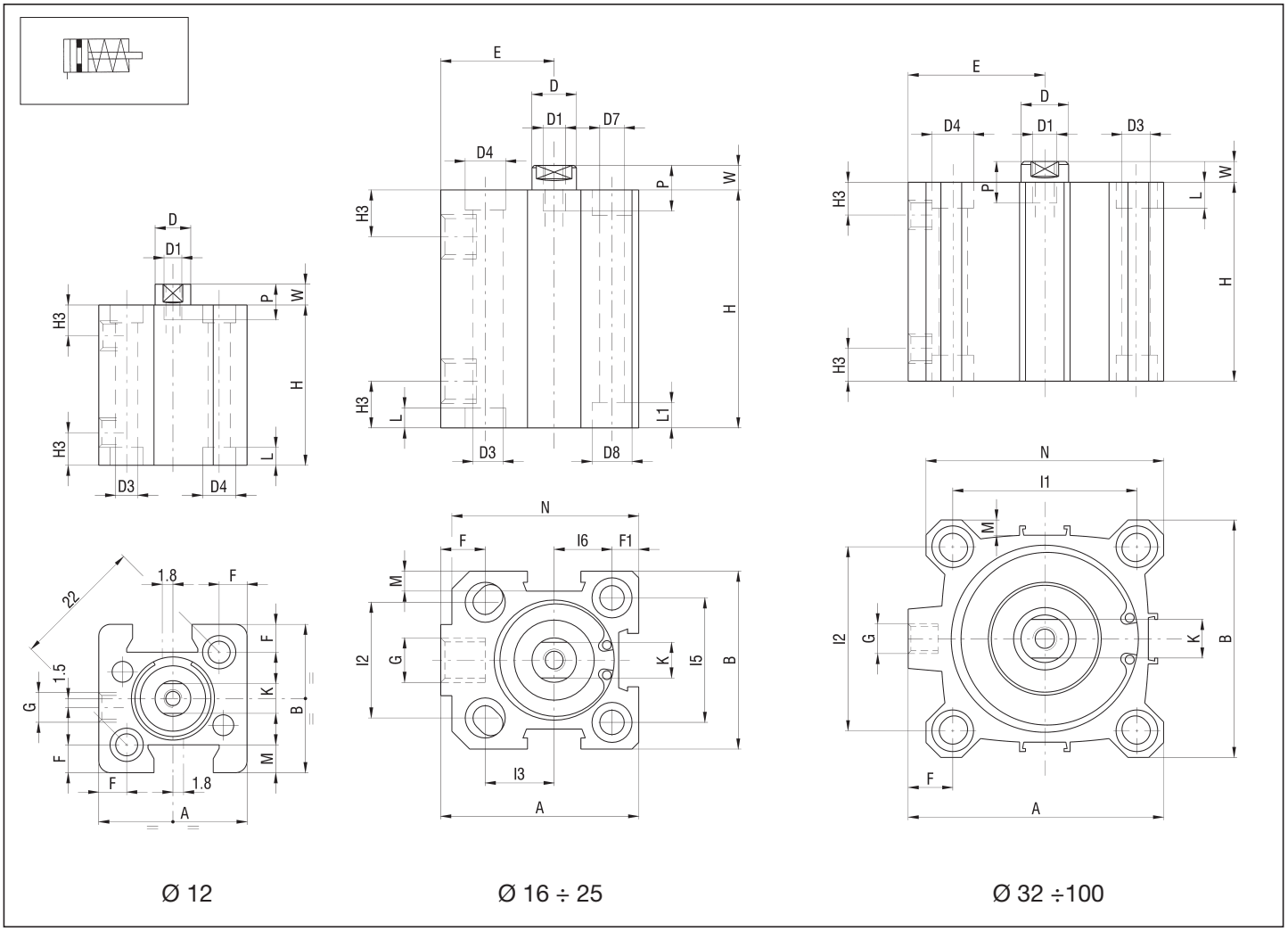
"H" DIMENSION-DOUBLE ACTING

Ø	STROKE (mm)										
	5	10	15	20	25	30	40	50	60	80	100
12	22	27	32	37	42	47	57	-	-	-	-
16	32	37	42	47	52	58	68	78	-	-	-
20	32	37	42	47	52	58	68	78	-	-	-
25	33,5	38,5	43,5	48,5	53,5	58,5	69,5	79,5	-	-	-
32	34,5	39,5	44,5	49,5	54,5	59,5	69,5	79,5	89,5	109,5	129,5
40	34,5	39,5	44,5	49,5	54,5	59,5	69,5	79,5	89,5	109,5	129,5
50	-	44,5	49,5	54,5	59,5	64,5	74,5	84,5	94,5	114,5	134,5
63	-	47	52	57	62	67	77	87	97	117	137
80	-	56	61	66	71	76	86	96	106	126	146
100	-	66	71	76	81	86	96	106	116	136	156

Compact cylinders

series B

SINGLE ACTING MAGNETIC



Ø 12 Ø 16 ÷ 25 Ø 32 ÷100

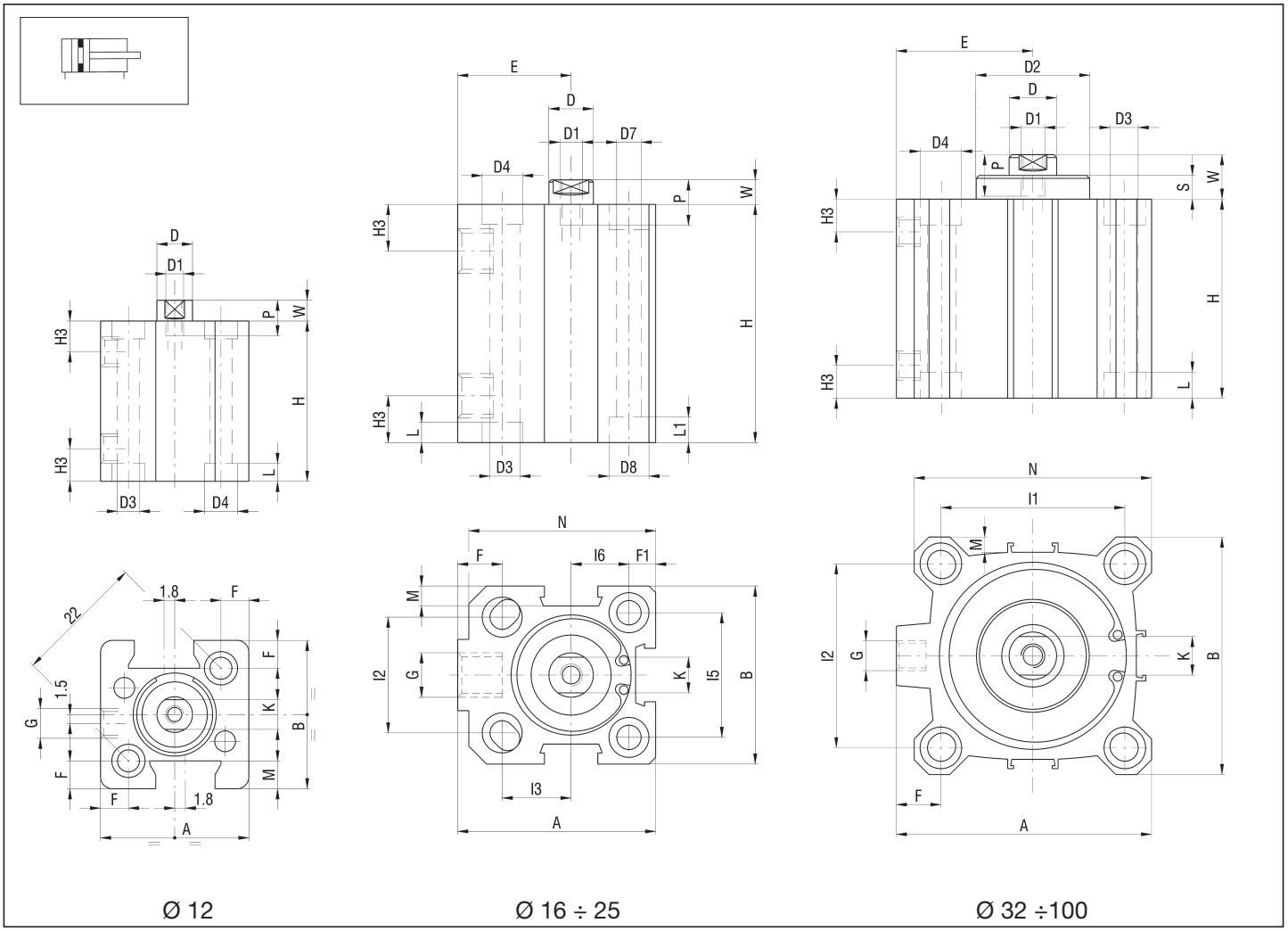
DIMENSIONS AND WEIGHTS

Ø	A	B	D	D1	D3	D4	D7	D8	E	F	F1	G	H3	I1	I2	I3	I5	I6	K	L	L1	M	N	P	W	WEIGHT (g)	INCR. (g) x10 mm
12	25	25	6	M3	3,7	5,6	-	-	-	4,7	-	M5	5,5	-	-	-	-	-	5	3,5	-	4,7	-	6	3,5	33,5	11,5
16	34	30	8	M4	4,7	7,5	3,7	5,6	19	7	5	M5	8	-	18	12	20	10	6	4,6	3,5	4	32	8	4,5	74	16,5
20	40	36	10	M5	5,8	9	5,8	9	22	7	5,2	M5	8	-	20	15	25,5	12,7	8	5,7	5,7	5,7	38,5	10	5	106	24,5
25	44,5	40	10	M5	5,8	9	5,8	9	24,5	9	6	G 1/8	10,5	-	26	15,5	28	14	8	5,7	5,7	4,5	42	10	5,5	145	32
32	51	46	12	M6	5,8	9	-	-	27	9	-	G 1/8	11,5	36	32	-	-	-	10	5,7	-	4	48	12	6	172	36
40	58	55	12	M6	5,8	9	-	-	30,5	9,5	-	G 1/8	11	42	42	-	-	-	10	5,7	-	4	55	12	6	225	40
50	70	65	16	M8	6,8	11	-	-	37,5	12,5	-	G 1/8	11,5	50	50	-	-	-	13	6,8	-	4	65	12	7,5	359	63
63	86	80	16	M8	9	14	-	-	46	15	-	G 1/8	11	62	62	-	-	-	13	8,8	-	5	80	14	7	552	70
80	105	100	20	M10	9	14	-	-	55	14	-	G 1/4	14	82	82	-	-	-	17	9	-	6	100	15	8	1072	105
100	131	124	25	M12	11	17,2	-	-	69	17,5	-	G 1/4	16	103	103	-	-	-	22	11	-	7,5	124	20	10	1920	160

"H" DIMENSION

Ø	STROKE (mm)						
	4	5	10	15	20	25	30
12	-	32	37	-	-	-	-
16	36	37	42	47	52	63	-
20	36	37	42	47	52	63	-
25	-	43,5	48,5	53,5	58,5	64,5	-
32	-	44,5	49,5	54,5	59,5	64,5	69,5
40	-	44,5	49,5	54,5	59,5	64,5	69,5
50	-	-	49,5	54,5	59,5	64,5	69,5
63	-	-	52	57	62	67	72
80	-	-	56	61	66	71	76
100	-	-	66	71	76	81	86

DOUBLE ACTING MAGNETIC



Ø 12 Ø 16 ÷ 25 Ø 32 ÷100

DIMENSIONS AND WEIGHTS

Ø	A	B	D	D1	D2	D3	D4	D7	D8	E	F	F1	G	H3	I1	I2	I3	I5	I6	K	L	L1	M	N	P	S	W	WEIGHT (g)	INCR. (g) x10 mm
12	25	25	6	M3	-	3,7	5,6	-	-	-	4,7	-	M5	5,5	-	-	-	-	-	5	3,5	-	4,7	-	6	-	3,5	33,5	11,5
16	34	30	8	M4	-	4,7	7,5	3,7	5,6	19	7	5	M5	8	-	18	12	20	10	6	4,6	3,5	4	32	8	-	4,5	74	16,5
20	40	36	10	M5	-	5,8	9	5,8	9	22	7	5,2	M5	8	-	20	15	25,5	12,7	8	5,7	5,7	5,7	38,5	10	-	5	106	24,5
25	44,5	40	10	M5	-	5,8	9	5,8	9	24,5	9	6	G 1/8	10,5	-	26	15,5	28	14	8	5,7	5,7	4,5	42	10	-	5,5	145	32
32	51	46	12	M6	24,5	5,8	9	-	-	27	9	-	G 1/8	11,5	36	32	-	-	-	10	5,7	-	4	48	12	5	11	172	36
40	58	55	12	M6	28	5,8	9	-	-	30,5	9,5	-	G 1/8	11	42	42	-	-	-	10	5,7	-	4	55	12	6	12,5	225	40
50	70	65	16	M8	34	6,8	11	-	-	37,5	12,5	-	G 1/8	11,5	50	50	-	-	-	13	6,8	-	4	65	12	6	13,5	359	63
63	86	80	16	M8	38,5	9	14	-	-	46	15	-	G 1/8	11	62	62	-	-	-	13	8,8	-	5	80	14	7	15	552	70
80	105	100	20	M10	44	9	14	-	-	55	14	-	G 1/4	14	82	82	-	-	-	17	9	-	6	100	15	8	18	1072	105
100	131	124	25	M12	56	11	17,2	-	-	69	17,5	-	G 1/4	16	103	103	-	-	-	22	11	-	7,5	124	20	10	20,5	1920	160

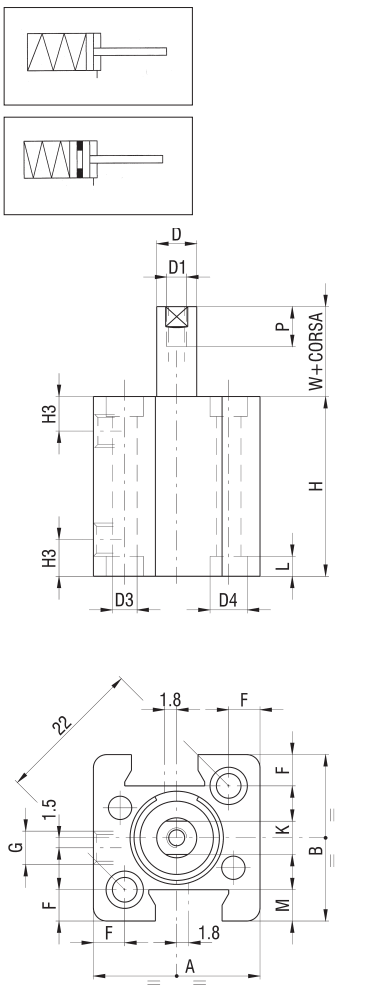
"H" DIMENSION

Ø	STROKE (mm)														
	5	10	15	20	25	30	40	50	60	80	100	125	160	200	250
12	32	37	42	47	52	57	-	-	-	-	-	-	-	-	-
16	37	42	47	52	63	68	78	88	98	118	138	-	-	-	-
20	37	42	47	52	63	68	78	88	98	118	138	163	-	-	-
25	43,5	48,5	53,5	58,5	64,5	69,5	79,5	89,5	99,5	119,5	139,5	164,5	-	-	-
32	44,5	49,5	54,5	59,5	64,5	69,5	79,5	89,5	99,5	119,5	139,5	164,5	199,5	-	-
40	44,5	49,5	54,5	59,5	64,5	69,5	79,5	89,5	99,5	119,5	139,5	164,5	199,5	-	-
50	-	49,5	54,5	59,5	64,5	69,5	79,5	89,5	99,5	119,5	139,5	164,5	199,5	239,5	-
63	-	52	57	62	67	72	82	92	102	122	142	167	202	242	-
80	-	56	61	66	71	76	86	96	106	126	146	171	206	246	296
100	-	66	71	76	81	86	96	106	116	136	156	181	216	256	306

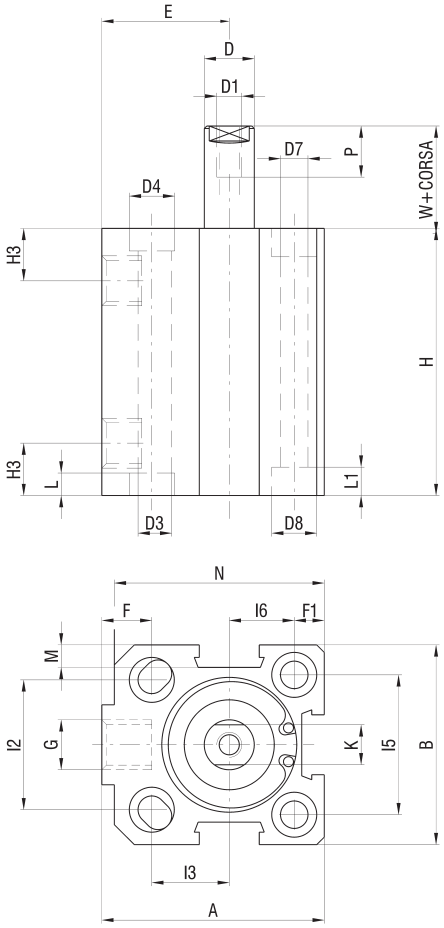
Compact cylinders

series B

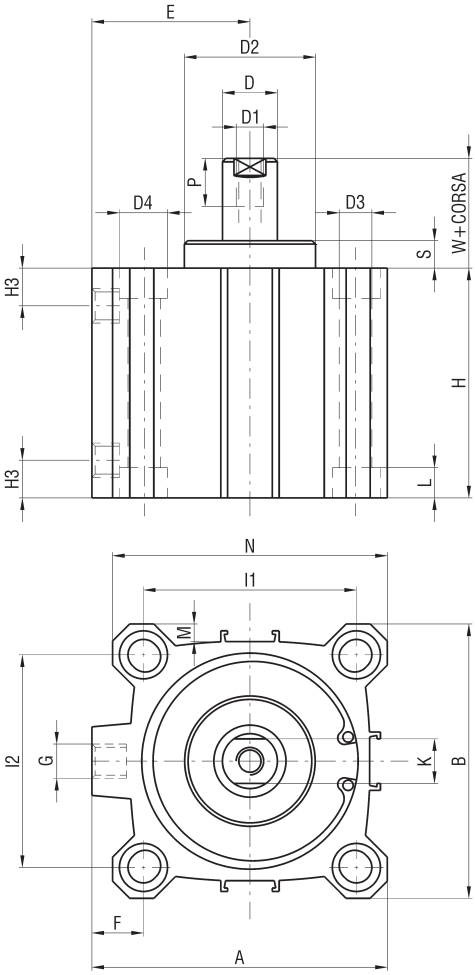
SINGLE ACTING, EXTENDED ROD AND SINGLE ACTING MAGNETIC, EXTENDED ROD



Ø 12



Ø 16 ÷ 25



Ø 32 ÷100

DIMENSIONS AND WEIGHTS

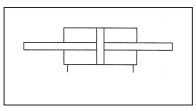
Ø	A	B	D	D1	D2	D3	D4	D7	D8	E	F	F1	G	H3	I1	I2	I3	I5	I6	K	L	L1	M	N	P	S	W	WEIGHT (g)	INCR. (g) x10 mm
12	25	25	6	M3	-	3,7	5,6	-	-	-	4,7	-	M5	5,5	-	-	-	-	-	5	3,5	-	4,7	-	6	-	3,5	33,5	11,5
16	34	30	8	M4	-	4,7	7,5	3,7	5,6	19	7	5	M5	8	-	18	12	20	10	6	4,6	3,5	4	32	8	-	4,5	74	16,5
20	40	36	10	M5	-	5,8	9	5,8	9	22	7	5,2	M5	8	-	20	15	25,5	12,7	8	5,7	5,7	5,7	38,5	10	-	4,5	106	24,5
25	44,5	40	10	M5	-	5,8	9	5,8	9	24,5	9	6	G 1/8	10,5	-	26	15,5	28	14	8	5,7	5,7	4,5	42	10	-	5,5	145	32
32	51	46	12	M6	24,5	5,8	9	-	-	27	9	-	G 1/8	11,5	36	32	-	-	-	10	5,7	-	4	48	12	5	11	172	36
40	58	55	12	M6	28	5,8	9	-	-	30,5	9,5	-	G 1/8	11	42	42	-	-	-	10	5,7	-	4	55	12	6	12,5	225	40
50	70	65	16	M8	34	6,8	11	-	-	37,5	12,5	-	G 1/8	11,5	50	50	-	-	-	13	6,8	-	4	65	12	6	13,5	359	63
63	86	80	16	M8	38,5	9	14	-	-	46	15	-	G 1/8	11	62	62	-	-	-	13	8,8	-	5	80	14	8	15	552	70

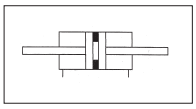
"H" DIMENSION

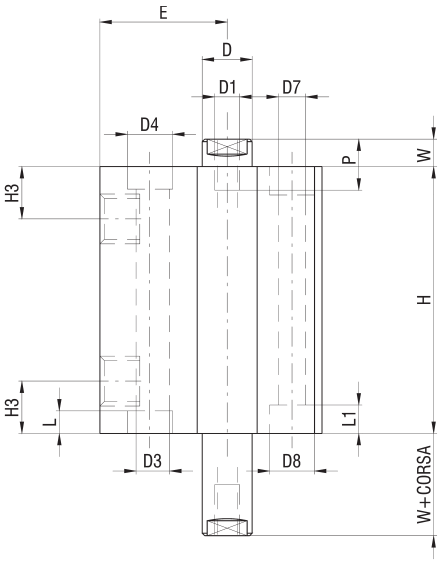
Ø	STROKE (mm)						
		5	10	15	20	25	30
12	-	22	27	-	-	-	-
-	12 magn	32	37	-	-	-	-
16	16 magn	37	42	47	-	-	-
20	20 magn	37	42	47	63	68	-
25	25 magn	43,5	48,5	53,5	64,5	69,5	-
32	32 magn	44,5	49,5	54,5	64,5	69,5	79,5
40	40 magn	-	49,5	54,5	59,5	64,5	69,5
50	50 magn	-	49,5	54,5	59,5	64,5	69,5
63	63 magn	-	52	57	62	67	72

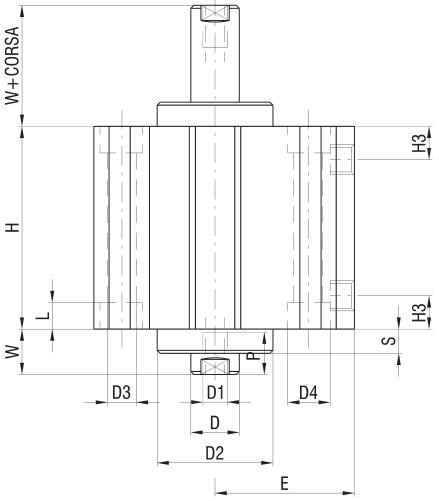
1

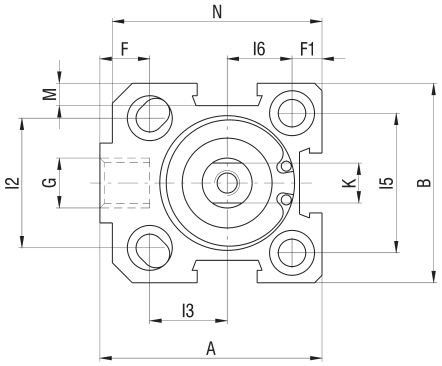
DOUBLE ACTING, THROUGH ROD AND DOUBLE ACTING MAGNETIC, THROUGH ROD

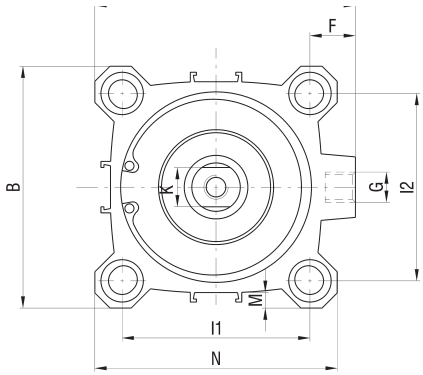












Ø 16 ÷ 25

Ø 32 ÷100

DIMENSIONS AND WEIGHTS

Ø	A	B	D	D1	D2	D3	D4	D7	D8	E	F	F1	G	H3	I1	I2	I3	I5	I6	K	L	L1	M	N	P	S	W	WEIGHT (g)	INCR. (g) x 10 mm
16	34	30	8	M4	-	4,7	7,5	3,7	5,6	19	7	5	M5	8	-	18	12	20	10	6	4,6	3,5	4	32	8	-	4,5	130	19
20	40	36	10	M5	-	5,8	9	5,8	9	22	7	5,2	M5	8	-	20	15	25,5	12,7	8	5,7	5,7	5,7	38,5	10	-	4,5	150	28
25	44,5	40	10	M5	-	5,8	9	5,8	9	24,5	9	6	G 1/8	10,5	-	26	15,5	28	14	8	5,7	5,7	4,5	42	10	-	5,5	185	35,5
32	51	46	12	M6	24,5	5,8	9	-	-	27	9	-	G 1/8	11,5	36	32	-	-	-	10	5,7	-	4	48	12	5	11	282	39,5
40	58	55	12	M6	28	5,8	9	-	-	30,5	9,5	-	G 1/8	11	42	42	-	-	-	10	5,7	-	4	55	12	6	12,5	366	43,5
50	70	65	16	M8	34	6,8	11	-	-	37,5	12,5	-	G 1/8	11,5	50	50	-	-	-	13	6,8	-	4	65	12	6	13,5	521	68
63	86	80	16	M8	38,5	9	14	-	-	46	15	-	G 1/8	11	62	62	-	-	-	13	8,8	-	5	80	14	8	15	717	75
80	105	100	20	M10	44	9	14	-	-	55	14	-	G 1/4	14	82	82	-	-	-	17	9	-	6	100	15	10	18	1434	114
100	131	124	25	M12	56	11	17,2	-	-	69	17,5	-	G 1/4	16	103	103	-	-	-	22	11	-	7,5	124	20	10,5	20,5	2435	174

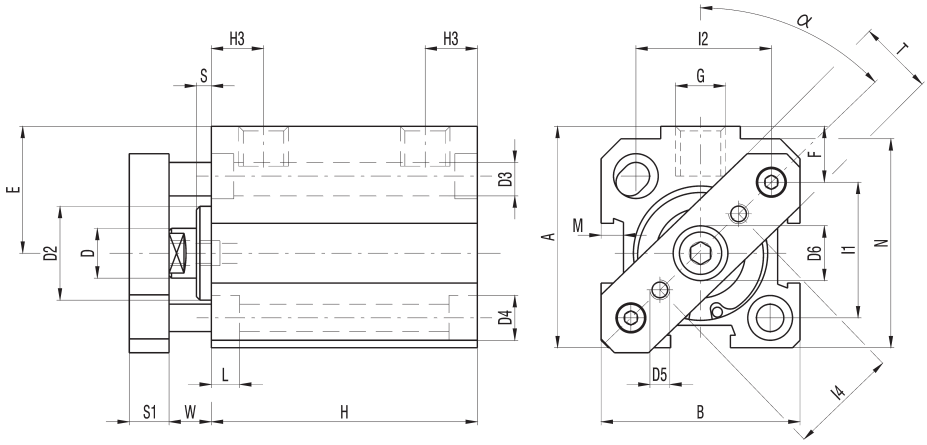
"H" DIMENSION

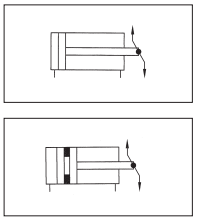
Ø	STROKE (mm)														
	5	10	15	20	25	30	40	50	60	80	100	125	160	200	250
16	37	42	47	52	63	68	78	88	98	118	138	-	-	-	-
20	37	42	47	52	63	68	78	88	98	118	138	163	-	-	-
25	43,5	48,5	53,5	58,5	64,5	69,5	79,5	89,5	99,5	119,5	139,5	164,5	-	-	-
32	44,5	49,5	54,5	59,5	64,5	69,5	79,5	89,5	99,5	119,5	139,5	164,5	199,5	-	-
40	44,5	49,5	54,5	59,5	64,5	69,5	79,5	89,5	99,5	119,5	139,5	164,5	199,5	-	-
50	-	49,5	54,5	59,5	64,5	69,5	79,5	89,5	99,5	119,5	139,5	164,5	199,5	239,5	-
63	-	52	57	62	67	72	82	92	102	122	142	167	202	242	-
80	-	56	61	66	71	76	86	96	106	126	146	171	206	246	296
100	-	66	71	76	81	86	96	106	116	136	156	181	216	256	306

Compact cylinders

series B

NON ROTATING DOUBLE ACTING AND NON ROTATING DOUBLE ACTING MAGNETIC





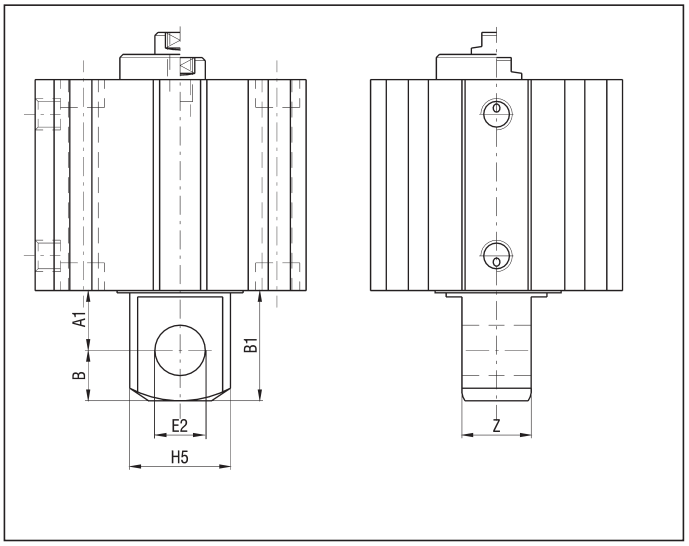
DIMENSIONS AND WEIGHTS

Ø	A	B	α	D	D2	D3	D4	D5	D6	E	F	G	H3	I1	I2	I4	L	M	N	S	S1	T	W	WEIGHT (g)	INCR. (g) x10 mm
20	40	36	45°	10	-	5,8	9,2	M4	11	22	9,3	M5	8	25,5	25,5	20	5,7	5,7	38,5	-	8	15	4,5	150	28
25	44,5	40	45°	10	-	5,8	9,2	M4	11	24,5	10,5	G1/8	11	28	28	22	5,7	4,5	42	-	8	15	5,5	185	35,5
32	51	46	41,5°	12	24,5	5,8	9,2	M5	17	27	9	G1/8	11,5	36	32	28	5,7	4	48	5	10	20	11	282	39,5
40	58	55	45°	12	28	5,8	9,2	M5	17	30,5	9,5	G1/8	11,5	42	42	33	5,7	4	55	6	10	20	12,5	366	43,5
50	70	65	45°	16	34	6,8	11	M6	22	37,5	12,5	G1/8	11,5	50	50	42	6,8	4	65	6	12	30	13,5	521	68
63	86	80	45°	16	38,5	9	14	M6	22	46	15	G1/8	12	62	62	50	8,8	5	80	8	12	30	15	717	75
80	105	100	45°	20	44	9	14	M8	28	55	14	G1/4	14	82	82	65	9	6	100	10	14	50	18	1434	114
100	131	124	45°	25	56	11	17,2	M10	30	69	17,5	G1/4	16	103	103	80	11	7,5	124	10,5	14	50	20,5	2435	174

"H" DIMENSION

Ø	STROKE (mm)												
	5	10	15	20	25	30	40	50	60	80	100	125	160
20	37	42	47	52	63	68	78	88	98	118	138	-	-
25	43,5	48,5	53,5	58,5	64,5	69,5	79,5	89,5	99,5	119,5	139,5	-	-
32	44,5	49,5	54,5	59,5	64,5	69,5	79,5	89,5	99,5	119,5	139,5	-	-
40	44,5	49,5	54,5	59,5	64,5	69,5	79,5	89,5	99,5	119,5	139,5	-	-
50	-	49,5	54,5	59,5	64,5	69,5	79,5	89,5	99,5	119,5	139,5	164,5	-
63	-	52	57	62	67	72	82	92	102	122	142	167	202
80	-	56	61	66	71	76	86	96	106	126	146	171	206
100	-	66	71	76	81	86	96	106	116	136	156	181	216

MALE HINGE MOUNTING



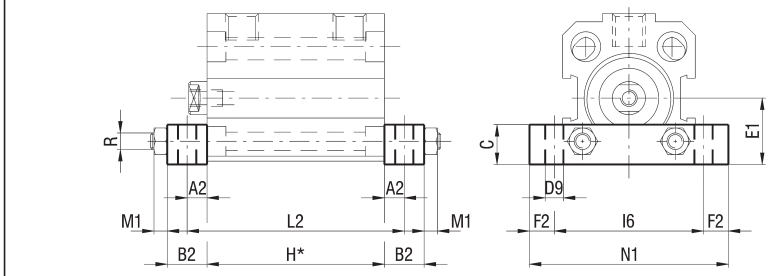
DIMENSIONS

Ø	A1	B	E2 H8	H5	Z	B1
16	8	6	6	12	7	14
20	10	8	8	16	9	18
25	10	8	8	16	9	18
32	13	10	10	20	14	23
40	15	12	12	24	16	27
50	15	12	12	24	17	27
63	19	16	16	32	22	35
80	19	16	16	32	22	35
100	23	20	20	40	26	43

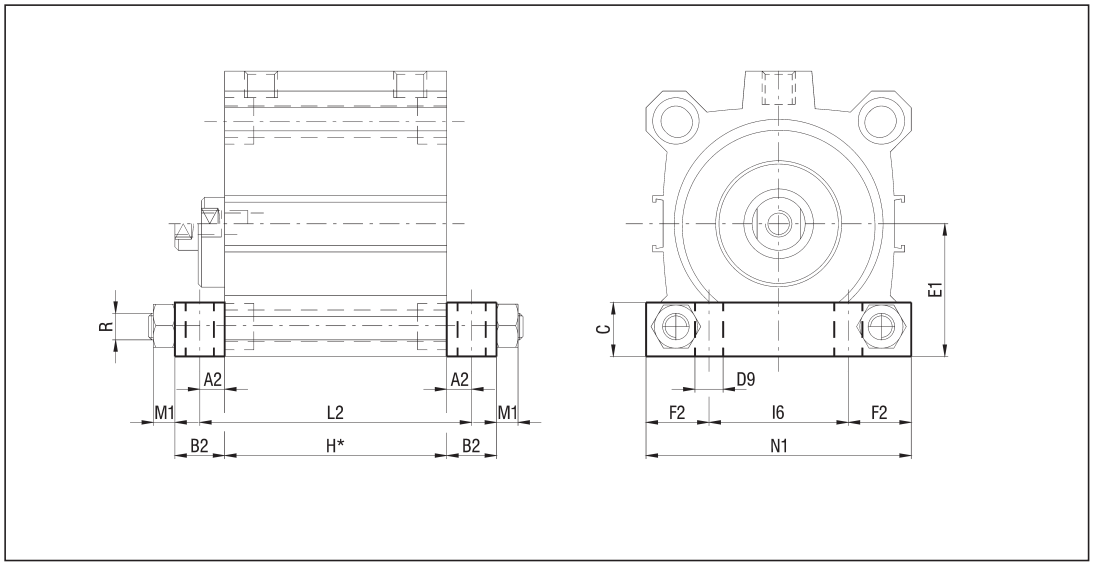
FEET (pair) - ALUMINIUM - B/PB Ø

Ø	A2	B2	C	D9	E1	F2	I6
16	5	10	10	3,5	17	5	30
20	5	10	10	3,5	18	5	40
25	6	12	12	5,5	20	7,5	45
32	6	12	12	5,5	24	5	50
40	6	12	12	5,5	27,5	5	60
50	7,5	15	15	6,5	32,5	5	70
63	7,5	15	15	8,5	40	7,5	85
80	10	20	20	8,5	50	20	60
100	10	20	20	10,5	62	22	80

Ø	L2	M1	N1	R	WEIGHT *(g)*
16	H*+10	2,4	40	M3	10
20	H*+10	4	50	M5	10,1
25	H*+12	4	60	M5	20,4
32	H*+12	4	60	M5	20,4
40	H*+12	4	70	M5	24,7
50	H*+15	5	80	M6	44,7
63	H*+15	6,5	100	M8	53
80	H*+20	6,5	100	M8	99
100	H*+20	8	124	M10	120

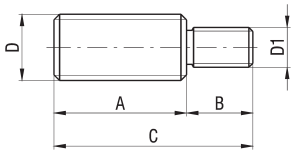


*DIMENSION “H” IS OBTAINABLE FROM THE TABLES OF THE SINGLE VERSION



ROD NIPPLE WITH THREAD TO ISO STANDARD - STEEL - NB Ø

Ø	D	D1	A	B	C	WEIGHT *(g)*
12	M6	M3	16	6,5	22,5	3
16	M6	M4	15	8	23	3,2
20-25	M8	M5	20	10	30	7,2
32-40	M10x1,25	M6	22	12	34	13,1
50-63	M12x1,25	M8	24	14	38	23
G50-63	M16x1,5	M8	32	14	46	47,6
80	M16x1,5	M10	32	15	47	50,5
100	M20x1,5	M12	40	20	60	101

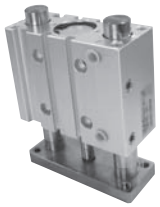


Compact guided cylinders

series BG

DESCRIPTION

Compact guided cylinders series “BG” have reduced dimensions and high precision movement. These cylinders assure great strenght to transversal forces thanks to stout bars guided on bushings or sleeves. Cylinders series “BG” are double acting and they have the magnetic piston type and the steel plate as standard, so they can be supplied with magnetic sensors.



TECHNICAL DATA

Operating pressure	1÷10 bar
Working temperature	0 ÷ +80 °C (-20 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Bore	Ø 16, 20, 25, 32, 40, 50, 63
Port size	Ø 16 = M 5 Ø 20 ÷ 40 = G 1/8 Ø 50 = G 1/4
Standard strokes (mm)	Ø 16 = 10, 20, 30, 40, 50, 75, 100 Ø 20 = 20, 30, 40, 50, 75, 100, 125, 150, 175, 200 Ø 25 = 20, 25, 30, 40, 50, 75, 100, 125, 150, 175, 200 Ø 32 ÷ 63 = 25, 50, 75, 100, 125, 150, 175, 200

MATERIALS

End caps	Anodized aluminium alloy
Body	Anodized aluminium alloy
Piston rod	Ø 16 ÷ 25 : AISI 303 stainless steel Ø 32 ÷ 63 : C45 chromium-plated steel
Piston	Aluminium alloy with magnet
Guide bars	C45 chromium-plated steel (bushings sliding type) Hardened steel (recirculating ball bearing sleeves sliding type)
Plate	Nickel-plated steel Anodized aluminium alloy
Bushings	Self-lubricating sintered bronze with wiper ring No.2 pcs. for strokes 20 ÷ 50 mm; No.4 pcs. for strokes 75 ÷ 200 mm
Sleeves	Recirculating ball bearings with wiper ring No.2 pcs. for strokes 20 ÷ 50 mm; No.4 pcs. for strokes 75 ÷ 200 mm
Seals	Polyurethane

ORDER KEY

/ | | | BG | | | S•

- Bore
- Stroke
- Version
- Series
- Sliding type
- Option
- Special options (supplied upon request)

P.S.: *Magnetic sensors* FM 100 (see chapter magnetic sensors from page 1.93)

• See technical data on page 0.12

VERSION

D Double acting

SLIDING TYPE

B On bushing

M With sleeves

OPTION

Single steel plate

D Double steel plate

S Single aluminium plate

L Double aluminium plate

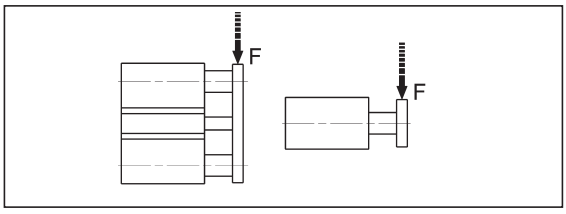
ORDER EXAMPLE

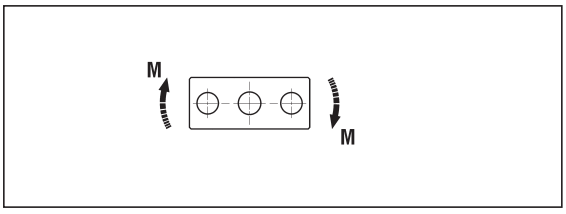
Cylinder Ø 50, double acting, 50 mm stroke, with sleeves, double steel plate 50/50 DBGMD

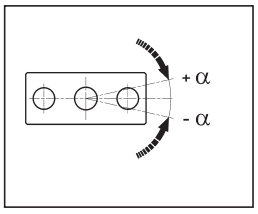
SPARE PARTS

SEALS KIT	
Polyurethane	Ø/SG/BG

TECHNICAL DATA







MAXIMUM PERMISSIBLE TRANSVERSE FORCE F (N)

Ø	Sliding type	STROKE (mm)							
		10	20	25	30	40	50	75	100
16	B	41	32	-	26	23	20	27	22
	M	44	34	-	27	23	21	27	22
20	B	-	53	-	45	38	34	52	42
	M	-	62	-	50	42	36	53	44
25	B	-	93	-	78	68	60	81	67
	M	-	94	-	79	68	60	59	51
32	B	-	-	168	-	-	131	163	138
	M	-	-	84	-	-	58	270	213
40	B	-	-	168	-	-	131	163	138
	M	-	-	92	-	-	64	270	213
50	B	-	-	240	-	-	189	243	208
	M	-	-	117	-	-	81	370	312
63	B	-	-	250	-	-	190	265	227
	M	-	-	117	-	-	81	370	312

MAXIMUM PERMISSIBLE TORQUE M (Nm)

Ø	Sliding type	STROKE (mm)							
		10	20	25	30	40	50	75	100
16	B	0,65	0,51	-	0,42	0,36	0,32	-	-
	M	0,83	0,65	-	0,52	0,44	0,40	-	-
20	B	-	0,99	-	0,84	0,71	0,64	0,97	0,78
	M	-	1,20	-	0,96	0,81	0,69	1,02	0,85
25	B	-	1,98	-	1,67	1,45	1,28	1,73	1,43
	M	-	2,00	-	1,69	1,45	1,28	1,26	1,09
32	B	-	-	4,10	-	-	3,19	3,97	3,36
	M	-	-	2,04	-	-	1,41	6,58	5,19
40	B	-	-	4,51	-	-	3,51	4,38	3,70
	M	-	-	2,47	-	-	1,72	7,25	5,72
50	B	-	-	6,60	-	-	5,19	6,68	5,72
	M	-	-	3,22	-	-	2,22	10,17	8,58
63	B	-	-	6,60	-	-	5,19	6,68	5,72
	M	-	-	3,22	-	-	2,22	10,17	8,58

ANTI-ROLL ACCURACY α

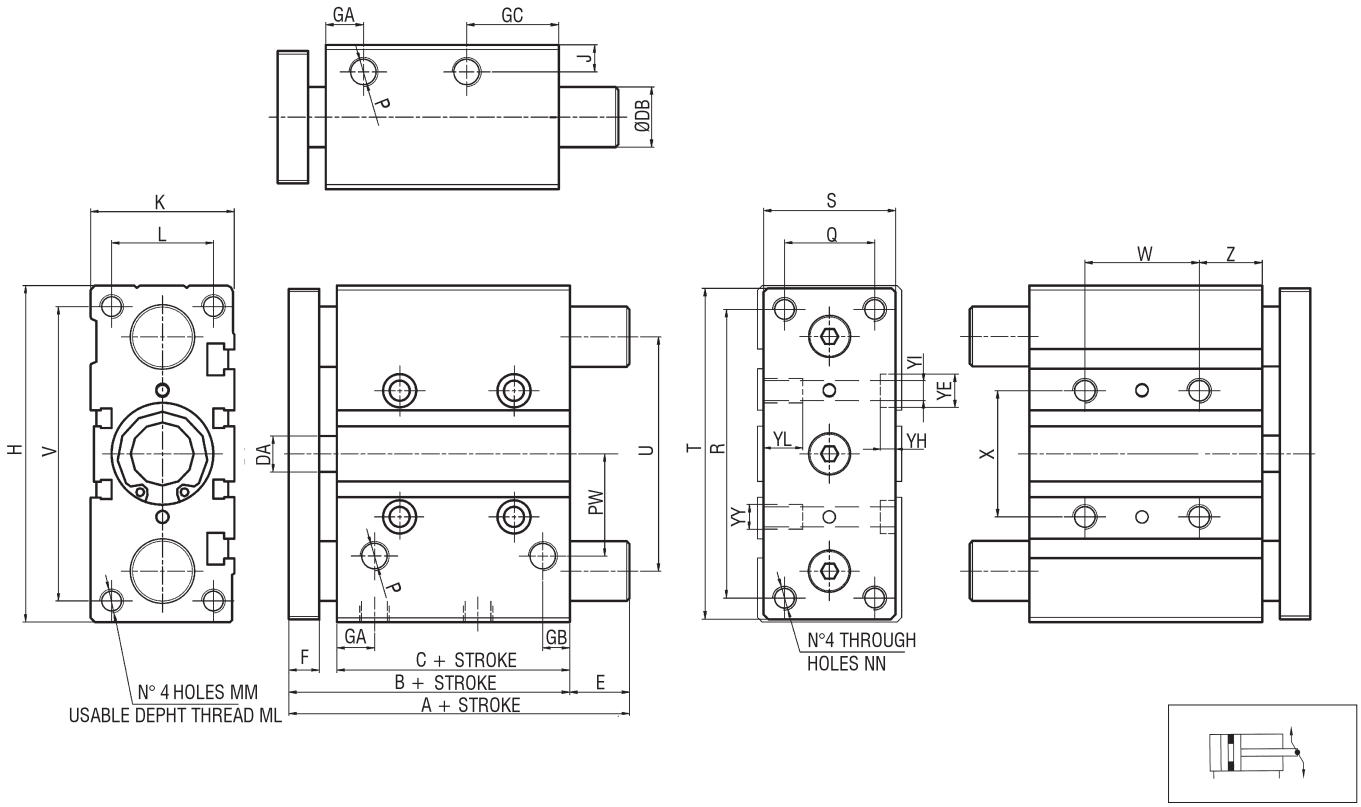
Ø	Sliding type	
	B	M
16	±0,08°	±0,10°
20	±0,07°	±0,09°
25	±0,07°	±0,09°
32	±0,06°	±0,08°
40	±0,06°	±0,08°
50	±0,05°	±0,06°
63	±0,05°	±0,06°

B - Bushing
M - Sleeves

series BG

Compact guided cylinders

BG COMPACT GUIDED CYLINDER



DIMENSIONS AND WEIGHTS BASIC CYLINDER

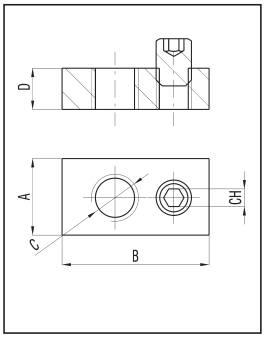
Ø	A (STROKES *mm*)		B	C	DA	DB	E (STROKES *mm*)		F	GA	GB	GC	H	J	L	K	MM	ML	NN	P
16	46 (10 ÷ 50)	64,5 (75 ÷ 100)	46	33	8	10	0 (10 ÷ 50)	18,5 (75 ÷ 100)	8	11	8	8	64	5	22	30	M5	12	M5	M5
20	53 (20 ÷ 50)	84,5 (75 ÷ 200)	53	37	10	12	0 (20 ÷ 50)	31,5 (75 ÷ 200)	10	10,5	8,5	24,5	83	7,5	24	36	M5	13	M5	G1/8
25	53,5 (20 ÷ 50)	84,5 (75 ÷ 200)	54	37,5	10	16	0 (20 ÷ 50)	31,5 (75 ÷ 200)	10	11,5	9	25	93	7,5	30	42	M6	15	M6	G1/8
32	97 (25 ÷ 50)	107 (75 ÷ 200)	60	37,5	12	20	37,5 (25 ÷ 50)	42,5 (75 ÷ 200)	12	12,5	9	30,5	112	9	34	48	M8	20	M8	G1/8
40	97 (25 ÷ 50)	107 (75 ÷ 200)	66	44	12	20	31 (25 ÷ 50)	36 (75 ÷ 200)	12	14	10	31	120	9	40	54	M8	20	M8	G1/8
50	106,5 (25 ÷ 50)*	118 (75 ÷ 200)	72	44	16	25	34,5 (25 ÷ 50)*	46 (75 ÷ 200)	16	14	11	35	148	10,5	46	64	M10	22	M10	G1/4
63	106,5 (25 ÷ 50)*	118 (75 ÷ 200)	77	49	16	25	29,5 (25 ÷ 50)*	41 (75 ÷ 200)	16	16,5	13,5	35	162	11	58	78	M10	22	M10	G1/4 *

Ø	PW	Q	R	S	T	U	V	W (STROKES *mm*)			X	YE	YH	YI	YL	YY	Z	*WEIGHT (g) for STROKES (mm) with aluminium plate*							
																		10	*20*	*25*	*30*	*40*	*50*	*75*	*100*
16	19	16	54	25	62	46	56	24 (10 ÷ 30)	44 (40 ÷ 100)	-	24	8	4,5	4,3	10	M5	5	300	350	-	400	450	500	700	850
20	20,5	18	70	30	81	54	72	24 (20 - 30)	44 (40 ÷ 100)	120 (125 ÷ 200)	28	9,5	5,5	5,6	12	M5	17	-	640	-	720	800	880	1200	1400
25	28,5	26	78	38	91	64	82	24 (20 - 30)	44 (40 ÷ 100)	120 (125 ÷ 200)	34	9,5	5,5	5,6	12	M6	17	-	850	-	950	1050	1150	1600	1850
32	34	30	96	44	110	78	98	24 (25)	48 (50 ÷ 100)	124 (125 ÷ 200)	42	11	7,5	6,6	16	M8	21	-	-	1500	-	-	1850	2500	2850
40	28,5	30	104	44	118	86	106	24 (25)	48 (50 ÷ 100)	124 (125 ÷ 200)	50	11	7,5	6,6	16	M8	22	-	-	1700	-	-	2100	2650	3050
50	47	40	130	60	146	110	130	24 (25)	48 (50 ÷ 100)	124 (125 ÷ 200)	66	14	9	8,6	20	M10	22	-	-	2700	-	-	3300	4100	4700
63	55	50	130	70	158	124	142	28 (25)	52 (50 ÷ 100)	128 (125 ÷ 200)	80	14	9	8,6	20	M10	24	-	-	3100	-	-	4218	4936	5655

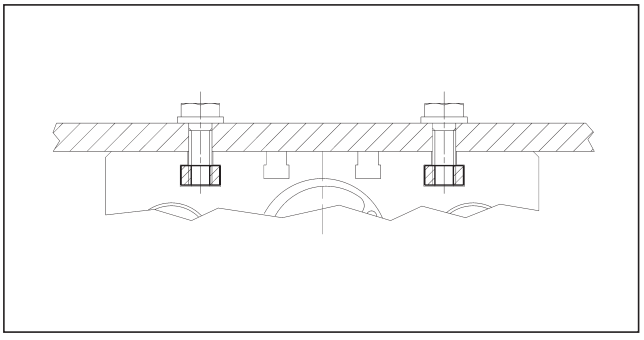
* With sleeves: dimension “A” (stroke 50) = 114 for Ø 50 and 63; dimension “E” (stroke 50) = 42 for Ø 50 and 37 for Ø 63

SLOTS FIXING PLATE - STEEL - BG/PF Ø

Ø	A	B	C	D	CH	WEIGHT *(g)*
16	7	10	M4	3,5	1,5	2
20 - 25	8	15	M5	4	2	3,5
32 - 40	10	20	M6	5	2,5	7,5
50 - 63	13	25	M8	7	3	17



FIXING EXAMPLE



Screwed-head cylinders

series HB

DESCRIPTION

Cylinders series “HB” are manufactured to be fixed on machine edges without the use of mountings. The end cap acts as a mounting device in the versions: hinge-mounted, screw-mounted, feet-mounted, front flange-mounted, rear flange-mounted. The double acting hinge-mounted versions and rear flange-mounted are available with reduced end caps. Cylinders series “HB” cannot be supplied with magnetic sensors.

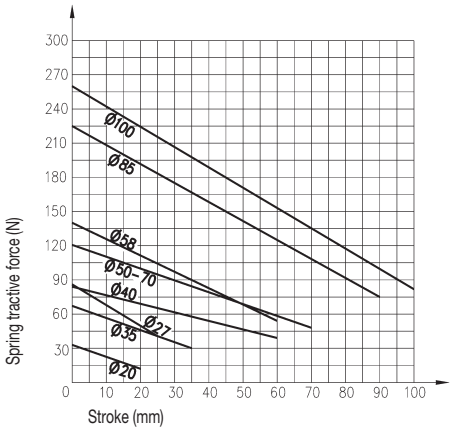
TECHNICAL DATA

Operating pressure	1,5 ÷ 10 bar									
Working temperature	0 ÷ +80 °C (-20 °C with dry air) 0 ÷ +150 °C with seals for high temperatures (-20 °C with dry air)									
Fluid	Filtered, unlubricated or continuous lubricated compressed air									
Versions	Double acting; Single acting front spring; Single acting rear spring; Through rod									
Bore	Ø 20, 27, 35, 40, 50, 58, 70, 85, 100									
Port size	Ø 20 ÷ 50 = G 1/8 Ø 58 ÷ 100 = G 1/4									
Standard strokes (mm)	10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100, 150, 200, 250									
Max. strokes double acting (mm)	Ø 20 - 27 = 1000; Ø 35 ÷ 50 = 1500; Ø 58 ÷ 100 = 2000									
Maximum strokes single acting	Ø	20	27	35	40	50	58	70	85	100
	mm	20	25	35	60	70	60	70	90	100
Maximum strokes single acting (version “S”) with spacers	Ø	20	27	35	40	50	58	70	85	100
	mm	60	75	105	180	210	180	210	270	300

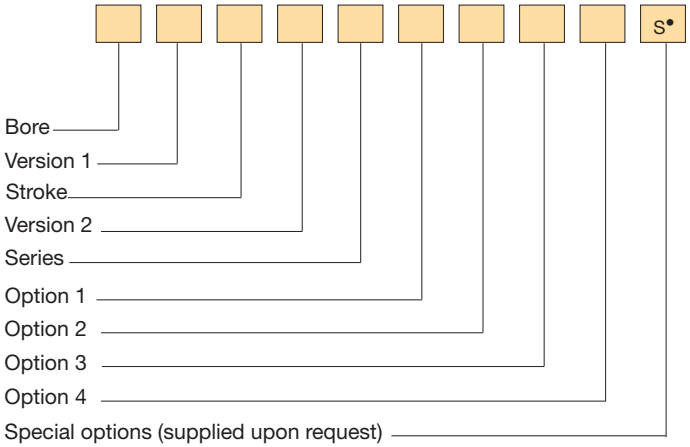
MATERIALS

End caps	Aluminium alloy
Cylinder barrel	Ø 20 ÷ 100: Extruded tube, anodized aluminium alloy; Extruded tube, brass (supplied upon request)
Piston rod	C45 chromium-plated steel AISI 303 rolled stainless steel
End cap nut	Steel
Piston rod bearing	Bronze-iron 20%, sintered, self-lubricating
Piston guide shoe	Acetal resin
Piston	Aluminium alloy
Seals	NBR rubber Viton®
Springs	Springs steel

SPRING THEORETICAL TRACTIVE FORCE



ORDER KEY



• See technical data on page 0.12

VERSION 1			
/	Basic cylinder	R	Through rod*
VERSION 2			
D	Double acting	Y	Single acting front spring**
S	Single acting front spring		
SERIES			
CB	Hinge-mounted	FAB	Front flange-mounted
VB	Screw-mounted	FPB	Rear flange-mounted
PB	Feet-mounted		
OPTION 1			
C	Reduced end cap***		
OPTION 2			
1	Stainless steel piston rod	3	Stainless steel piston rod and seals for high temperatures
2	Seals for high temperatures		
OPTION 3			
4	Brass cylinder barrel		
OPTION 4			
5	Rod wipers		

* Series “FPB” excluded

** Dimensions are different from the versions “D” and “S”

*** Supplied only with series “DCB”, “YCB”, “DFPB”, “YFPB” and with the version “R” of series “DFAB” and “DVB”

ORDER EXAMPLES

Basic cylinder Ø27, 25 mm stroke, single acting front spring, feet-mounted 27/25 SPB

Cylinder Ø20, through rod, 100 mm stroke, double acting, feet-mounted 20R100 DPB

Basic cylinder Ø58, 50 mm stroke, double acting, hinge-mounted, stainless steel piston rod, brass cylinder barrel 58/50 DVB 1 4

Basic cylinder Ø35, 70 mm stroke, double acting, hinge-mounted, reduced end cap 35/70 DCBC

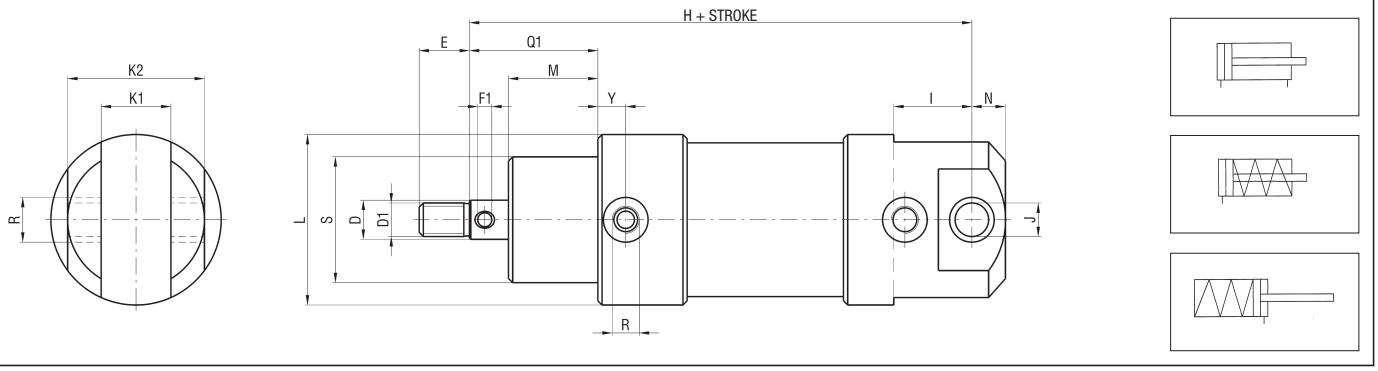
SPARE PARTS

SEALS KIT			
NBR	**Ø/SG/HB**	For high temperatures	**Ø/SG/HB2**
Through rod, NBR	**Ø/SG/R/HB**	Through rod, for high temperatures	**Ø/SG/R/HB2**

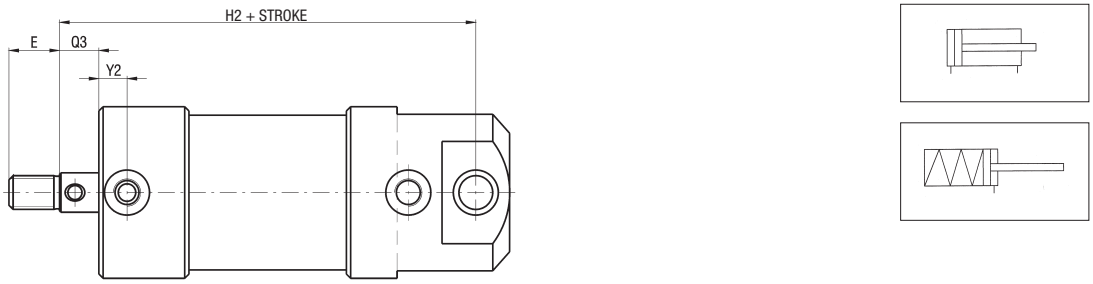
series HB

Screwed-head cylinders

BASIC CYLINDER HINGE-MOUNTED - CB



REDUCED END CAP

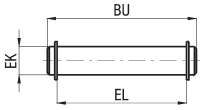


DIMENSIONS AND WEIGHTS BASIC CYLINDER CB

Ø	D	D1	E	F1	H	H2	I	J *H8*	K1 *0/+0,2*	K2 *0/-0,2*	L	M	N	Q1	Q3	R	S	Y	Y2	WEIGHT *(g)*	INCREM. *(g) every 10 mm*
20	8	M6	9	3	85	72	10	5	8	22	30	16	6	24	8	G 1/8	24	10	11,5	200	15
27	10	M8	12	4	96	76	21	6	9	25	35	20	7	30	10	G 1/8	28	9,5	11,5	289	20
35	12	M10	15	4	106	84	23	8	12	32	45	24	9	36	12	G 1/8	32	9,5	10	396	32
40	12	M10	15	4	121	90	26	10	18	40	50	32	10	44	12	G 1/8	36	10	10	503	35
50	14	M12	18	5	130	101	28	12	25	49	61	32	12	46	14	G 1/8	42	10	10	793	44
58	16	M14	21	5	140	110	33	14	26	54	70	32	14	48	16	G 1/4	45	12	14	1181	53
70	18	M16	24	5	151	122	35	16	35	67	82	35	16	53	18	G 1/4	50	14	16	1474	64
85	20	M18	27	6	168	128	36	18	40	76	98	44,5	18	64,5	20	G 1/4	60	12,5	14	2033	89
100	24	M20	30	6	191	142	45	20	40	80	114	50	20	74	24	G 1/4	70	14	19	3250	110

ACCESSORIES
PIVOT FOR FEMALE REAR HINGE - STEEL - HB/SEC Ø

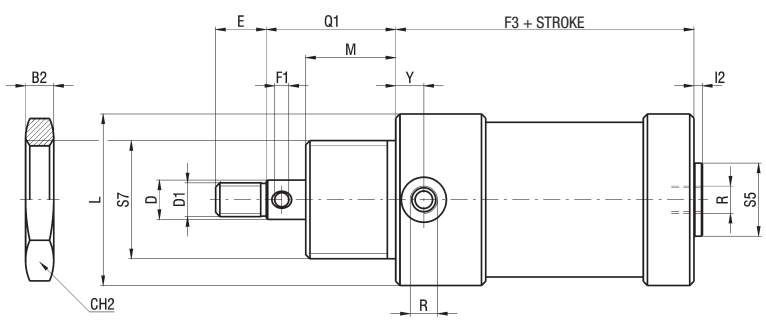
Ø	BU	EK *f7*	EL	WEIGHT *(g)*
20	28	5	23	4,5
27	31	6	26	7
35	38	8	33	15
40	47	10	41	29
50	56	12	50	50
58	62	14	55	76
70	75	16	68	118
85	84	18	77	168
100	88	20	81	217

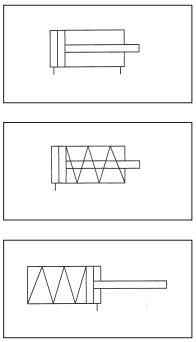


Screwed-head cylinders

series HB

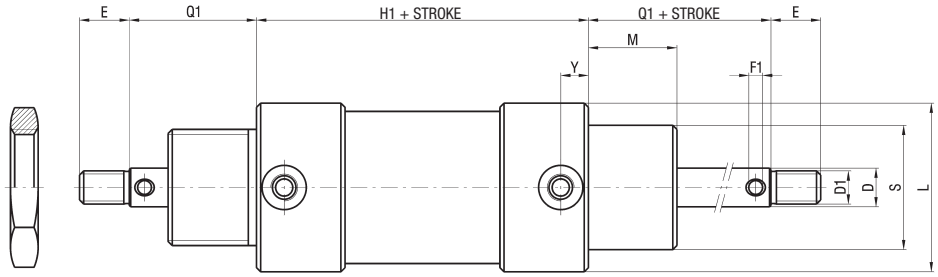
BASIC CYLINDER SCREW-MOUNTED - VB

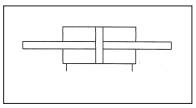




P.S.: End cap nut (HB/DT Ø) supplied as standard. Contact the commercial office for further nuts.

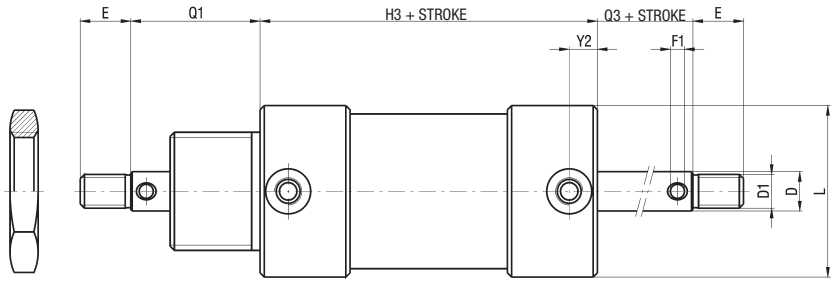
THROUGH ROD

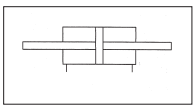




P.S.: End cap nut (HB/DT Ø) supplied as standard. Contact the commercial office for further nuts.

THROUGH ROD, REDUCED END CAP





P.S.: End cap nut (HB/DT Ø) supplied as standard. Contact the commercial office for further nuts.

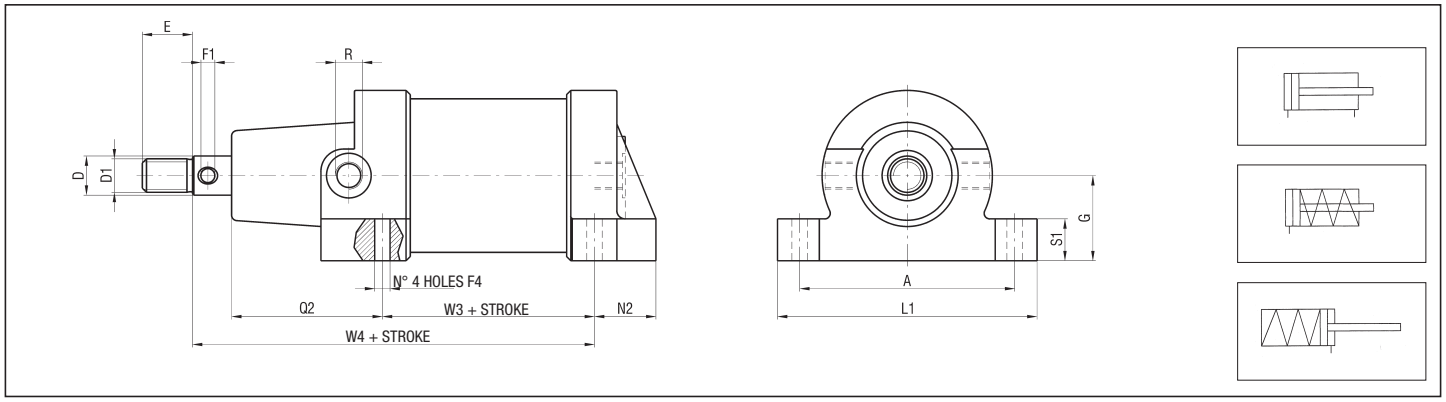
DIMENSIONS AND WEIGHTS BASIC CYLINDER VB

Ø	B2	CH2	D	D1	E	F1	F3	H1	H3	l2	L	M	Q1	Q3	R	S	S5	S7	Y	Y2	WEIGHT (g)	INCREM. (g) every 10 mm
20	5	32	8	M6	9	3	41	58	61	3,5	30	16	24	8	G 1/8	24	14	M24x2	10	11,5	129	15
27	6	35	10	M8	12	4	45,5	60,5	62,5	3,5	35	20	30	10	G 1/8	28	14	M28x2	9,5	11,5	160	20
35	7	40	12	M10	15	4	47,5	61,5	63,5	3,5	45	24	36	12	G 1/8	32	18	M32x2	9,5	10	299,5	32
40	8	45	12	M10	15	4	51	68	69	3	50	32	44	12	G 1/8	36	24	M36x3	10	10	416	35
50	10	50	14	M12	18	5	56	70	73	3	61	32	46	14	G 1/8	42	26	M42x3	10	10	691	44
58	10	55	16	M14	21	5	59	75	77	4	70	32	48	16	G 1/4	45	30	M45x3	12	14	1028	53
70	10	60	18	M16	24	5	63	80	86	4	82	35	53	18	G 1/4	50	30	M50x3	14	16	1388	64
85	12	70	20	M18	27	6	67,5	84	88,5	4	98	44,5	64,5	20	G 1/4	60	40	M60x4	12,5	14	2024	89
100	14	85	24	M20	30	6	72	89	90	4	114	50	74	24	G 1/4	70	40	M70x4	14	19	3060	110

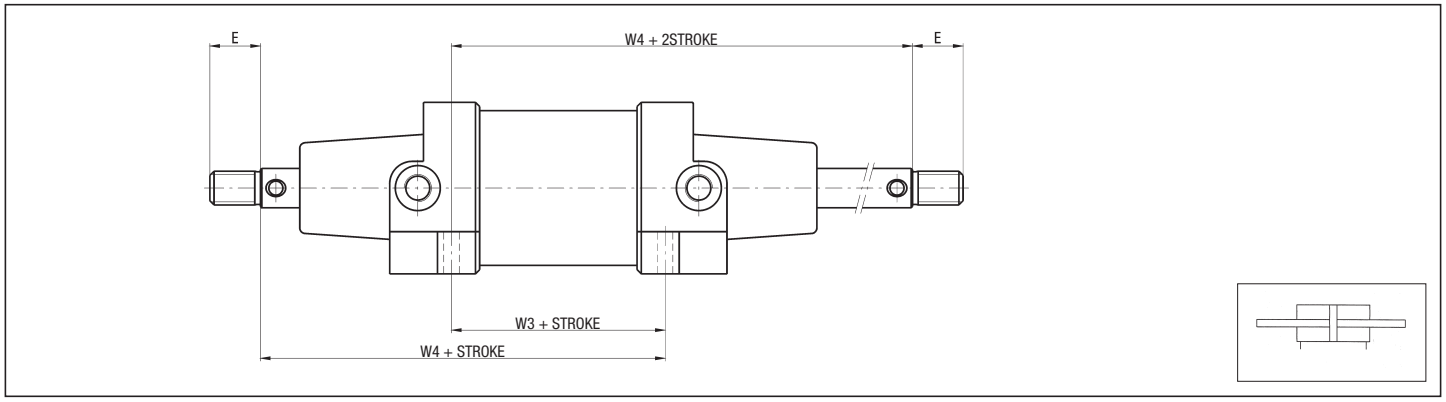
series HB

Screwed-head cylinders

BASIC CYLINDER FEET-MOUNTED - PB



THROUGH ROD



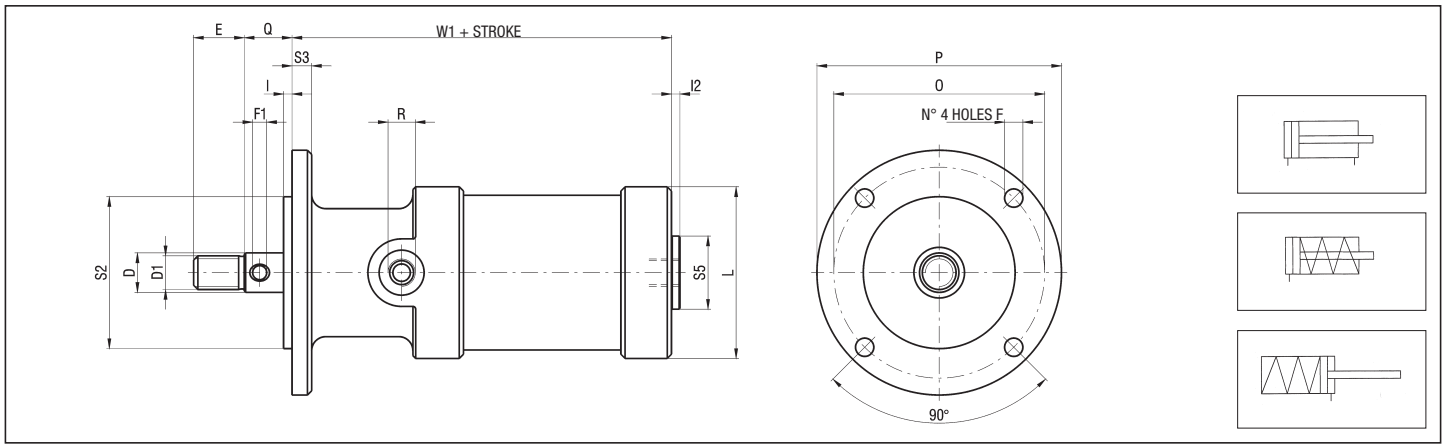
DIMENSIONS AND WEIGHTS BASIC CYLINDER PB

Ø	A	D	D1	E	F1	F4	G	L1	N2	Q2	R	S1	W3	W4	WEIGHT *(g)*	INCREMENT *(g) every 10 mm*
20	42	8	M6	9	3	4,25	17	52	13	36	G 1/8	8	18	62	181	15
27	45	10	M8	12	4	4,5	19,5	55	17	40	G 1/8	10	20	70	269	20
35	57	12	M10	15	4	5,5	22,5	69	17	44	G 1/8	12	21	77	359	32
40	64	12	M10	15	4	5,5	25	78	22	56	G 1/8	14	20	88	502	35
50	77	14	M12	18	5	5,5	30,5	93	22	54	G 1/8	16	26	94	743	44
58	86	16	M14	21	5	6,5	35	102	25	56	G 1/4	16	27	99	996	53
70	100	18	M16	24	5	6,5	41	118	26	61	G 1/4	18	28	107	1363	64
85	118	20	M18	27	6	8,5	49	138	27	72	G 1/4	20	30	122	2043	89
100	136	24	M20	30	6	8,5	57	158	28	76	G 1/4	22	33	133	3019	110

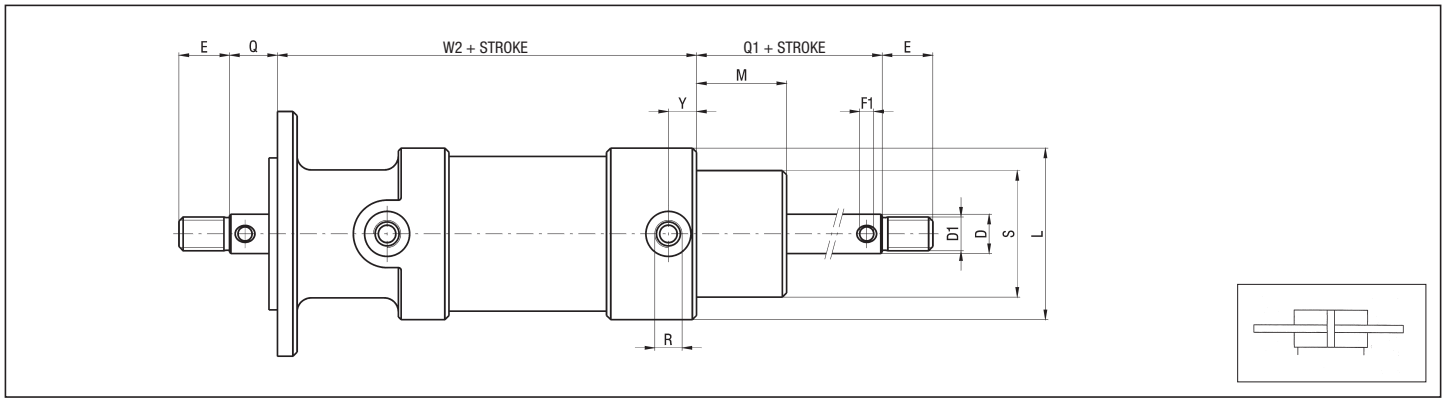
Screwed-head cylinders

series HB

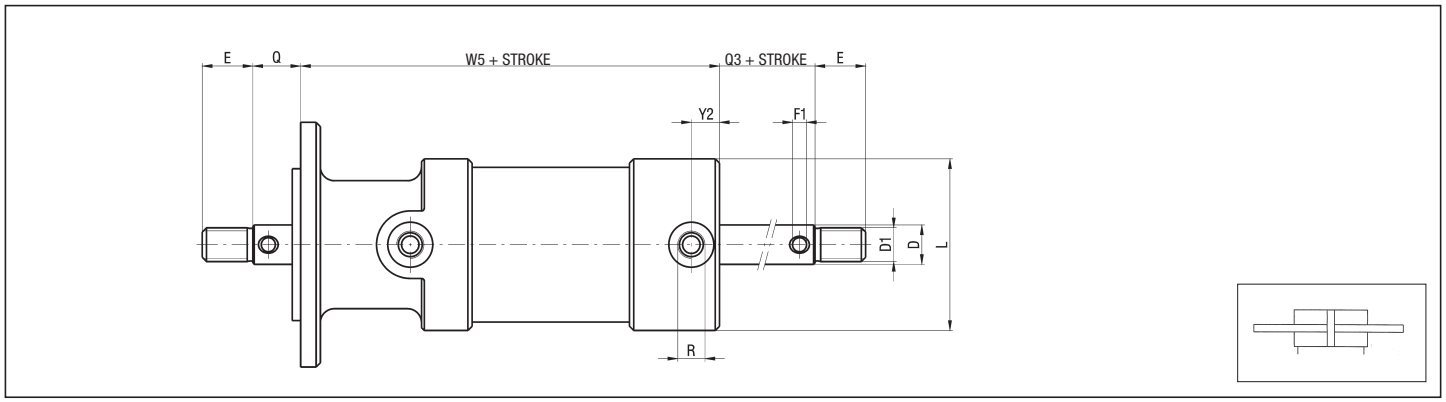
BASIC CYLINDER FRONT FLANGE-MOUNTED - FAB



THROUGH ROD



THROUGH ROD, REDUCED END CAP



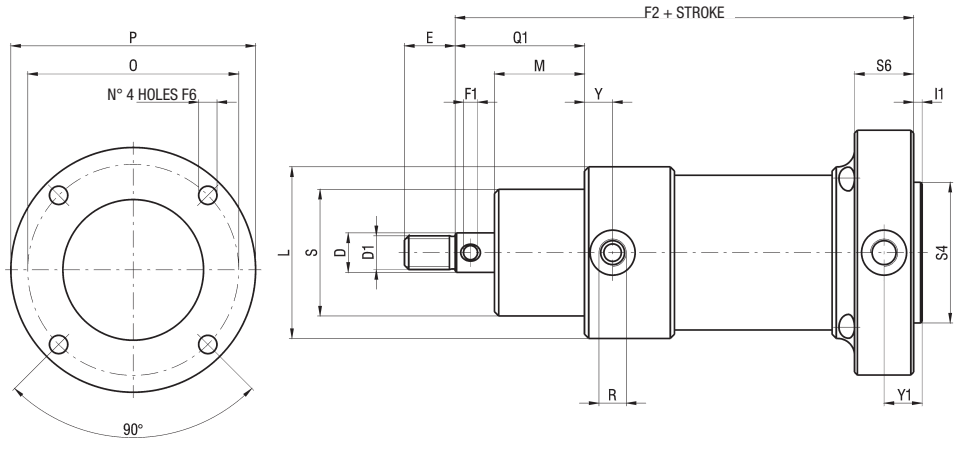
DIMENSIONS AND WEIGHTS BASIC CYLINDER - FAB

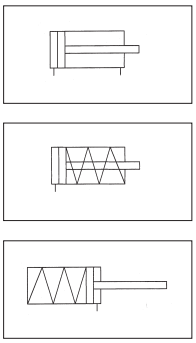
Ø	D	D1	E	F	F1	I	I2	L	M	O	P	Q	Q1	Q3	R	S	S2	S3	S5	W1	W2	W5	Y	Y2	WEIGHT (g)	INCREM. (g) every 10 mm
20	8	M6	9	4,2	3	2	3,5	30	16	39	50	10	24	8	G 1/8	24	23	4	14	55	72	75	10	11,5	91	15
27	10	M8	12	4,5	4	2	3,5	35	20	48	58	12	30	10	G 1/8	28	30	6	14	63,5	78,5	80,5	9,5	11,5	178	20
35	12	M10	15	5,5	4	2	3,5	45	24	54	66	14	36	12	G 1/8	32	36	6	18	69,5	83,5	85,5	9,5	10	317	32
40	12	M10	15	6,5	4	3	3	50	32	57	69	15	44	12	G 1/8	36	40	7	24	80	97	98	10	10	427	35
50	14	M12	18	6,5	5	3	3	61	32	75	87	17	46	14	G 1/8	42	54	7	26	85	99	102	10	10	689	44
58	16	M14	21	6,5	5	3	4	70	32	82	100	19	48	16	G 1/4	45	60	8	30	88	104	106	12	14	915	53
70	18	M16	24	8,5	5	4	4	82	35	100	119	22	53	18	G 1/4	50	70	10	30	94	111	117	14	16	1244	64
85	20	M18	27	10,5	6	4	4	98	44,5	120	140	24	64,5	20	G 1/4	60	80	11	40	103	119,5	124	12,5	14	2113	89
100	24	M20	30	10,5	6	4	4	114	50	137	160	28	74	24	G 1/4	70	88	12	40	118	135	136	14	19	3200	110

series HB

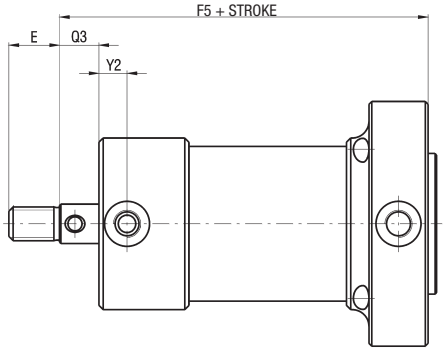
Screwed-head cylinders

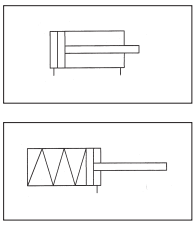
BASIC CYLINDER REAR FLANGE-MOUNTED - FPB





REDUCED END CAP





DIMENSIONS AND WEIGHTS BASIC CYLINDER FPB

Ø	D	D1	E	F1	F2	F5	F6	I1	L	M	O	P	Q1	Q3	R	S	S4	S6	Y	Y1	Y2	WEIGHT *(g)*	INCREM. *(g) every 10 mm*
20	8	M6	9	3	78	65	4,2	2	30	16	39	50	24	8	G 1/8	24	23	18	10	11	11,5	91	15
27	10	M8	12	4	89	69	4,5	2	35	20	48	58	30	10	G 1/8	28	30	19	9,5	11,5	11,5	178	20
35	12	M10	15	4	97	75	5,5	2	45	24	59	69	36	12	G 1/8	32	38	19	9,5	11,5	10	317	32
40	12	M10	15	4	109	78	5,5	3	50	32	62	74	44	12	G 1/8	36	40	21	10	13,5	10	427	35
50	14	M12	18	5	113	84	6,5	3	61	32	75	87	46	14	G 1/8	42	50	21	10	13,5	10	689	44
58	16	M14	21	5	122	92	8,5	3	70	32	86	100	48	16	G 1/4	45	62	24	12	15	14	915	53
70	18	M16	24	5	131	102	8,5	4	82	35	100	119	53	18	G 1/4	50	72	22	14	15	16	1244	64
85	20	M18	27	6	147	107	10,5	4	98	44,5	120	140	64,5	20	G 1/4	60	80	25	12,5	16,5	14	2113	89
100	24	M20	30	6	164	115	10,5	4	114	50	137	160	74	24	G 1/4	70	88	28	14	18	19	3200	110

Rodless cylinders

series Z

DESCRIPTION

Rodless cylinders series “Z” are suitable for applications where long strokes are required, as they have been designed with reduced overall dimensions if compared to the standard cylinders with external rod. The short cylinder (version “K”) has a basic length (0-stroke) up to 40% shorter than the “S” standard version. The guided versions (options “F” & “FF”) allow the translation of non-guided loads and offer great resistance to transversal forces. Cylinders series “Z” have the magnetic piston type as standard and so they can be supplied with magnetic sensors.

TECHNICAL DATA

Operating pressure	2 ÷ 8 bar
Working temperature	0 ÷ +80 °C (-20 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Versions	Standard yoke; Short yoke
Bore	Ø 18, 25, 32, 40, 50, 63
Port size	Ø 18 = M 5 Ø 25 - 32 = G 1/8 Ø 40 - 50 = G 1/4 Ø 63 = G 3/8
Decelerators length	Ø 18 25 32 40 50 63 mm 15 18 24 34 40 49
Maximum strokes (mm)	Ø 18 ÷ 63 = 6000

MATERIALS

End caps	Anodized aluminium alloy
Cylinder barrel	Extruded profile, anodized aluminium alloy
Sealing strip	Polyamide
Cover strip	AISI 304 stainless steel
Head wiper	Acetal resin
Piston	Aluminium alloy with piston seal in acetal resin
Yoke	Anodized aluminium alloy
Decelerators ogives	Brass
Seals	Polyurethane

ORDER KEY

/ | | Z | | | | S•

- Bore
- Stroke
- Series
- Version
- Option 1
- Option 2
- Special options (supplied upon request)

VERSION			
S	Standard yoke	K	Short yoke
OPTION 1			
F	Single guide	FF	Double guide*
OPTION 2			
1	One side ported**	2	Bottom ported**

* Supplied only for “S” version
** Supplied from Ø 25 to Ø 63

P.S.: *Magnetic sensors* FM 100 - FM 101 (see chapter magnetic sensors from page 1.93)
• See technical data on page 0.12

ORDER EXAMPLES

Rodless cylinder Ø50, 500 mm stroke, with standard yoke and ports 50/500 ZS

Rodless cylinder Ø50, 1000 mm stroke, short yoke, single guide, one side ports 50/1000 ZKF1

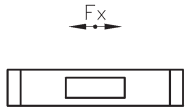
SPARE PARTS

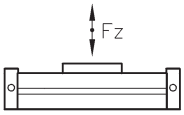
Seals kit - Polyurethane	Ø/SG/Z
Sealing strip (min. 500 mm)	Ø/BP/Z/mm
Cover strip (min. 500 mm)	Ø/BM/Z/mm

TECHNICAL INFORMATION

1

MAXIMUM PERMISSIBLE FORCES



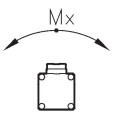


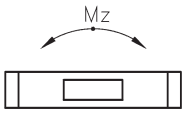
Ø	F x in (N) a 6 bar - speed ≤ 0,35 m/s					F z in (N) - speed ≤ 0,35 m/s					F y in (N) - speed ≤ 0,35 m/s				
	ZS	ZK	ZSF	ZSFF	ZKF	ZS	ZK	ZSF	ZSFF	ZKF	ZS	ZK	ZSF	ZSFF	ZKF
18	140	140	140	140	140	300	140	370	550	150	80	40	370	550	150
25	270	270	270	270	270	480	230	800	1200	250	110	55	800	1200	250
32	440	440	440	440	440	650	320	1200	1800	450	165	70	1200	1800	450
40	680	680	680	680	680	800	400	1600	2400	600	225	100	1600	2400	600
50	1060	1060	1060	1060	1060	1060	480	2100	3200	900	325	140	2100	3200	900
63	1680	1680	1680	1680	1680	1680	590	2800	4200	1100	435	180	2800	4200	1100

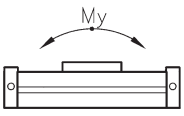
Ø	Resultant Force Ft (N)														
	Speed = 0,75 m/s					Speed = 1 m/s					Speed = 1,5 m/s				
	ZS	ZK	ZSF	ZSFF	ZKF	ZS	ZK	ZSF	ZSFF	ZKF	ZS	ZK	ZSF	ZSFF	ZKF
18	80	40	100	150	50	40	25	58	80	30	20	10	26	20	12
25	155	90	280	420	100	90	50	160	210	60	40	25	65	80	30
32	280	200	510	750	250	155	110	300	400	135	70	45	140	170	65
40	500	420	1000	1500	480	290	240	550	750	280	125	110	250	300	140
50	790	750	1500	2200	800	420	440	850	1150	480	195	190	380	460	220
63	1500	1500	2500	3700	1500	850	850	1400	1900	950	370	380	610	740	400

N.B.: $\sum F$ = Resultant force = Ft = $\sqrt{F x^2 + F z^2 + F y^2}$

MAXIMUM PERMISSIBLE TORQUE

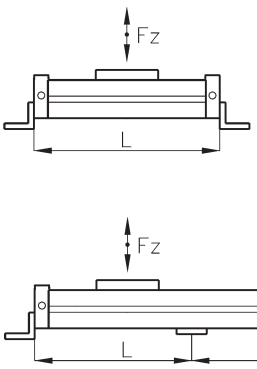


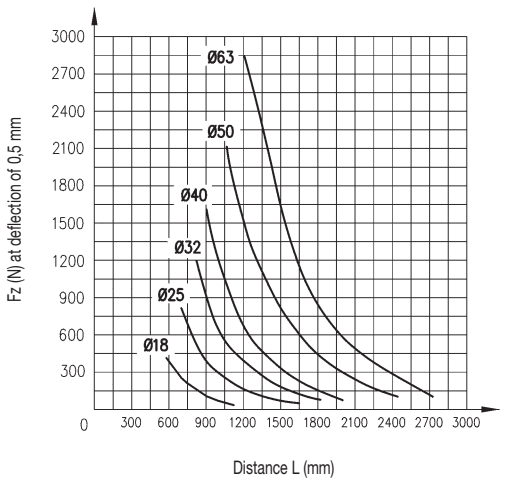


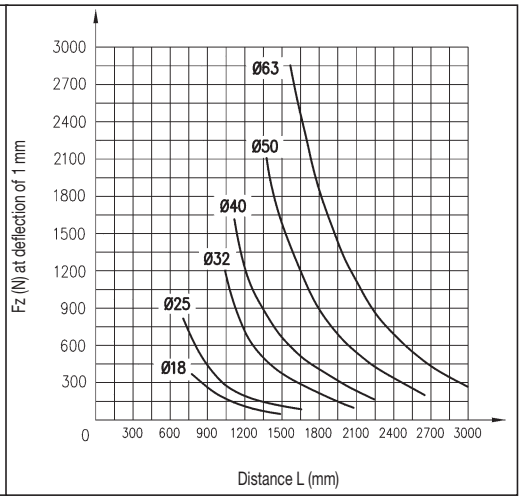


Ø	M x in (Nm)					M z in (Nm)					M y in (Nm)				
	ZS	ZK	ZSF	ZSFF	ZKF	ZS	ZK	ZSF	ZSFF	ZKF	ZS	ZK	ZSF	ZSFF	ZKF
18	1	0,4	3,5	5,2	1,8	3	1,7	6	9	1,8	3	1,7	6	9	1,8
25	2	0,7	10	15	4	13	2,7	20	30	4	13	2,7	20	30	4
32	3,5	1	25	37	10	25	5	45	67	10	25	5	45	67	10
40	5,5	2	40	60	16	40	8,5	75	110	16	40	8,5	75	110	16
50	10	3,5	80	120	30	65	13	150	220	30	65	13	150	220	30
63	16	5	110	170	45	100	18	250	370	45	100	18	250	370	45

MAXIMUM PERMISSIBLE FORCE "Fz" (as a function of the distance "L" between supports and of the deflection request)



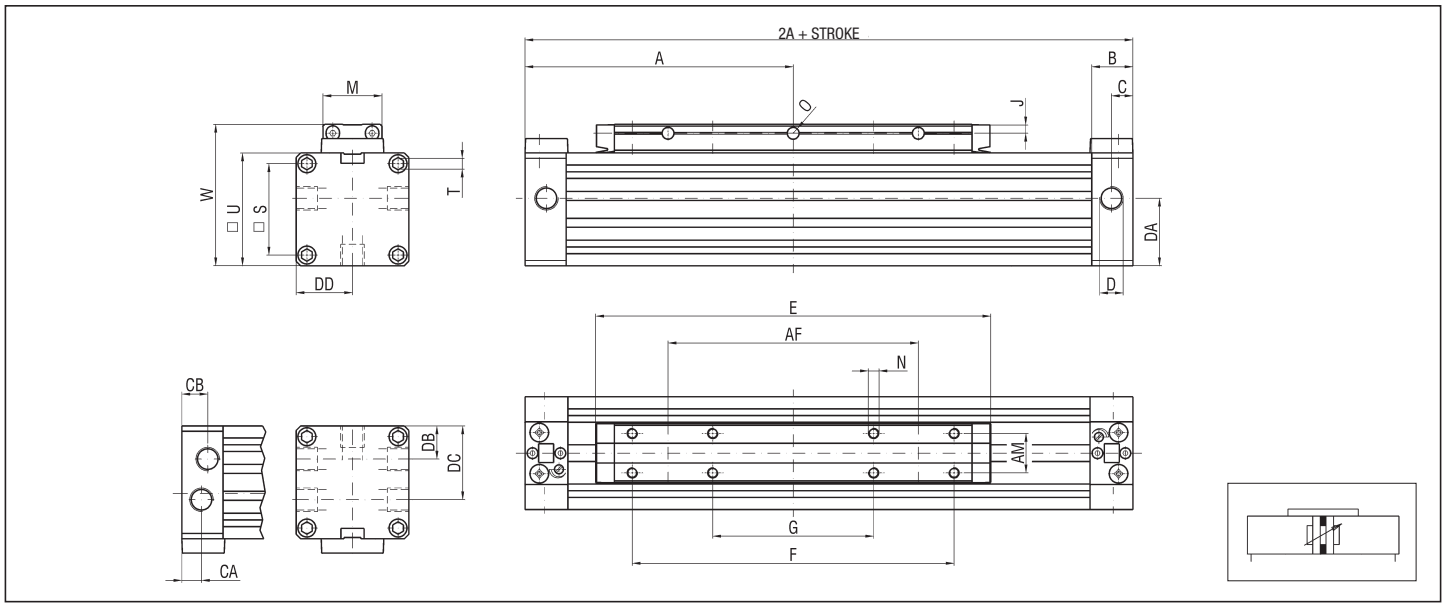




Rodless cylinders

series Z

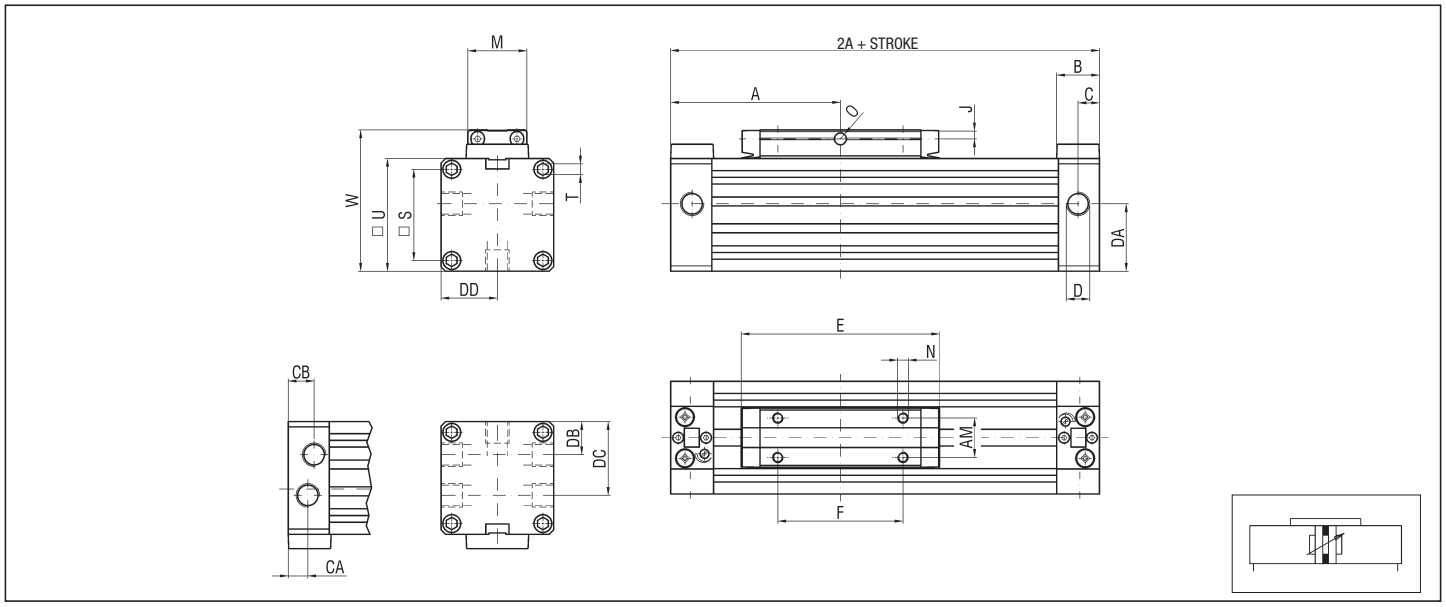
ZS BASIC CYLINDER WITH STANDARD YOKE



DIMENSIONS AND WEIGHTS ZS BASIC CYLINDER

Ø	A	AF	AM	B	C	CA	CB	D	DA	DB	DC	DD	E	F	G	J	M	N	O	S	T	U	W	WEIGHT (g)	INCR. (g) x10 mm
18	80	50	10	16,5	6,5	-	-	M5	17,5	-	-	15	103	75	-	3	15,5	M3x6	3,5	23,5	M3x7	30	39	300	15
25	100	70	13	20	8,5	7	13	G1/8	25,5	14	28	21	131	100	50	3,5	20	M4x7	4,5	33	M4x9	42	53	600	26
32	120	100	16	20	8,5	7	13	G1/8	32	17,5	34,5	26	171	140	70	4,5	25	M5x9	5,5	41	M5x10	52	65	1100	36
40	150	140	22	24	11	9,5	14,5	G1/4	37,5	20	42	31,5	220	180	90	5	33	M6x10	7	51	M6x12	63	79	1800	48
50	180	180	29	24	11	9,5	14,5	G1/4	47,5	26	52	39	280	220	110	6,5	42	M8x12,5	7	63	M8x12	78	96	3200	74
63	215	230	40	30	14,5	11	18,5	G3/8	59,5	30	62	46,5	333	280	140	8	54	M8x15	9	78	M8x12	93	113,5	5600	100

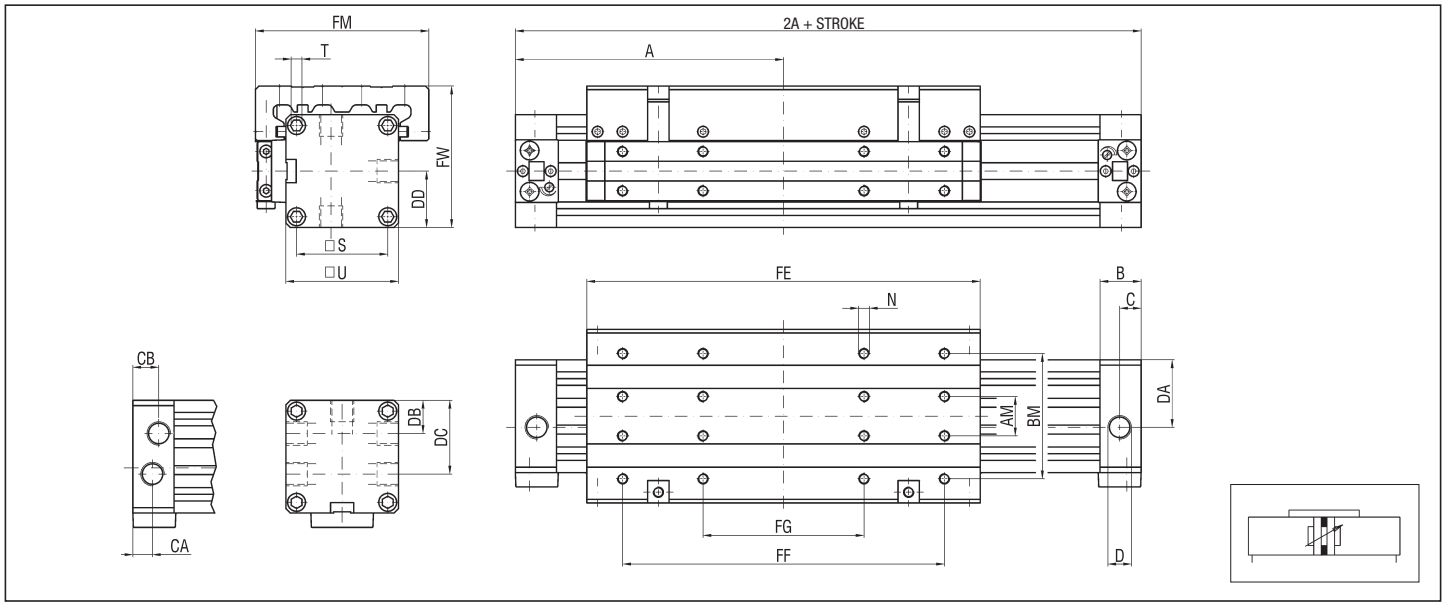
ZK BASIC CYLINDER WITH SHORT YOKE



DIMENSIONS AND WEIGHTS ZK BASIC CYLINDER

Ø	A	AM	B	C	CA	CB	D	DA	DB	DC	DD	E	F	J	M	N	O	S	T	U	W	WEIGHT (g)	INCR. (g) x10 mm
18	57,5	10	16,5	6,5	-	-	M5	17,5	-	-	15	58	30	3	15,5	M3x6	3,5	23,5	M3x7	30	39	200	15
25	67,5	13	20	8,5	7	13	G1/8	25,5	14	28	21	66	35	3,5	20	M4x7	4,5	33	M4x9	42	53	400	26
32	77,5	16	20	8,5	7	13	G1/8	32	17,5	34,5	26	86	55	4,5	25	M5x9	5,5	41	M5x10	52	65	700	36
40	95	22	24	11	9,5	14,5	G1/4	37,5	20	42	31,5	110	70	5	33	M6x10	7	51	M6x12	63	79	1200	48
50	105	29	24	11	9,5	14,5	G1/4	47,5	26	52	39	130	70	6,5	42	M8x12,5	7	63	M8x12	78	96	2000	74
63	125	40	30	14,5	11	18,5	G3/8	59,5	30	62	46,5	153	100	8	54	M8x15	9	78	M8x12	93	113,5	3200	100

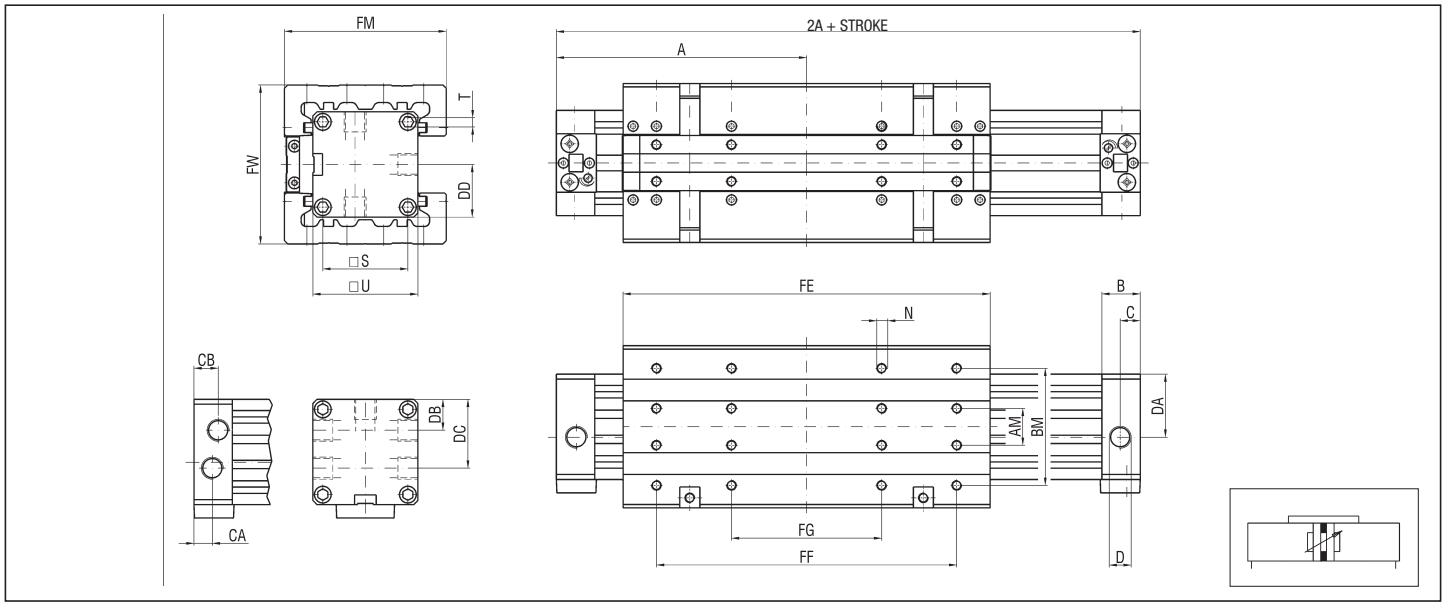
ZSF BASIC CYLINDER WITH STANDARD YOKE AND SINGLE GUIDE



DIMENSIONS AND WEIGHTS ZSF BASIC CYLINDER

Ø	A	AM	B	BM	C	CA	CB	D	DA	DB	DC	DD	FE	FF	FG	FM	FW	N	S	T	U	WEIGHT (g)	INCR. (g) x10 mm
18	80	10	16,5	35	6,5	-	-	M5	17,5	-	-	15	103	75	-	50	39	M4x7,5	23,5	M3x7	30	400	15
25	100	13	20	45	8,5	7	13	G1/8	25,5	14	28	21	131	100	50	66	53	M4x8	33	M4x9	42	900	26
32	120	16	20	55	8,5	7	13	G1/8	32	17,5	34,5	26	171	140	70	80	65	M5x10	41	M5x10	52	1500	36
40	150	22	24	70	11	9,5	14,5	G1/4	37,5	20	42	31,5	220	180	90	97	79	M6x12	51	M6x12	63	2800	48
50	180	29	24	85	11	9,5	14,5	G1/4	47,5	26	52	39	280	220	110	116	96	M8x16	63	M8x12	78	4900	74
63	215	40	30	105	14,5	11	18,5	G3/8	59,5	30	62	46,5	333	280	140	136	113,5	M8x16	78	M8x12	93	8000	100

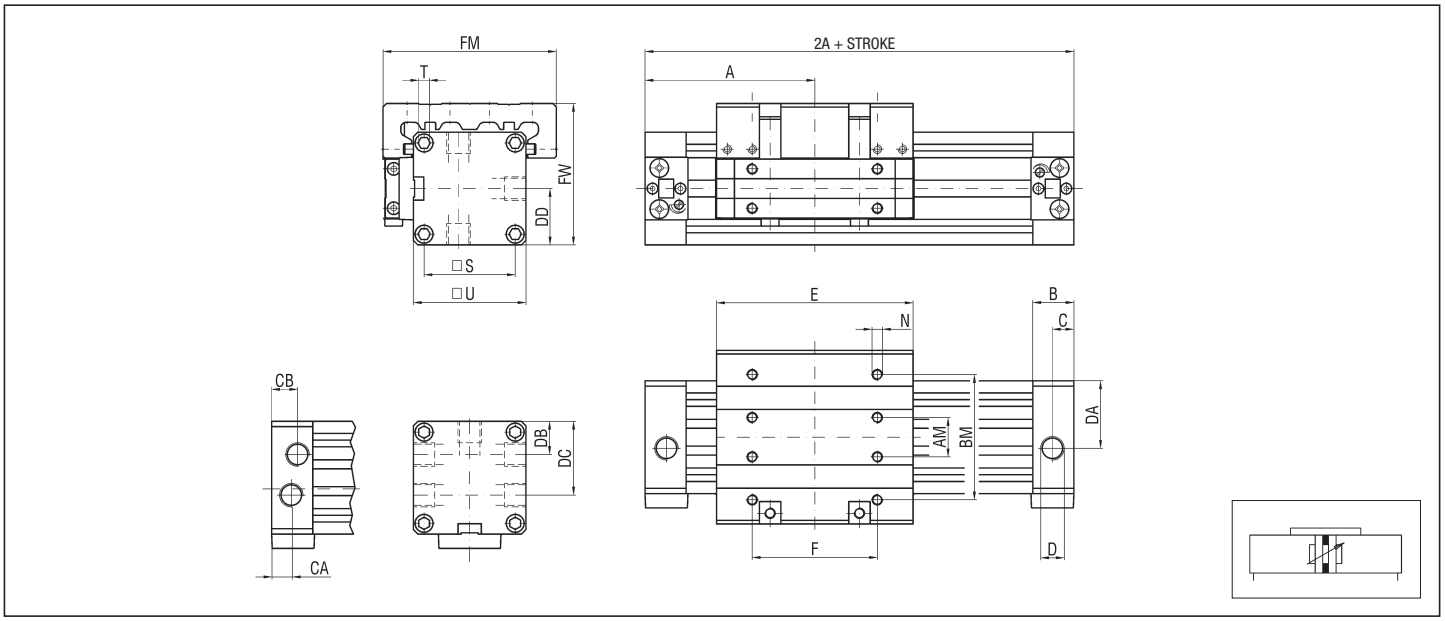
ZSFF BASIC CYLINDER WITH STANDARD YOKE AND DOUBLE GUIDE



DIMENSIONS AND WEIGHTS ZSFF BASIC CYLINDER

Ø	A	AM	B	BM	C	CA	CB	D	DA	DB	DC	DD	FE	FF	FG	FM	FW	N	S	T	U	WEIGHT (g)	INCR. (g) x10 mm
18	80	10	16,5	35	6,5	-	-	M5	17,5	-	-	15	103	75	-	50	50	M4x7,5	23,5	M3x7	30	500	15
25	100	13	20	45	8,5	7	13	G1/8	25,5	14	28	21	131	100	50	66	64	M4x8	33	M4x9	42	1200	26
32	120	16	20	55	8,5	7	13	G1/8	32	17,5	34,5	26	171	140	70	80	78	M5x10	41	M5x10	52	1900	36
40	150	22	24	70	11	9,5	14,5	G1/4	37,5	20	42	31,5	220	180	90	97	95	M6x12	51	M6x12	63	3800	48
50	180	29	24	85	11	9,5	14,5	G1/4	47,5	26	52	39	280	220	110	116	114	M8x16	63	M8x12	78	6600	74
63	215	40	30	105	14,5	11	18,5	G3/8	59,5	30	62	46,5	333	280	140	136	134	M8x16	78	M8x12	93	10400	100

ZKF BASIC CYLINDER WITH SHORT YOKE AND SINGLE GUIDE

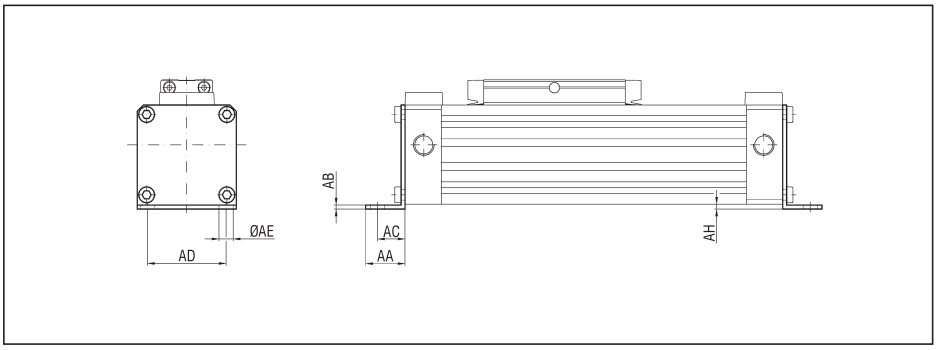


DIMENSIONS AND WEIGHTS ZKF BASIC CYLINDER

Ø	A	AM	B	BM	C	CA	CB	D	DA	DB	DC	DD	E	F	FM	FW	N	S	T	U	WEIGHT (g)	INCR. (g) x10 mm
18	57,5	10	16,5	35	6,5	-	-	M5	17,5	-	-	15	58	30	50	39	M4x7,5	23,5	M3x7	30	300	15
25	67,5	13	20	45	8,5	7	13	G1/8	25,5	14	28	21	66	35	66	53	M4x8	33	M4x9	42	600	26
32	77,5	16	20	55	8,5	7	13	G1/8	32	17,5	34,5	26	86	55	80	65	M5x10	41	M5x10	52	1150	36
40	95	22	24	70	11	9,5	14,5	G1/4	37,5	20	42	31,5	110	70	97	79	M6x12	51	M6x12	63	2000	48
50	105	29	24	85	11	9,5	14,5	G1/4	47,5	26	52	39	130	70	116	96	M8x16	63	M8x12	78	3200	74
63	125	40	30	105	14,5	11	18,5	G3/8	59,5	30	62	46,5	153	100	136	113,5	M8x16	78	M8x12	93	6400	100

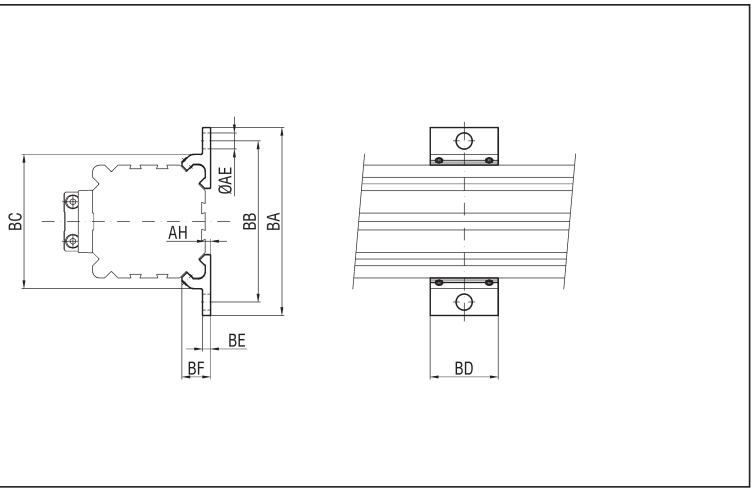
FEET (pair) - ALUMINIUM - ZPB Ø

Ø	AA	AB	AC	AD	AE	AH	WEIGHT (g)
18	15	2	10	20	6	2	35
25	18	2	12,5	30	6	2	40
32	20	2,5	13,5	40	7	3	75
40	25	2,5	17,5	50	9	3	115
50	28	3	20	60	9	3	225
63	30	3	21	75	11	4,5	280



MIDDLE SUPPORTS (pair) - ALUMINIUM - ZTI Ø

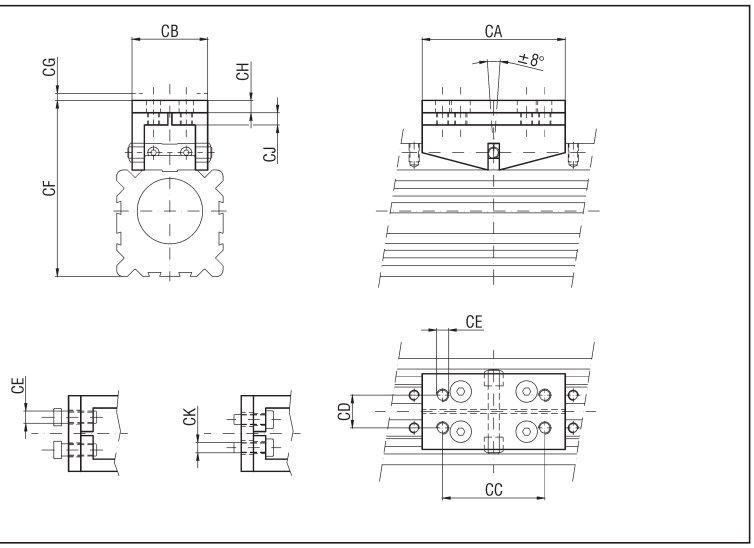
Ø	AE	AH	BA	BB	BC	BD	BE	BF	WEIGHT *(g)*
18	6	2	56	46	36,5	23	2,5	8,25	10
25	6	2	70	60	50	28	3,5	11	15
32	7	3	85	73	61,5	33	4	13,8	30
40	9	3	105	90	75	38	4,5	16	45
50	9	3	122	106	91	43	5	19	60
63	11	4,5	144	125	107	48	6	22	80



NARROW SWINGING BRIDGE - ALUMINIUM - ZCS Ø

Ø	CA	CB	CC	CD	CE	CF	CG	CK
18	50	25,5	30	9	M5	54	2,5	M4
25	60	30	40	14	M5	70	3	M4
32	70	37	50	16	M6	86	3,5	M5
40	80	47	60	22	M8	107	4,5	M6
50	90	56	70	30	M8	123	4,5	M6
63	100	73	80	40	M10	145,5	5	M8

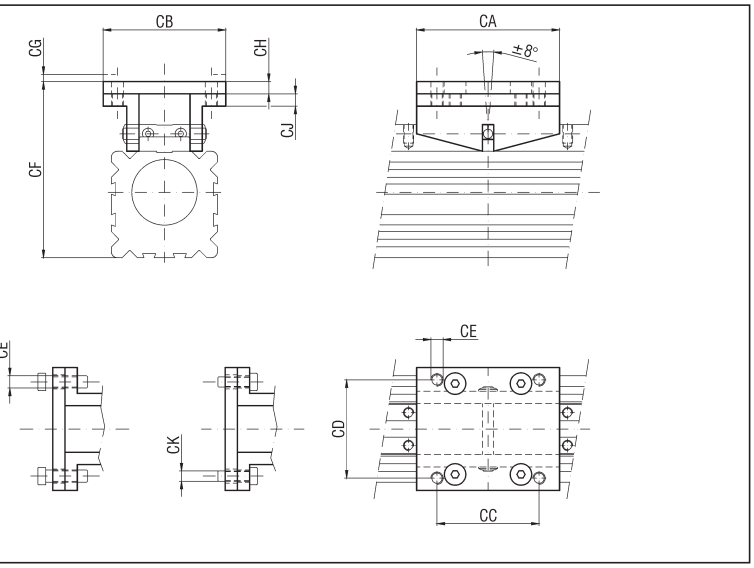
Ø	CJ	CH	WEIGHT *(g)*
18	4	4	45
25	4	4	60
32	6	6	115
40	8	8	220
50	8	8	275
63	8	8	470



LARGE SWINGING BRIDGE - ALUMINIUM - ZCL Ø

Ø	CA	CB	CC	CD	CE	CF	CG	CK
18	50	41,5	30	34	M5	54	2,5	M4
25	60	50	40	38	M5	70	3	M4
32	70	60	50	48	M6	86	3,5	M5
40	80	80	60	60	M8	107	4,5	M6
50	90	95	70	70	M8	123	4,5	M6
63	100	120	80	80	M10	145,5	5	M8

Ø	CJ	CH	WEIGHT *(g)*
18	4	4	50
25	4	4	80
32	6	6	145
40	8	8	275
50	8	8	350
63	8	8	575

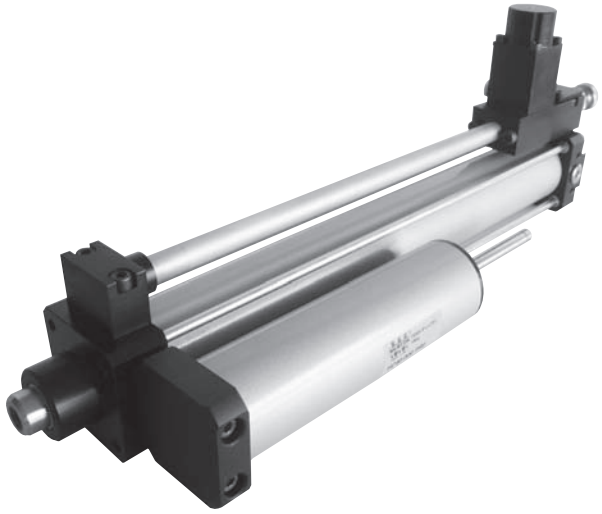


Hydraulic speed regulators

series HS

DESCRIPTION

Hydraulic regulators series "HS" assure a constant speed of pneumatic cylinders during their working cycle. In fact in the control of tools, that during their movements meet different resistances (i.e. violent impacts and vibrations) with the consequent variation of speed due to the use of only pneumatic control, you could obtain coarse finishes of the tooling till reach the breaking of the same tool. The hydraulic speed regulators exploit the oil incompressibility that, passing from a chamber to another one through an externally adjustable flow regulator, manages to uniform the speed and, with the use of control valves, avoids dead times warranting perfectly repeatable stops independently from the applied load. The adjustment can be made during the piston rod thrust phase, retract phase or both. The stop valve (STOP), mounted in-line on the circuit, and the acceleration valves (SKIP), mounted in-parallel, can be inserted in both the phases. These are poppet valves, two port, pneumatically actuated and therefore they have to be operated to make the STOP valve insert and to cut out the SKIP one.



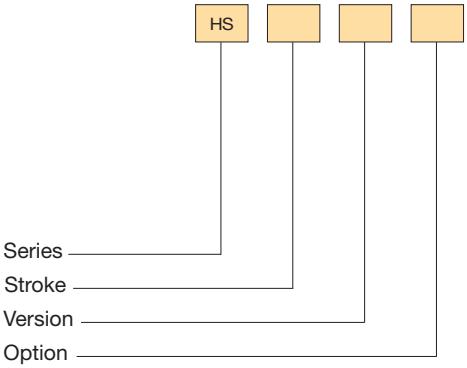
TECHNICAL DATA

Working temperature	0 ÷ +70 °C (-10 °C with dry air)
Fluid	Hydraulic oil (WAIRSOL HS: contact our commercial office for details)
Versions	In-line tank, piston rod thrust adjustment; In-parallel tank, piston rod thrust adjustment; In-parallel tank, piston rod retract adjustment; In-parallel tank, double adjustment
Bore	Ø 40
Standard strokes (mm)	50, 100, 150, 200, 250, 300, 350, 400, 450, 500
Maximum stroke (mm)	1000
Maximum adjustable load	6000 N
Minimum/Maximum permissible speed (mm/min)	Without valves: 60 ÷ 10.000 With valves: 0 ÷ 6.000

MATERIALS

End caps	Anodized aluminium alloy
Cylinder barrel	Drawn steel
Piston rod	C45 chromium-plated steel
Piston	Anodized aluminium alloy
Piston seal	NBR rubber
Piston rod seal	Polyurethane
Tie rods	Steel
Adjusting groups	Nickel-plated brass
Oil lever stick	Anodized aluminium alloy

ORDER KEY



VERSIONS

- **LU** In-line tank, piston rod thrust adjustment
- **PU** In-parallel tank, piston rod thrust adjustment
- **PR** In-parallel tank, piston rod retract adjustment
- **PD** In-parallel tank, double adjustment

OPTIONS

- **1** Standard adjustment
- **2** STOP valve adjustment
- **3** SKIP valve adjustment
- **4** SKIP and STOP valves adjustment

ORDER EXAMPLES

Hydraulic regulator HS, 100 mm stroke, in-parallel tank, stop valve thrust adjustment HS100 PU2

Hydraulic regulator HS, 150 mm stroke, in-parallel tank, skip valve double adjustment + cylinder series "CPUI" Ø63, 150 mm stroke, magnetic piston type + fixing plate + connection bridle + nipple + threaded bar, ASSEMBLED:

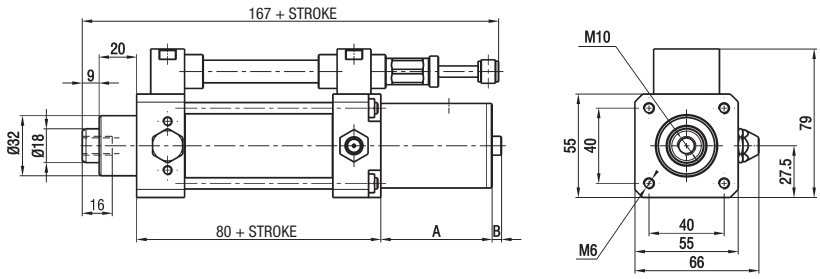
HS150 PD3,
HS/PT 63,
HS/NP 50/63,
M/HS
63/150 CPUI/M,
HS/BR 50/63,
HS/BF Ø

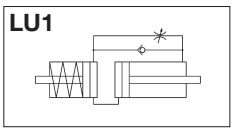
ASSEMBLY

"HS"+ cylinders series "X" or "CPUI"	M/HS

IN-LINE TANK-THRUST ADJUSTMENT - HS..LU1

WEIGHT: 2200 g (0 mm-STROKE) + 61 g EVERY 10 mm OF STROKE



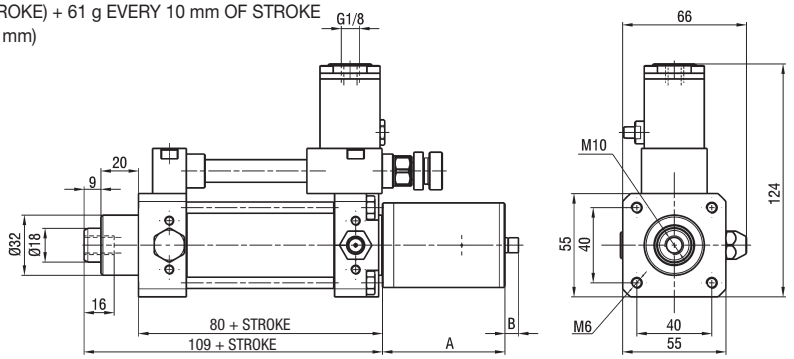


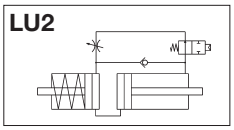
DIMENSIONS WITH IN-LINE TANK-THRUST ADJUSTMENT

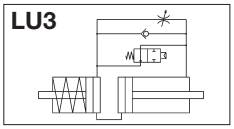
STROKES *(mm)*	A	B *(max)*
≤ 75	75	25
76 ÷ 150	90	39
151 ÷ 250	142	65
251 ÷ 350	171	87
351 ÷ 500	222	125

IN-LINE TANK-THRUST ADJUSTMENT - HS..LU2 - HS..LU3

WEIGHT LU2: 2700 g (50 mm-STROKE) + 61 g EVERY 10 mm OF STROKE (MIN. STROKE 50 mm)
WEIGHT LU3: 2300 g (0 mm-STROKE) + 61 g EVERY 10 mm OF STROKE (MIN. STROKE 50 mm)

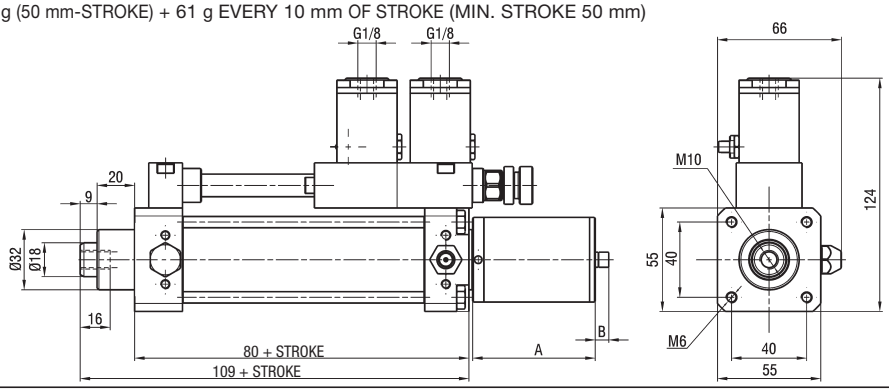


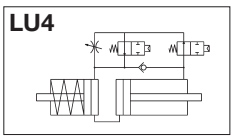




IN-LINE TANK-THRUST ADJUSTMENT - HS..LU4

WEIGHT: 2800 g (50 mm-STROKE) + 61 g EVERY 10 mm OF STROKE (MIN. STROKE 50 mm)





DIMENSIONS WITH IN-LINE TANK-THRUST ADJUSTMENT

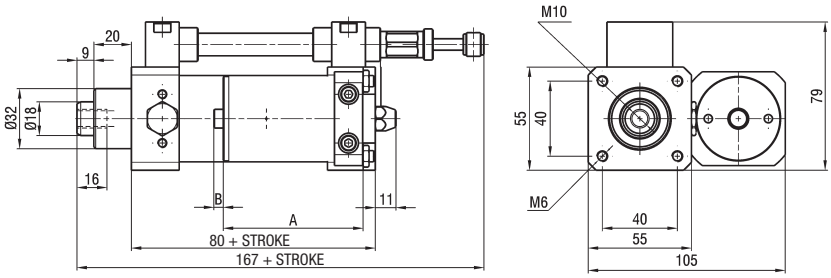
STROKES *(mm)*	A	B *(max)*
≤ 75	60	25
76 ÷ 150	75	39
151 ÷ 250	127	65
251 ÷ 350	156	87
351 ÷ 500	205	125

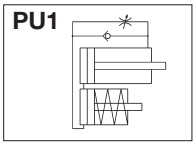
Hydraulic speed regulators

series HS

IN-PARALLEL TANK-THRUST ADJUSTMENT - HS..PU1

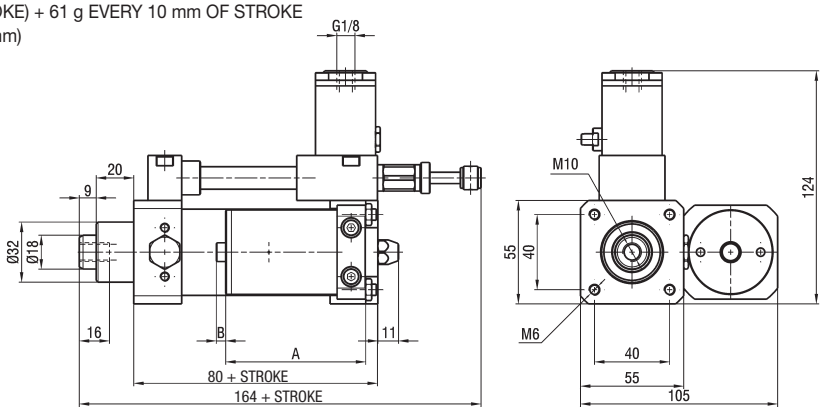
WEIGHT: 2200 g (0 mm-STROKE) + 61 g EVERY 10 mm OF STROKE

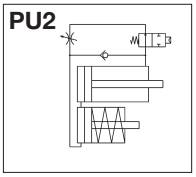


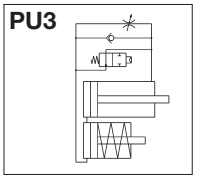


IN-PARALLEL TANK-THRUST ADJUSTMENT - HS..PU2 - HS..PU3

WEIGHT PU2: 2700 g (50 mm-STROKE) + 61 g EVERY 10 mm OF STROKE (MIN. STROKE 50 mm)
WEIGHT PU3: 2300 g (0 mm-STROKE) + 61 g EVERY 10 mm OF STROKE (MIN. STROKE 50 mm)

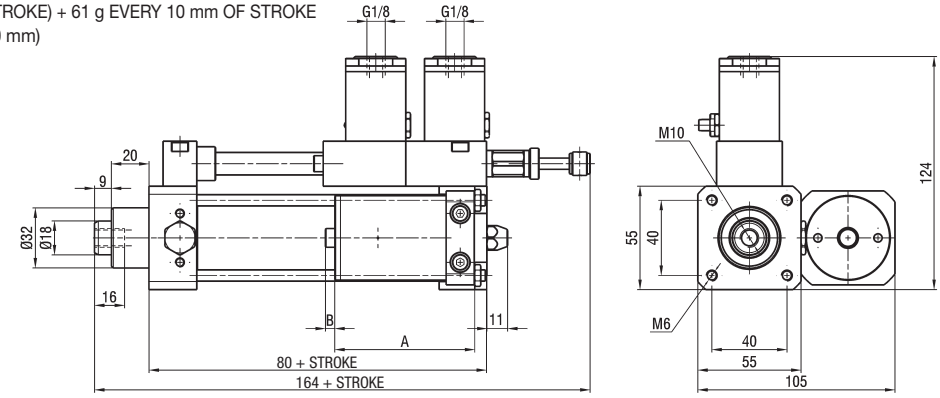


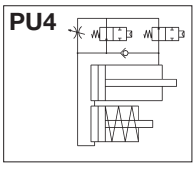




IN-PARALLEL TANK-THRUST ADJUSTMENT - HS..PU4

WEIGHT: 2800 g (50 mm-STROKE) + 61 g EVERY 10 mm OF STROKE (MIN. STROKE 50 mm)





DIMENSIONS WITH IN-PARALLEL TANK-THRUST ADJUSTMENT

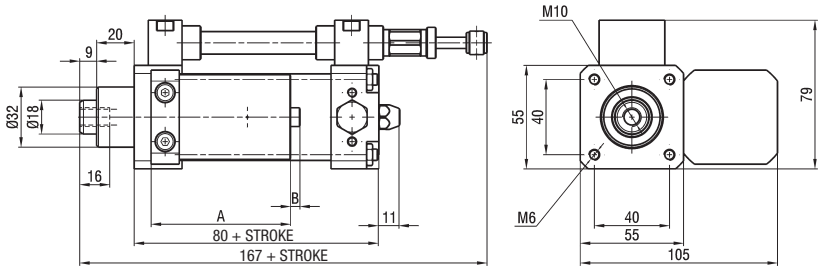
STROKES *(mm)*	A	B *(max)*
≤ 75	75	25
76 ÷ 150	90	39
151 ÷ 250	142	65
251 ÷ 350	171	87
351 ÷ 500	222	125

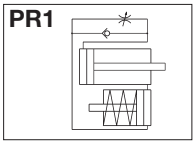
series HS

Hydraulic speed regulators

IN-PARALLEL TANK-RETRACT ADJUSTMENT - HS..PR1

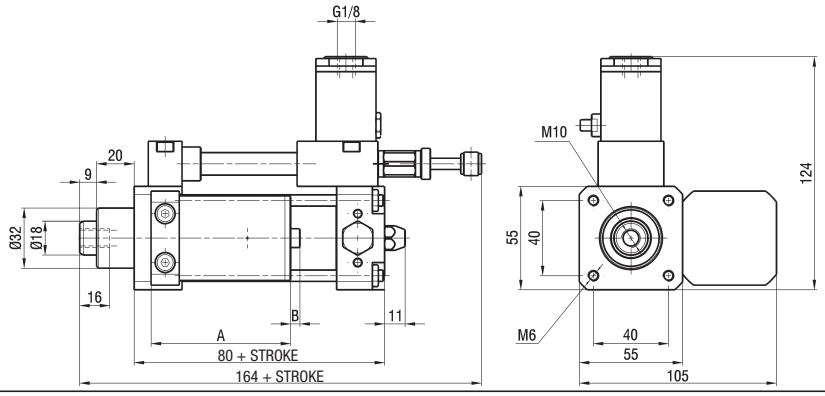
WEIGHT: 2200 g (0 mm-STROKE) + 61 g EVERY 10 mm OF STROKE

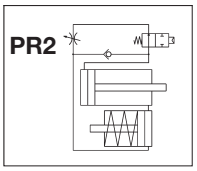


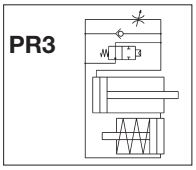


IN-PARALLEL TANK-RETRACT ADJUSTMENT - HS..PR2 - HS..PR3

WEIGHT PR2: 2700 g (50 mm-STROKE) + 61 g EVERY 10 mm OF STROKE (MIN. STROKE 50 mm)
WEIGHT PR3: 2300 g (0 mm-STROKE) + 61 g EVERY 10 mm OF STROKE (MIN. STROKE 50 mm)

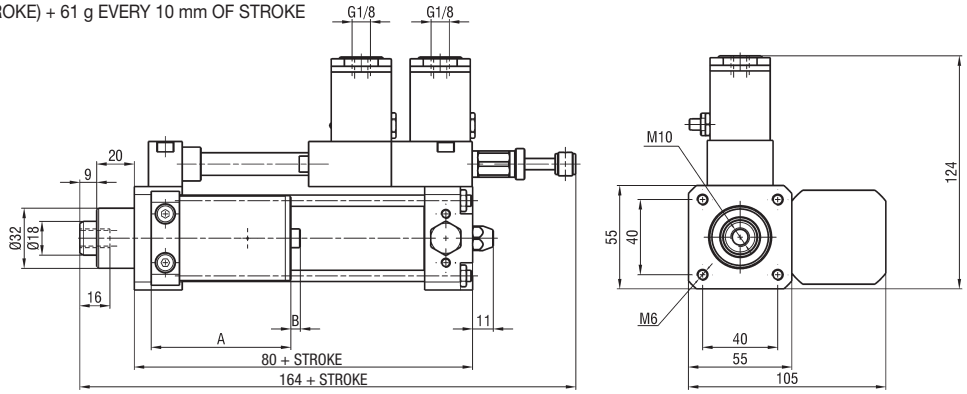


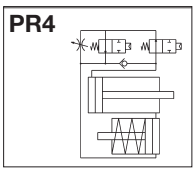




IN-PARALLEL TANK-RETRACT ADJUSTMENT - HS..PR4

WEIGHT: 2800 g (50 mm-STROKE) + 61 g EVERY 10 mm OF STROKE
(MIN. STROKE 50 mm)





DIMENSIONS WITH IN-PARALLEL TANK-RETRACT ADJUSTMENT

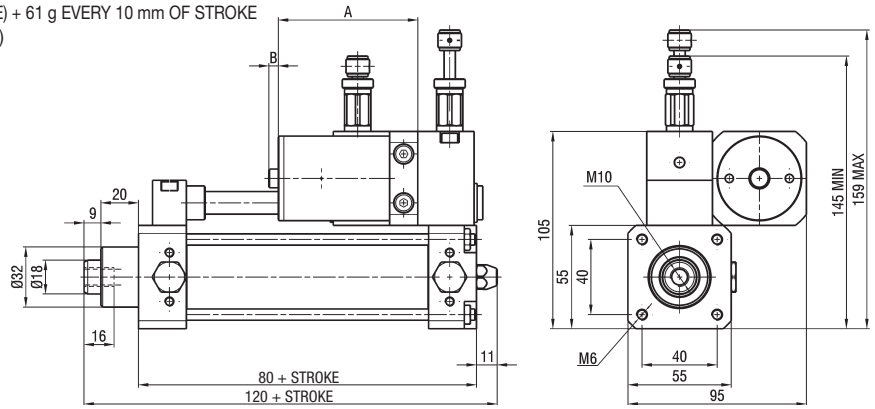
STROKES *(mm)*	A	B *(max)*
≤ 75	75	25
76 ÷ 150	90	39
151 ÷ 250	142	65
251 ÷ 350	171	87
351 ÷ 500	222	125

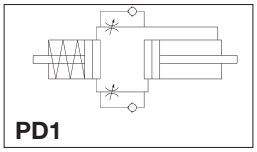
Hydraulic speed regulators

series HS

IN-PARALLEL TANK-DOUBLE ADJUSTMENT HS..PD1

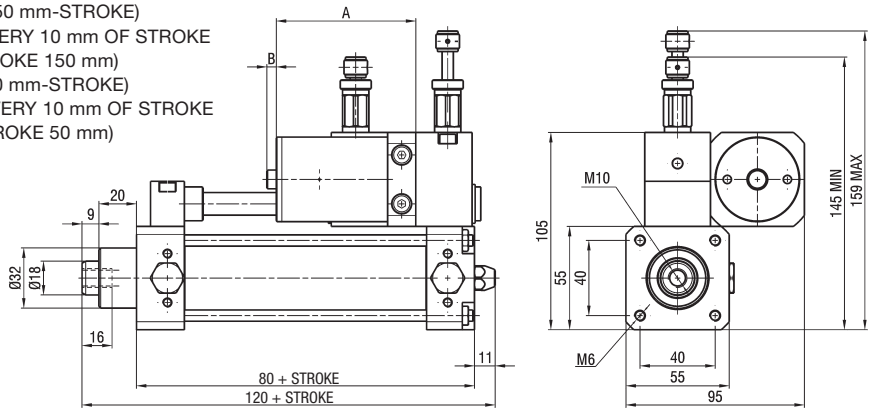
WEIGHT: 2900 g (50 mm-STROKE) + 61 g EVERY 10 mm OF STROKE
(MIN. STROKE 50 mm)

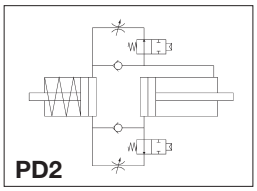


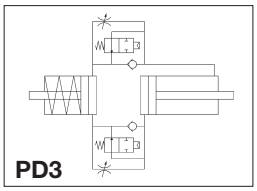


IN-PARALLEL TANK-DOUBLE ADJUSTMENT HS..PD2 - HS..PD3

WEIGHT PD2: 4100 g (150 mm-STROKE)
+ 61 g EVERY 10 mm OF STROKE
(MIN. STROKE 150 mm)
WEIGHT PD3: 3100 g (50 mm-STROKE)
+ 61 g EVERY 10 mm OF STROKE
(MIN. STROKE 50 mm)







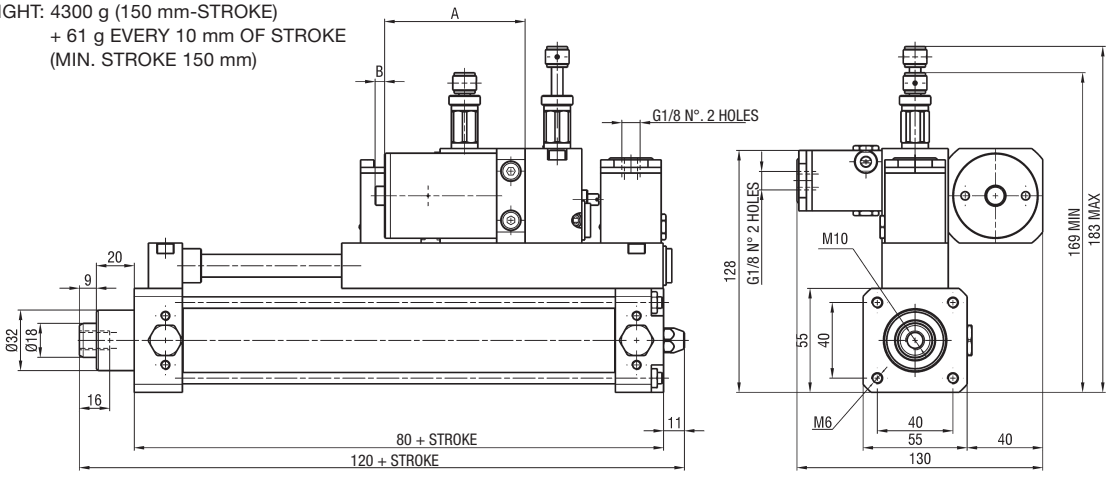
DIMENSIONS WITH IN-PARALLEL TANK-DOUBLE ADJUSTMENT

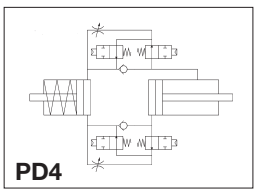
STROKES *(mm)*	A	B *(max)*
50 ÷ 75	75	25
76 ÷ 150	90	39
151 ÷ 250	142	65

STROKES *(mm)*	A	B *(max)*
251 ÷ 350	171	87
351 ÷ 500	222	125

IN-PARALLEL TANK-DOUBLE ADJUSTMENT HS..PD4

WEIGHT: 4300 g (150 mm-STROKE)
+ 61 g EVERY 10 mm OF STROKE
(MIN. STROKE 150 mm)





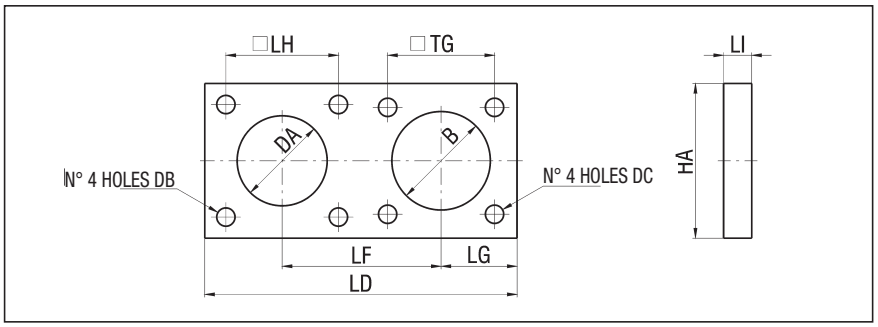
DIMENSIONS WITH IN-PARALLEL TANK-DOUBLE ADJUSTMENT

STROKES *(mm)*	A	B *(max)*
150 ÷ 250	142	65
251 ÷ 350	171	87
351 ÷ 500	222	125

FIXING PLATE HYDRAULIC REGULATOR/CYLINDERS SERIES “X” and “CPUI” - HS/PT Ø

Ø	B	DA	DB	DC	HA	LD	LF
40	35	32	6,5	6,5	55	111	56,5
50	40	32	6,5	8,5	65	122	62
63	45	32	6,5	8,5	75	132	67
80	45	32	6,5	10,5	95	152	77
100	55	32	6,5	10,5	115	171	86,5

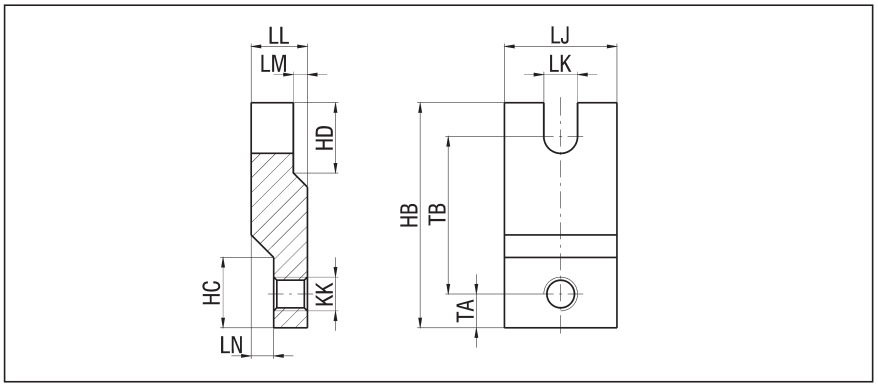
Ø	LG	LH	LI	TG	WEIGHT (g)
40	27	40	10	38	315
50	32,5	40	10	46,5	430
63	37,5	40	12	56,5	666
80	47,5	40	12	72	1080
100	57	40	15	89	1879



CONNECTION BRIDLE HYDRAULIC REGULATOR/CYLINDERS SERIES “X” and “CPUI” PISTON RODS - HS/BR Ø

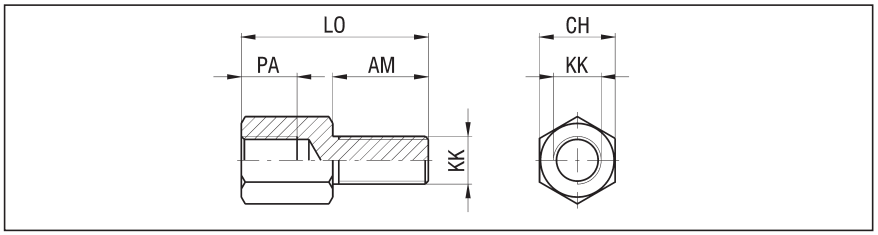
Ø	HB	HC	HD	KK	LJ	LK	LL
40	80	25	25	M12x1,25	40	12	20
50 - 63	90	-	-	M16x1,5	40	12	15
80 -100	117	-	-	M20x1,5	50	12	20

Ø	LN	LM	TA	TB	WEIGHT (g)
40	8	5	12	56	351
50 - 63	-	-	11,5	62	369
80 -100	-	-	18	77	818



CYLINDERS SERIES “X” and “CPUI” RESTORATION THREAD NIPPLE- HS/NP Ø

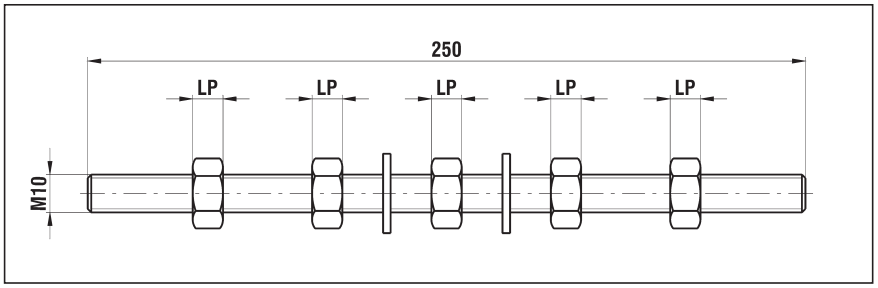
Ø	AM	CH	KK	LO	PA	WEIGHT (g)
40	24	19	M12x1,25	47	14	59
50 - 63	32	24	M16x1,5	65	19	131
80 -100	40	30	M20x1,5	78	24	245



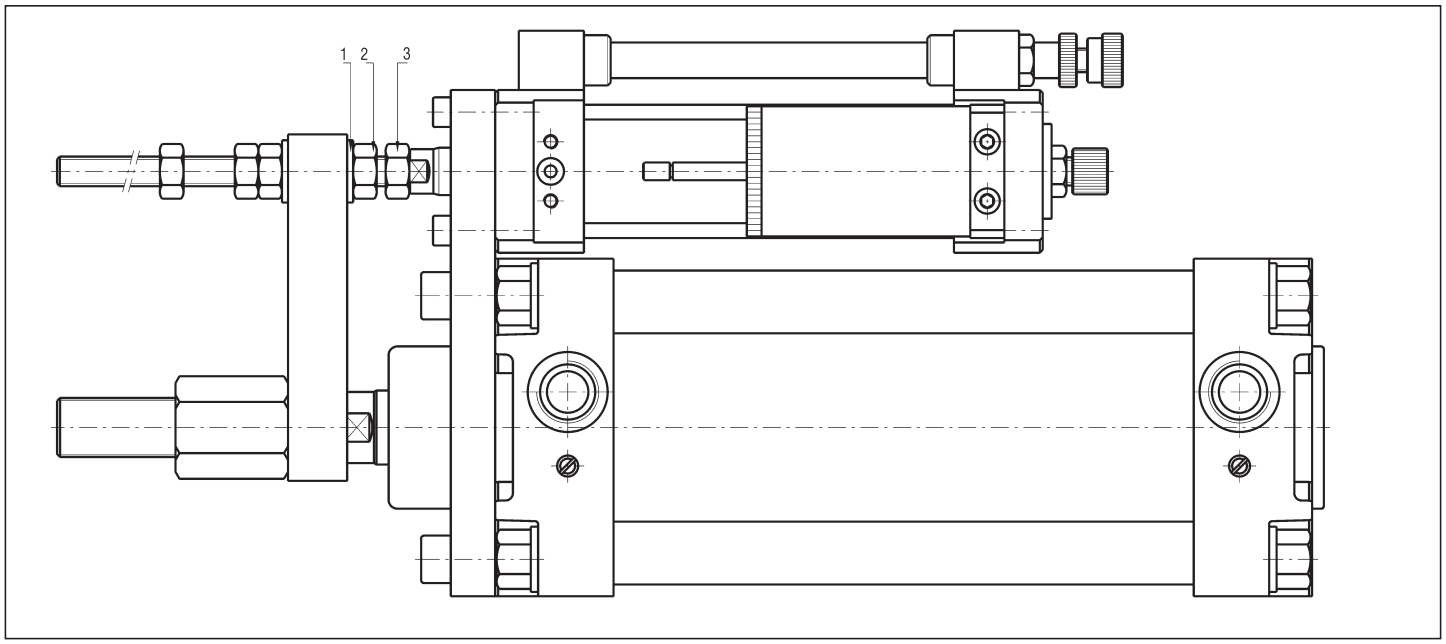
THREADED BAR - HS/BF Ø

Ø	LP	WEIGHT (g)
40	6	166
50 ÷ 100	8	178

P.S.: THREADED BAR IS SUPPLIED
WITH 5 NUTS AND 2 WASHERS



FIXING PLATE HYDRAULIC REGULATOR/CYLINDERS SERIES “X” and “CPUI”



Ø	1	2	3
40 ÷ 63	-	X	-
80	-	X	X
100	X	X	X

P.S.: DO NOT TIGHTEN THE BRIDLE - THREADED BAR COUPLING

REINSTATEMENT PROCEDURE OF THE OIL LEVEL

HYDRAULIC SPEED REGULATORS ARE CLOSED CIRCUIT SYSTEMS SUPPLIED WITH A TANK FOR THE COMPENSATION OF THE ROD VOLUME. THIS TANK IS DESIGNED TO FACE LITTLE FLUID LOSSES DURING THE WORKING. IN THE EVENIENCE THAT DURING THE WORKING THE LEAKAGE OF OIL OVERCOME THE QUANTITY OF OIL IN EXCESS IN THE TANK, THE REGULATOR MUST BE REFILLED. THIS OPERATION MUST BE DONE WHEN THE INDICATOR NOTCH SITUATED ON THE DIP-STICK IN THE COMPENSATOR TANK IS NO MORE VISIBLE WHEN THE MAIN ROD IS COMPLETELY EXTENDED. TO REFILL THE HYDRAULIC SPEED REGULATOR USE A STANDARD GREASING SYRINGE, THAT CAN BE EASILY FOUND IN THE MARKET. THIS SYRINGE HAS TO BE CHARGED WITH “WAIRSOL HS” OIL.

REFILLING OPERATION:

1) PUT THE HYDRAULIC REGULATOR IN VERTICAL POSITION WITH THE FILLING VALVE, SITUATED ON THE REAR END CAP, THAT HAS TO BE HIGH-FACING.
2) EXTEND COMPLETELY THE HYDRAULIC REGULATOR PISTON ROD.
3) APPLY THE SYRINGE, FILLED WITH OIL, TO THE CONICAL SLOT OF THE FILLING VALVE ABOVE MENTIONED.
4) PUMP THE OIL IN THE REGULATOR WITH THE SYRINGE PAYING ATTENTION THAT THE SAME SHOULDN’T GO COMPLETELY EMPTY DURING THE RECHARGE (IF THIS OCCURS, STOP AND TOPPING UP THE SYRINGE).
5) CHARGE TILL THE MINIMUM NOTCH DOESN’T EXCEED THE LEVEL OF THE COMPENSATOR DIP-STICK PLUG OF 5 ÷ 8 mm.
6) OPERATE MORE TIMES THE REGULATOR MAIN PISTON ROD, TAKING CARE OF REGULATING THE CUSHIONINGS TO OBTAIN THE MAXIMUM SPEED.
7) WITH THE PISTON ROD COMPLETELY RETRACTED AND WITH THE CYLINDER ALWAYS IN VERTICAL POSITION, OPERATE THE CLOSING MUSHROOM OF THE FILLING VALVE WITH A SPIKY TOOL SO THAT POSSIBLE AIR BUBBLES CAN BLEED .
8) REPEAT THE OPERATIONS FROM POINT No. 2 TO POINT No. 7 TILL THE AIR IN THE CIRCUIT WILL BE COMPLETELY ELIMINATED.

series WR

DESCRIPTION

Rotary cylinders series "WR" are fit to transform the piston straightaway motion into rotative motion by means of the coupling between rack and pinion. In the standard version, rotary cylinders series "WR" can be supplied with magnetic sensors and with rotation angle adjustment.

TECHNICAL DATA

Operating pressure	1 ÷ 10 bar
Working temperature	0 ÷ +80 °C (-20 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Versions	Male pinion Female pinion
Bore	Ø 32, 40, 50, 63, 80, 100, 125
Port size	Ø 32 = G 1/8 Ø 40 - 50 = G 1/4 Ø 63 - 80 = G 3/8 Ø 100 - 125 = G 1/2
Standard rotation	90°, 180°, 270°; 360°
Rotation angle adjustment	± 5°

MATERIALS

End caps	Aluminium alloy, cataphoresis-treated
Cylinder barrel	Extruded profile, 20 µm anodized aluminium alloy
Central body	Anodized aluminium alloy
Pinion bearing	Ø 32: bronze-teflon bearings Ø 40 ÷ 125: ball bearings
Rack	Normalized steel, square section
Rack guide shoe	Acetal resin
Decelerators ogives	Aluminium alloy
Piston	NBR rubber block with magnet
Seals	NBR rubber

ORDER KEY

WR [ ] / [ ] [ ] S•

- Series
- Pinion type
- Bore
- Rotation angle
- Special options (supplied upon request)

P.S.: *Magnetic sensors* FM 100 - FM 157 - FM 158 (see chapter magnetic sensors from page 1.93)

• See technical data on page 0.12

PINION TYPE

M Male pinion F Female pinion

ROTATION ANGLE

90°, 180°, 270°, 360°

ORDER EXAMPLES

Cylinder Ø50, 180° rotation angle, female pinion WRF 50/180

Cylinder Ø40, 270° rotation angle, male pinion WRM 40/270

TECHNICAL SPECIFICATIONS

Following table shows the torques of different rotary cylinders sizes, at the pressure of 1 bar.

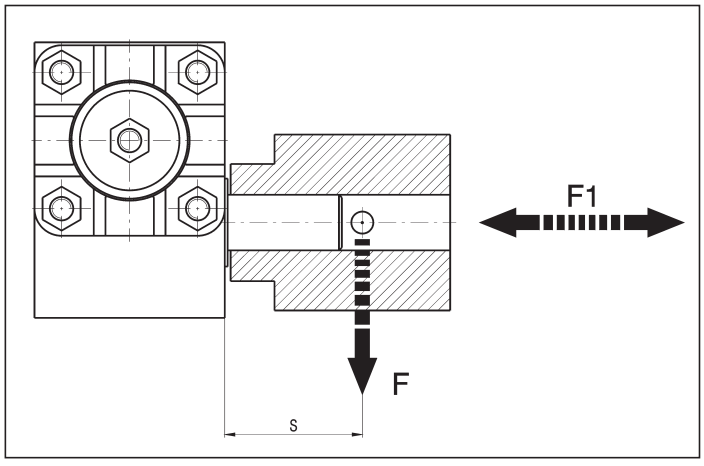
This value has to be multiplied for the utilization bars to set the effective torque.

Ø	32	40	50	63	80	100	125
Torque at 1 bar (Nm)	1,73	3,08	5,4	10,5	21,8	35,3	71
Max. axial load F1 with F=0 (N)	100	100	120	120	200	250	300

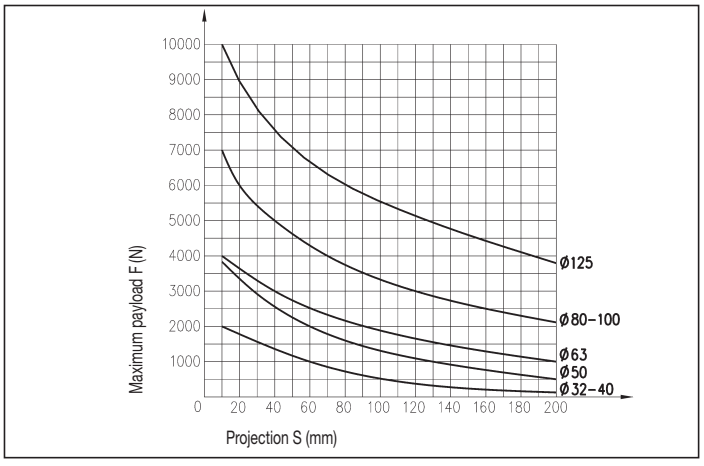
SPARE PARTS

SEALS KIT	
NBR	Ø/SG/WR

WR ROTARY CYLINDER



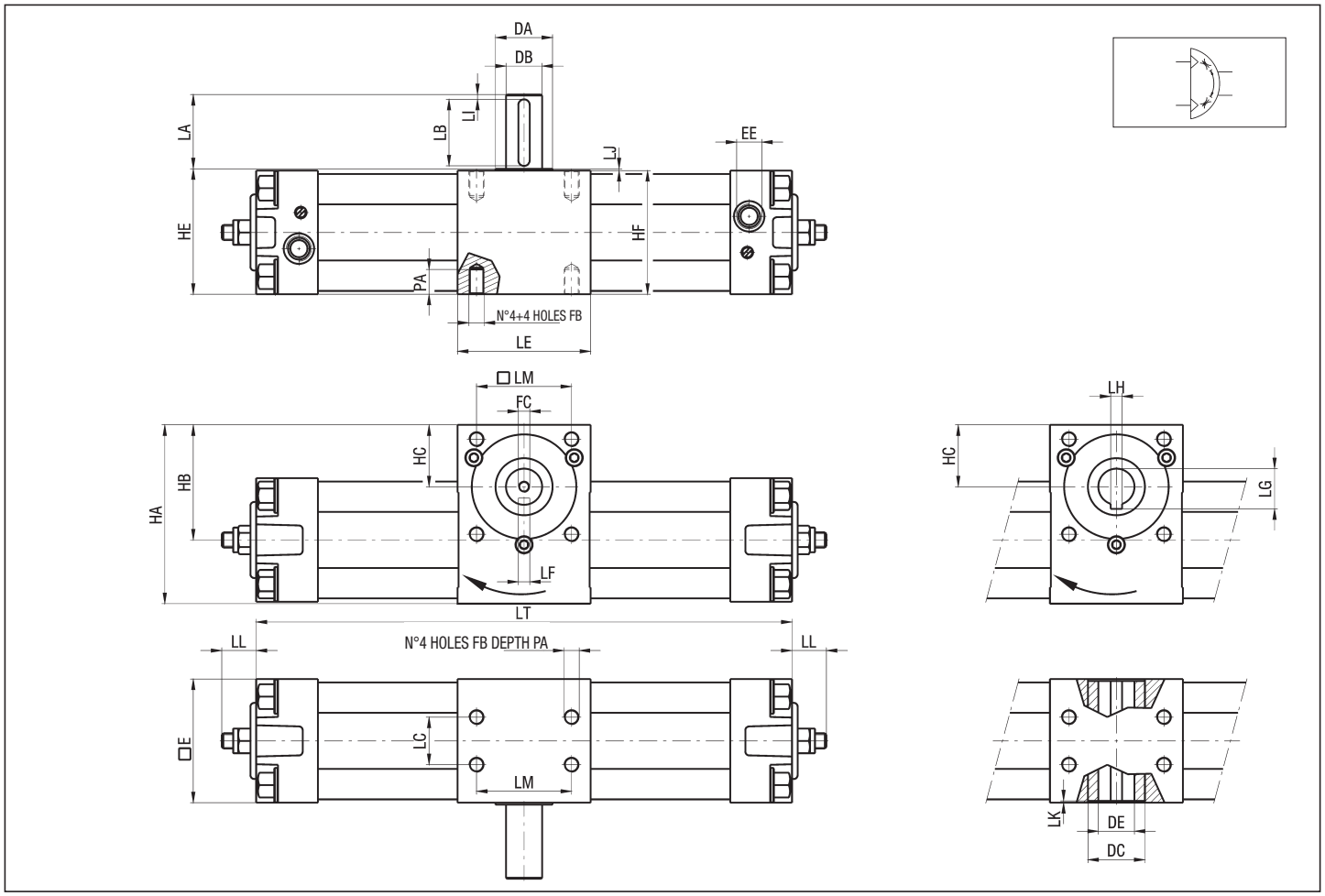
MAXIMUM PERMISSIBLE TRANSVERSE FORCE



Rotary cylinders

series WR

WR ROTARY CYLINDER



DIMENSIONS AND WEIGHTS

Ø	DA	DB *g6*	DC	DE *H7*	E	EE	FB	FC	HA	HB	HC	HE	HF	LA
32	25	14	25	14	47	G 1/8	M6	M5	71,5	46,5	25	51	50	30
40	25	14	25	14	54	G 1/4	M6	M5	82	54,5	30	61	60	30
50	30	19	30	19	65	G 1/4	M8	M6	94	60,5	32,5	66	65	40
63	30	24	30	19	75	G 3/8	M8	M8	110	70,8	37	76	75	40
80	45	28	45	24	95	G 3/8	M10	M8	142	93,5	50	100	99	50
100	50	38	50	28	114	G 1/2	M10	M10	156,5	99	54	116	115	50
125	60	38	60	28	140	G 1/2	M12	M10	188	118	60	141	140	50

Ø	LB	LC	LE	LF	LG	LH	LI	LJ	LK	LL		LM	PA
										min	*max*		
32	25	18	50	5	16,3	5	2,5	1	1	11	17	33	8
40	25	22	60	5	16,3	5	2,5	1	1	11	16	40	9
50	35	25	70	6	21,8	6	2,5	1	1	11	15	50	12
63	35	35	75	8	21,8	6	2,5	1	1	11	19	60	12
80	45	50	99	8	27,3	8	2,5	1	1	11	18	80	15
100	45	60	115	10	31,3	8	2,5	1	1	11	15	80	15
125	45	70	125	10	31,3	8	2,5	1	1	11	35	90	20

	90° ROTATION ANGLE			180° ROTATION ANGLE			270° ROTATION ANGLE			360° ROTATION ANGLE		
		PINION			PINION			PINION			PINION	
		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE
Ø	LT	WEIGHT *(g)*	WEIGHT *(g)*	LT	WEIGHT *(g)*	WEIGHT *(g)*	LT	WEIGHT *(g)*	WEIGHT *(g)*	LT	WEIGHT *(g)*	WEIGHT *(g)*
32	227,5	1300	1200	274,5	1420	1320	321,5	1540	1440	368,5	1660	1560
40	269	2010	1900	326	2210	2900	382,5	2390	2280	439	2580	2470
50	282	3070	2840	344,5	3340	3110	407,5	3610	3380	470	3880	3650
63	348	4990	4640	422,5	5500	5170	497	6010	5700	571,5	6520	6230
80	404	9840	9220	503	10840	10230	602	11840	11240	701	12840	12250
100	428	13650	12680	534,5	14860	13870	641,5	16070	15060	748	17280	16250
125	519	23370	22220	651	25720	24520	783	28070	26820	915	30420	29120

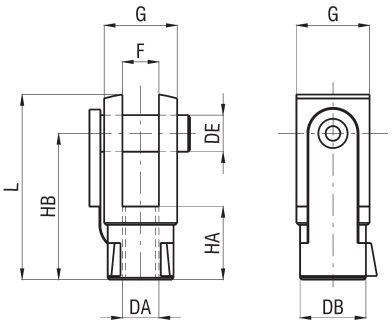
series F

Cylinders piston rod attachments

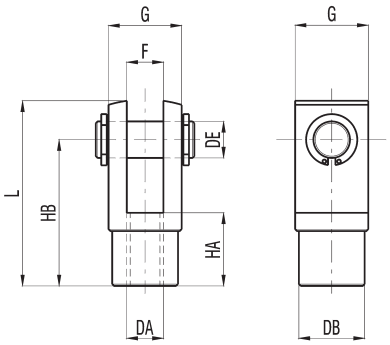
DESCRIPTION

Piston rod attachments, produced according to standards that regulate cylinders manufacturing, allow the cylinder piston rod to couple with the corresponding system that has to be enlivened.

FEMALE PISTON ROD CLEVIS WITH CLIPS TO ISO 8140 STEEL - M4 ÷ M20 X 1,5



FEMALE PISTON ROD CLEVIS WITH PIN AND SNAP RING TO ISO 8140 - STEEL - M4 ÷ M36 X 2

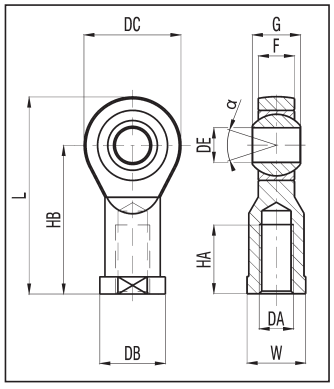


DIMENSIONS AND WEIGHTS

DA	DB	DE	F *B12*	G	HA	HB	L	WEIGHT *(g)*	CYLINDER SERIES and Ø					TYPE	TYPE
									U-UP	P-UP	BU7	CPU-X	CPUI	WITH CLIPS	WITH CLIPS
M4	8	4	4	8	8	16	21	10	8-10					FF4	-
M6	10	6	6	12	12	24	31	18	12-16					FF6	FFP6*
M8	14	8	8	16	16	32	42	42	20					FF8	FFP8*
M10x1,25	18	10	10	20	20	40	52	90	25	32	20÷40	32	32	FF10x1,25	FFP10x1,25*
M12x1,25	20	12	12	24	24	48	62	130		40	50-63	40	40	FF10x1,25	FFP12x1,25*
M16x1,5	26	16	16	32	32	64	83	330		50-63	80	50-63	50-63	FF16x1,5	FFP16x1,5*
M20x1,5	34	20	20	40	40	80	105	650			100	80-100	80-100	FF20x1,5	FFP20x1,5*
M27x2	48	30	30	55	54	110	148	2100					125	-	FFP27x2
M36x2	60	35	35	70	72	144	188	3900					160-200	-	FFP36x2

* AISI 303 STAINLESS STEEL (SUPPLIED UPON REQUEST)

SELF-LUBRICATING PISTON ROD EYE TO DIN ISO 12240 STANDARD - STEEL



DIMENSIONS AND WEIGHTS

DA	DB	DC	DE *H7*	F	G	HA	HB	L	W	α	WEIGHT *(g)*	CYLINDER SERIES and Ø					TYPE
												U-UP	P-UP	BU7	CPU-X	CPUI	
M4	11	18	5	6	8	10	27	36	9	13	18	8-10					FF4/SS*
M6	13	20	6	6,75	9	12	30	40	11	13	26	12-16					FF6/SS*
M8	16	24	8	9	12	16	36	48	14	14	46	20					FF8/SS*
M10x1,25	19	28	10	10,5	14	20	43	57	17	13	76	25	32	20÷40	32	32	FF10x1,25/SS*
M12x1,25	22	32	12	12	16	22	50	66	19	13	110		40	50-63	40	40	FF12x1,25/SS*
M16x1,5	27	42	16	15	21	28	64	85	22	15	220		50-63	80	50-63	50-63	FF16x1,25/SS*
M20x1,5	34	50	20	18	25	33	77	102	30	14	409			100	80-100	80-100	FF16x1,25/SS*
M27x2	50	70	30	25	37	51	110	145	41	17	1200					125	FF27x2/SS
M36x2	58	80	35	28	43	56	125	165	50	16	1600					160-200	FF36x2/SS

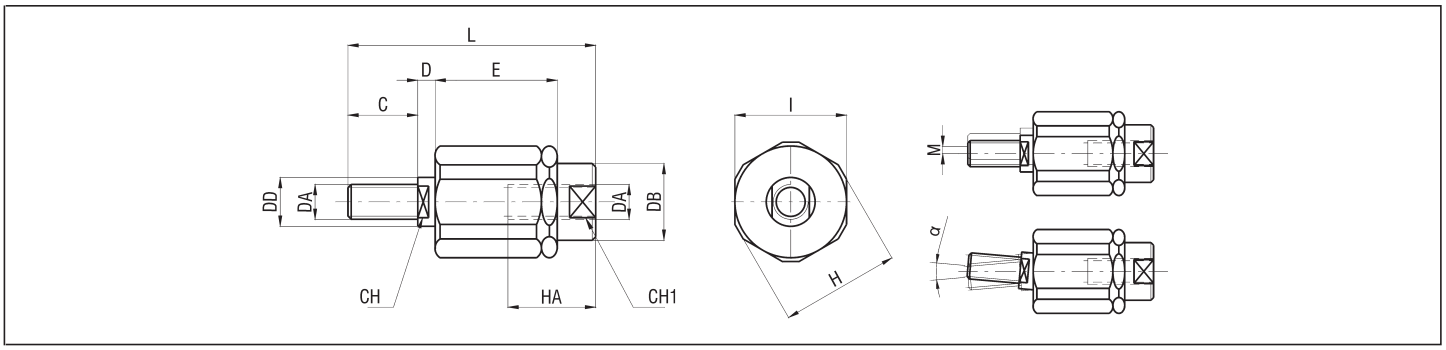
* AISI 303 STAINLESS STEEL (SUPPLIED UPON REQUEST)

Accessories

Cylinder piston rod attachments

series F

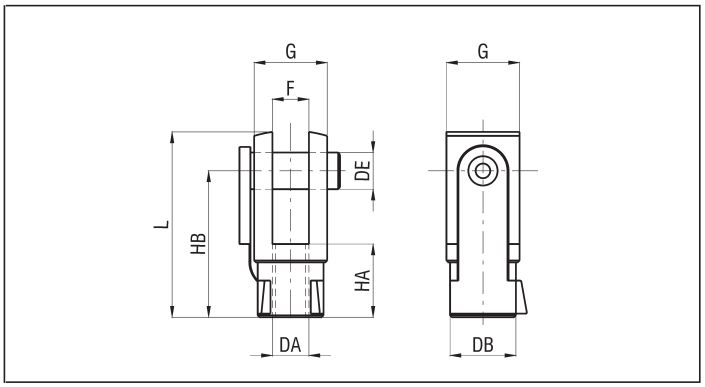
SELF-ALIGNING ROD COUPLER - GALVANIZED STEEL



DIMENSIONS AND WEIGHTS

DA	C	CH	CH1	D	DB	DD	E	H	HA	I	L	M	α	WEIGHT (g)	CYLINDER SERIES and Ø					TYPE
															U-UP	P-UP	BU7	CPU-X	CPUI	
M6	10	5	7	3,5	8,5	6	17,5	14,5	10	13	35	1	10	25	12-16					FF6/SA
M8	20	7	11	4	12,5	8	28,5	19	20	17	57	2	10	60	20					FF8/SA
M10x1,25	20	12	19	5	22	14	35	32	20	30	71	2	10	220	25	32	20÷40	32	32	FF10x1,25/SA
M12x1,25	24	12	19	5	22	14	35	32	20	30	75	2	10	230		40	50-63	40	40	FF12x1,25/SA
M16x1,5	32	20	30	8	32	22	54	45	32	41	103	2	10	660		50-63	80	50-63	50-63	FF16x1,5/SA
M20x1,5	40	20	30	8	32	22	54	45	40	41	119	2	10	700			100	80-100	80-100	FF20x1,5/SA
M27X2	54	24	54	10	57	32	60	70	40	65	147	2	8	1000					125	FF27x2/SA

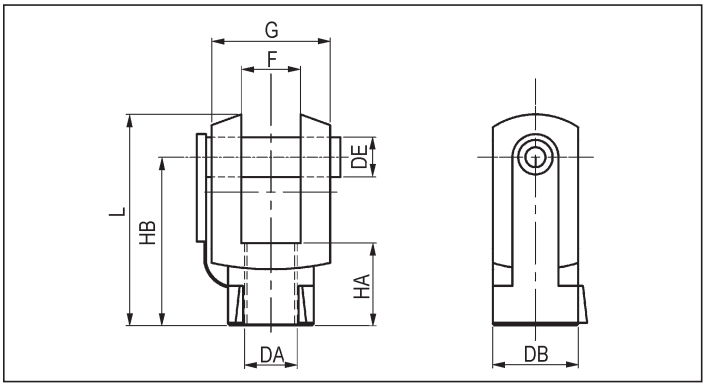
FEMALE PISTON ROD CLEVIS WITH CLIPS TO DIN 71752 STANDARD - STEEL



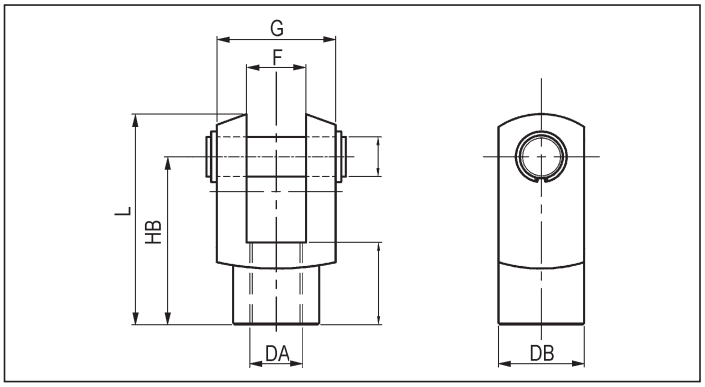
DIMENSIONS AND WEIGHTS

DA	DB	DE	F B12	G	HA	HB	L	WEIGHT (g)	CYLINDER SERIES HB Ø	TYPE WITH CLIPS
M6	10	6	6	12	12	24	31	18	20	FF6
M8	14	8	8	16	16	32	42	42	27	FF8
M10	18	10	10	20	20	40	52	90	35-40	HB/FF10
M12	20	12	12	24	24	48	62	130	50	HB/FF12
M14	24	14	14	27	28	56	72	230	58	HB/FF14
M16	26	16	16	32	32	64	83	330	70	HB/FF16
M18	26	16	16	32	32	64	83	330	85	HB/FF18
M20	34	20	20	40	40	80	105	650	100	HB/FF20

FEMALE PISTON ROD CLEVIS WITH CLIPS
TO ex CNOMO 06 07 14 STANDARD - STEEL - M 10 ÷ M 27 x 2



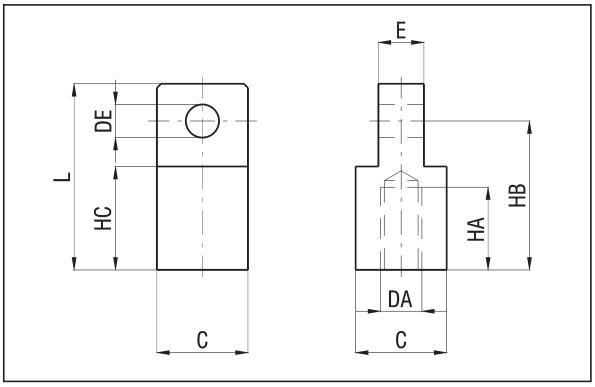
FEMALE PISTON ROD CLEVIS WITH PIN AND SNAP RING
TO ex CNOMO 06 07 14 STANDARD - STEEL - M 10 ÷ M 36 x 2



DIMENSIONS AND WEIGHTS

DA	DB	DE	F *B12*	G	HA	HB	L	WEIGHT *(g)*	CYLINDER SERIES CX Ø	TYPE WITH CLIPS	TYPE WITH PIN
M10	18	8	11	22	20	36	45	80	32	CX/FF10	CX/FFP10
M16x1,5	26	12	18	36	26	51	64	210	40-50	CX/FF16x1,5	CX/FFP16x1,5
M20x1,5	34	16	22	45	30	63	80	440	63-80	CX/FF20x1,5	CX/FFP20x1,5
M27x2	42	20	30	63	45	85	105	910	100-125	CX/FF27x2	CX/FFP27x2
M36x2	50	25	40	80	75	115	140	1800	160-200	-	CX/FFP36x2

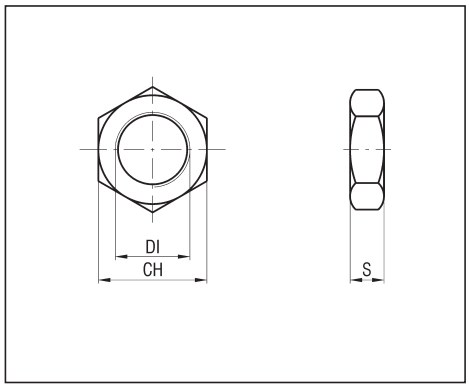
MALE PISTON ROD CLEVIS TO ex CNOMO 06 07 15 STANDARD - STEEL



DIMENSIONS AND WEIGHTS

C	DA	DE *H8*	E *f8*	HA	HB *H13*	HC	L	WEIGHT *(g)*	CYLINDER SERIES CX Ø	TYPE
22	M10	8	11	20	36	25	45	30	32	CX/FM10
32	M16x1,5	12	18	30	51	34	64	100	40-50	CX/FM16x1,5
36	M20x1,5	16	22	36	63	41	80	140	63-80	CX/FM20x1,5
45	M27x2	20	30	50	85	58	105	320	100-125	CX/FM27x2
63	M36x2	25	40	70	115	81	140	870	160-200	CX/FM36x2

ROD NUT



DIMENSIONS AND WEIGHTS

DI	CH	S	WEIGHT *(g)*	CYLINDER SERIES and Ø U-UP	P-UP	BU7	CX	CPU-X	CPUI	B+NIPPLE	TYPE STEEL	TYPE STAINLESS STEEL
M4	7	3	0,8	8-10							DST4	DSTI4
M6	10	4	1,48	12-16						12-16	DST6	DSTI6
M8	13	5	4	20						20-25	DST8	DSTI8
M10x1,25	17	6	8,6	25	32	20÷40		32	32	32-40	DST10x1,25	DSTI10x1,25
M10	17	6	8,6				32				DST10	DSTI10
M12x1,25	19	7	12,1		40	50-63		40	40	50-63	DST12x1,25	DSTI12x1,25
M16x1,5	24	8	20,1		50-63	80	40-50	50-63	50-63	G50÷80	DST16x1,5	UPDT16
M20x1,5	30	9	36,3			100	63-80	80-100	80-100	100	DST20x1,5	DSTI20x1,5
M27x2	41	12	90				100-125		125		DST27x2	DSTI27x2
M36x2	55	15	190				160-200		160-200		DST36x2	DSTI36x2

Magnetic sensors for cylinders
series FM100 - FM101 - FM157 - FM158

series FM

DESCRIPTION

Magnetic sensors series "FM" allow to detect the magnetic piston position inside pneumatic cylinders. The magnetic field generated in the cylinder is used to signal electrical circuits as required. It's possible to choice between the two types of switches currently available:
- Reed switch (this electromechanical switch can work with both AC or DC circuits)
- Hall effect switch (electronic switch suitable for DC circuits only)
Magnetic sensors have a LED that signals the insertion as standard.

NOTICE

The magnetic sensor is a switch that has to be assembled in series with a load (inductive, resistive or capacitive). Use the shortest possible connection cable to reduce self-capacitance to a minimum. In borderline cases, measures should be taken to cancel the effect of cable capacitance using a repetition relay (4 W) in series. Avoid close proximity to external magnetic fields such as electric motors or large iron masses, as they could effect the switch. The sensors are able to detect a magnetic signal at speeds of the piston up to 1 m/s.

MAGNETIC SENSORS SERIES FM100

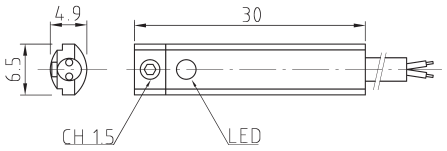
TECHNICAL DATA

TYPE	FM100	FM100R	FM100N	FM100E	FM100EN
	FM100/C	FM100R/C	FM100N/C	FM100E/C	FM100EN/C
Working temperature	-10 ÷ +70 °C				
Protection class	IP 67				
Model	REED SWITCH			HALL EFFECT	
Contacts	N.O.		N.C.	PNP	NPN
Voltage AC/DC	5 ÷ 220 V	10 ÷ 30 VDC	5 ÷ 110 V	10 ÷ 30 V DC	
Max voltage drop	3 V	0.1 V	3 V	2 V	
Max exchange current	100 mA				
Max power	10 W			3 W	
Operating frequency	200 Hz			1000 Hz	

MATERIALS

Body	Polyamide
Cable	Polyurethane
Connector	Polypropylene
Contacts	Gold-plated brass
Contact carrier	Nickel-plated brass
Ring nut	Brass

FM100 - FM100R - FM100N - FM100E - FM100EN

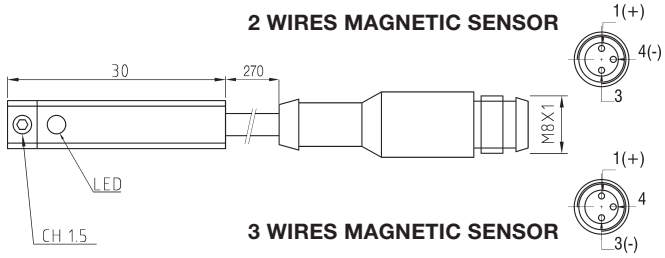


2 WIRES MAGNETIC SENSOR
BROWN (+)
BLUE (-)

3 WIRES MAGNETIC SENSOR
BROWN (+)
BLUE (-)
BLACK

DESCRIPTION	WEIGHT (g)	TYPE
N.O. reed switch with LED and 2 wires cable 3 m length	33	FM100
N.O. reed switch with LED and 3 wires cable 3 m length	33	FM100R
N.C. reed switch with LED and 2 wires cable 3 m length	33	FM100N
Hall effect switch version PNP with LED and 3 wires cable 3 m length	37	FM100E
Hall effect switch version NPN with LED and 3 wires cable 3 m length	37	FM100EN

FM100/C - FM100R/C - FM100N/C - FM100E/C - FM100EN/C

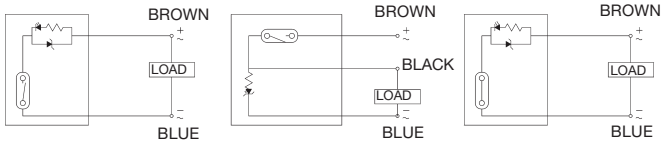


DESCRIPTION	WEIGHT (g)	TYPE
N.O. reed switch with LED and 2 wires ring nut connector M8	45	FM100/C
N.O. reed switch with LED and 3 wires ring nut connector M8	45	FM100R/C
N.C. reed switch with LED and 2 wires ring nut connector M8	45	FM100N/C
Hall effect switch version PNP with LED and 3 wires ring nut connector M8	49	FM100E/C
Hall effect switch version PNP with LED and 3 wires ring nut connector M8	49	FM100EN/C

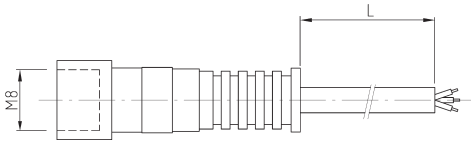
series FM

Magnetic sensors for cylinders series FM100

ELECTRIC CIRCUITS REED SWITCH



EXTENSION WITH FEMALE CONNECTOR M8

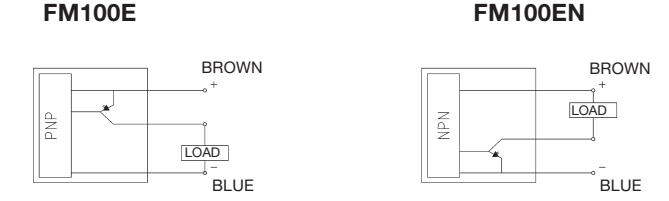


2 WIRES MAGNETIC SENSORS
BROWN (+)
BLUE
BLACK (-)

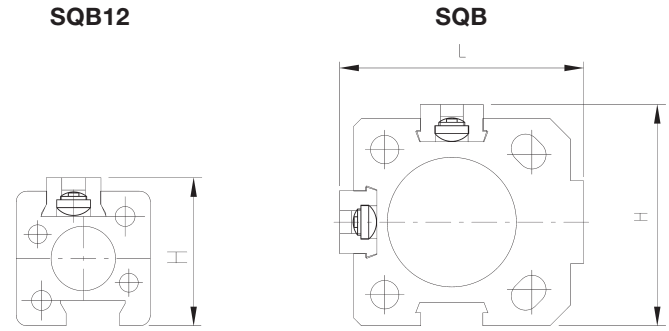
3 WIRES MAGNETIC SENSORS
BROWN (+)
BLUE (-)
BLACK

DESCRIPTION	WEIGHT (g)	L (m)	TYPE
Extension 3 m length with female connector M8	40	3	CNT3
Extension 5 m length with female connector M8	60	5	CNT5

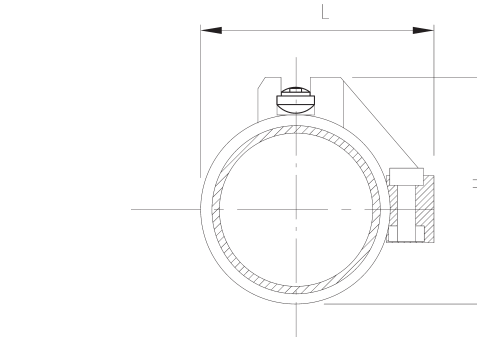
ELECTRIC CIRCUITS HALL EFFECT SWITCH



FIXING ADAPTER - PLASTIC - SQB12 - SQB



FIXING ADAPTER - PLASTIC- FG



MAXIMUM DIMENSIONS WITH CYLINDER SERIES “B”

H	L	Ø CYLINDER	TYPE
27	-	12	SQB12
32	36	16	SQB
37	41	20	
49	53	32	
58	61	40	
68	73	50	
81	89	63	
101	107	80	
124	132	100	

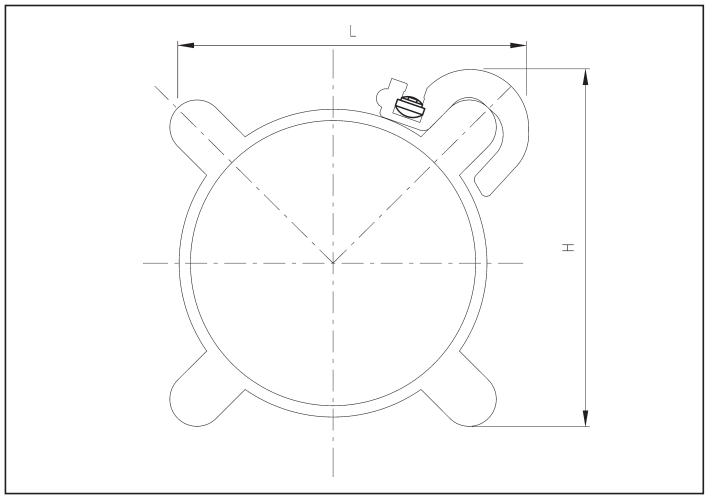
MAXIMUM DIMENSIONS WITH CYLINDERS

H	L	CYLINDER SERIES and Ø			TYPE
		U	P	UP	
20	22	8	-	-	FG8
22	24	10	-	-	FG10
23	25	12	-	-	FG12
26	28	16	-	16	FG16
27	29	20	-	20	FG20
36	38	25	-	25	FG25
44	46	-	32	32	FG32
52	54	-	40	40	FG40
62	64	-	50	50	FG50
76	78	-	63	-	FG63

Magnetic sensors for cylinders
series FM100

series FM

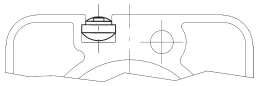
SENSOR FIXING BRACKETS - ALUMINIUM - FS



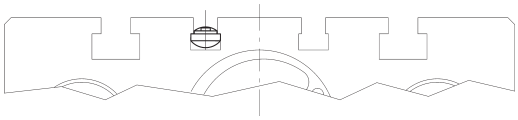
MAXIMUM DIMENSIONS WITH CYLINDERS

H	L	CYLINDER SERIES and Ø			TYPE
		CPUI	CPA	WR	
50	51	32	32	32	FS34
57	57	40	40	40	
69	69	50	50	50	FS56
79	79	63	63	63	
97	96	80	-	80	FS81
113	113	100	-	100	
140	141	125	-	125	FS125

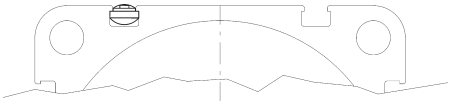
EXAMPLE OF SENSOR MOUNTING ON CYLINDERS SERIES “BU”



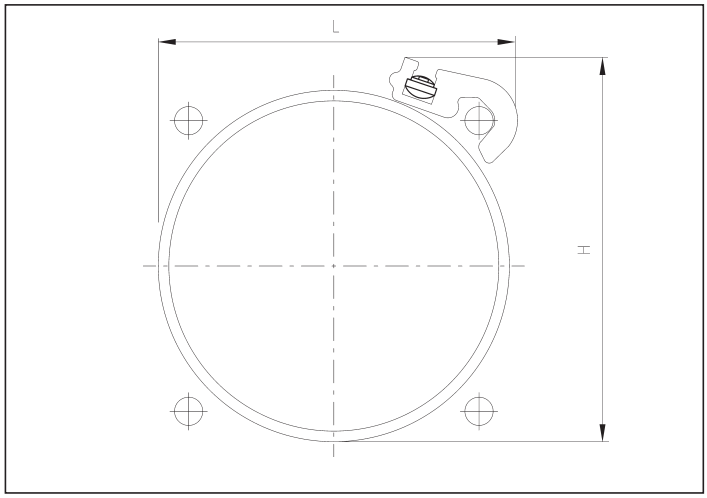
EXAMPLE OF SENSOR MOUNTING ON CYLINDERS SERIES “BG”



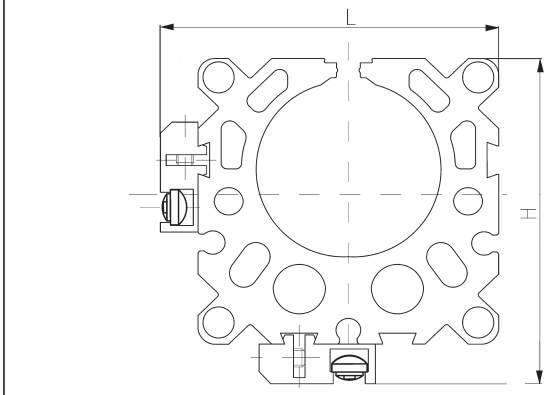
EXAMPLE OF SENSOR MOUNTING ON CYLINDERS SERIES “X”



SENSOR FIXING BRACKETS WITH TIE RODS - ALUMINIUM - FS



SENSOR FIXING BRACKET - ALUMINIUM - SQZ



MAXIMUM DIMENSIONS WITH CYLINDERS

H	L	SERIES CYLINDERS and Ø				TYPE
		WR	CPUI	CPU	CX	
45	46	-	-	32	32	FS345
52	53	-	-	40	40	
61	62	-	-	50	50	
76	75	-	-	63	63	FS681
92	91	-	-	80	80	
106	105	-	-	100	100	
144	141	125	125	-	125	FS112
170	173	-	160	-	160	
225	223	-	200	-	200	

MAXIMUM DIMENSIONS WITH CYLINDERS SERIES “Z”

H	L	Ø CYLINDER	TYPE
36,5	36,6	18	SQZ
48,5	48,6	25	
58,5	58,6	32	
69,5	69,6	40	
84,5	84,6	50	
99,5	99,6	63	

P.S.: Sensor fixing bracket “SQZ” can not be fixed on the same side of the guides on the versions “ZSF”- “ZSFF” - “ZKF”; for this need use the “hidden” series FM101 (see page 1.96)

MAGNETIC SENSORS SERIES FM101

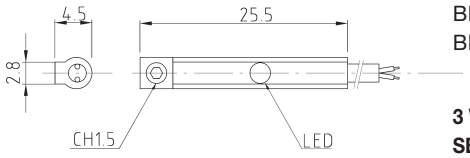
TECHNICAL DATA

TYPE	FM101 - FM101/C	FM101E - FM101E/C
Working temperature	-10 ÷ +70 °C	
Protection class	IP 67	
Model	REED SWITCH	HALL EFFECT
Contacts	N.O.	PNP
Voltage AC/DC	5 ÷ 220 V	5 ÷ 30 V DC
Max voltage drop	3 V	0.5 V
Max exchange current	100 mA	200 mA
Max power	6 W	
Operating frequency	200 Hz	1000 Hz

MATERIALS

Body	Polyamide
Cable	Polyurethane
Connector	Polypropylene
Contacts	Gold-plated brass
Contact carrier	Nickel-plated brass
Ring nut	Brass

FM101 - FM101E

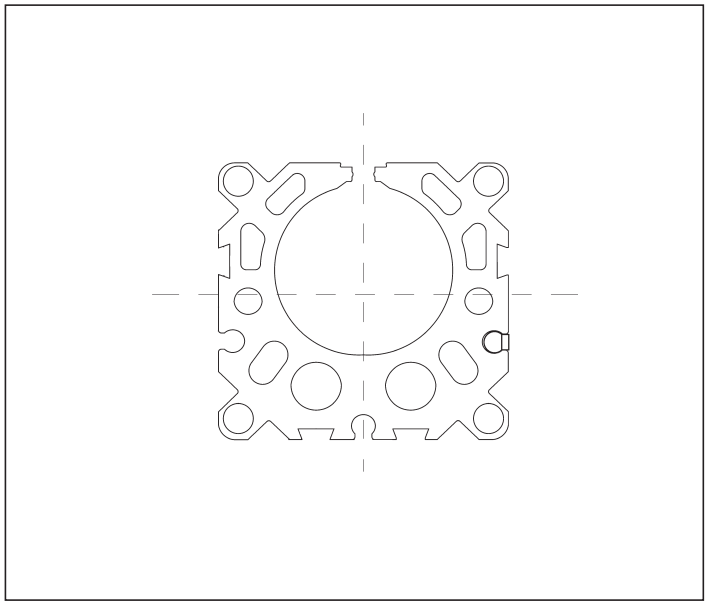


2 WIRES MAGNETIC SENSOR
BROWN (+)
BLUE (-)

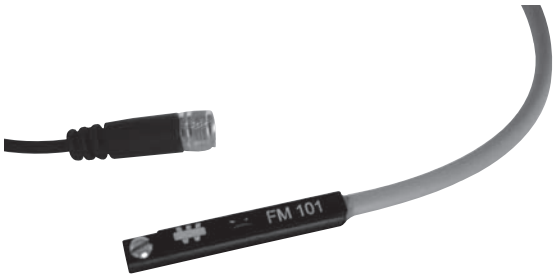
3 WIRES MAGNETIC SENSOR
BROWN (+)
BLUE (-)
BLACK

DESCRIPTION	WEIGHT (g)	TYPE
N.O. reed switch with LED and 2 wires cable 3 m length	28	FM101
Hall effect switch version PNP with LED and 3 wires cable 3 m lenght	28	FM101E

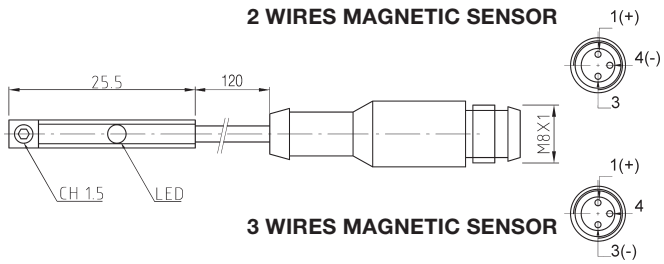
EXAMPLE OF SENSOR MOUNTING ON CYLINDERS SERIES "Z"



P.S.: For bore Ø 18, mount the sensors series "FM100" (page 1.93) with sensor fixing bracket "SQZ" (page 1.95)

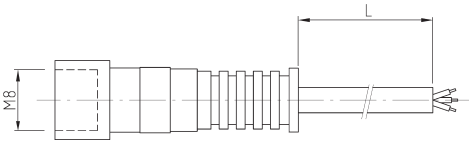


FM101/C - FM101E/C



DESCRIPTION	WEIGHT (g)	TYPE
N.O. reed switch with LED and 2 wires ring nut connector M8	40	FM101/C
Hall effect switch version PNP with LED and 3 wires ring nut connector M8	40	FM101E/C

EXTENSION WITH FEMALE CONNECTOR M8

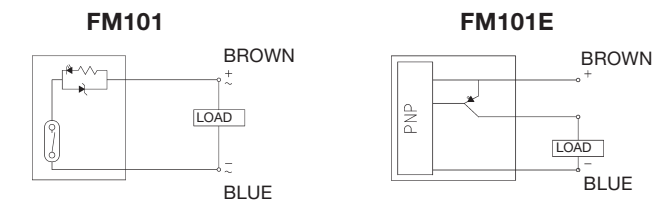


2 WIRES MAGNETIC SENSORS
BROWN (+)
BLUE
BLACK (-)

3 WIRES MAGNETIC SENSORS
BROWN (+)
BLUE (-)
BLACK

DESCRIPTION	WEIGHT (g)	L (m)	TYPE
Extension 3 m length with female connector M8	40	3	CNT3
Extension 5 m length with female connector M8	60	5	CNT5

ELECTRIC CIRCUITS REED SWITCH - HALL EFFECT SWITCH



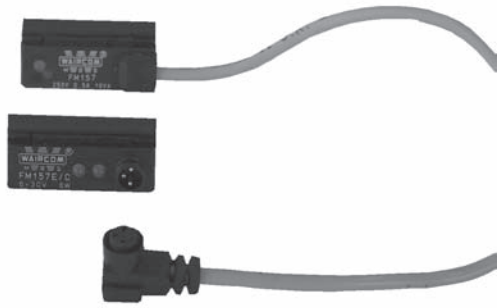
Magnetic sensors for cylinders
series FM157

series FM

MAGNETIC SENSORS SERIES FM157

TECHNICAL DATA

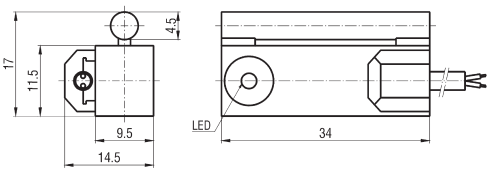
TYPE	FM157 - FM157/C	FM157E/C
Working temperature	-20 ÷ +80 °C	
Protection class	IP65	
Model	REED SWITCH	HALL EFFECT
Contacts	N.O.	
Voltage AC/DC	3 ÷ 230 V	6 ÷ 30 V
Max voltage drop	3 V	0,7 V
Max exchange current	500 mA	250 mA
Max power	10 VA	6 W
Operating frequency	200 Hz	1000 Hz



MATERIALS

Body	Polyamide
Cable	Polyvinyl chloride
Connector	Polyvinyl chloride
Contact carrier	Polyamide

FM157 - FM157E

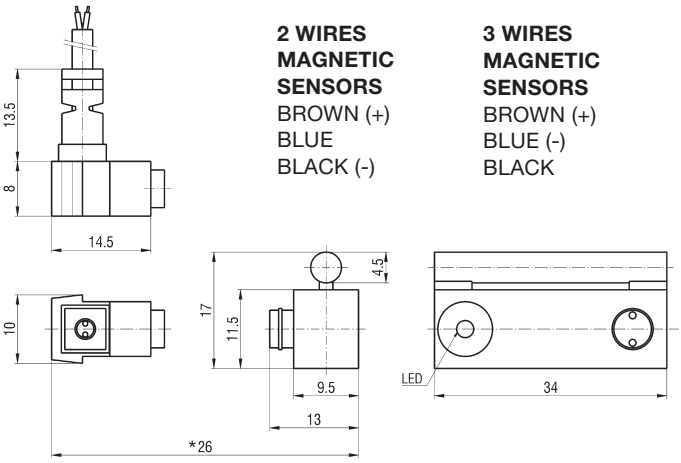


2 WIRES MAGNETIC SENSOR
BROWN (+)
BLUE (-)

3 WIRES MAGNETIC SENSOR
BROWN (+)
BLUE (-)
BLACK

DESCRIPTION	WEIGHT (g)	TYPE
Reed switch with LED and 2 wires cable 2,5 m lenght	55	FM157
Hall effect switch version **PNP** with LED and 3 wires cable 2,5 m lenght	58	FM157E

FM157/C - FM157E/C



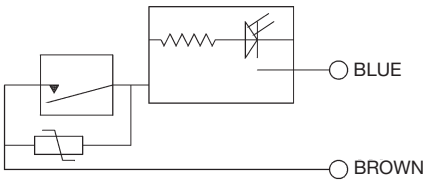
2 WIRES MAGNETIC SENSORS
BROWN (+)
BLUE
BLACK (-)

3 WIRES MAGNETIC SENSORS
BROWN (+)
BLUE (-)
BLACK

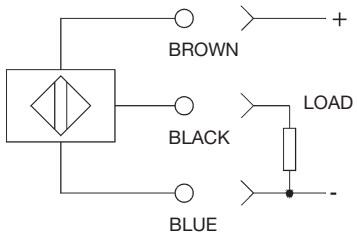
* DIMENSION OF THE COUPLED PARTS

DESCRIPTION	WEIGHT (g)	TYPE
Reed switch with LED, connector M8 and 2 wires cable 2,5 m length	58	FM157/C
Hall effect switch version **PNP** with LED, connector M8 and 3 wires cable 2,5 m length	61	FM157E/C

ELECTRIC CIRCUIT REED SWITCH



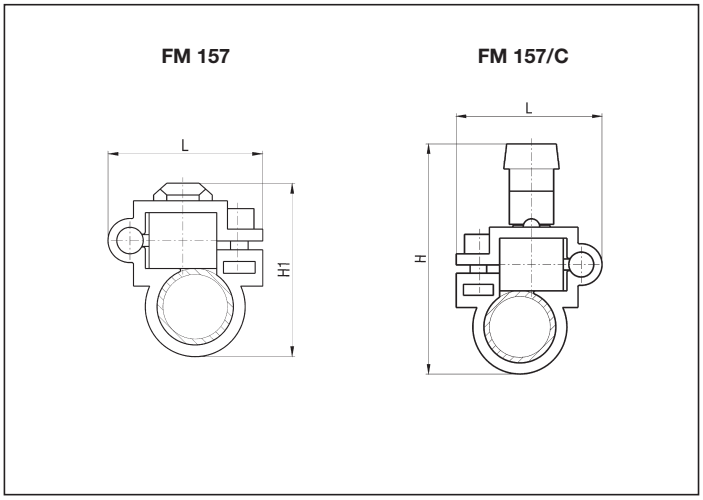
ELECTRIC CIRCUIT HALL EFFECT SWITCH



series FM

Magnetic sensors for cylinders series FM157

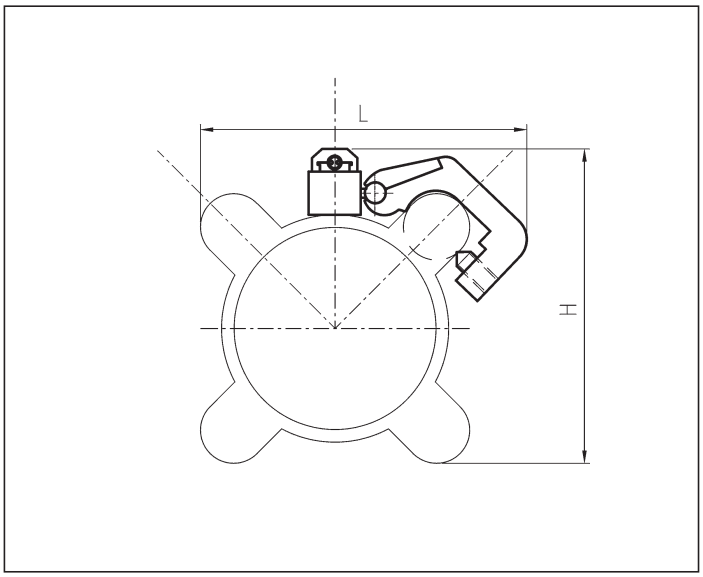
SENSOR FIXING BRACKETS - PLASTIC - FG



MAXIMUM DIMENSIONS WITH CYLINDERS

H1	H	L	SERIES CYLINDER and Ø		TYPE
			U	P	
26	38	23	8	-	FG/050
28	40	28	10	-	FG/051
31	42	27	12	-	FG/052
33	45	28,5	16	-	FG/053
38	52	32	20	-	FG/054
43	58	32	25	-	FG/055
51	65	32	-	32	FG/056
60	73	32	-	40	FG/057
70	83	32,5	-	50	FG/058
84	97	32,5	-	63	FG/059

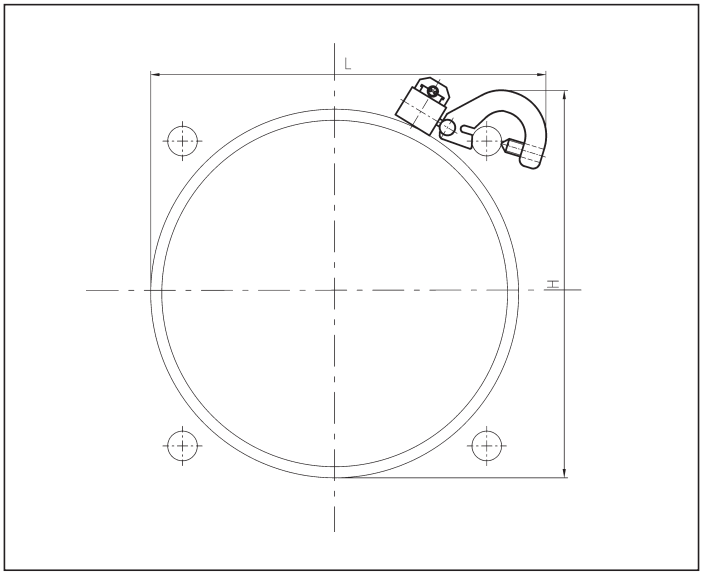
SENSOR FIXING BRACKETS - ALUMINIUM - ST



MAXIMUM DIMENSIONS WITH CYLINDERS SERIES “CPUI”

H	L	Ø CYLINDER	TYPE
55	63	32	ST34
65	60	40	
77	72	50	ST56
87	82	63	
102	101	80	ST80
120	117	100	ST102
147	131	125	

SENSOR FIXING BRACKETS - ALUMINIUM - ST



MAXIMUM DIMENSIONS WITH CYLINDERS

H	L	SERIES CYLINDER and Ø			TYPE
		CPUI	CPU	CX	
33	33	-	32	32	ST3456
37,5	33	-	40	40	
40	35	-	50	50	
49	39	-	63	63	
57	48	-	80	80	SQ32-40/A
61	54	-	100	100	
71	69	125	-	125	SQ125/A
92	90	160	-	160	SQ80-100/A
120	118	200	-	200	

Magnetic sensors for cylinders
series FM158

series FM

MAGNETIC SENSORS SERIES FM158

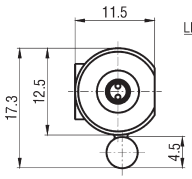
TECHNICAL DATA

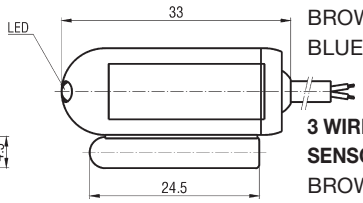
TYPE	FM158 - FM158/C	FM158E - FM158E/C
Working temperature	-20 ÷ + 80 °C	
Protection class	IP65	
Model	REED SWITCH	HALL EFFECT
Contacts	N.O.	
Voltage AC/DC	3 ÷ 115 V	6 ÷ 30 V
Max voltage drop	3 V	0,7 V
Max exchange current	500 mA	250 mA
Max power	10 VA	6 W
Operating frequency	200 Hz	1000 Hz

MATERIALS

Body	Polyamide
Cable	Polyvinyl chloride
Connector	Polyvinyl chloride
Contact carrier	Polyamide
Ring nut	Brass

FM158 - FM158E



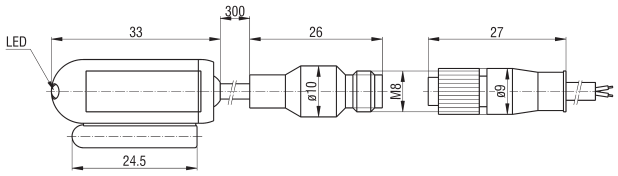


2 WIRES MAGNETIC SENSOR
BROWN (+)
BLUE (-)

3 WIRES MAGNETIC SENSOR
BROWN (+)
BLUE (-)
BLACK

DESCRIPTION	WEIGHT (g)	TYPE
Reed switch with LED and 2 wires cable 2,5 m lenght	36	FM158
Hall effect switch version **PNP** with LED and 3 wires cable 2,5 m lenght	40	FM158E

FM158/C - FM158E/C

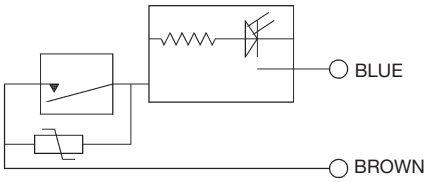


2 WIRES MAGNETIC SENSORS
BROWN (+)
BLUE
BLACK (-)

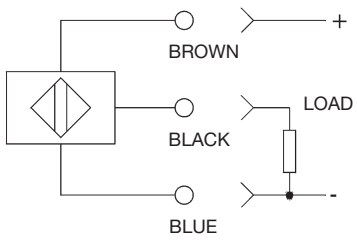
3 WIRES MAGNETIC SENSORS
BROWN (+)
BLUE (-)
BLACK

DESCRIPTION	WEIGHT (g)	TYPE
Reed switch with LED, connector M8 and 2 wires cable 2,5 m length	48	FM158/C
Hall effect switch version **PNP** with LED, connector M8 and 3 wires cable 2,5 m length	51	FM158E/C

ELECTRIC CIRCUIT REED SWITCH



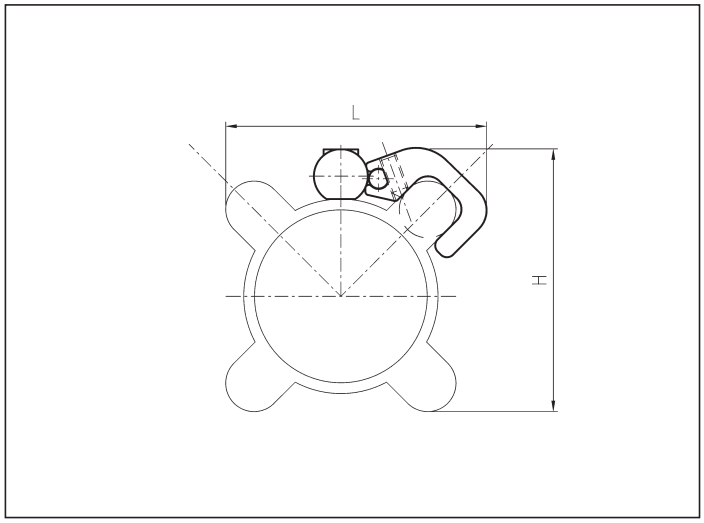
ELECTRIC CIRCUIT HALL EFFECT SWITCH



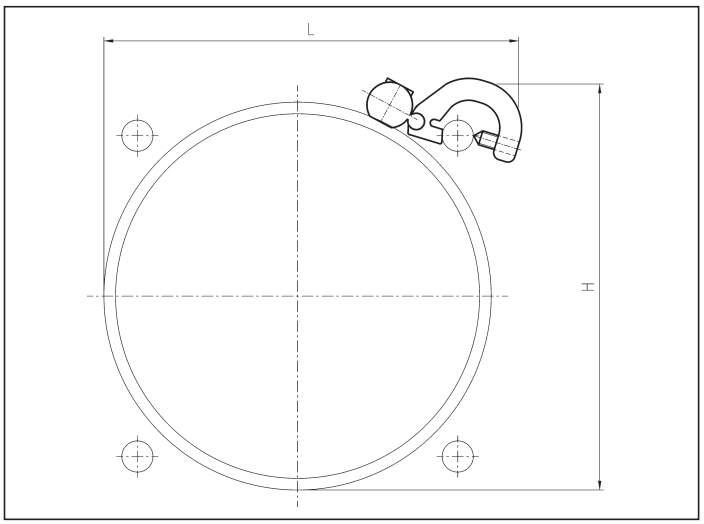
serie FM

Magnetic sensors for cylinders
series FM158

SENSOR FIXING BRACKETS - ALUMINIUM - SQ



SENSOR FIXING BRACKETS - ALUMINIUM - ST



MAXIMUM DIMENSIONS WITH CYLINDERS SERIES CPUI

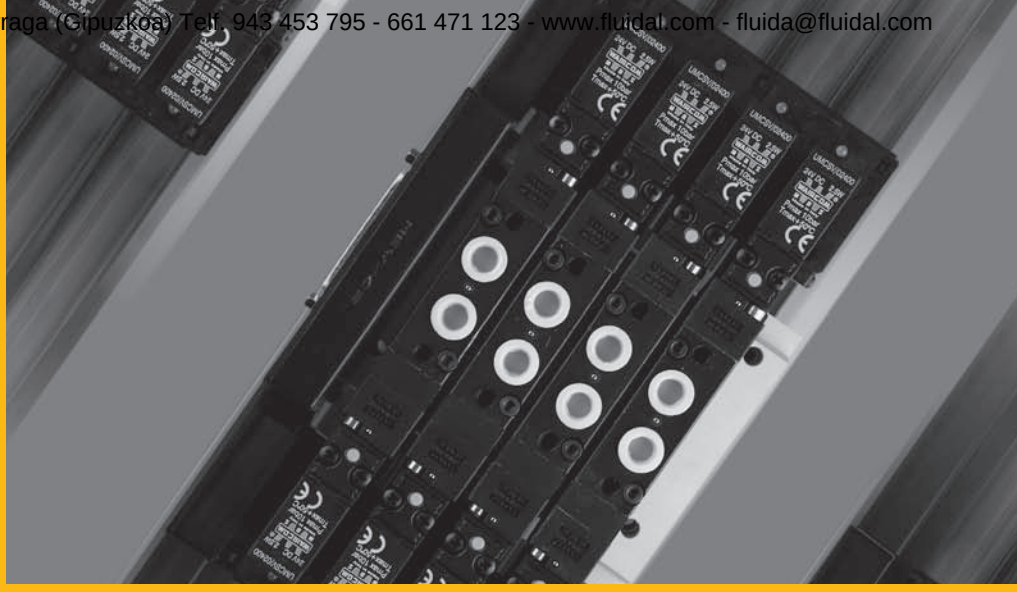
H	L	Ø CYLINDER	TYPE
51,5	50	32	SQ32-40/A
59	56	40	
70	69	50	SQ50-63/A
81,5	80	63	
98,5	96	80	SQ80-100/A
115	113	100	

MAXIMUM DIMENSIONS WITH CYLINDERS

H	L	CYLINDER SERIES and Ø			TYPE
		CPUI	CPU	CX	
33	33	-	32	32	ST3456
37,5	33	-	40	40	
40	35	-	50	50	
49	39	-	63	63	
57	48	-	80	80	SQ32-40/A
61	54	-	100	100	
71	69	125	-	125	SQ125/A
92	90	160	-	160	SQ80-100/A
120	118	200	-	200	

VALVES
pilot and solenoid actuated

Index chapter 2



Waircom valves and solenoid valves: overview

Waircom valves and solenoid valves have been created according to different production philosophies in order to adapt to the different contexts in which they could be used. Thus, together with the historical poppet valves, have been manufactured throughout the ages different families of valves with spool construction, to be used individually, in manifold mounting or with multi-pin plug connector.

Even some series of this chapter comply with the international reference standards, and beside these, as usual we present a range of valves completely designed by ourselves, in according to the market needs. It's important to remember that some series of this valves can create the vacuum or work with this fluid, so that we can cover another share of the industrial market. Finally, even for the items belonging to this family exist some accessories like bases, coils, connectors and cables.

Direct acting solenoid valves side 15 mm

series UM

DESCRIPTION

The direct acting solenoid valves series "UM" are produced in conformity with the Directives EC 89/336, EC 92/31, EC 93/68, EC 73/23 in the 3/2 N.O. and 3/2 N.C. pneumatic functions. They are used as power valves if mounted on single and multi-station base, or as control valves if mounted, in the 3/2 pneumatic function, on body valve series "MEV" (see from page 2.16) and "MEK" (see from page 2.32).
The multi-station bases support both the 3/2 N.O. than the 3/2 N.C. solenoid valves. The wrapping could be rotated of 180° to have an opposite electric connection respect the manual override.

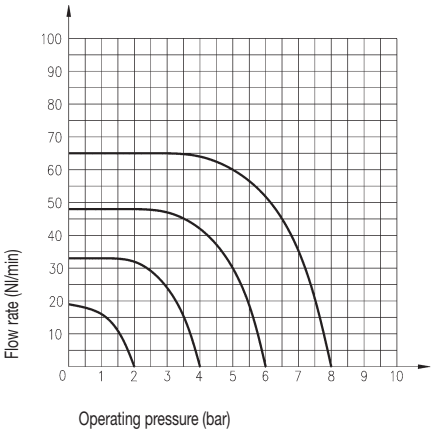
TECHNICAL DATA

Operatin pressure	0 ÷ 7 bar N.O. 0 ÷10 bar N.C.
Working temperature	-5° ÷ +50° C
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Nominal diameter	1.1 mm N.C. - N.O.
Max. operating frequency	≤13 Hz
Coil	Integrated in the body
Voltages	DC: 12 - 24 V AC: 24 - 110 - 220 V
Power consumption	DC: 2.3 W AC: 2.8 VA (inrush) - 2.5 VA (holding)
Voltage tolerance	-5% +10%
Protection class	IP 65 with connector MEK 192/N with VDR
Solenoid rating	F (155°C)
Electric connector	MEK192/N - see chapter Connectors on page 2.15

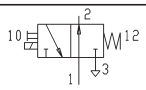
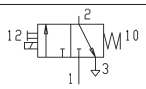
MATERIALS

Core	Stainless steel AISI 430F
Body and manual override	Polyester thermoplastic
Springs	Stainless steel AISI 302
Seals	NBR rubber

FLOW CHART - UM



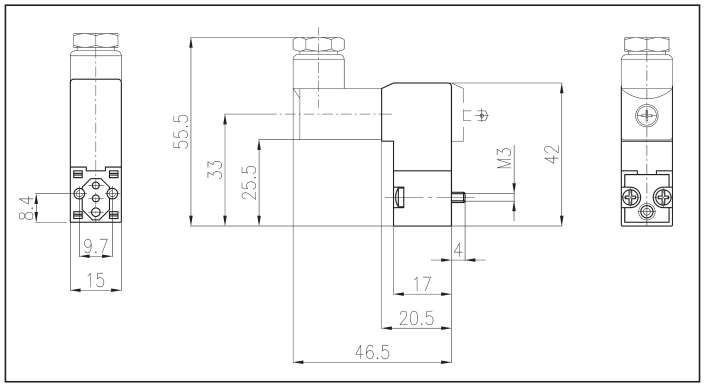
3 PORT WITH INTERFACE

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate (Nl/min) at 6 bar ΔP = 1 bar	Manual override	Weight (g)	TYPE*
		Pilot	Return	Pilot	Return				
	3/2 N.O.	Solenoid	Mechanical spring	17	20	26	Monostable push botton	40	UMASV/
	3/2 N.C.	Solenoid	Mechanical spring	13	23	30	Monostable push botton	40	UMCSV/

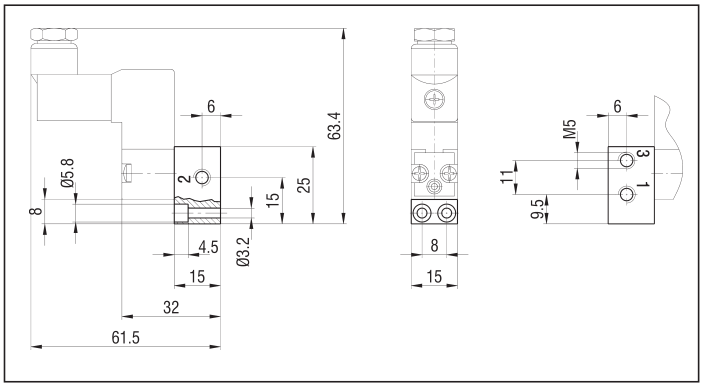
* SPECIFY THE VOLTAGE IN THE ORDER
E.G.: UMCSV/02400

02400 = 24 V DC
02450-60 = 24 V AC
11050-60 = 110 V AC
22050-60 = 220 V AC

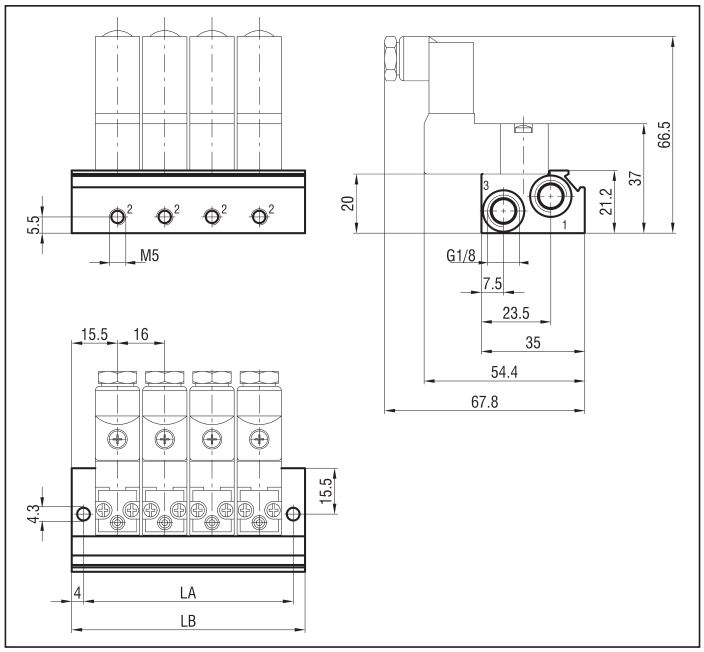
UMASV - UMCSV



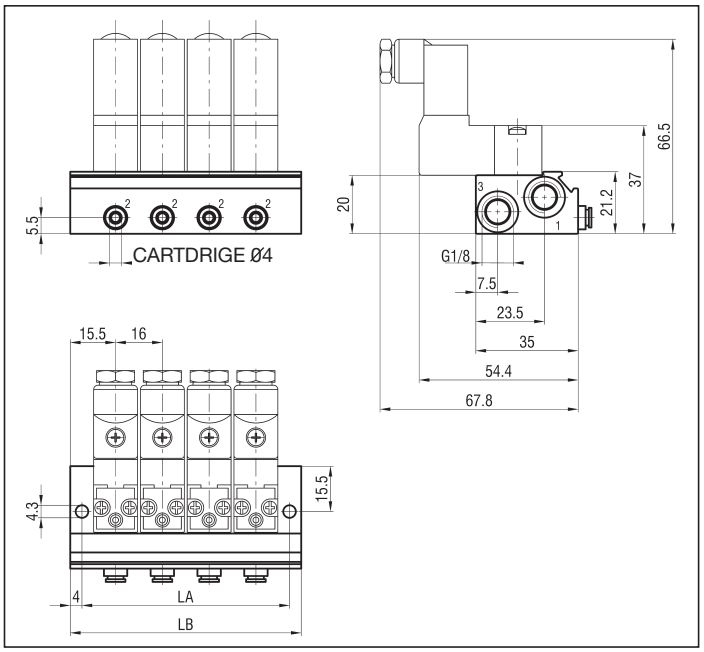
SINGLE BASE M5 - UMP5/1



MULTI-STATION BASE M5 - UMPM5

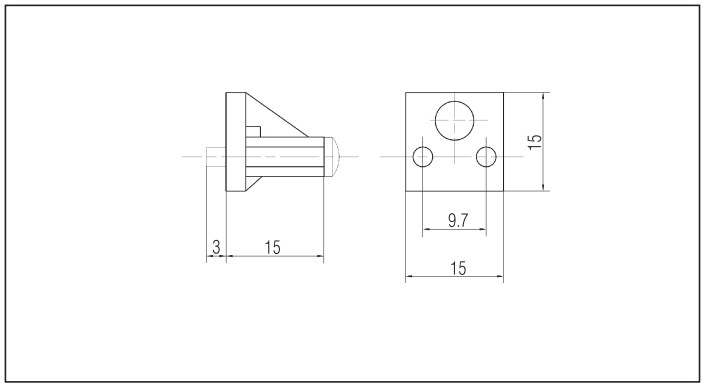


MULTI-STATION BASE WITH CARTRIDGE Ø 4 mm - UMP4-2



N°of stations	2	3	4	5	6	7	8	9	10
LA	39	55	71	87	103	119	135	151	167
LB	47	63	79	95	111	127	143	159	175
Weight *(g)*	70	95	120	145	170	195	220	245	270
TYPE	**UMPM5/2**	**UMPM5/3**	**UMPM5/4**	**UMPM5/5**	**UMPM5/6**	**UMPM5/7**	**UMPM5/8**	**UMPM5/9**	**UMPM5/10**
Weight *(g)*	75	100	125	150	175	200	225	250	275
TYPE	**UMP4-2/2**	**UMP4-2/3**	**UMP4-2/4**	**UMP4-2/5**	**UMP4-2/6**	**UMP4-2/7**	**UMP4-2/8**	**UMP4-2/9**	**UMP4-2/10**

REVERSAL PLATE - KIT/PC/UM



Direct acting solenoid valves side 32 mm

series UL

DESCRIPTION

The direct acting solenoid valves series "UL" are produced in conformity with the Directives EC 89/336, EC 92/31, EC 93/68, EC 73/23 in the 3/2 N.O. (with feed from the exhaust "3") and 3/2 N.C. pneumatic functions. The function 2/2 is obtainable closing exhaust "3". Besides are available the versions with ports G 1/8, suitable for single use, and with interface for multi-station base mounting or for mounting on poppet and to ex CETOP RP 32 P (with fixed position) valve bodies.

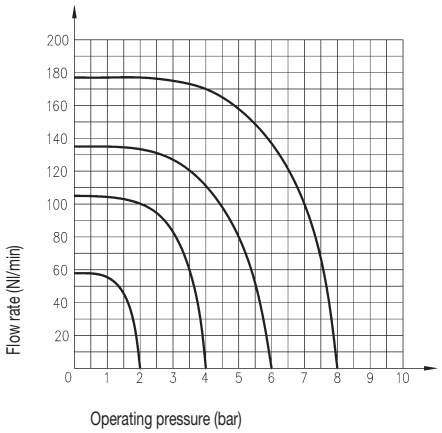
TECHNICAL DATA

Operating pressure	0 ÷ 10 bar
Working temperature	0 ÷ +50 °C (-20 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Nominal diameter	2 mm
Max. operating frequency	≤13 Hz
Coil	Intergrated in the body
Voltages	DC: 24 V AC: 24 - 110 - 220 V
Apparent power	DC: 7 W AC: 17 VA (inrush) - 10 VA (holding)
Voltage tolerance	-15% +15%
Protection class	IP 65
Insulation class	F
Solenoid rating	ED 100%
Electric connector	ULR1B - see chapter Connectors on page 2.15

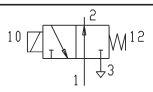
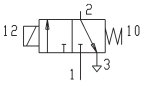
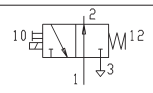
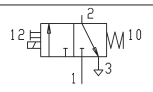
MATERIALS

Core	IMRE
Body ported G 1/8	Zamak
Body with interface	Glass stiffened polyamide (zamak upon request)
Springs	Stainless steel
Seals	Viton®
Manual override	Acetal resin

FLOW CHART - UL



3 PORT G 1/8 SIDE 32 mm

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Manual override	Weight (g)	TYPE*
		Pilot	Return	Pilot	Return				
	3/2 N.O.**	Solenoid	Mechanical spring	15	20	80	-	240	ULARG/R
	3/2 N.C.	Solenoid	Mechanical spring	15	20	80	-	240	ULCRG/R
	3/2 N.O.**	Solenoid	Mechanical spring	15	20	80	Manual bistable	240	ULARV/R
	3/2 N.C.	Solenoid	Mechanical spring	15	20	80	Manual bistable	240	ULCRV/R

* SPECIFY THE VOLTAGE IN THE ORDER
E.G.: ULARG/R02450-60

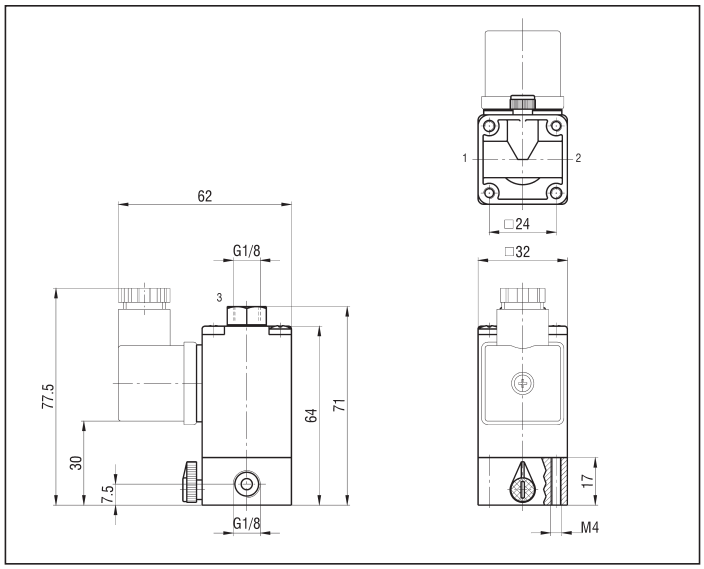
02400 = 24 V DC
02450-60 = 24 V AC
11050-60 = 110 V AC
22050-60 = 220 V AC

** For version N.O. arrange the connections as indicated:
1 = EXHAUST
2 = OUTPUT
3 = INPUT

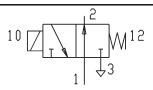
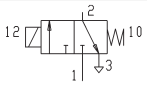
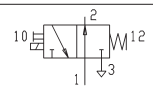
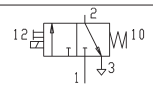
series UL

Direct acting solenoid valves side 32 mm

3 PORT G 1/8



3 PORT WITH INTERFACE FOR MULTI-STATION BASES AND POPPET / ex CETOP VALVES (WITH FIXED POSITION)

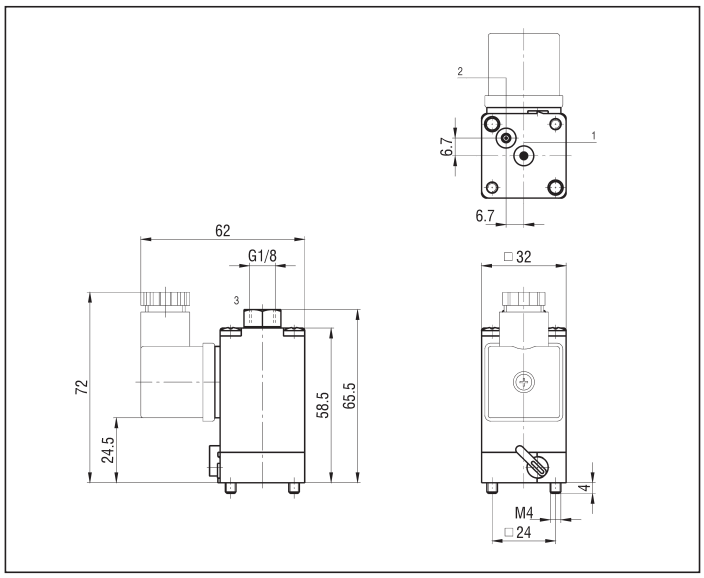
Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Manual override	Weight (g)	TYPE*
		Pilot	Return	Pilot	Return				
	3/2 N.O.	Solenoid	Mechanical spring	15	20	80	-	200	ULASG/R
	3/2 N.C.	Solenoid	Mechanical spring	15	20	80	-	200	ULCSG/R
	3/2 N.O.	Solenoid	Mechanical spring	15	20	80	Manual bistable	200	ULASV/R
	3/2 N.C.	Solenoid	Mechanical spring	15	20	80	Manual bistable	200	ULCSV/R

* SPECIFY THE VOLTAGE IN THE ORDER
E.G.: ULARG/R02450-60

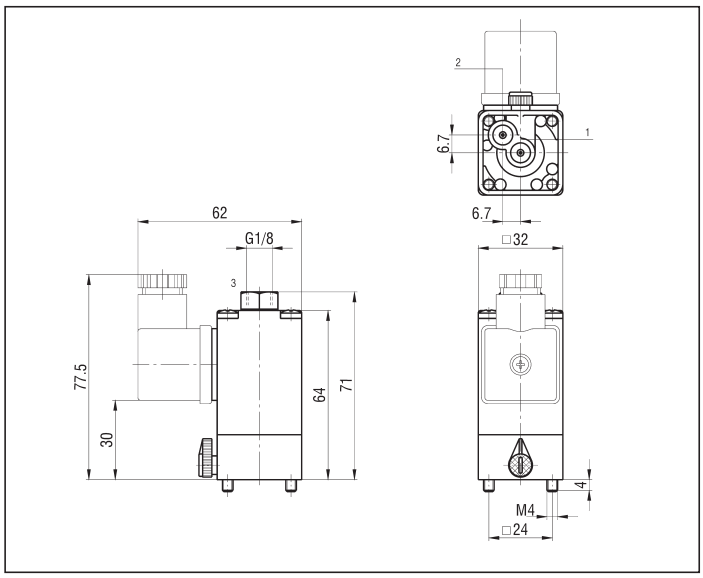
02400 = 24 V DC
02450-60 = 24 V AC
11050-60 = 110 V AC
22050-60 = 220 V AC

P.S. 1: For body valve in zamak add the letter "A" to the type.
E.G.: 3/2 N.C. with manual override, body in zamak ULCSV/RA + voltage.
P.S. 2: For body valve in plastic and universal interface strip change the letter "R" of the type with the letter "U".
E.G.: 3/2 N.C. with manual override, body in plastic ULCSV/U + voltage.

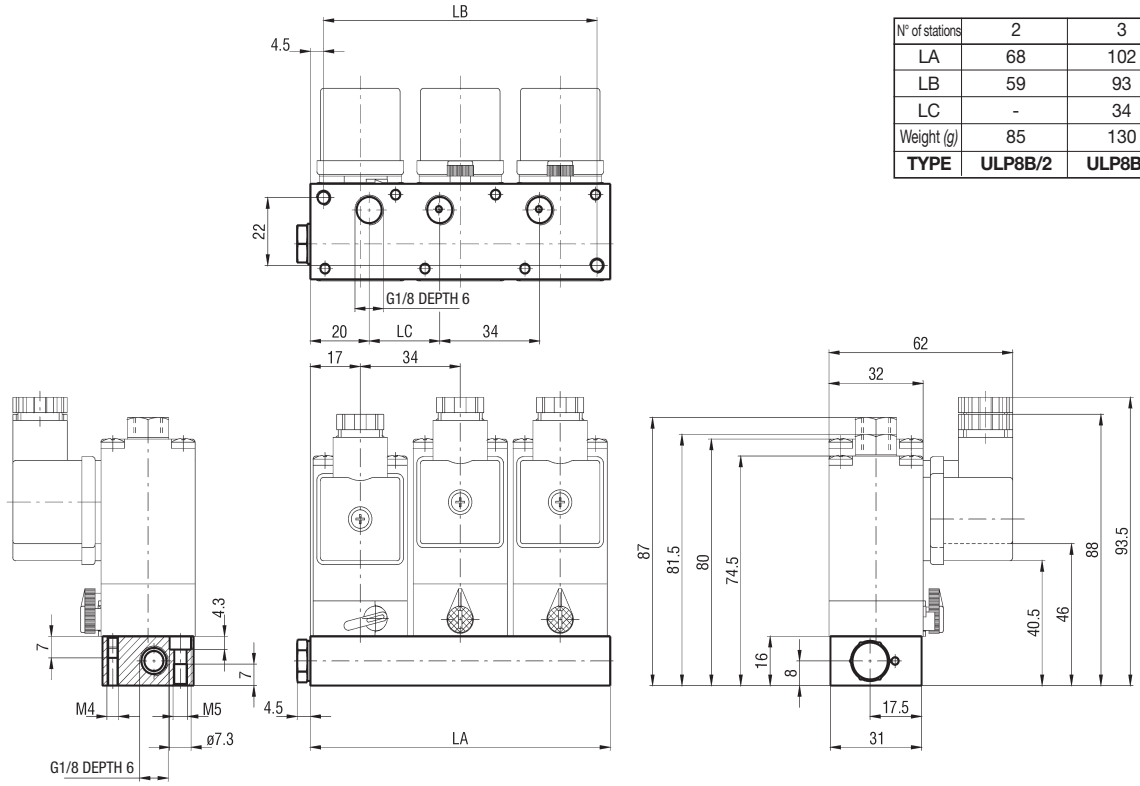
3 PORT WITH PLASTIC INTERFACE STRIP



3 PORT WITH ZAMAK INTERFACE STRIP

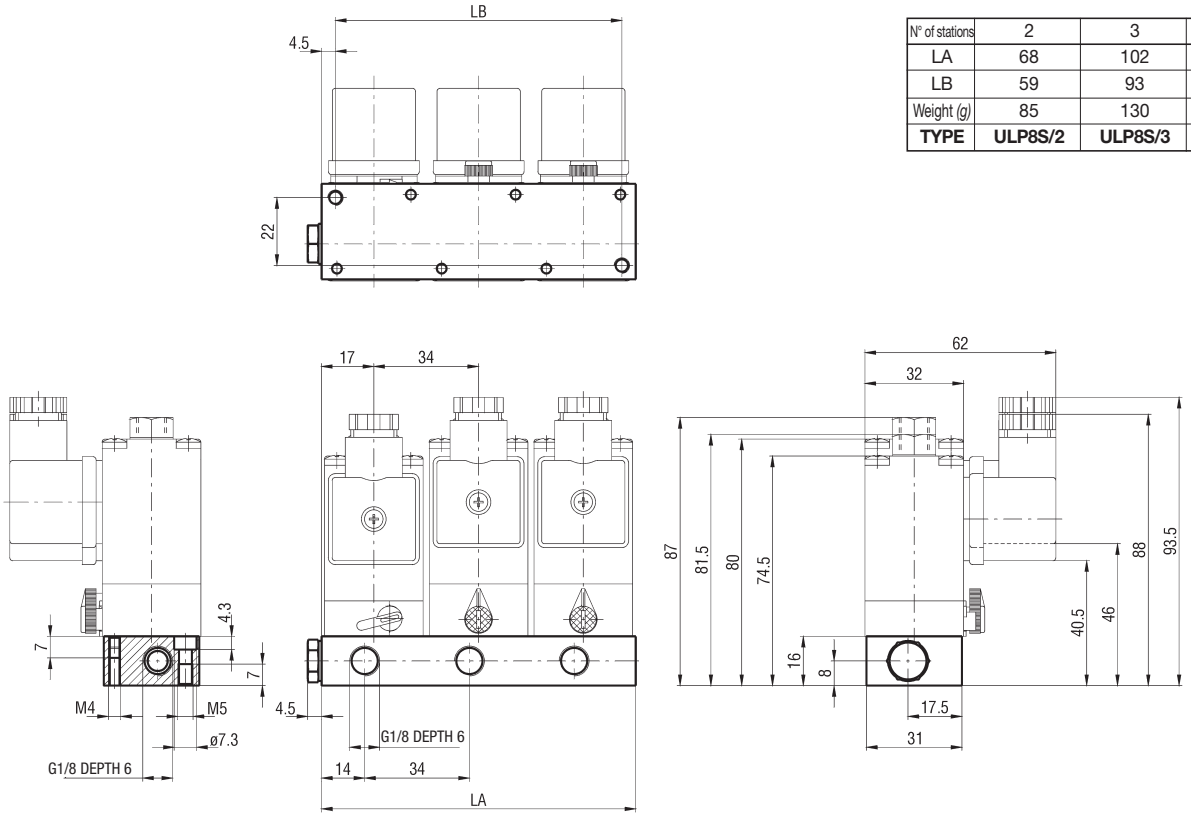


MULTI-STATION BOTTOM PORTED BASE G 1/8 - ULP8B



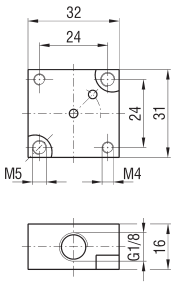
N° of stations	2	3	5
LA	68	102	170
LB	59	93	161
LC	-	34	34
Weight *(g)*	85	130	220
TYPE	**ULP8B/2**	**ULP8B/3**	**ULP8B/5**

MULTI-STATION SIDE PORTED BASE G 1/8 - ULP8S



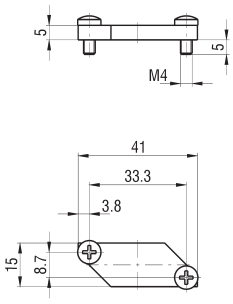
N° of stations	2	3	5
LA	68	102	170
LB	59	93	161
Weight *(g)*	85	130	220
TYPE	**ULP8S/2**	**ULP8S/3**	**ULP8S/5**

SINGLE BASE G 1/8 - XVB



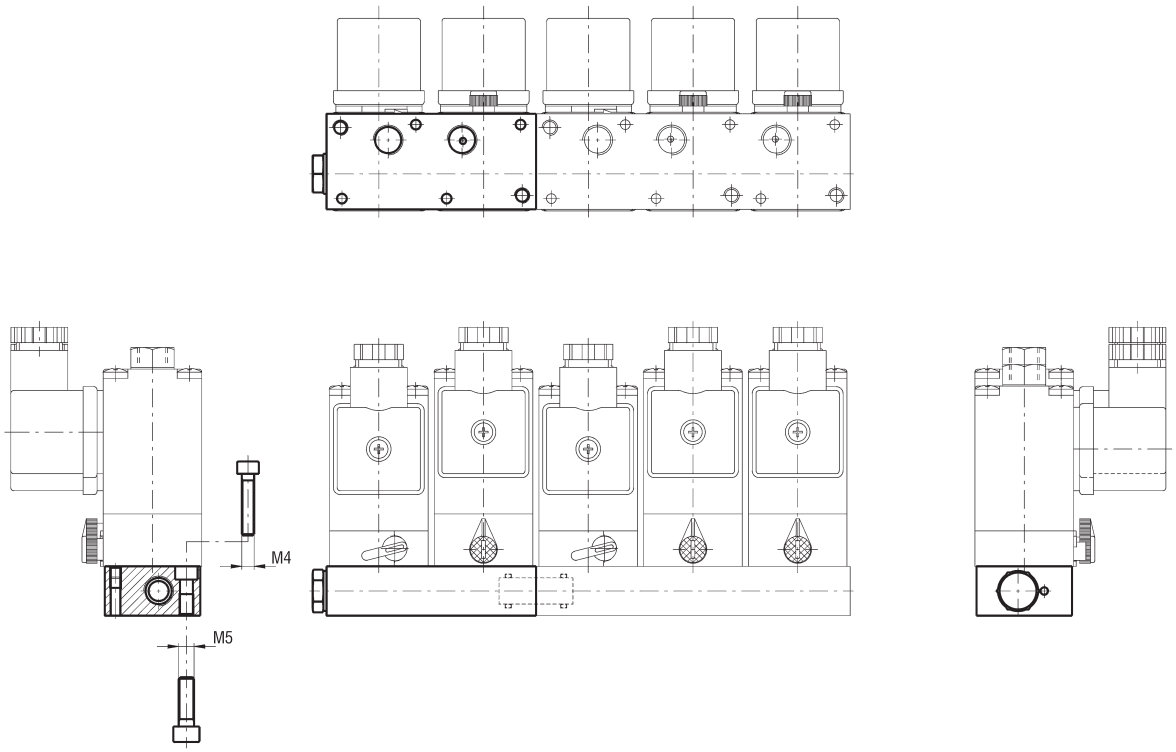
WEIGHT 40 g

BLANKING PLATE - KIT/PC/UL



WEIGHT 10 g

EXAMPLE OF BASES ASSEMBLY



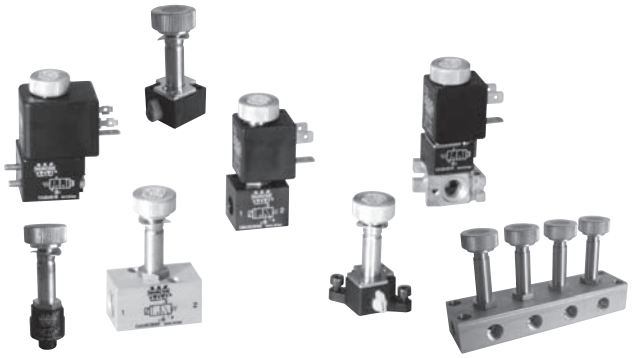
P.S.: The connection nipple is supplied as standard with the multi-station base

Direct acting solenoid valves with sleeve Ø 9 mm

series C/

DESCRIPTION

The direct acting solenoid valves series "C/" are produced in conformity with the Directives EC 89/336, EC 92/31, EC 93/68, EC 73/23 in the 3/2 N.O. and 3/2 N.C. pneumatic functions. Using the same mechanic, it s possible to obtain four standard versions: side 22 mm - body ported, side 22 mm - body with interface, side 30 mm - body with ex CNOMO interface and body with interface for mounting on poppet and ex CETOP (with fixed position and rotatable coil) valves. All the solenoid valves with interface can be mounted on single modular bases. The version side 30 mm with ex CNOMO interface, in the 3/2 N.C. pneumatic function, has two different manual overrides as standard: bistable screwdriver and monostable push button.



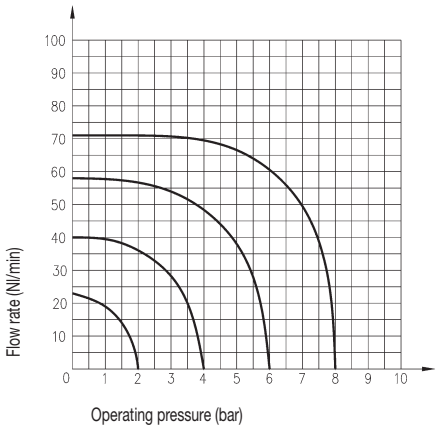
TECHNICAL DATA

Operating pressure	0 ÷ 10 bar N.C. 0 ÷ 8 bar N.O.
Working temperature	0 ÷ +50 °C (-20 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Sleeve	Ø 9 mm
Nominal diameter	1,1 mm
Max. operating frequency	≤13 Hz
Coils	USB - see chapter Coils on page 2.14 USBG - see chapter Coils on page 2.14
Electric connectors	USR102/N9 - see chapter Connectors on page 2.15 ULR1B - see chapter Connectors on page 2.15

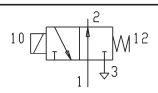
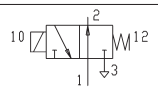
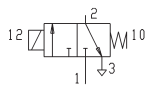
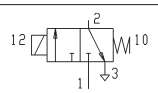
MATERIALS

Core	IMRE
Body ported G 1/8 - G 1/4	Aluminium
Body and manual override	Acetal resin
Springs	Stainless steel
Seals	Viton®

FLOW CHART - C/



3 PORT G 1/8 - G 1/4 SIDE 22 mm

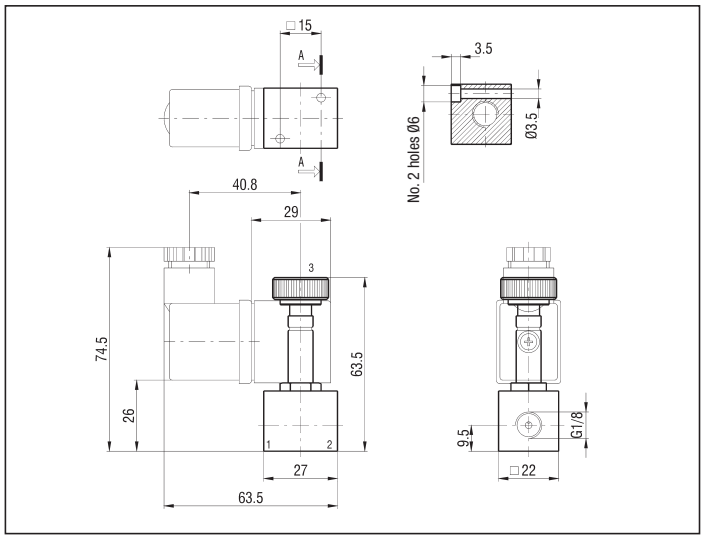
Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Manual override	Size	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized					
	3/2 N.O.	Solenoid	Mechanical spring	10	20	48	G 1/8	-	46	C8/USASGG
	3/2 N.O.	Solenoid	Mechanical spring	10	20	48	G 1/4	-	46	C4/USASGG
	3/2 N.C.	Solenoid	Mechanical spring	10	20	36	G 1/8	-	65	C8/USCSGG
	3/2 N.C.	Solenoid	Mechanical spring	10	20	36	G 1/4	-	80	C4/USCSGG

* THE TYPES OF THE SOLENOID VALVES DO NOT INCLUDE COILS

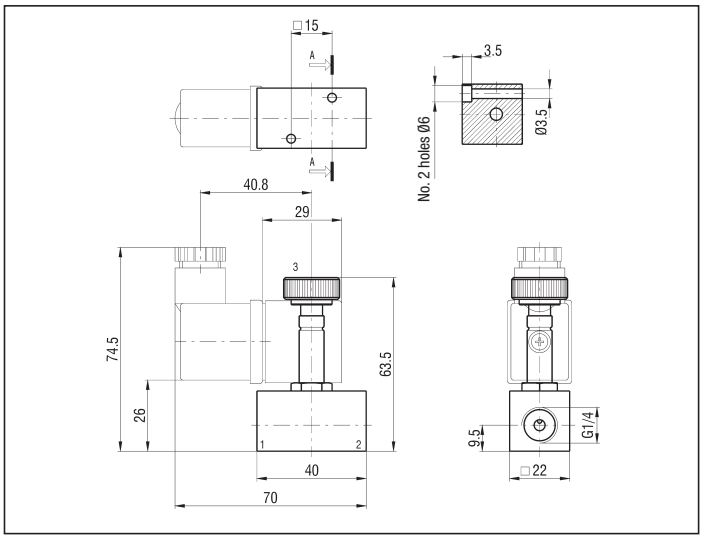
series C/

Direct acting solenoid valves with sleeve Ø 9 mm

3 PORT G 1/8

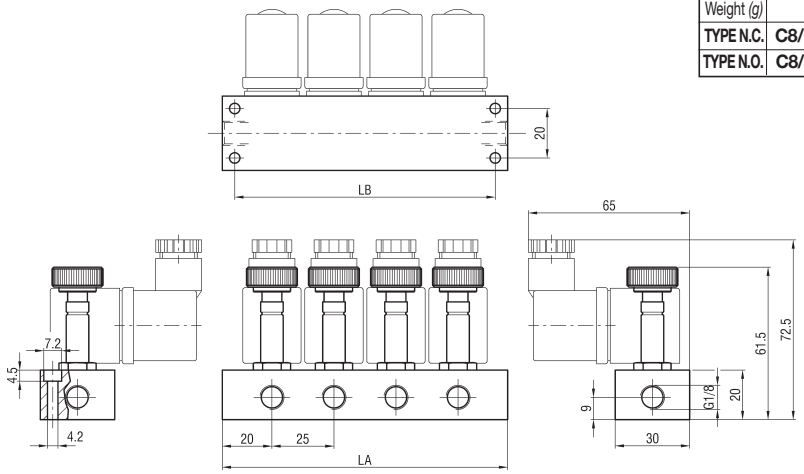


3 PORT G 1/4



MANIFOLD BASE OF SOLENOID VALVES SIDE PORTED G 1/8 N.C. - C8/USCP AND N.O. - C8/USAP

N°of stations	4	6	8
LA	115	165	215
LB	105	155	205
Weight (g)	172	258	344
TYPE N.C.	**C8/USCP/4**	**C8/USCP/6**	**C8/USCP/8**
TYPE N.O.	**C8/USAP/4**	**C8/USAP/6**	**C8/USAP/8**

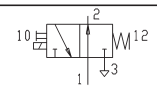
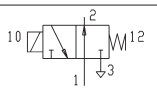
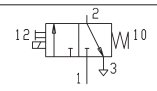
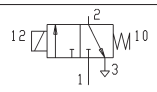


P.S.: MANIFOLD BASES OF SOLENOID VALVES WITH “MIXED” OPERATION (N.O./N.C.) ARE SUPPLIED UPON REQUEST

Direct acting solenoid valves with sleeve Ø 9 mm - bases

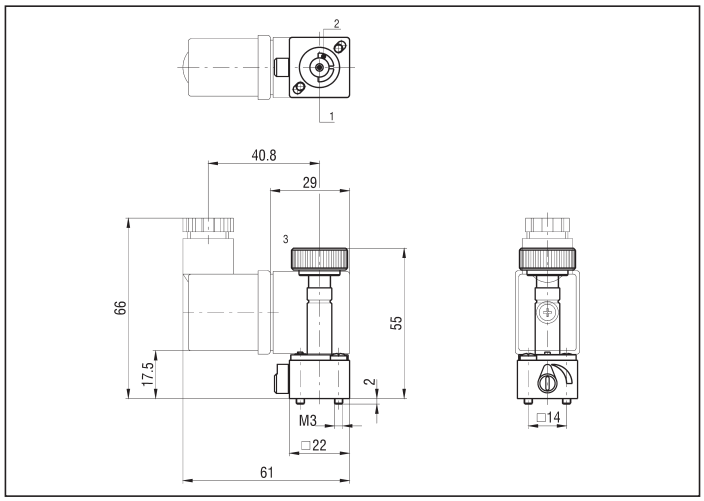
series C/

3 PORT WITH INTERFACE FOR MODULAR BASES AND SPOOL VALVES SIDE 22 mm

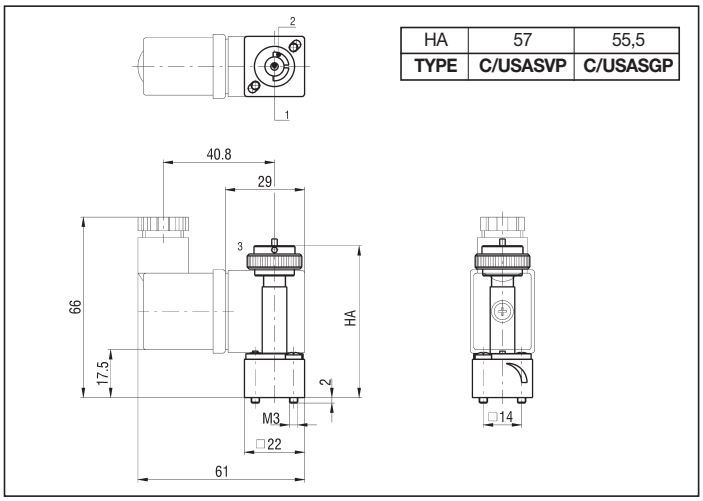
Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Manual override	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized				
	3/2 N.O.	Solenoid	Mechanical spring	10	25	36	Manual monostable	45	C/USASVP
	3/2 N.O.	Solenoid	Mechanical spring	10	25	36	-	30	C/USASGP
	3/2 N.C.	Solenoid	Mechanical spring	10	25	36	Manual monostable	30	C/USCSVP
	3/2 N.C.	Solenoid	Mechanical spring	10	25	36	-	30	C/USCSGP

* THE TYPES OF THE SOLENOID VALVES DO NOT INCLUDE COILS

C/USCSVP

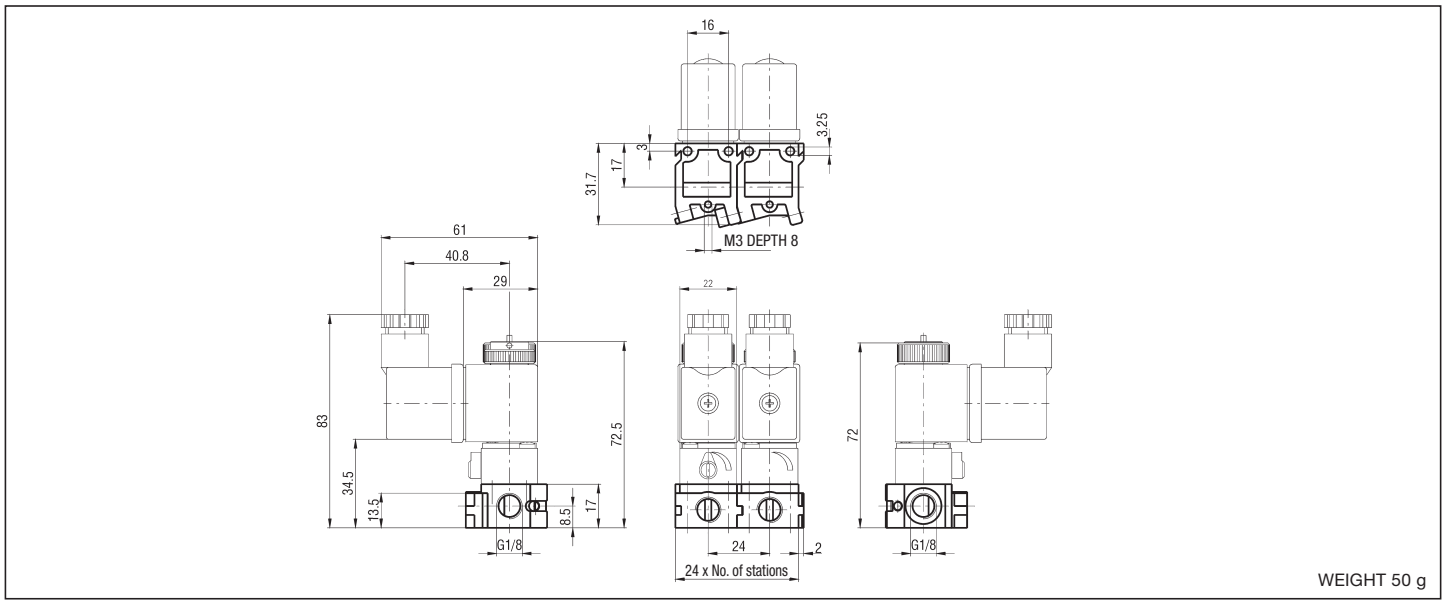


C/USASVP - C/USASGP



HA	57	55,5
TYPE	C/USASVP	C/USASGP

MODULAR BASE SIDE PORTED G 1/8 - ELPP8S



WEIGHT 50 g

HOW TO ORDER A SOLENOID VALVE COMPLETE OF COIL AND BASE

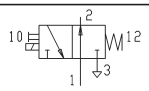
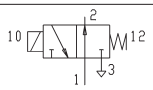
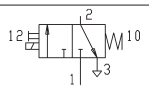
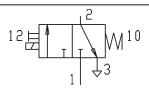
Example: 3/2 N.C. solenoid valve base mounted (with manual override) + coil 24 V D.C. ELPP8S/P/USB/02400

DESCRIPTION	TYPE
3/2 N.O. + base + coil (with manual override)	ELPP8S/PAV/USB/voltage
3/2 N.O. + base + coil (without manual override)	ELPP8S/PAG/USB/voltage
3/2 N.C. + base + coil (with manual override)	ELPP8S/P/USB/voltage

series C/

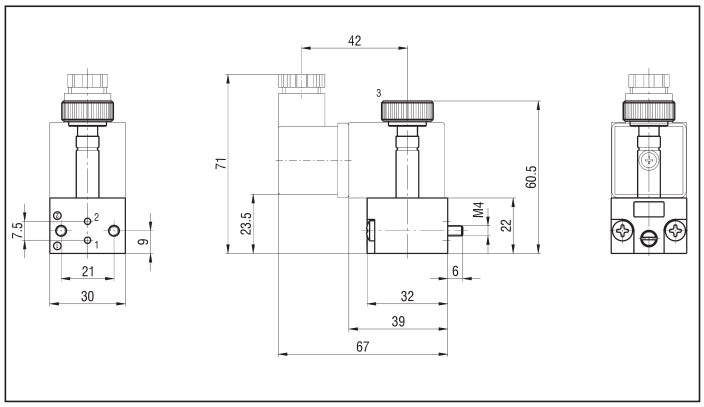
Direct acting solenoid valves with sleeve Ø 9 mm - bases

3 PORT WITH ex CNOMO INTERFACE FOR MODULAR BASES AND VALVES TO ISO 5599/1

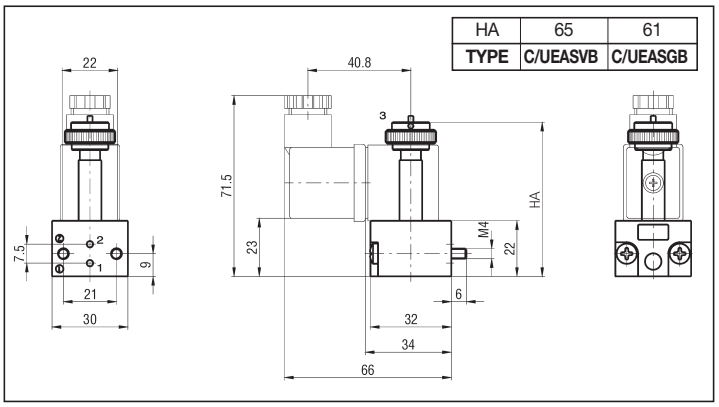
Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Manual override	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized				
	3/2 N.O.	Solenoid	Mechanical spring	13	23	36	Manual monostable	60	C/UEASVB
	3/2 N.O.	Solenoid	Mechanical spring	13	23	36	-	45	C/UEASGB
	3/2 N.C.	Solenoid	Mechanical spring	10	25	36	Bistable screw driver slot	45	C/UECSVB
	3/2 N.C.	Solenoid	Mechanical spring	10	25	36	Monostable push button	45	C/UECSPB

* THE TYPES OF THE SOLENOID VALVES DO NOT INCLUDE COILS

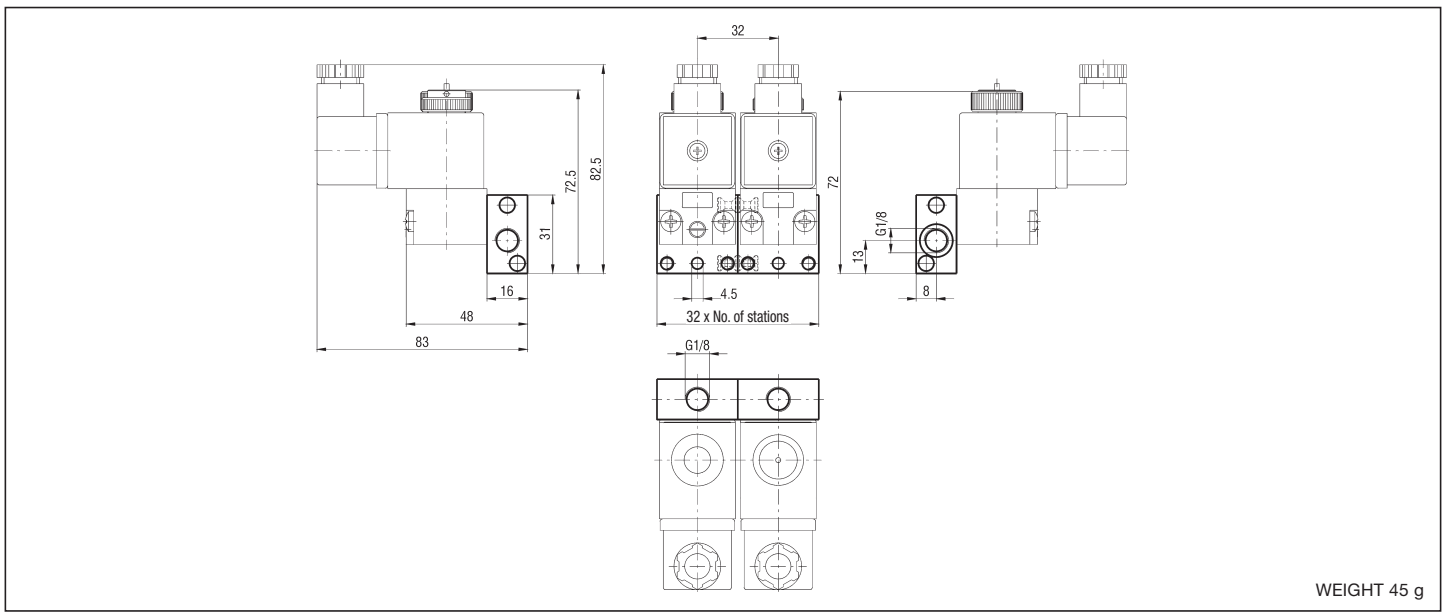
C/UECSVB - C/UECSPB



C/UEASVB - C/UEASGB



ex CNOMO MODULAR BASE SIDE PORTED G 1/8 - ELPG8S



WEIGHT 45 g

HOW TO ORDER A SOLENOID VALVE COMPLETE OF COIL AND BASE

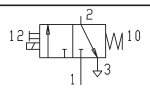
DESCRIPTION	TYPE
3/2 N.O. + base + coil (with manual override)	ELPG8S/BAV/USBG/voltage
3/2 N.O. + base + coil (without manual override)	ELPG8S/BAG/USBG/voltage
3/2 N.C. + base + coil (with manual override)	ELPG8S/B/USBG/voltage
3/2 N.C. + base + coil (with push button manual override)	ELPG8S/BP/USBG/voltage

Example: 3/2 N.O. solenoid valve base mounted (with manual override) + coil 24 V D.C. ELPG8S/BAV/USBG/02400

Direct acting solenoid valves with sleeve Ø 9 mm

series C/

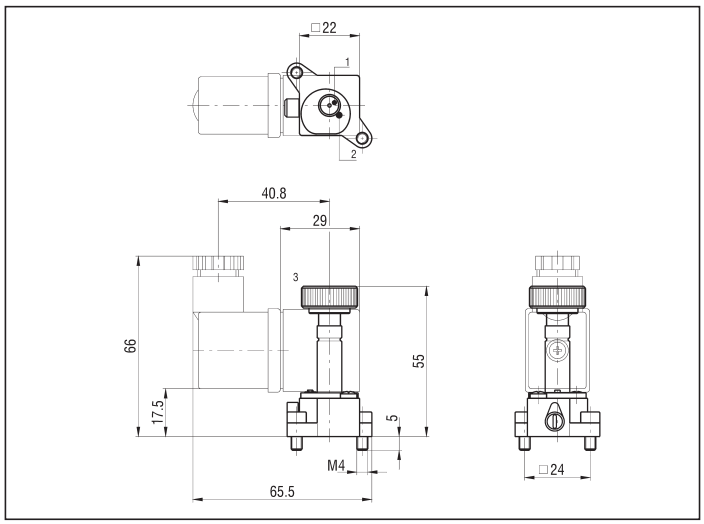
3 PORT WITH INTERFACE FOR POPPET AND ex CETOP (WITH FIXED POSITION AND ROTATABLE COIL) VALVES

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Manual override	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized				
	3/2 N.C.	Solenoid	Mechanical spring	10	25	36	Manual bistable	30	C/USCSVG

* THE TYPES OF THE SOLENOID VALVES DO NOT INCLUDE COILS

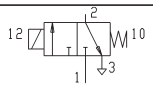
2

C/USCSVG



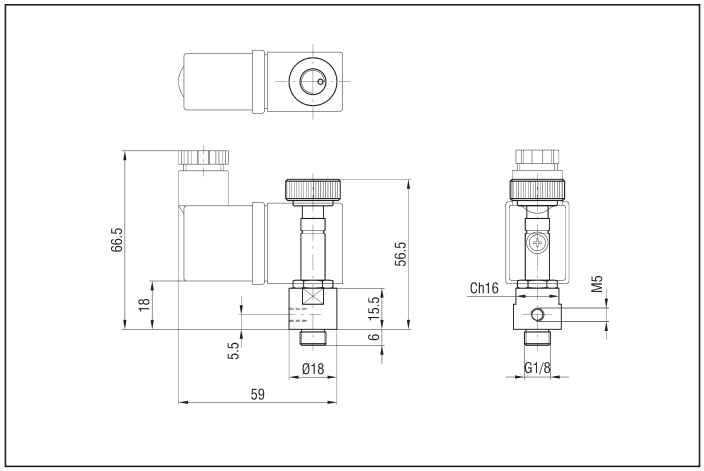
3 PORT BODY PORTED G 1/8 FOR DIRECT MOUNTING

This solenoid valve has been specifically designed to pilot single acting small cylinders and pneumatic valves. The input connection is M5 while the output has a male thread G1/8 that allows the direct assembling of the solenoid valve on the component.

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Manual override	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized				
	3/2 N.C.	Solenoid	Mechanical spring	10	20	36	-	46	C/ELP8M

* THE TYPES OF THE SOLENOID VALVES DO NOT INCLUDE COILS

C/ELP8M



series USB

Coils for solenoid valves side 22 mm with sleeve Ø 9 mm

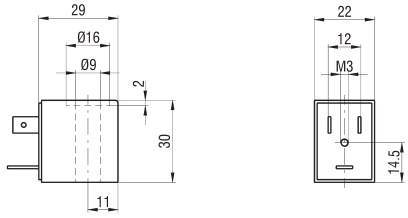
TECHNICAL DATA

Voltages	DC: 24 V AC: 24 V - 110 V - 220 V
Working temperature	-30 ÷ +40 °C basic version -30 ÷ +70 °C low absorption version
Power consumption	Basic version DC: 5 W AC : 11 VA (inrush) Low absorption version DC: 2,5 W AC: 5,6 VA (inrush)
Standard frequencies AC	50 - 60 Hz
Voltage tolerance	± 10% of rated voltage
Coil insulation class	F
Solenoid rating	100% ED
Electrical connection	Fit for connector to DIN 46244 standard See chapter Connectors series USR on page 2.15
Protection class with connector	IP 65

MATERIALS

Body	Glass stiffened polyamide
Coil winding	Copper wire

USB



WEIGHT 50 g

DESCRIPTION	TYPE
Coil 22 mm 24 V DC	USB/02400
Coil 22 mm 24 V AC	USB/02450-60
Coil 22 mm 110 V AC	USB/11050-60
Coil 22 mm 220 V AC	USB/22050-60
Coil 22 mm 24 V DC - low absorption	USB-BA/02400
Coil 22 mm 24 V AC - low absorption	USB-BA/02450-60
Coil 22 mm 110 V AC - low absorption	USB-BA/11050-60
Coil 22 mm 220 V AC - low absorption	USB-BA/22050-60
OTHER VOLTAGES	USB/...

series USBG

Coils for solenoid valves side 30 mm with sleeve Ø 9 mm to ex CNOMO standards

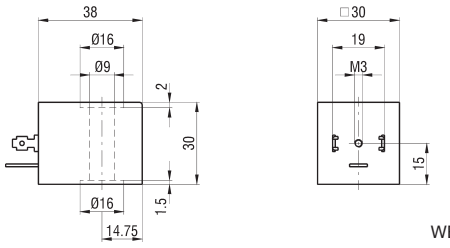
TECHNICAL DATA

Voltages	DC: 24 V AC: 24 V - 110 V - 220 V
Working temperature	-30 ÷ +40 °C basic version -30 ÷ +70 °C low absorption version
Power consumption	Basic version DC: 5 W AC : 11 VA (inrush) Low absorption version DC: 2,5 W AC: 5,6 VA (inrush)
Standard frequencies AC	50 - 60 Hz
Voltage tolerance	± 10% of rated voltage
Coil insulation class	H
Solenoid rating	100% ED
Electrical connection	Fit for connector to DIN 43650 standard, shape "A" See chapter Connectors series ULR on page 2.13
Protection class with connector	IP 65

MATERIALS

Body	Glass stiffened polyamide
Coil winding	Copper wire

USBG



WEIGHT 105 g

DESCRIPTION	TYPE
Coil 30 mm 24 V DC	USBG/02400
Coil 30 mm 24 V AC	USBG/02450-60
Coil 30 mm 110 V AC	USBG/11050-60
Coil 30 mm 220 V AC	USBG/22050-60
Coil 30 mm 24 V DC - low absorption	USBG-BA/02400
Coil 30 mm 24 V AC - low absorption	USBG-BA/02450-60
Coil 30 mm 110 V AC - low absorption	USBG-BA/11050-60
Coil 30 mm 220 V AC - low absorption	USBG-BA/22050-60
OTHER VOLTAGES	USBG/...

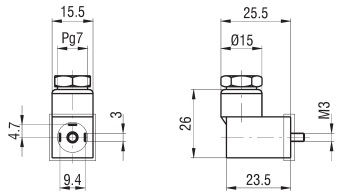
Connectors for solenoid valves side 15 mm series UM

series MEK192/N

TECHNICAL DATA

Voltages	DC: MAX. 300 V AC: MAX. 250 V
Working temperature	-40 ÷ + 90 °C
Versions	Basic With indicator light (LED) With indicator light (LED) and varistat (VDR) as electrical protection
Number of pins	2 + earthed
Nominal current	6 A
Maximum current	10 A
Contacts resistance	≤ 4 mOhm
Protection class	IP 65 EN 60529
Connector insulation class	IEC 664 / VDE 0110-1/89

MEK192/N



WEIGHT 10 g

DESCRIPTION	TYPE
Basic connector	MEK192/N
Connector with led + VDR as protection 24 V DC/AC	MEK192/NVD 24V CC/CA
Connector with led + VDR as protection 110 V DC/AC	MEK192/NVD 110V CC/CA
Connector with led + VDR as protection 220 V DC/AC	MEK192/NVD 220V CC/CA
Connector with led 24 V DC/AC	MEK192/NLED 24V CC/CA
Connector with led 110/220 V DC/AC	MEK192/NLED 110/220V CC/CA

2

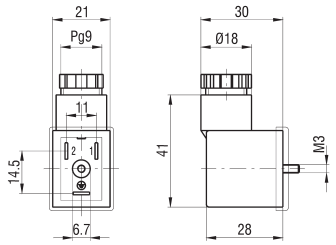
Connectors DIN 46244 for coils side 22 mm series USB and series WE (3A)

series USR102/N9

TECHNICAL DATA

Voltages	DC: MAX. 300 V AC: MAX. 250 V
Working temperature	-40 ÷ +90 °C
Versions	Basic With indicator light (LED) With indicator light (LED) and varistat (VDR) as electrical protection
Number of pins	2 + earthed
Nominal current	10 A
Maximum current	16 A
Contacts resistance	≤ 4 mOhm
Protection class	IP 65 EN 60529
Connector insulation class	IEC 664 / VDE 0110-1/89

USR102/N9



WEIGHT 20 g

DESCRIPTION	TYPE
Basic connector	USR102/N9
Connector with led + VDR as protection 24 V DC/AC	USR102/N9VD 24 V CC/CA
Connector with led + VDR as protection 110 V DC/AC	USR102/N9VD 110 V CC/CA
Connector with led + VDR as protection 220 V DC/AC	USR102/N9VD 220 V CC/CA
Connector with led 24 V DC/AC	USR102/N9LED 24 V CC/CA
Connector with led 110/220 V DC/AC	USR102/N9LED 110/220 V CC/CA

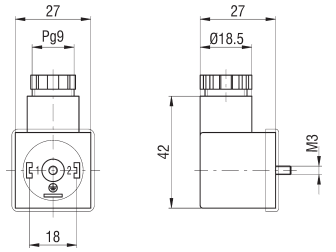
Connectors DIN 43650 - form "A" for solenoid valves side 30 mm series UL and coils series USBG and series WE (2A, 5A)

series ULR1B

TECHNICAL DATA

Voltages	DC: MAX. 300V AC: MAX. 250V
Working temperature	-40 ÷ + 90 °C
Versions	Basic With indicator light (LED) With indicator light (LED) and varistat (VDR) as electrical protection
Number of pins	2 + earthed
Nominal current	6 A
Maximum current	10 A
Contacts resistance	≤ 4 mOhm
Protection class	IP 65 EN 60529
Connector insulation class	IEC 664 / VDE 0110-1/89

ULR1B



WEIGHT 25 g

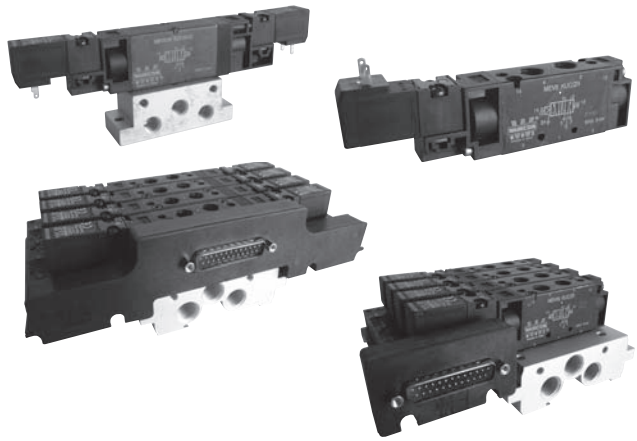
DESCRIPTION	TYPE
Basic connector	ULR1B
Connector with led + VDR as protection 24 V DC/AC	ULR1B/VD 24 V CC/CA
Connector with led + VDR as protection 110 V DC/AC	ULR1B/VD 110 V CC/CA
Connector with led + VDR as protection 220 V DC/AC	ULR1B/VD 220 V CC/CA
Connector with led 24 V DC/AC	ULR1B/LED 24 V CC/CA
Connector with led 110/220 V DC/AC	ULR1B/LED 110/220 V CC/CA

series MEV

Spool compact valves pilot and solenoid actuated G 1/8 and to VDMA 24563 standards size 02

DESCRIPTION

Valves series "MEV" have been designed to satisfy the need of integration between pneumatics and electronics. Their main feature is the possibility to offer valve islands complete with the electrical connection. This series, realized in the 5/2 and 5/3 pneumatic functions, is composed of two types of valves:
“MEV 8”, body ported G 1/8, prearranged for both single use and for mounting on multiple base with fixed stations;
“MEV 18” (size 02), to VDMA 24563 (UNI 10528) standards, prearranged for mounting on both single and manifold bases.
Both the multiple bases (that convey the exhausts port of the solenoid actuated electropilots) and the manifold ones are fit for mounting onto rails according to DIN 46277/3. For the 24 V AC/DC solenoid actuated valves with coils toward the bottom (versions “MEVX”), are available modules with two or four stations to carry out a multi-pin connection through a 25-pin plug with protection class “IP 65” (see technical information on page 0.4).



TECHNICAL DATA

Operating pressure	Monostable 1,8 ÷ 8 bar Bistable 1 ÷ 8 bar
Working temperature	0 ÷ +60 °C (-10 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Port size	G 1/8 Size 02 = Interface to VDMA 24563 standard
Pneumatic piloting port size	G 1/8 = M5 Size 02 = Interface to VDMA 24563 standard
Nominal diameter	5 mm
Piloting solenoid valve	UMCSV - see chapter Direct acting solenoid valves page 2.3
Electric connectors	MEK 192/N - see chapter Connectors on page 2.15 See Multi-pin connection on page 2.28

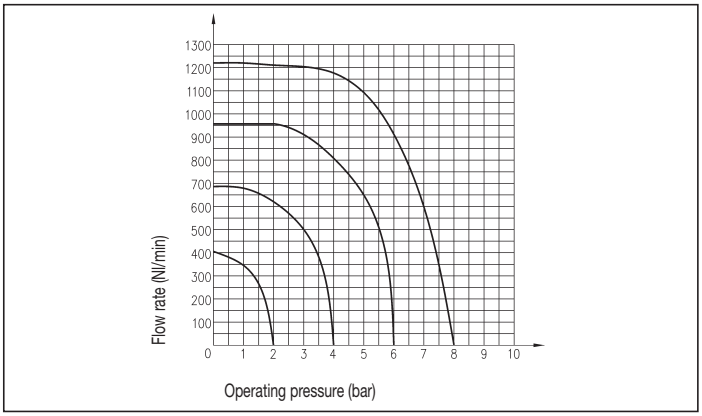
MATERIALS

Bottoms	Plastic
Body	Anodized aluminium alloy treated with PTFE
Springs	Stainless steel
Seals	NBR rubber
Spool	Anodized aluminium alloy
Piston	Anodized aluminium alloy

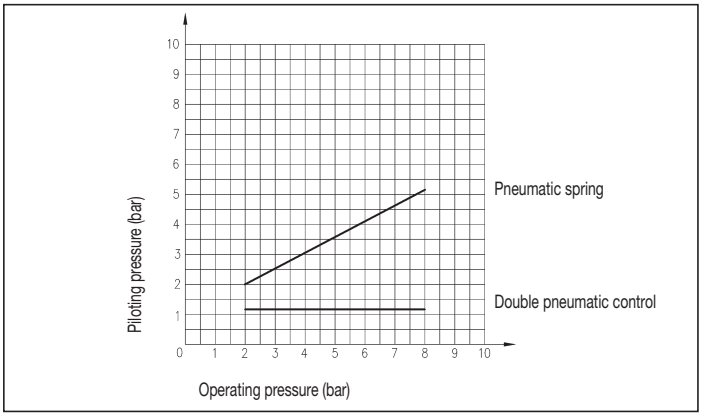
SPARE PARTS

SEALS KIT	
5/2 monostable and bistable	MEV/SG
5/3 closed centre	MEV/CC/SG
5/3 open centre	MEV/CA/SG
5/3 pressure centre	MEV/CP/SG

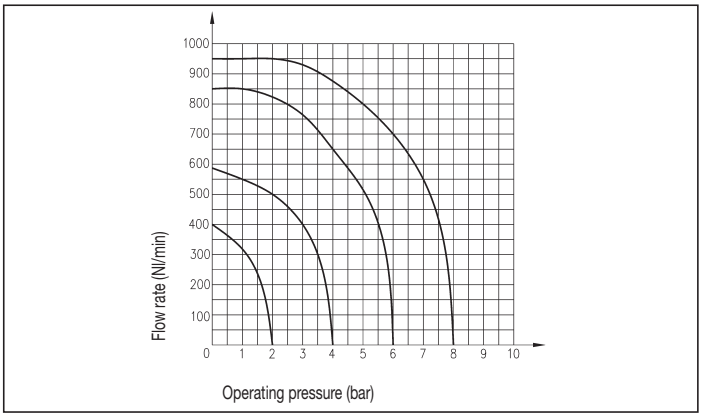
FLOW CHART - MEV/8



PILOTING CHART - MEV/8 - MEV/18



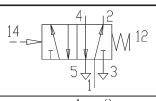
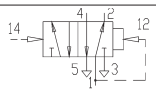
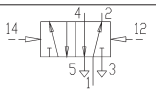
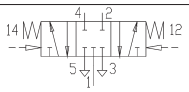
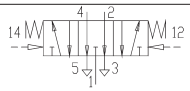
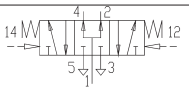
FLOW CHART - MEV/18



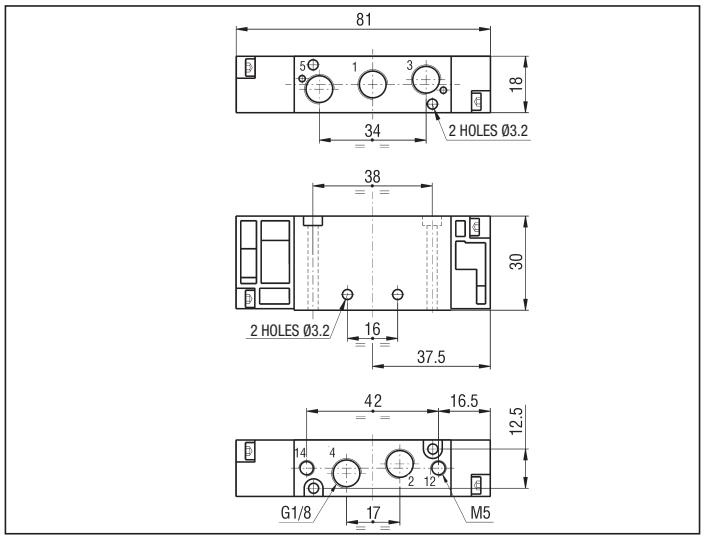
G 1/8 - 5 PORT

series MEV

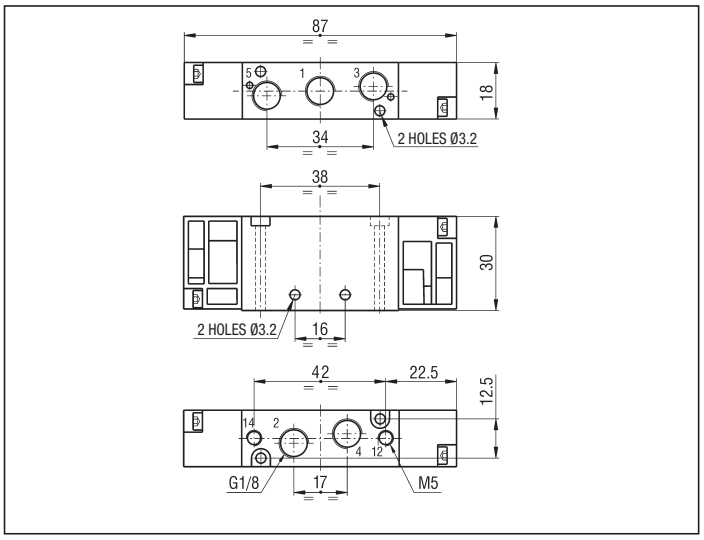
PILOT ACTUATED VALVES G 1/8 - MEV 8

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE
		Pilot	Return	Energized	De-energized			
	5/2 monostable	Solenoid	Mechanical spring	10	10	650	100	MEV8 KR/ZR
		Solenoid	Pneumatic spring	12	20	650	100	MEV8 KR/TQ
	5/2 bistable	Solenoid	Pneumatic spring	10	10	650	100	MEV8 KR/KR
	5/3 closed center	Solenoid	Mechanical spring	10	10	510	100	MEV8 SR/SR
	5/3 open center	Solenoid	Mechanical spring	10	10	510	100	MEV8 AR/AR
	5/3 pressure center	Solenoid	Mechanical spring	10	10	650	100	MEV8 PR/PR

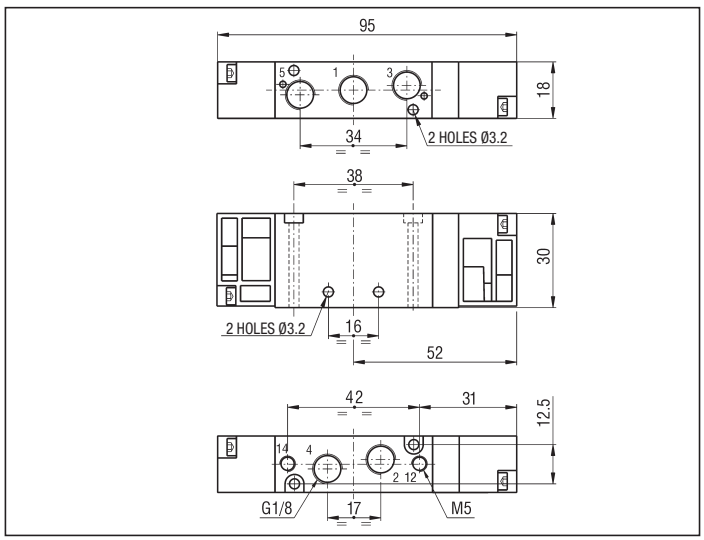
5 PORT - MONOSTABLE



5 PORT - BISTABLE



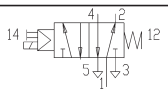
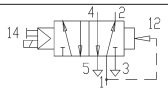
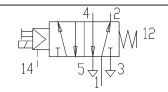
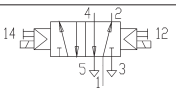
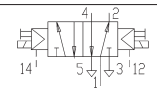
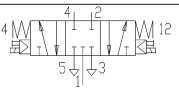
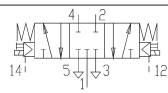
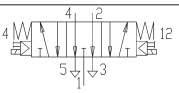
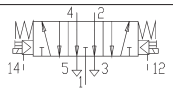
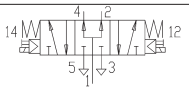
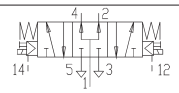
5 PORT - 3 POSITIONS



series MEV

G 1/8 - 5 PORT

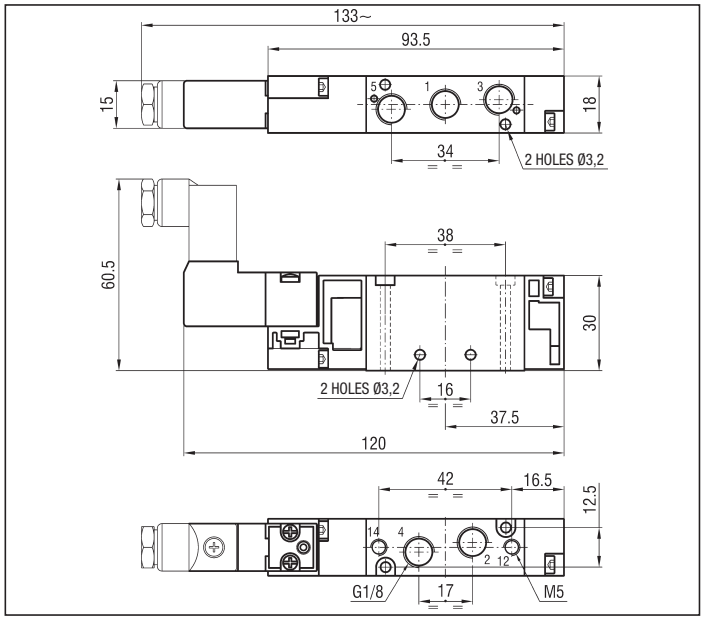
SOLENOID ACTUATED VALVES G 1/8 - MEV 8

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized			
	5/2 monostable	Solenoid	Mechanical spring	10	30	650	130	MEV8 KUC/ZR
		Solenoid	Pneumatic spring	10	20			MEV8 KUC/TQ
		Solenoid pilot assisted	Mechanical spring	10	30			MEV8 KUR/ZR
	5/2 bistable	Solenoid	Solenoid	10	10	650	160	MEV8 KUC/KUC
		Solenoid pilot assisted	Solenoid pilot assisted					MEV8 KUR/KUR
	5/3 closed centre	Solenoid	Mechanical spring	10	25	510	160	MEV8 SUC/SUC
		Solenoid pilot assisted	Mechanical spring					MEV8 SUR/SUR
	5/3 open centre	Solenoid	Mechanical spring	10	25	510	160	MEV8 AUC/AUC
		Solenoid pilot assisted	Mechanical spring					MEV8 AUR/AUR
	5/3 pressure centre	Solenoid	Mechanical spring	10	25	650	160	MEV8 PUC/PUC
		Solenoid pilot assisted	Mechanical spring					MEV8 PUR/PUR

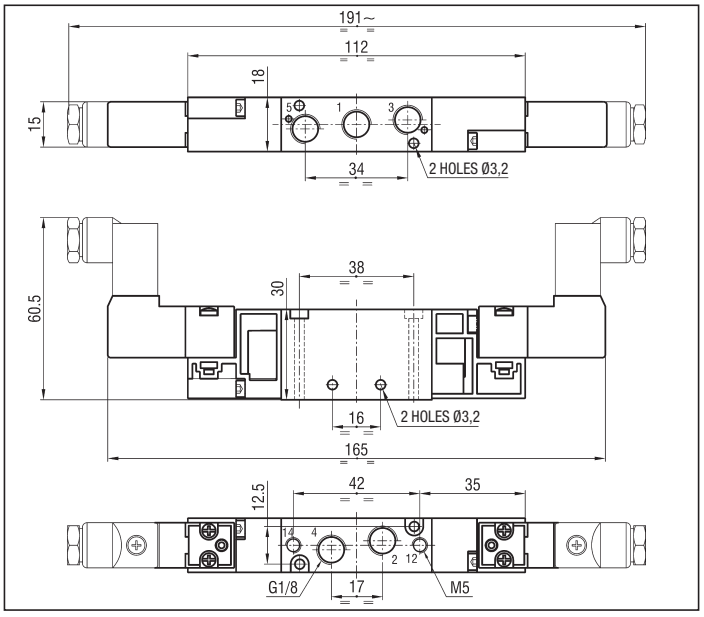
* SPECIFY THE VOLTAGE IN THE ORDER - E.G.: MEV8 KUC/ZR 02400
TYPES OF THE SOLENOID VALVES INCLUDE THE PILOTING SOLENOID VALVES “UMCSV” - SEE ON PAGE 2.3)

02400 = 24 V DC
02450-60 = 24 V AC
11050-60 = 110 V AC
22050-60 = 220 V AC

5 PORT - MONOSTABLE



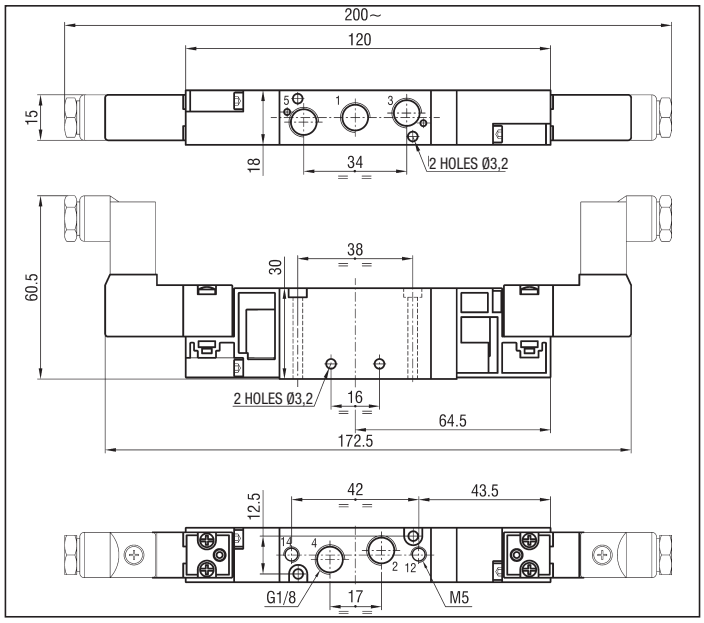
5 PORT - BISTABLE



G 1/8 - 5 PORT

series MEV

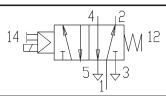
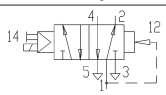
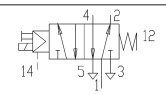
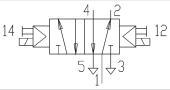
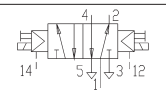
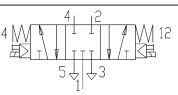
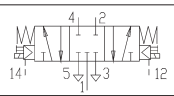
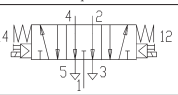
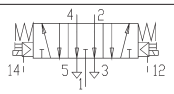
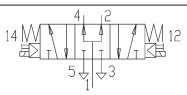
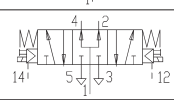
5 PORT - 3 POSITIONS



series MEV

G 1/8 - 5 PORT

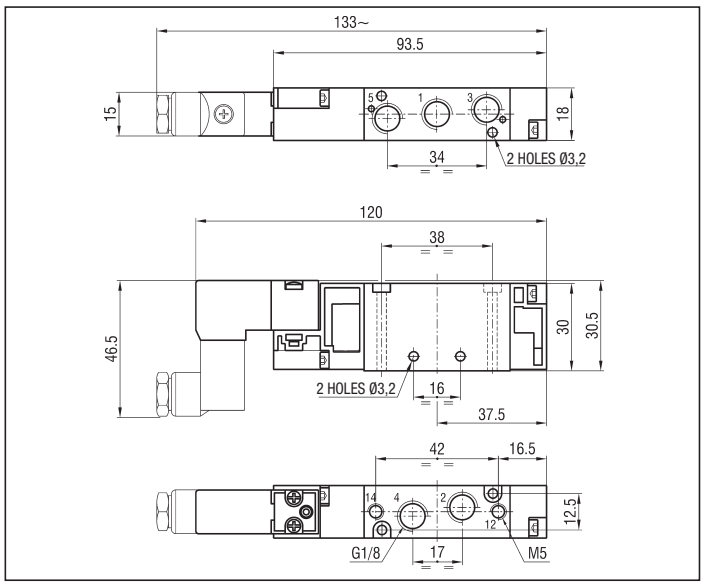
SOLENOID ACTUATED VALVES WITH COILS TOWARD THE BOTTOM G 1/8 - MEVX 8
SUITABLE FOR SINGLE USE OR MULTI-PIN PLUG CONNECTOR

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight *(g)*	TYPE*
		Pilot	Return	Energized	De-energized			
	5/2 monostable	Solenoid	Mechanical spring	10	30	650	130	MEVX8 KUC/ZR
		Solenoid	Pneumatic spring	10	20			MEVX8 KUC/TQ
		Solenoid pilot assisted	Mechanical spring	10	30			MEVX8 KUR/ZR
	5/2 bistable	Solenoid	Solenoid	10	10	650	175	MEVX8 KUC/KUC
		Solenoid pilot assisted	Solenoid pilot assisted					MEVX8 KUR/KUR
	5/3 closed centre	Solenoid	Mechanical spring	10	25	510	175	MEVX8 SUC/SUC
		Solenoid pilot assisted	Mechanical spring					MEVX8 SUR/SUR
	5/3 open centre	Solenoid	Mechanical spring	10	25	510	175	MEVX8 AUC/AUC
		Solenoid pilot assisted	Mechanical spring					MEVX8 AUR/AUR
	5/3 pressure centre	Solenoid	Mechanical spring	10	25	650	175	MEVX8 PUC/PUC
		Solenoid pilot assisted	Mechanical spring					MEVX8 PUR/PUR

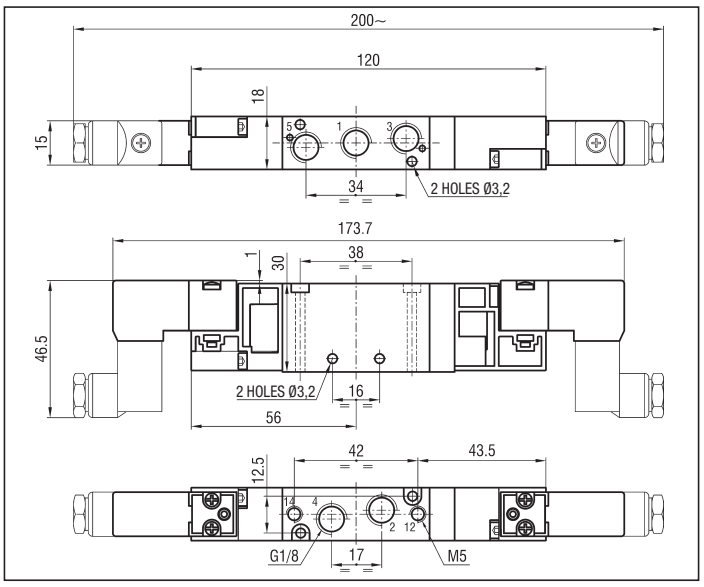
* SPECIFY THE VOLTAGE IN THE ORDER - E.G.: MEVX8 KUC/ZR 02400
(TYPES OF THE SOLENOID VALVES INCLUDE THE PILOTING SOLENOID VALVES “UMCSV” - SEE ON PAGE 2.3)

02400 = 24 V DC
02450-60 = 24 V AC

5 PORT - MONOSTABLE



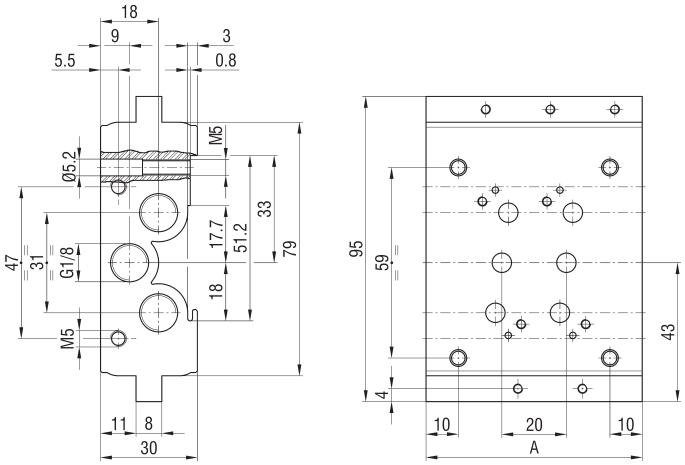
5 PORT - BISTABLE AND 5 PORT - 3 POSITIONS



Accessories
Bases G 1/8

series MEV

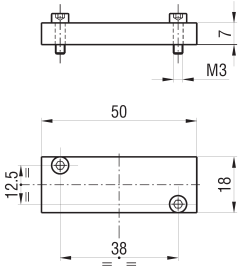
BASE FOR MANIFOLD MOUNTING OF VALVES G 1/8 - KB/MEV8 - Fit for mounting onto DIN 46277/3 rail



No. of stations	2	3	4	5	6	8	10	12	14	16	18	20
A	67	87	107	127	147	187	227	267	307	347	387	427
Weight *(g)*	324	421	518	615	712	905	1098	1292	1486	1680	1873	2067
TYPE*	**KB/MEV8/2**	**KB/MEV8/3**	**KB/MEV8/4**	**KB/MEV8/5**	**KB/MEV8/6**	**KB/MEV8/8**	**KB/MEV8/10**	**KB/MEV8/12**	**KB/MEV8/14**	**KB/MEV8/16**	**KB/MEV8/18**	**KB/MEV8/20**

* BASES ARE SUPPLIED COMPLETE WITH SCREWS AND SEALS

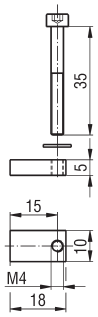
BLANKING PLATE - MEV8/PC



WEIGHT 20 g

BLANKING PLATE IS SUPPLIED COMPLETE WITH SCREWS AND SEALS

FIXING PLATE FOR DIN 46277/3 RAIL - MEV8/PF



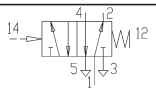
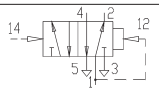
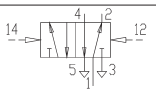
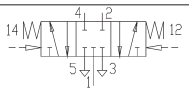
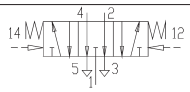
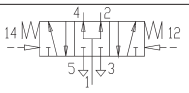
WEIGHT 7 g

FIXING PLATE IS SUPPLIED COMPLETE WITH SCREWS

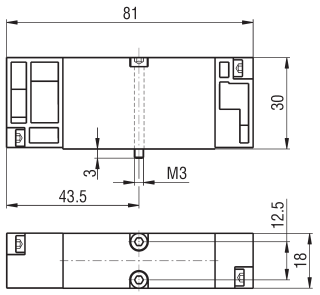
series MEV

Size 02

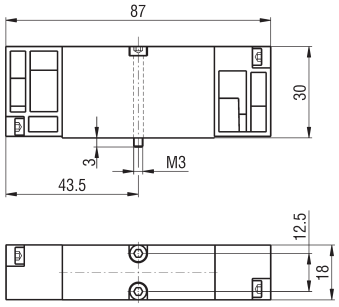
PILOT ACTUATED VALVES TO VDMA 24563 STANDARD SIZE 02 - MEV 18

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE
		Pilot	Return	Energized	De-energized			
	5/2 monostable	Pneumatic	Mechanical spring	12	50	510	100	MEV18 KR/ZR
		Pneumatic	Mechanical spring	20	35	510	100	MEV18 KR/TQ
	5/2 bistable	Pneumatic	Pneumatic	12	12	510	100	MEV18 KR/KR
	5/3 closed centre	Pneumatic	Mechanical spring	15	15	420	100	MEV18 SR/SR
	5/3 open centre	Pneumatic	Mechanical spring	15	15	420	100	MEV18 AR/AR
	5/3 pressure centre	Pneumatic	Mechanical spring	15	15	500	100	MEV18 PR/PR

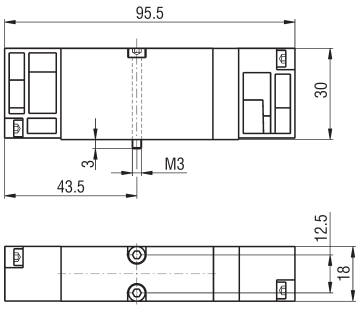
5 PORT - MONOSTABLE



5 PORT - BISTABLE



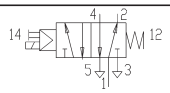
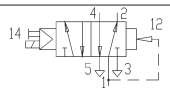
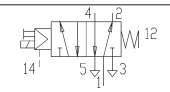
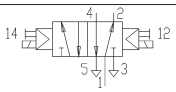
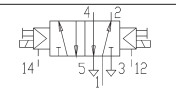
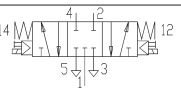
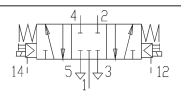
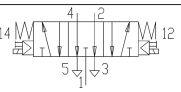
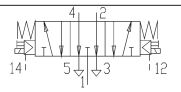
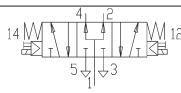
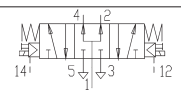
5 PORT - 3 POSITIONS



Size 02

series MEV

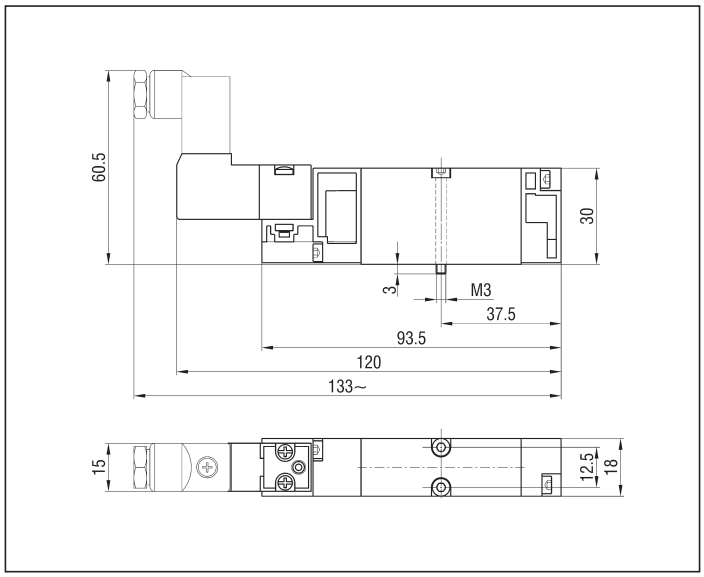
SOLENOID ACTUATED VALVES TO VDMA 24563 STANDARD SIZE 02 - MEV 18

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight *(g)*	TYPE*
		Pilot	Return	Energized	De-energized			
	5/2 monostable	Solenoid	Mechanical spring	10	50	510	130	MEV18 KUC/ZR
		Solenoid	Pneumatic spring	12	35			MEV18 KUC/TQ
		Solenoid pilot assisted	Mechanical spring	10	50			MEV18 KUR/ZR
	5/2 bistable	Solenoid	Solenoid	10	10	510	160	MEV18 KUC/KUC
		Solenoid pilot assisted	Solenoid pilot assisted					MEV18 KUR/KUR
	5/3 closed centre	Solenoid	Mechanical spring	10	30	420	160	MEV18 SUC/SUC
		Solenoid pilot assisted	Mechanical spring					MEV18 SUR/SUR
	5/3 open centre	Solenoid	Mechanical spring	10	30	420	160	MEV18 AUC/AUC
		Solenoid pilot assisted	Mechanical spring					MEV18 AUR/AUR
	5/3 pressure centre	Solenoid	Mechanical spring	10	30	500	160	MEV18 PUC/PUC
		Solenoid pilot assisted	Mechanical spring					MEV18 PUR/PUR

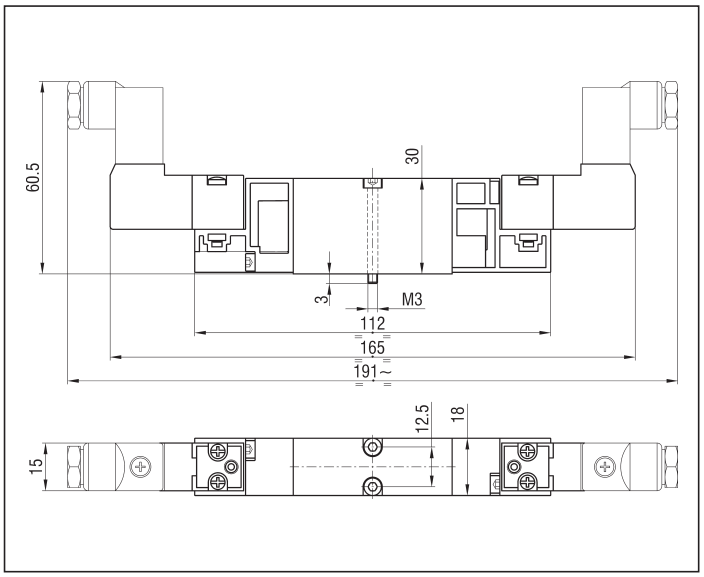
* SPECIFY THE VOLTAGE IN THE ORDER - E.G.: MEV18 KUC/ZR 02400
(TYPES OF THE SOLENOID VALVES INCLUDE THE PILOTING SOLENOID VALVES "UMCSV" – SEE ON PAGE 2.3)

02400 = 24 V DC
02450-60 = 24 V AC
11050-60 = 110 V AC
22050-60 = 220 V AC

5 PORT - MONOSTABLE



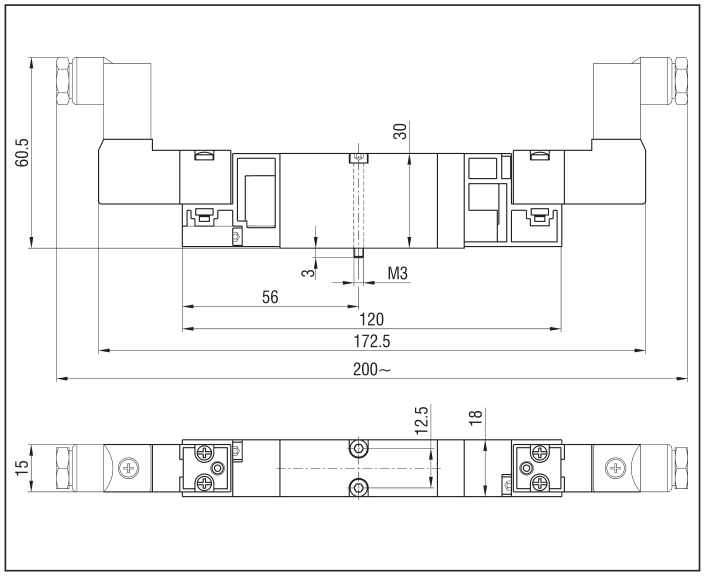
5 PORT - BISTABLE



series MEV

Size 02

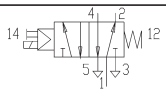
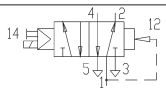
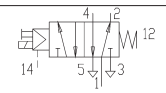
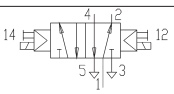
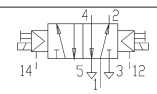
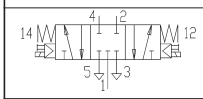
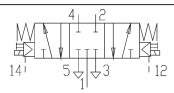
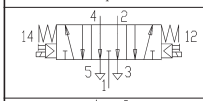
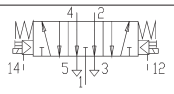
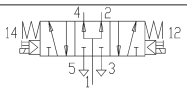
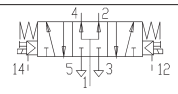
5 PORT - 3 POSITION



Size 02

series MEV

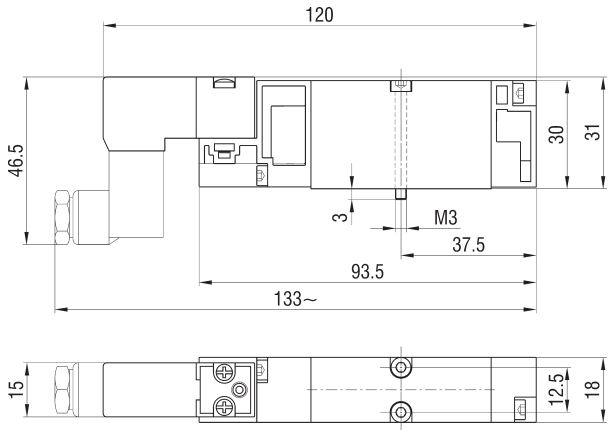
SOLENOID ACTUATED VALVES WITH COILS TOWARD THE BOTTOM TO VDMA 24563 STANDARD SIZE 02 - MEVX 18 SUITABLE FOR SINGLE USE OR MULTI-PIN PLUG CONNECTOR

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight *(g)*	TYPE*
		Pilot	Return	Energized	De-energized			
	5/2 monostable	Solenoid	Mechanical spring	10	50	510	130	MEVX18 KUC/ZR
		Solenoid	Pneumatic spring	12	35			MEVX18 KUC/TQ
		Solenoid pilot assisted	Mechanical spring	10	50			MEVX18 KUR/ZR
	5/2 bistable	Solenoid	Solenoid	10	10	510	175	MEVX18 KUC/KUC
		Solenoid pilot assisted	Solenoid pilot assisted					MEVX18 KUR/KUR
	5/3 closed centre	Solenoid	Mechanical spring	10	30	420	175	MEVX18 SUC/SUC
		Solenoid pilot assisted	Mechanical spring					MEVX18 SUR/SUR
	5/3 open centre	Solenoid	Mechanical spring	10	30	420	175	MEVX18 AUC/AUC
		Solenoid pilot assisted	Mechanical spring					MEVX18 AUR/AUR
	5/3 pressure centre	Solenoid	Mechanical spring	10	30	500	175	MEVX18 PUC/PUC
		Solenoid pilot assisted	Mechanical spring					MEVX18 PUR/PUR

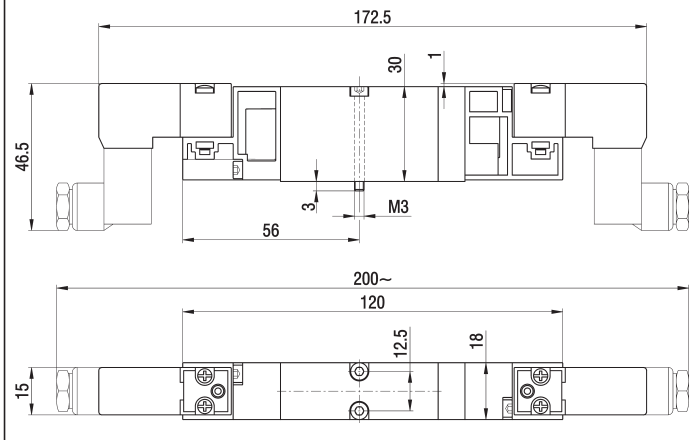
* SPECIFY THE VOLTAGE IN THE ORDER - E.G.: MEVX18 KUC/ZR 02400
(TYPES OF THE SOLENOID VALVES INCLUDE THE PILOTING SOLENOID VALVES "UMCSV" - SEE ON PAGE 2.3)

02400 = 24 V DC
02450-60 = 24 V AC

5 PORT - MONOSTABLE



5 PORT - BISTABLE AND 5 PORT - 3 POSITIONS

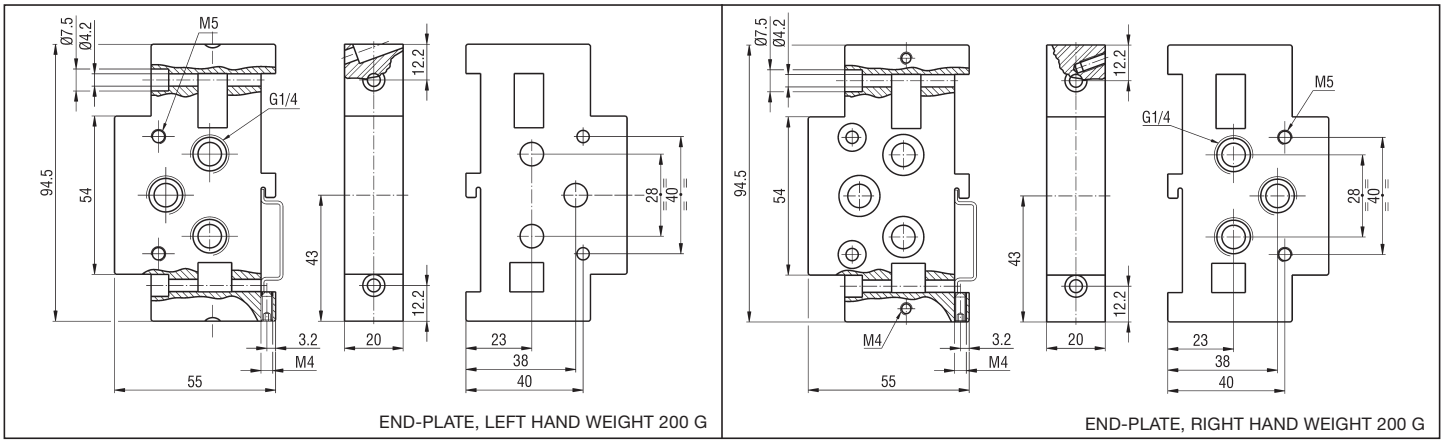


series MEV

Accessories

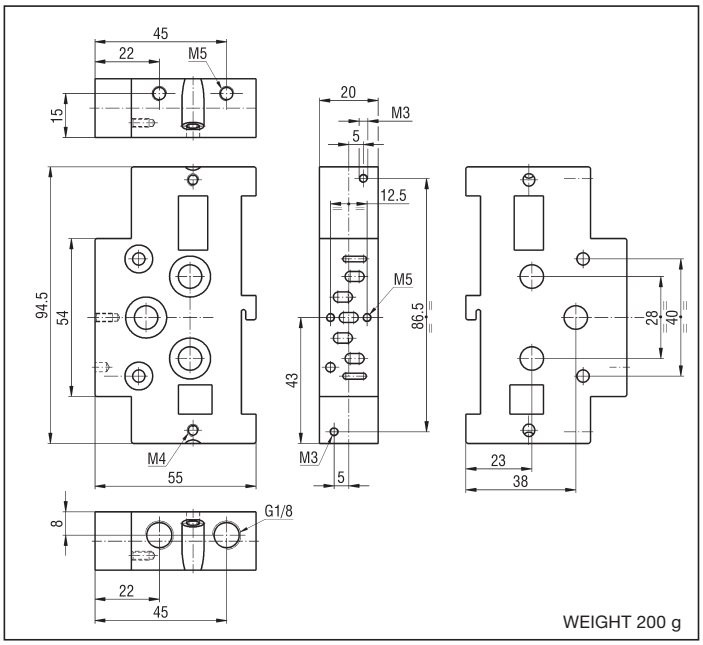
Single and manifold bases to VDMA 24563 standard size 02

INPUT PLATES (pair) - MEV18PE



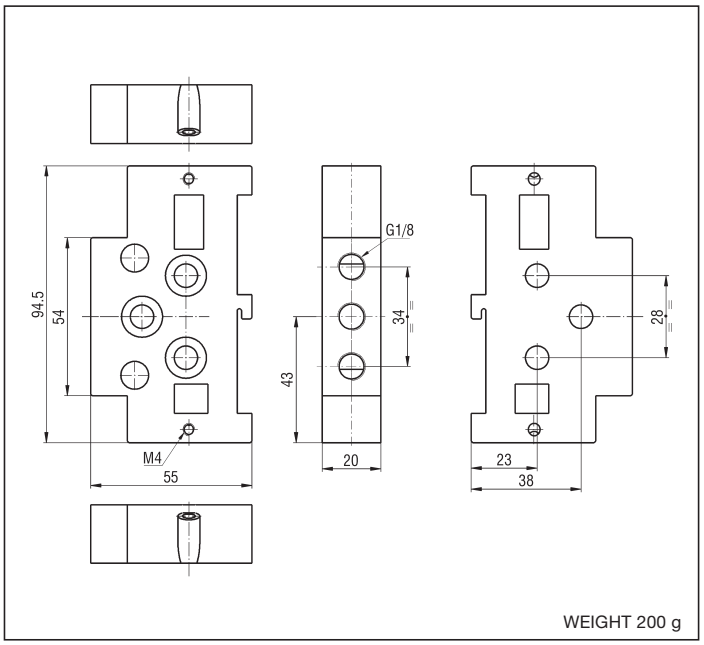
INPUT PLATES ARE SUPPLIED COMPLETE WITH SCREWS AND SEALS

MANIFOLD BASE, SIDE PORTED - MEV18BM



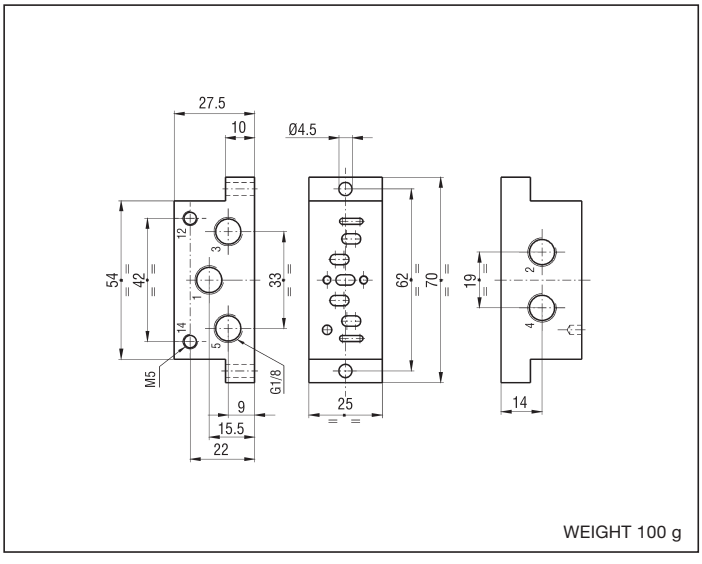
MANIFOLD BASE IS SUPPLIED COMPLETE WITH SCREWS AND SEALS

INTERMEDIATE PLATE, TOP PORTED - MEV18PUS

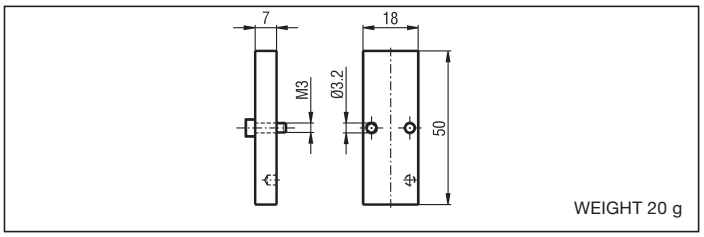


INTERMEDIATE PLATE IS SUPPLIED COMPLETE WITH SCREWS AND SEALS

SINGLE BASE SIDE PORTED - MEV18S BS

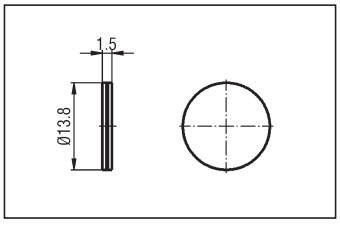


BLANKING PLATE - MEV18PC

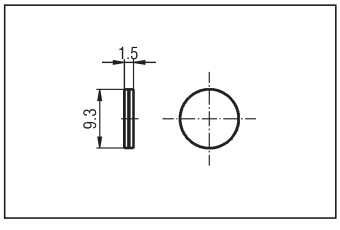


BLANKING PLATE IS SUPPLIED COMPLETE WITH SCREWS AND SEALS

DIAPHRAGM - MEV18DG (No.3 PCS)



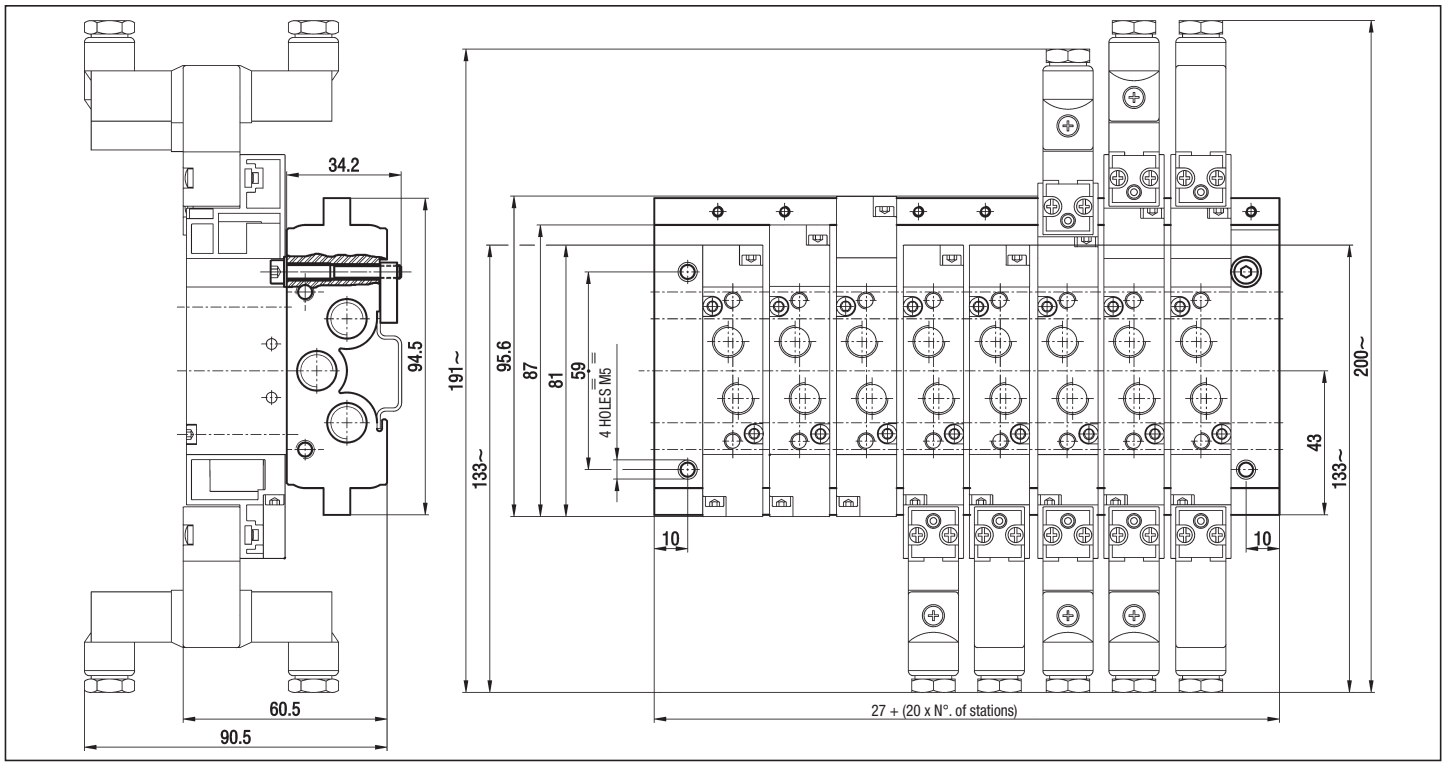
DIAPHRAGM - MEV18DP (No.2 PCS)



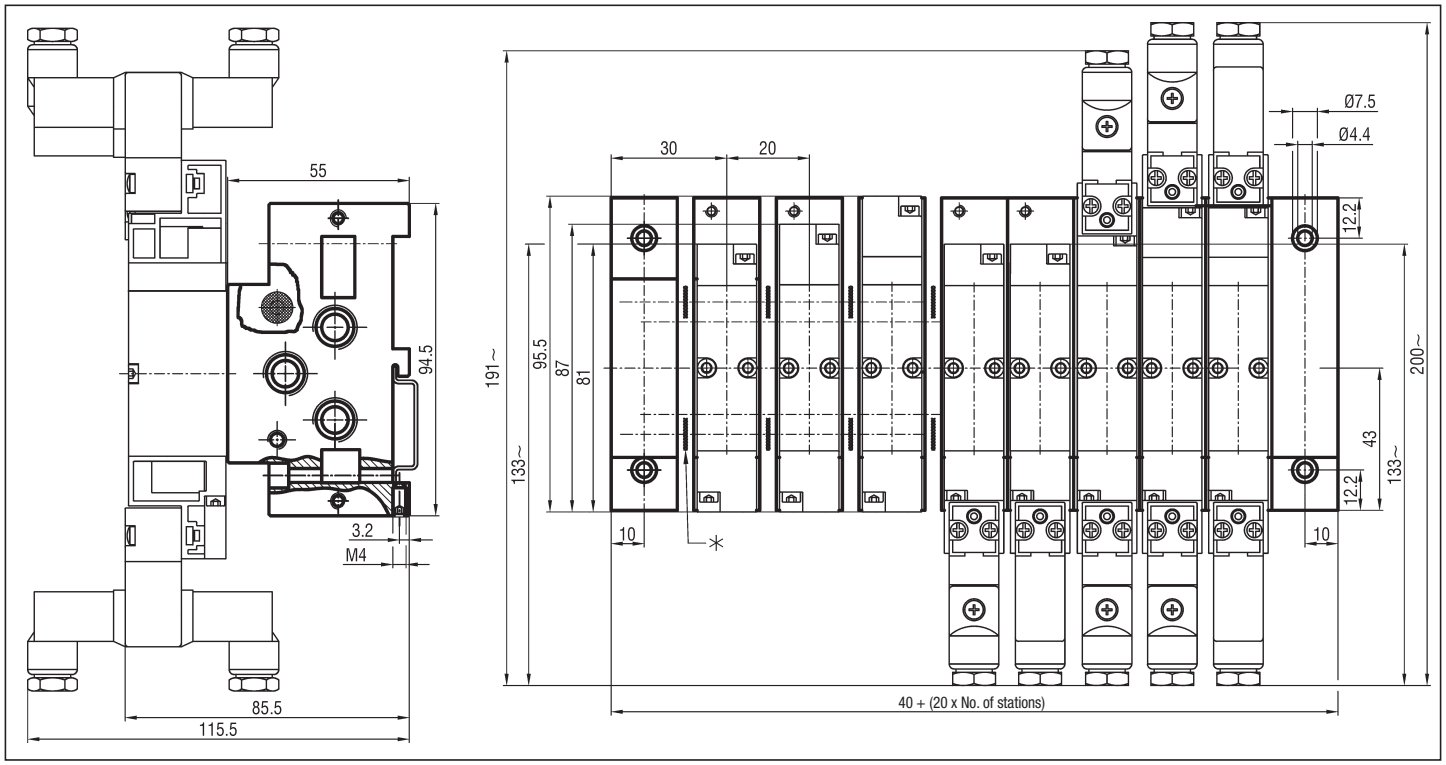
Accessories
Bases

series **MEV**

EXAMPLE OF ASSEMBLY - MEV 8 - MEVX 8



EXAMPLE OF ASSEMBLY - MEV 18 - MEVX 18



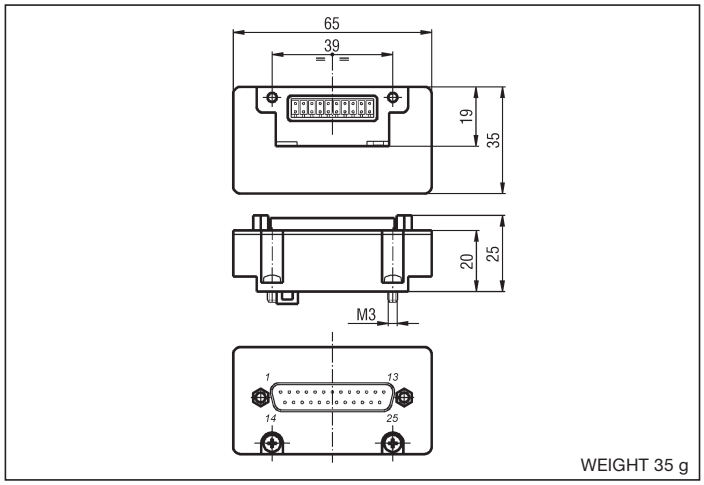
* WITH THE PILOT ACTUATED VALVES USE THE TWO DIAPHRAGMS (TYPE MEV18DP) TO EXCLUDE THE PILOTING EXHAUST (SEE ON PAGE 2.26)

series MEV

Accessories

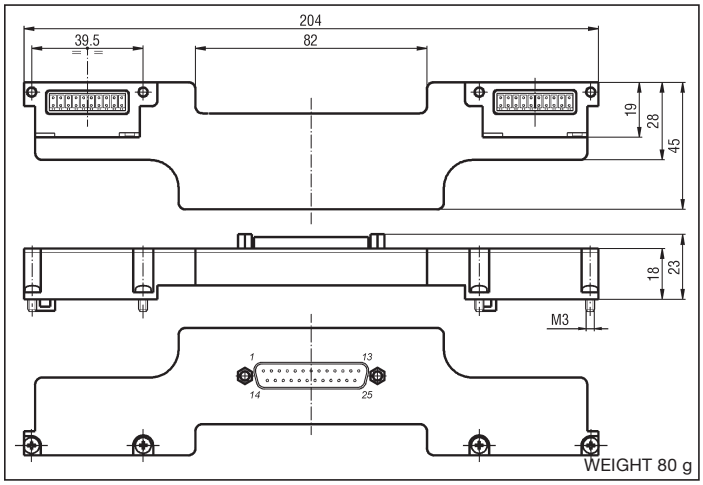
Multi-pin connection with solenoid valves versions MEVX 8 and MEVX 18

25-PIN PLUG, SINGLE - MEV/C1



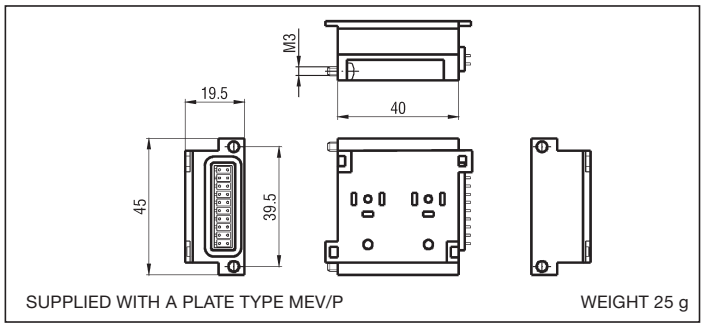
WEIGHT 35 g

25-PIN PLUG, DOUBLE - MEV/C2



WEIGHT 80 g

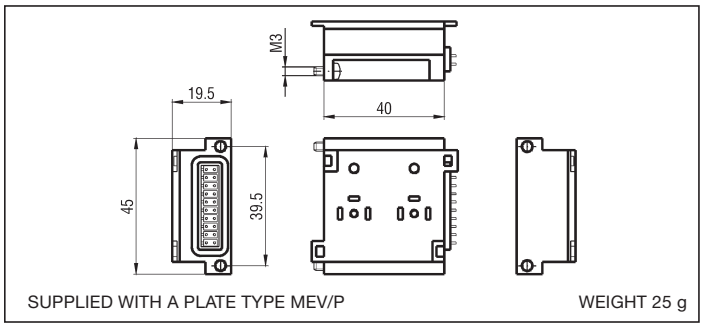
TWO STATIONS MODULE, LEFT - MEV/M2S/AC or DC (24 V)



SUPPLIED WITH A PLATE TYPE MEV/P

WEIGHT 25 g

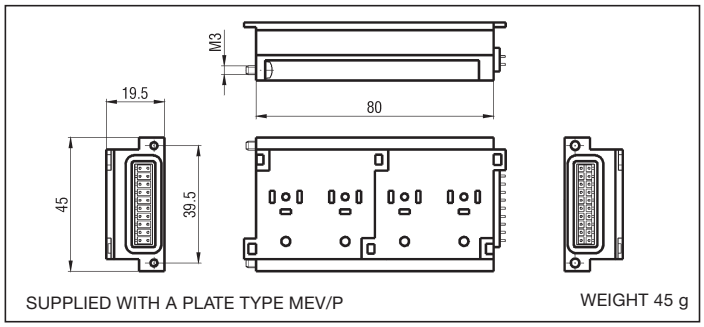
TWO STATIONS MODULE, RIGHT - MEV/M2D/AC or DC



SUPPLIED WITH A PLATE TYPE MEV/P

WEIGHT 25 g

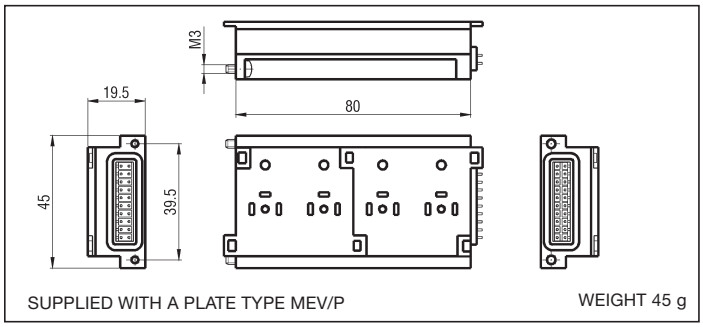
FOUR STATIONS MODULE, LEFT - MEV/M4S/AC or DC (24 V)



SUPPLIED WITH A PLATE TYPE MEV/P

WEIGHT 45 g

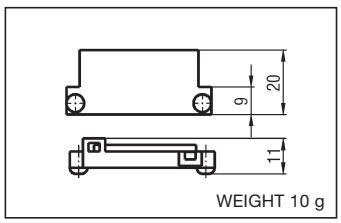
FOUR STATIONS MODULE, RIGHT - MEV/M4D/AC or DC (24 V)



SUPPLIED WITH A PLATE TYPE MEV/P

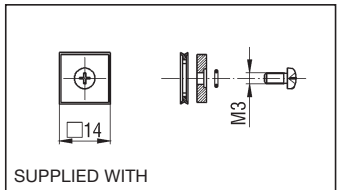
WEIGHT 45 g

BLANKING CAP - MEV/C



WEIGHT 10 g

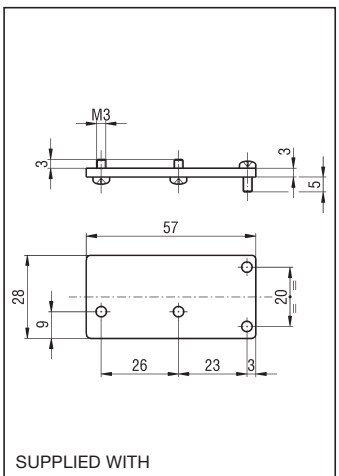
BLANKING PLATE - MEV/PM



SUPPLIED WITH SCREWS AND SEALS

WEIGHT 4 g

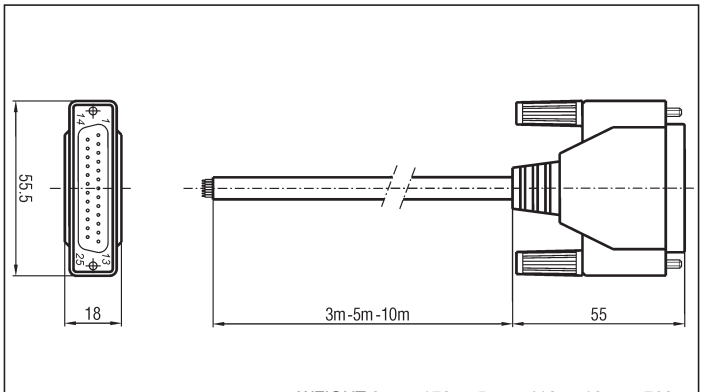
FIXING PLATE - MEV/P



SUPPLIED WITH SCREWS AND SEALS

WEIGHT 30 g

PRE-ASSEMBLED MULTI-PIN CABLE "X" METERS LONG WITH 25-PIN SUB-D PLUG MEV/CF "X" (X= 3, 5, OR 10 m)



WEIGHT 3 m = 170 g; 5 m = 410 g; 10 m = 760 g

Accessories

Multi-pin connection with solenoid valves versions MEVX 8 and MEVX 18

series MEV

TECHNICAL INFORMATION

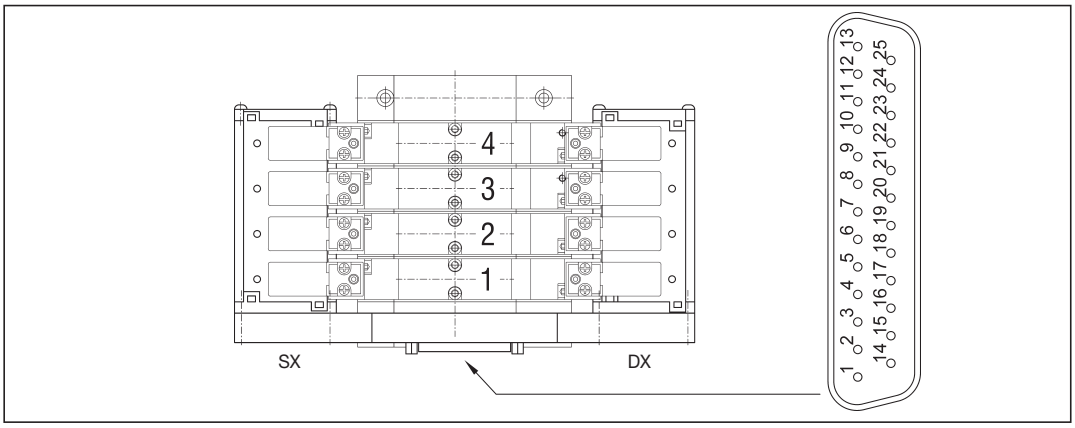
CONNECTION WITH ONE DOUBLE 25-PIN SUB-D PLUG, FOR 2 ÷ 11 STATIONS VALVE ISLANDS

Valve	1		2		3		4		5		6		7		8		9		10		11	
Pilot coil	14(sx)	12(dx)	14(sx)	12(dx)	14(sx)	12(dx)	14(sx)	12(dx)	14(sx)	12(dx)	14(sx)	12(dx)	14(sx)	12(dx)	14(sx)	12(dx)	14(sx)	12(dx)	14(sx)	12(dx)	14(sx)	12(dx)
PIN Number	1	12	2	13	3	14	4	15	5	16	6	17	7	18	8	19	9	20	10	21	11	22
Color	brown	green white	red	green chiaro	orange	red black	yellow	orange black	green	yellow black	blue	green black	purple	grey black	grey	black sky blue	white	rose black	black	brown black	rose	ornage white

Valve	-		-	
Pilot coil	GND*	GND*	GND*	-
PIN Number	23	24	25	-
Color	yellow green	sky blue	grey green	-

*Common cable

P.S.: For monostable solenoid valves use left modules

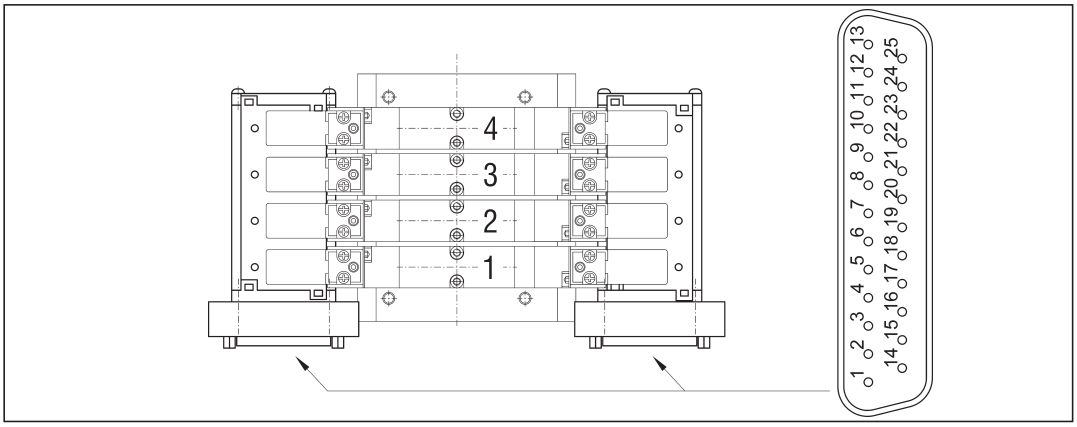


CONNECTION WITH TWO SINGLE 25-PIN SUB-D PLUGS, FOR 2 ÷ 16 STATIONS VALVE ISLANDS

Valve	1		2		3		4		5		6		7		8		9		10		11	
Pilot coil	14(sx)	12(dx)	14(sx)	12(dx)	14(sx)	12(dx)	14(sx)	12(dx)	14(sx)	12(dx)	14(sx)	12(dx)	14(sx)	12(dx)	14(sx)	12(dx)	14(sx)	12(dx)	14(sx)	12(dx)	14(sx)	12(dx)
PIN Number	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
Color	brown	brown	red	red	orange	orange	yellow	yellow	green	green	blue	blue	purple	purple	grey	grey	white	white	black	black	red	red

Valve	12		13		14		15		16		-		-		-		-		-	
Pilot coil	14(sx)	12(dx)	14(sx)	12(dx)	14(sx)	12(dx)	14(sx)	12(dx)	14(sx)	12(dx)	GND*	GND*	GND*	GND*	NC	NC	NC	NC	NC	-
PIN Number	12	12	13	13	14	14	15	15	16	16	17	18	19	20	21	22	23	24	25	-
Color	green white	green white	green chiaro	green chiaro	red black	red black	orange black	orange black	yellow black	yellow black	green black	green black	black sky blue	rose black	brown black	orange white	yellow green	sky blue	grey green	-

*Common cable

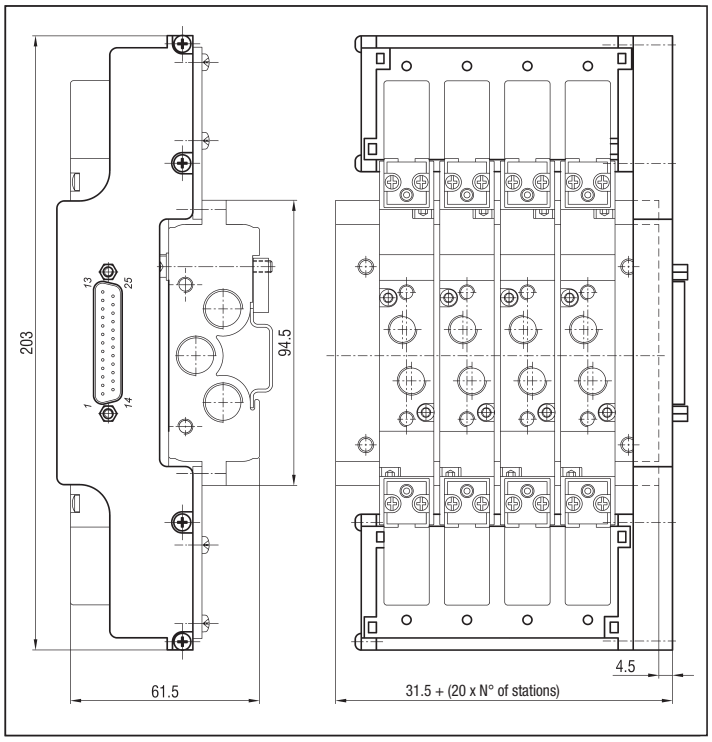


series MEV

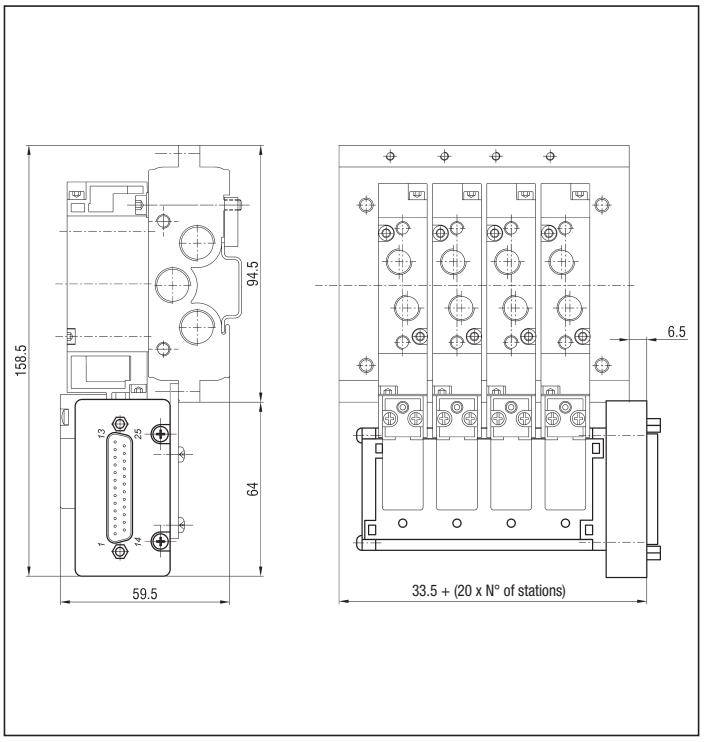
Assembling examples

Multi-pin connection with solenoid valves versions MEVX 8 and MEVX 18

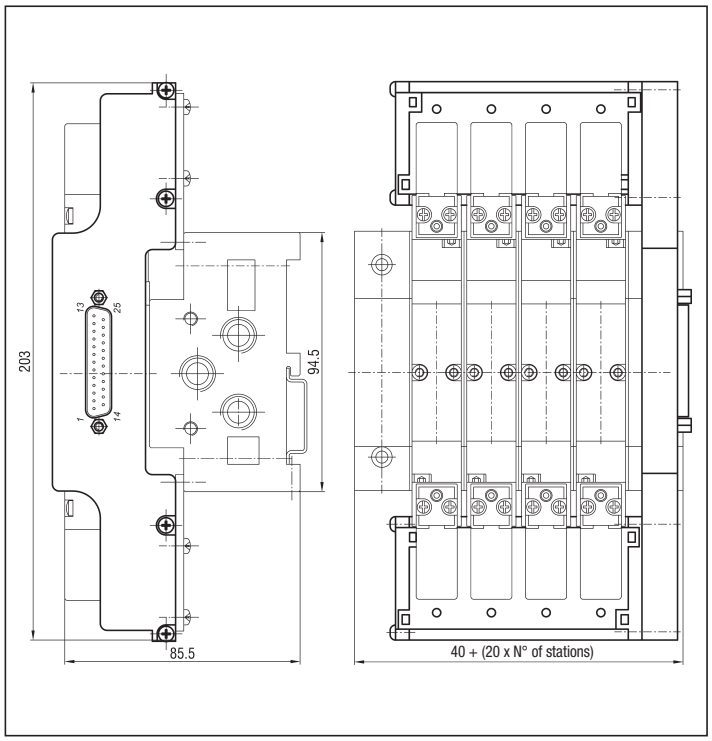
MEVX 8 WITH DOUBLE 25-PIN SUB-D PLUG



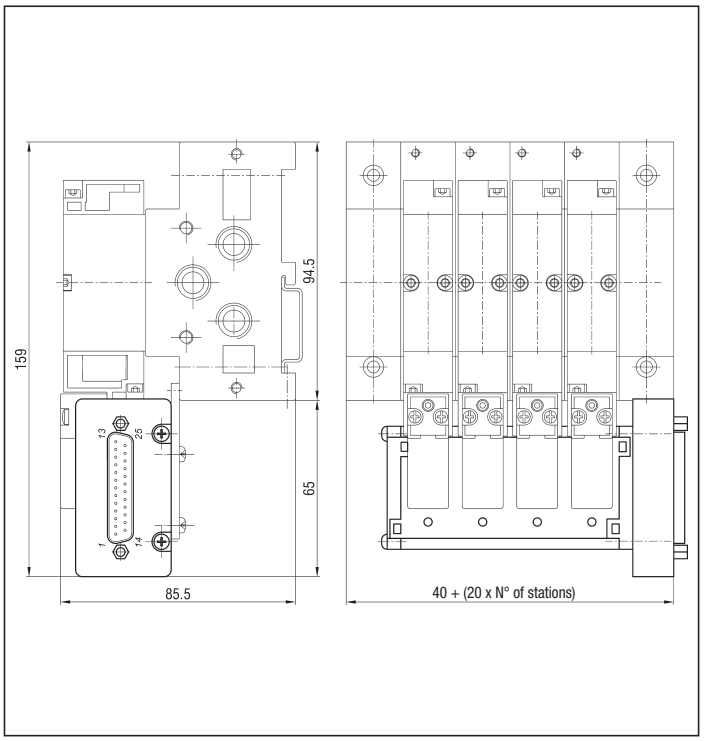
MEVX 8 WITH SINGLE 25-PIN SUB-D PLUG



MEVX 18 WITH DOUBLE 25-PIN SUB-D PLUG



MEVX 18 SINGLE 25-PIN SUB-D PLUG



Assembling examples

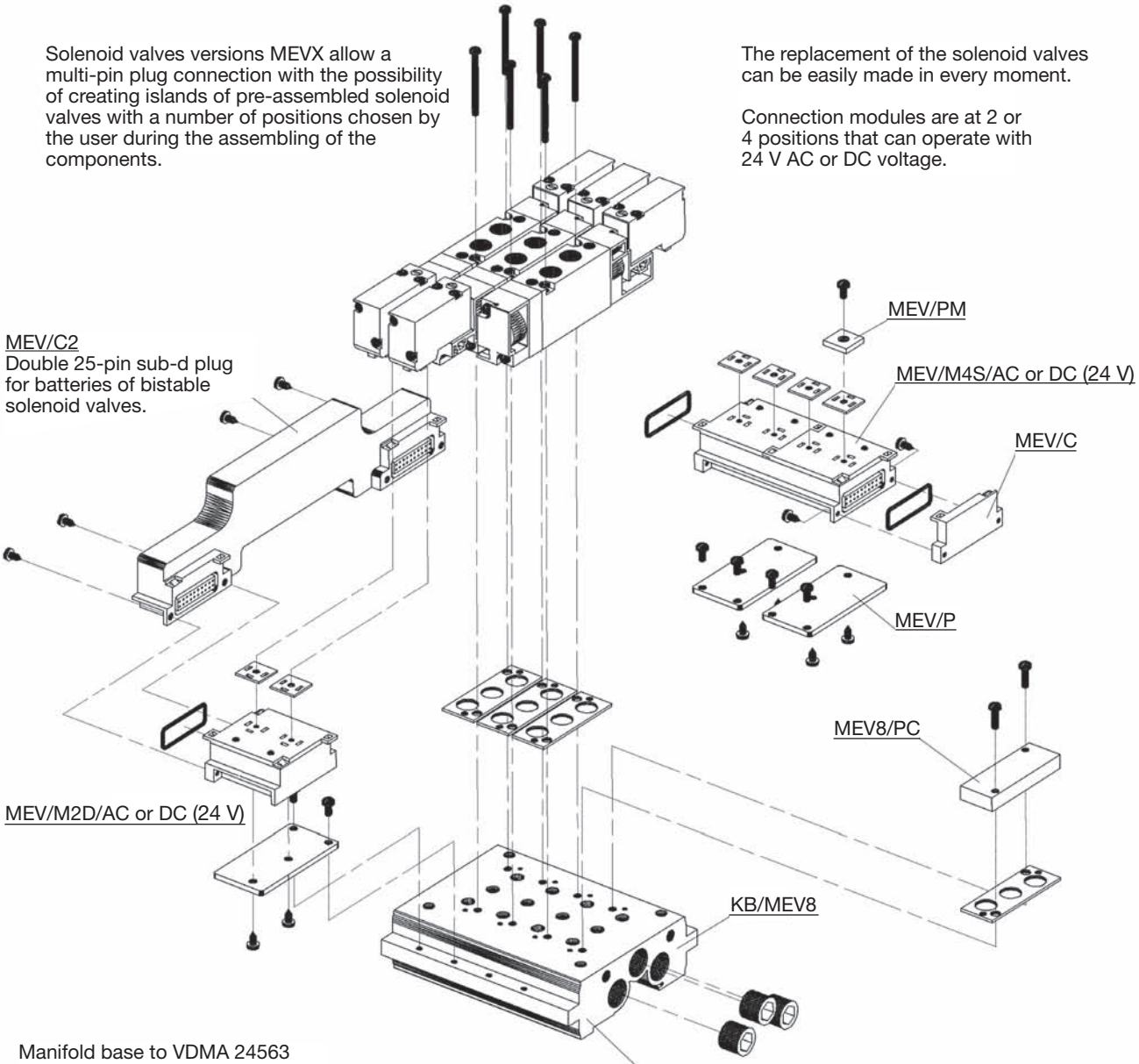
Multi-pin connection with solenoid valves versions MEVX 8 and MEVX 18

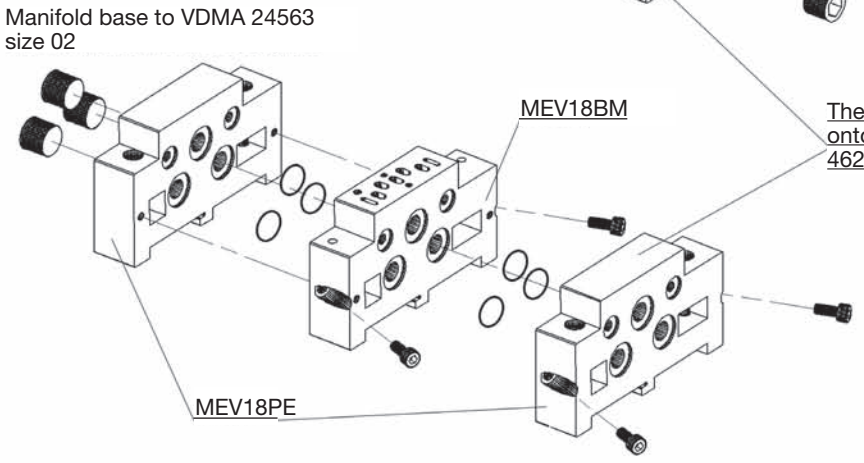
series MEV

Solenoid valves versions MEVX allow a multi-pin plug connection with the possibility of creating islands of pre-assembled solenoid valves with a number of positions chosen by the user during the assembling of the components.

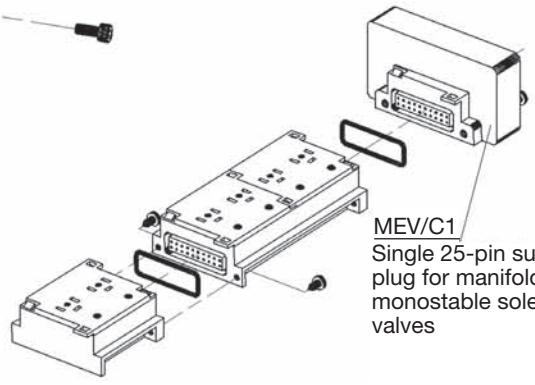
The replacement of the solenoid valves can be easily made in every moment.

Connection modules are at 2 or 4 positions that can operate with 24 V AC or DC voltage.





Possibility of assembling till No. 4 modules of 4 positions each, for a total of 16 solenoid valves and the 2 positions module as final element for manifolds of 2, 6, 10, 14 positions.

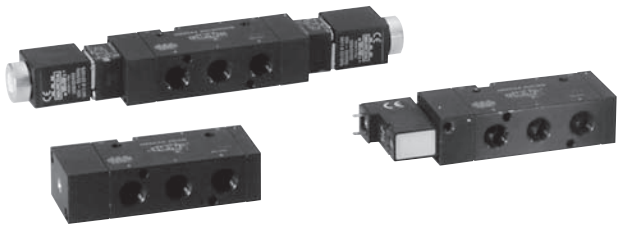


series MEK

Spool compact valves pilot and solenoid actuated G 1/8 - G 1/4

DESCRIPTION

Valves series "MEK", in the 5/2 and 5/3 pneumatic functions, have been realized with compact overall dimensions yet assuring high flow. The kind of construction is based on a balanced spool with dynamic seal thanks to antiglueing mix seals positioned on the same spool. In the solenoid control version, size G 1/8 supports 15 mm low absorption direct acting solenoid valve type UMCSV, while size G 1/4 supports both 15 than 22 mm direct acting solenoid valve type C/USCSVP with sleeve Ø 9 mm. This series of valves is prearranged for manifold mounting with fixed stations and with conveyed inlet and exhausts, by means of frontal screws. The bases are fit for mounting onto rails according to DIN 46277/3.



TECHNICAL DATA

Operating pressure	Monostable: 2 ÷ 8 bar Bistable: 1,5 ÷ 8 bar
Working temperature	0 ÷ +60 °C (-10 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Port size	G 1/8 - G 1/4
Pneumatic piloting port size	M 5
Nominal diameter	G 1/8 = 5 mm; G 1/4 = 6,5 mm
Piloting solenoid valve	UMCSV for G 1/8 and G 1/4 – see chapter Direct acting solenoid valves on page 2.3; C/USCSVP for G 1/4 – see chapter Direct acting solenoid valves on page 2.11
Coil	USB for G 1/4 – see chapter Coils on page 2.14
Electric connectors	MEK192/N for G 1/8 and G1/4 with UMCSV; USR102/N9 for G 1/4 with C/USCSVP See chapter Connectors on page 2.15

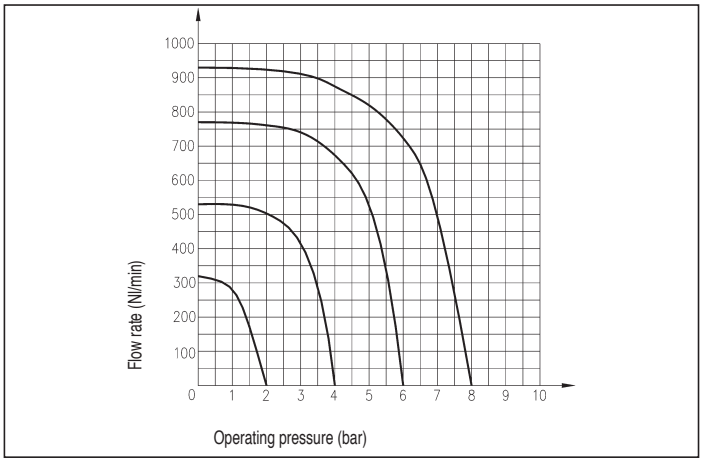
MATERIALS

Bottoms	Anodized aluminium alloy
Body	Anodized aluminium alloy
Springs	Stainless steel
Seals	NBR rubber
Spool	Anodized aluminium alloy
Piston	Anodized aluminium alloy

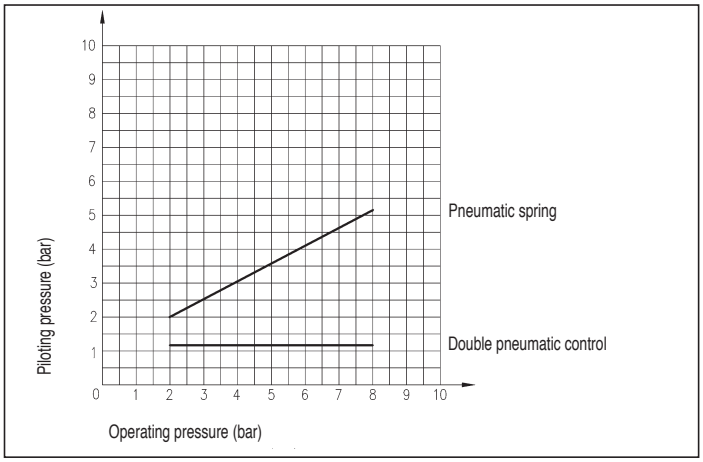
SPARE PARTS

Contact the commercial office

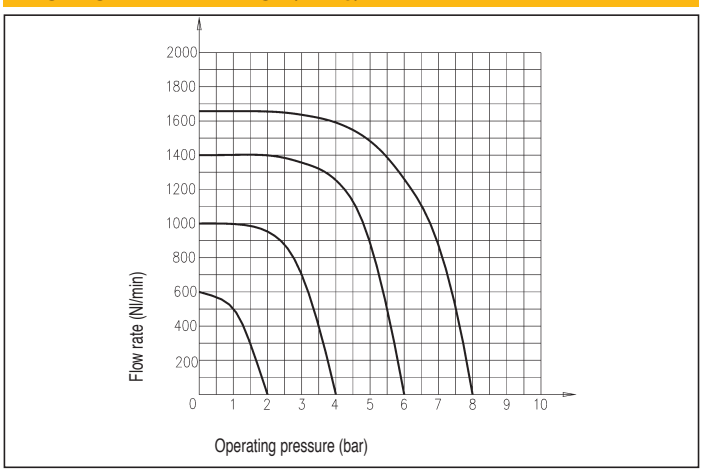
FLOW CHART - MEK G 1/8 - 5/2



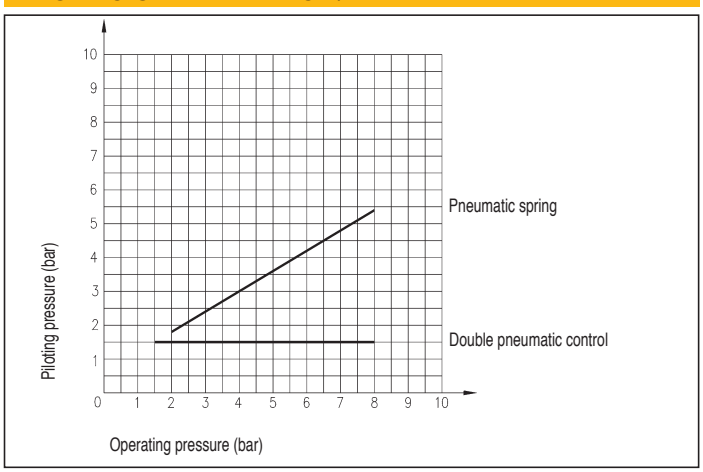
PILOTING CHART - MEK G 1/8



FLOW CHART - MEK G 1/4 - 5/2



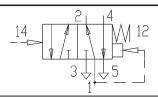
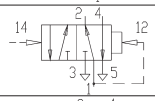
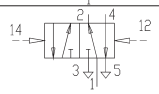
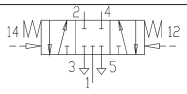
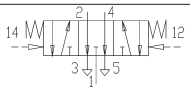
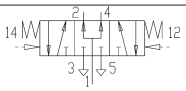
PILOTING CHART - MEK G 1/4



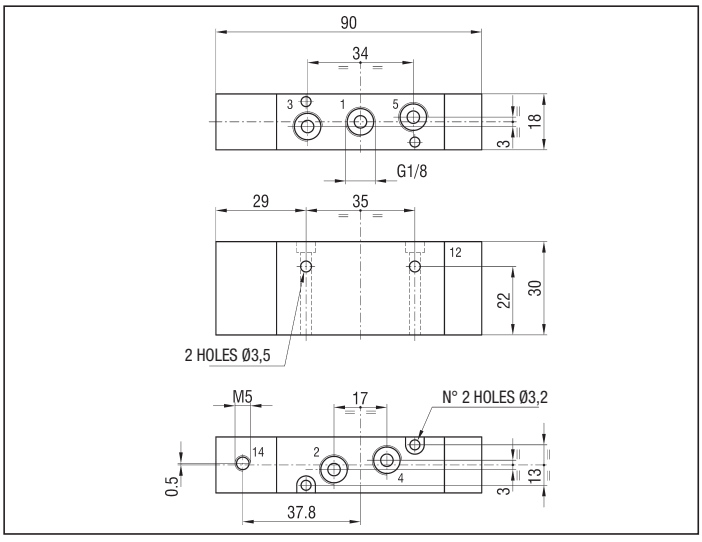
G 1/8 - 5 PORT

series MEK

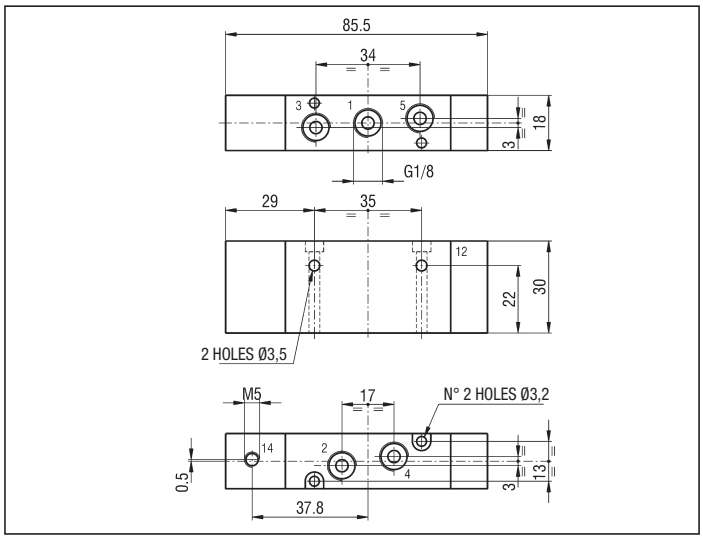
PILOT ACTUATED VALVES G 1/8

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE
		Pilot	Return	Energized	De-energized			
	5/2 monostable	Pneumatic	Mechanical spring	5	10	530	110	MEKCA8 KR/ZQ
		Pneumatic	Mechanical spring	7	5	530	110	MEKCA8 KR/TQ
	5/2 bistable	Pneumatic	Pneumatic	3	3	530	120	MEKCA8 KR/KR
	5/3 closed centre	Pneumatic	Mechanical spring	4	8	450	135	MEKCA8 SR/SR
	5/3 open centre	Pneumatic	Mechanical spring	4	8	450	135	MEKCA8 AR/AR
	5/3 pressure centre	Pneumatic	Mechanical spring	4	8	450	135	MEKCA8 PR/PR

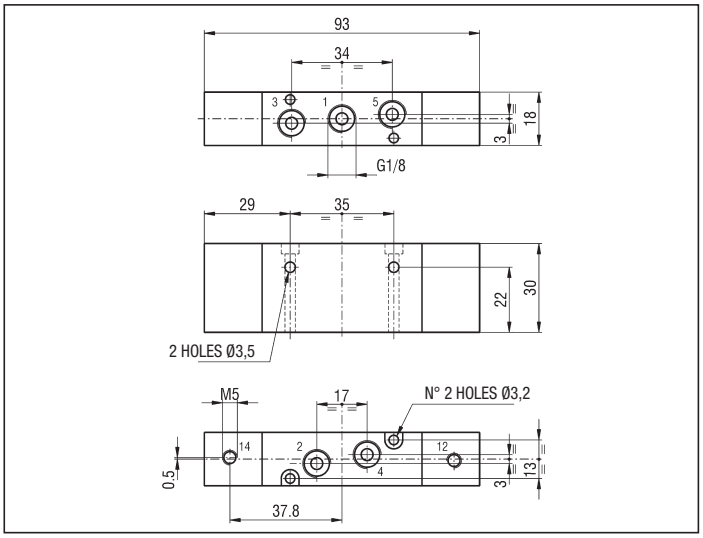
MEKCA8 KR/ZQ



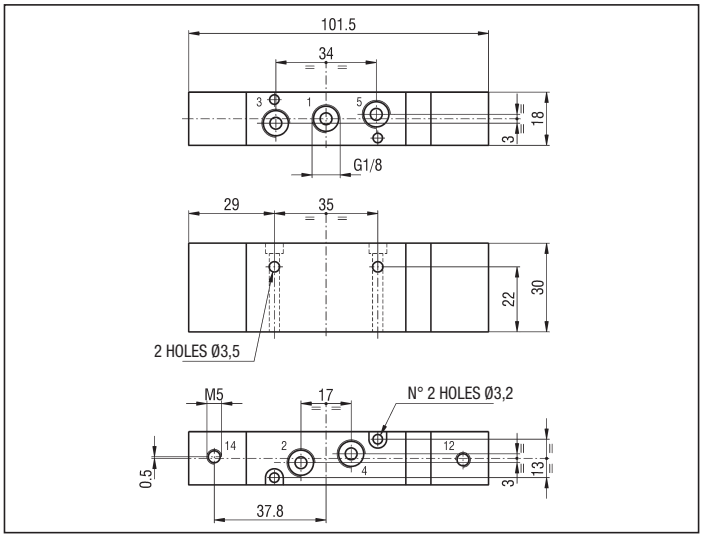
MEKCA8 KR/TQ



MEKCA8 KR/KR



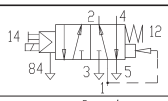
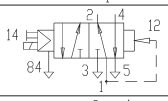
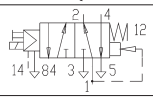
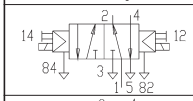
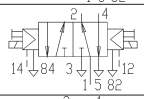
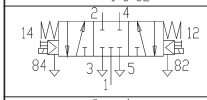
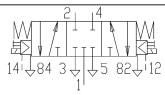
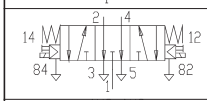
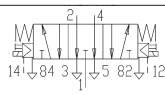
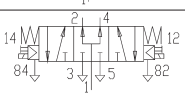
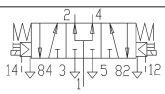
MEKCA8 SR/SR - MEKCA8 AR/AR - MEKCA8 PR/PR



series MEK

G 1/8 - 5 PORT

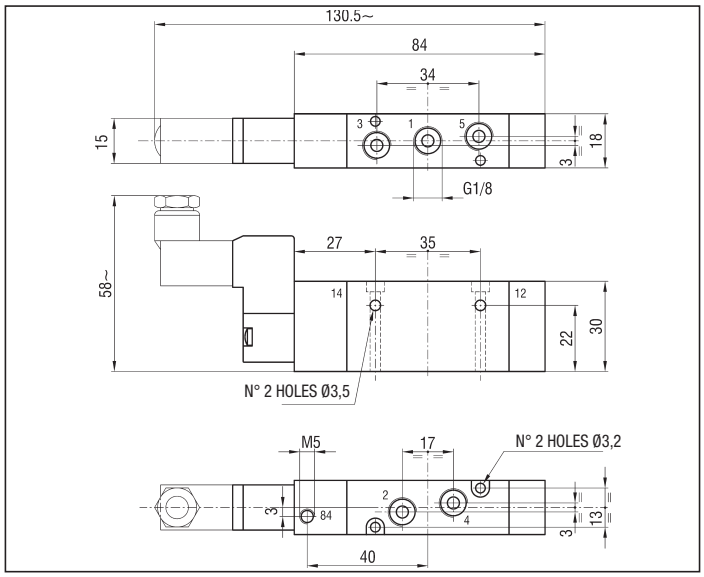
SOLENOID ACTUATED VALVES G 1/8

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized			
	5/2 monostable	Solenoid	Pneumomechanical spring	12	15	530	150	MEKCA8 KUC/ZQ
		Solenoid	Pneumatic spring	12	15			MEKCA8 KUC/TQ
		Solenoid pilot assisted	Mechanical spring	10	20			MEKCA8 KUR/ZQ
	5/2 bistable	Solenoid	Solenoid	9	9	530	195	MEKCA8 KUC/KUC
		Solenoid pilot assisted	Solenoid pilot assisted					MEKCA8 KUR/KUR
	5/3 closed centre	Solenoid	Mechanical spring	10	25	450	210	MEKCA8 SUC/SUC
		Solenoid pilot assisted	Mechanical spring					MEKCA8 SUR/SUR
	5/3 open centre	Solenoid	Mechanical spring	10	25	450	210	MEKCA8 AUC/AUC
		Solenoid pilot assisted	Mechanical spring					MEKCA8 AUR/AUR
	5/3 pressure centre	Solenoid	Mechanical spring	10	25	450	210	MEKCA8 PUC/PUC
		Solenoid pilot assisted	Mechanical spring					MEKCA8 PUR/PUR

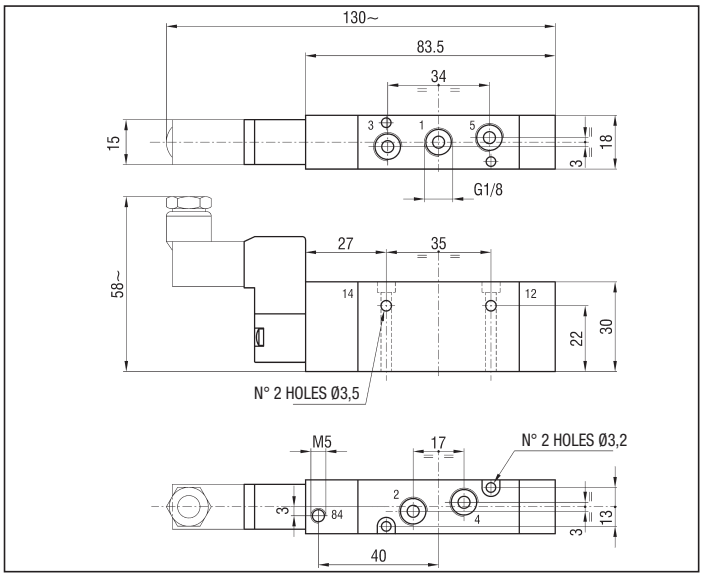
* SPECIFY THE VOLTAGE IN THE ORDER - E.G.: MEKCA8 KUC/ZQ 02400
(TYPES OF THE SOLENOID VALVES INCLUDE THE PILOTING SOLENOID VALVES “UMCSV” - SEE ON PAGE 2.3)

02400 = 24 V DC
02450-60 = 24 V AC
11050-60 = 110 V AC
22050-60 = 220 V AC

MEKCA8 KUC/ZQ



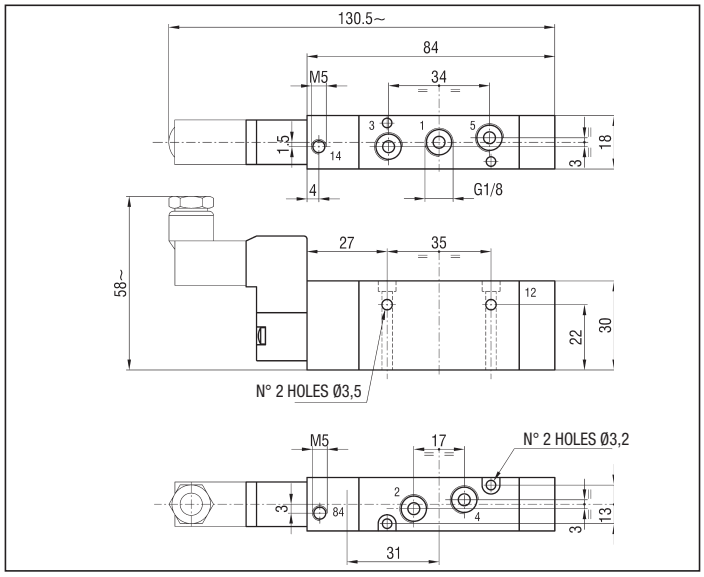
MEKCA8 KUC/TQ



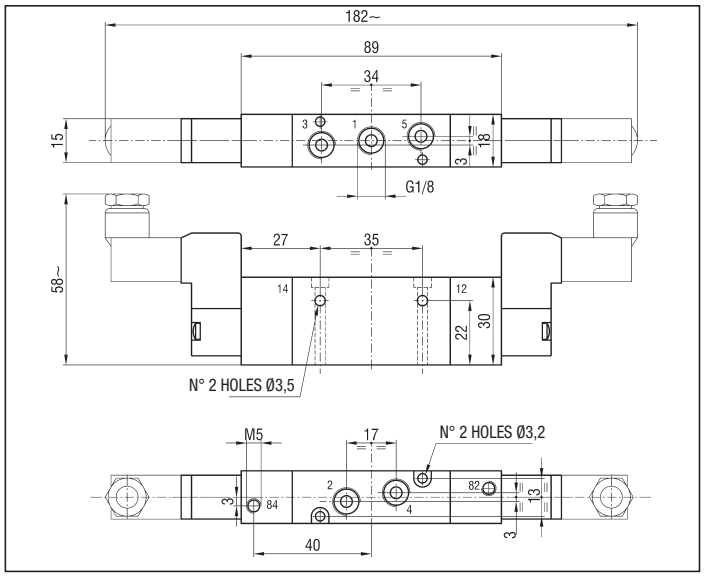
G 1/8 - 5 PORT

series MEK

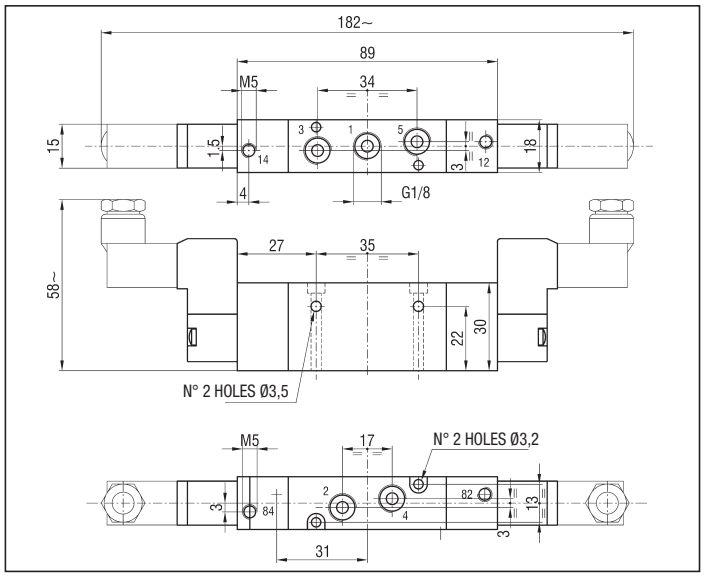
MEKCA8 KUR/ZQ



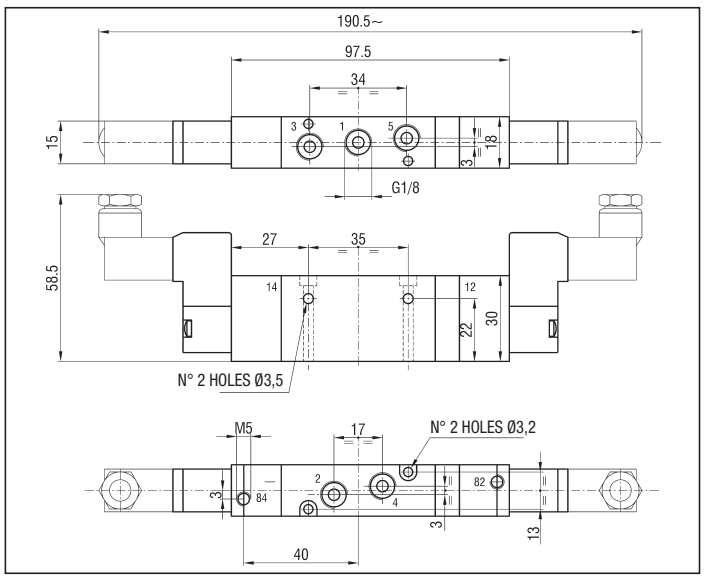
MEKCA8 KUC/KUC



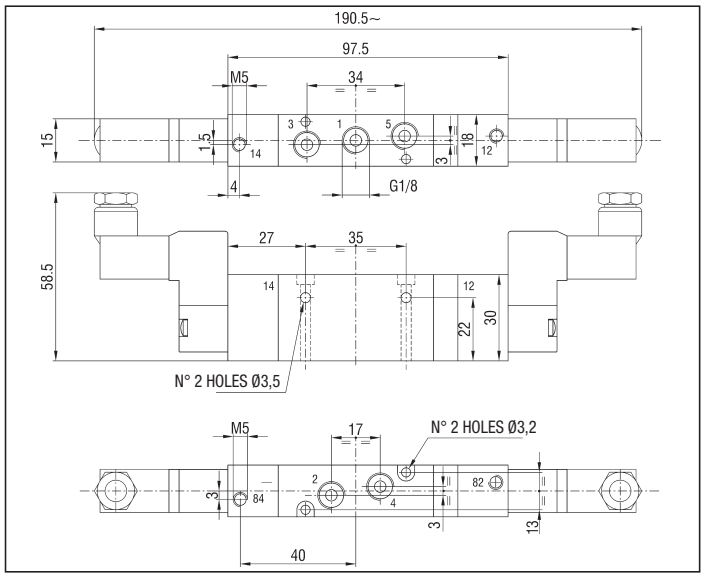
MEKCA8 KUR/KUR



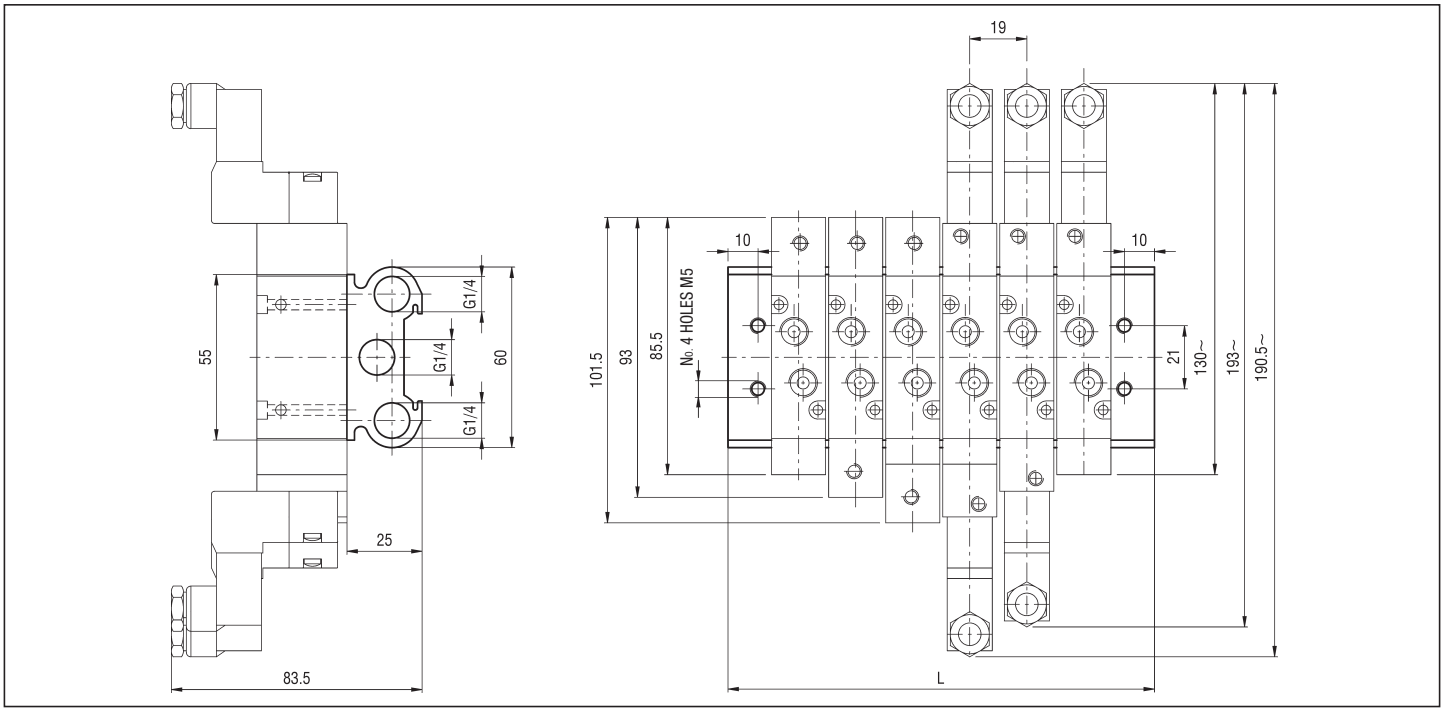
MEKCA8 SUC/SUC - MEKCA8 AUC/AUC - MEKCA8 PUC/PUC



MEKCA8 SUR/SUR - MEKCA8 AUR/AUR - MEKCA8 PUR/PUR



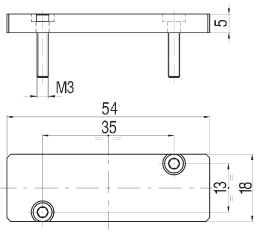
BASE FOR MANIFOLD MOUNTING OF VALVES G 1/8 - KB/MEK8 - Fit for mounting onto DIN 46277/3 rail



N° of stations	2	3	4	5	6	8	10	12	14	16	18	20
L	66	85	104	123	142	180	218	256	294	332	370	408
Weight *(g)*	175	220	265	310	355	445	535	625	715	805	895	985
TYPE*	**KB/MEK8/2**	**KB/MEK8/3**	**KB/MEK8/4**	**KB/MEK8/5**	**KB/MEK8/6**	**KB/MEK8/8**	**KB/MEK8/10**	**KB/MEK8/12**	**KB/MEK8/14**	**KB/MEK8/16**	**KB/MEK8/18**	**KB/MEK8/20**

* BASES ARE SUPPLIED COMPLETE WITH SCREWS AND SEALS

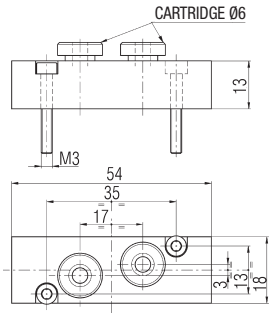
BLANKING PLATE - KIT/PC/MEK8



BLANKING PLATE IS SUPPLIED COMPLETE WITH SCREWS AND SEALS

WEIGHT 15 g

PLATE WITH PUSH-IN FITTING FOR PIPE Ø 6 mm - KIT/IR/MEK8

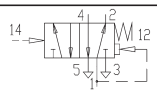
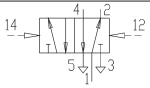
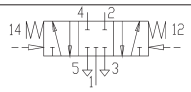
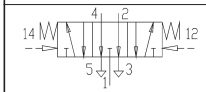
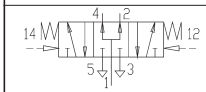


WEIGHT 45 g

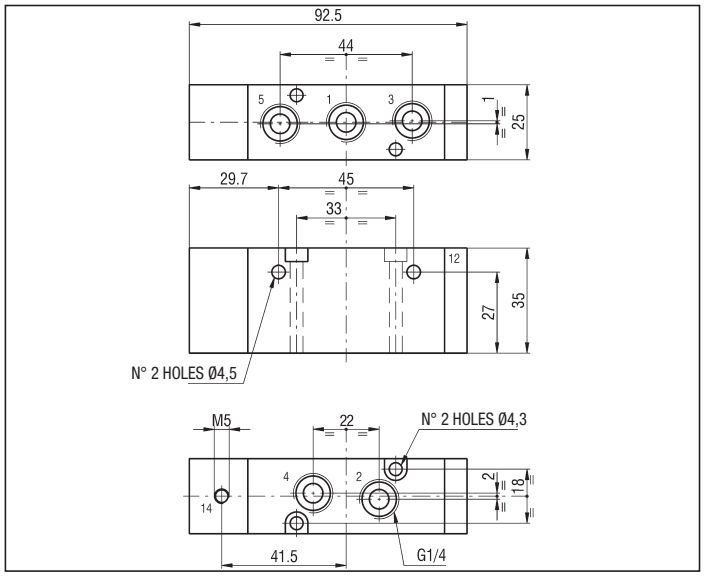
G 1/4 - 5 PORT

series MEK

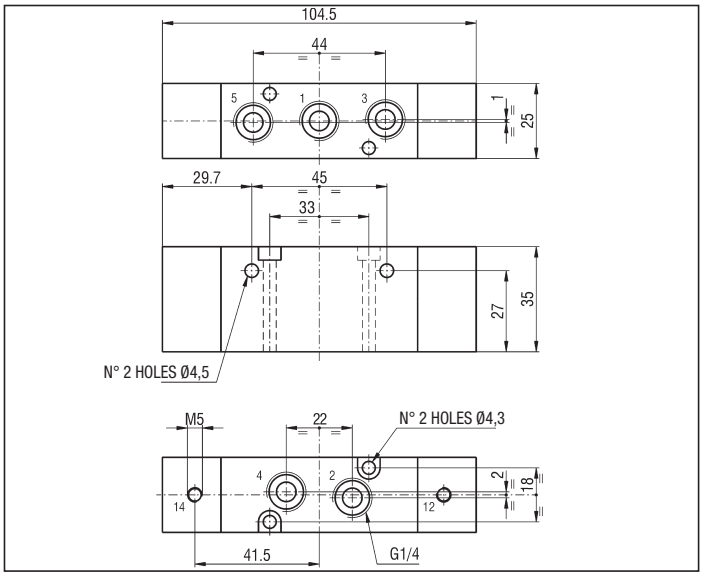
PILOT ACTUATED VALVES G 1/4

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE
		Pilot	Return	Energized	De-energized			
	5/2 monostable	Pneumatic	Pneumomechanical spring	7	3	900	190	MEKCA4 KR/ZQ
	5/2 bistable	Pneumatic	Pneumatic	5	5	900	215	MEKCA4 KR/KR
	5/3 closed centre	Pneumatic	Mechanical spring	5	15	600	240	MEKCA4 SR/SR
	5/3 open centre	Pneumatic	Mechanical spring	5	15	600	240	MEKCA4 AR/AR
	5/3 pressure centre	Pneumatic	Mechanical spring	5	15	600	240	MEKCA4 PR/PR

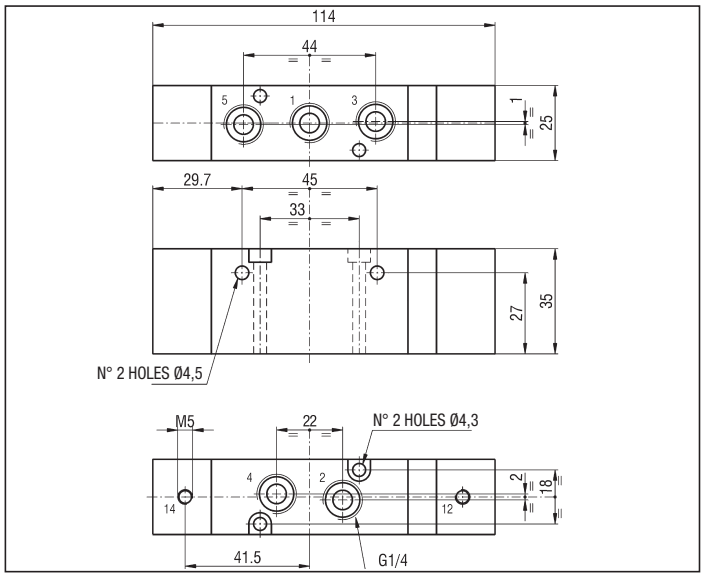
MEKCA4 KR/ZQ



MEKCA4 KR/KR



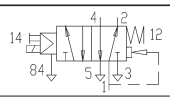
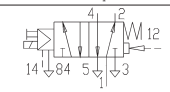
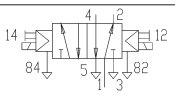
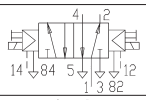
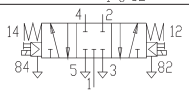
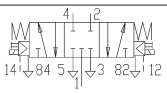
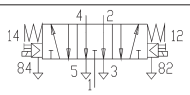
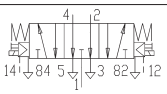
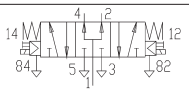
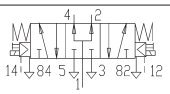
MEKCA4 SR/SR - MEKCA4 AR/AR - MEKCA4 PR/PR



series MEK

G 1/4 - 5 PORT

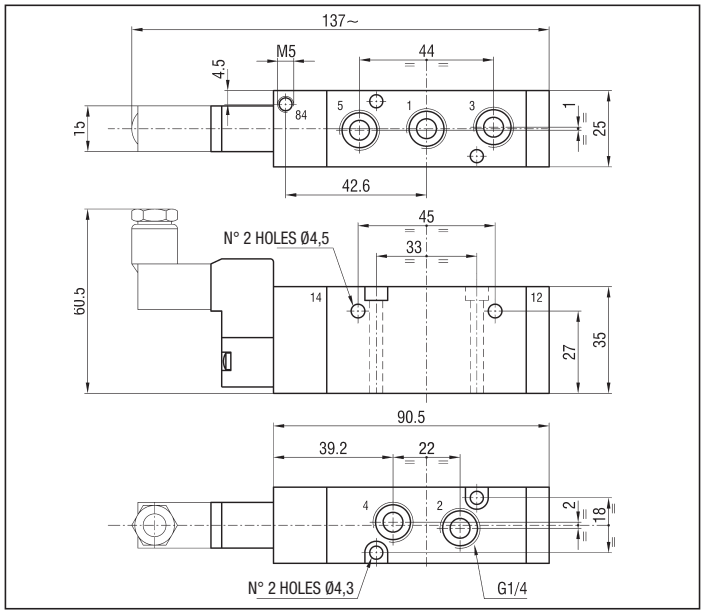
SOLENOID ACTUATED VALVES WITH COIL SIZE 15 mm G 1/4

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE*
		Pilot	Pilot	Energized	De-energized			
	5/2 monostable	Solenoid	Pneumomechanical spring	15	20	900	225	MEKCA4 KUC/ZQ
		Solenoid pilot assisted	Pneumomechanical spring pilot assisted					MEKCA4 KUR/ZQ
	5/2 bistable	Solenoid	Solenoid	10	10	900	290	MEKCA4 KUC/KUC
		Solenoid pilot assisted	Solenoid pilot assisted					MEKCA4 KUR/KUR
	5/3 closed centre	Solenoid	Mechanical spring	15	30	600	315	MEKCA4 SUC/SUC
		Solenoid pilot assisted	Mechanical spring					MEKCA4 SUR/SUR
	5/3 open centre	Solenoid	Mechanical spring	12	30	600	315	MEKCA4 AUC/AUC
		Solenoid pilot assisted	Mechanical spring					MEKCA4 AUR/AUR
	5/3 pressure centre	Solenoid	Mechanical spring	10	30	600	315	MEKCA4 PUC/PUC
		Solenoid pilot assisted	Mechanical spring					MEKCA4 PUR/PUR

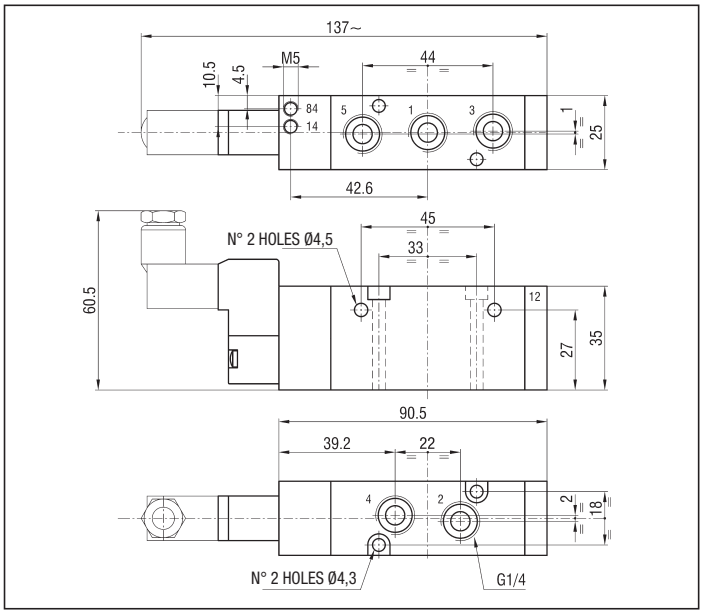
* SPECIFY THE VOLTAGE IN THE ORDER - E.G.: MEKCA4 KUC/ZQ 02450-60
TYPES OF THE SOLENOID VALVES INCLUDE THE PILOTING SOLENOID VALVES “UMCSV” - SEE ON PAGE 2.3)

02400 = 24 V DC
02450-60 = 24 V AC
11050-60 = 110 V AC
22050-60 = 220 V AC

MEKCA4 KUC/ZQ



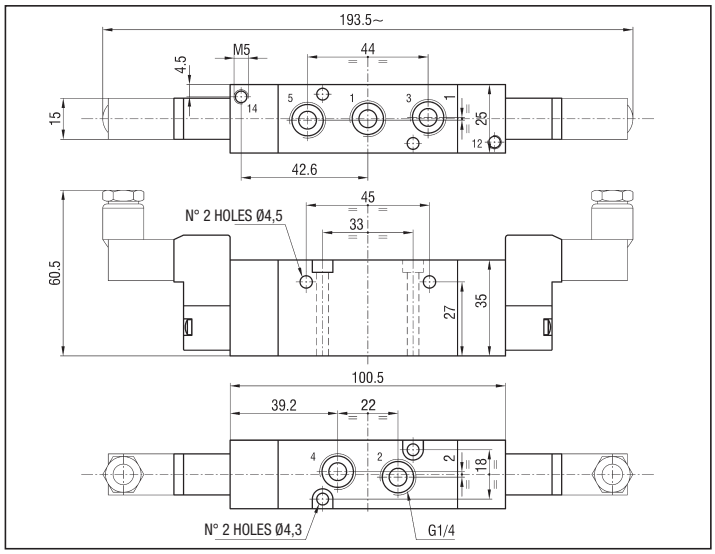
MEKCA4 KUR/ZQ



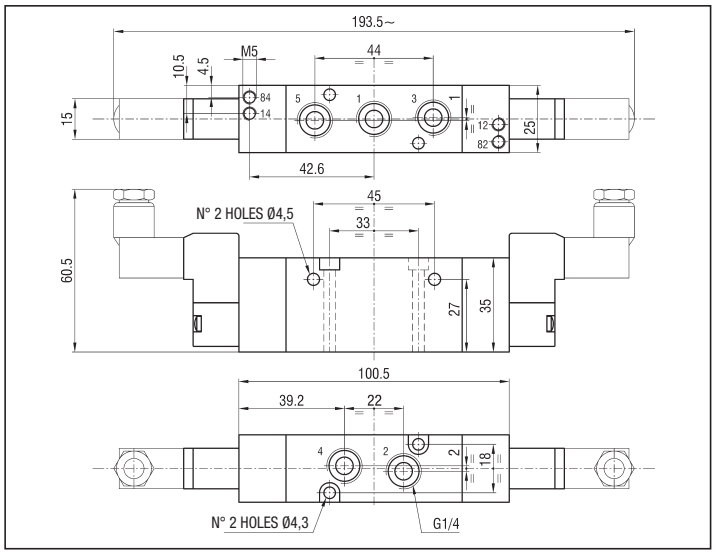
G 1/4 - 5 PORT

series MEK

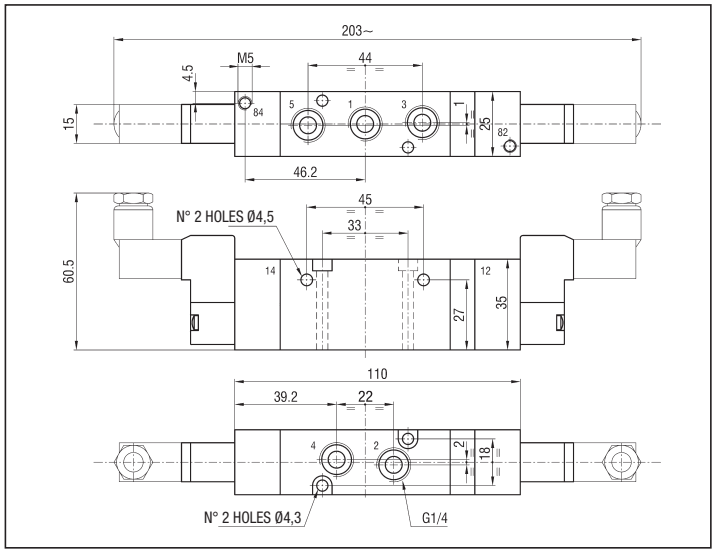
MEKCA4 KUC/KUC



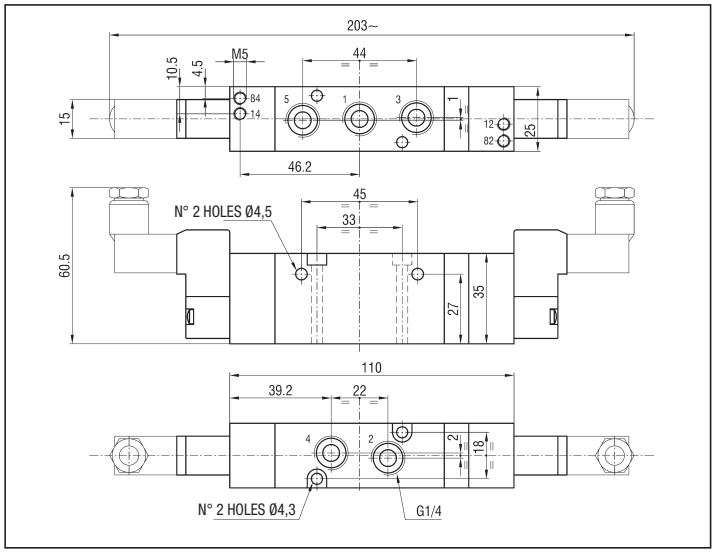
MEKCA4 KUR/KUR



MEKCA4 SUC/SUC - MEKCA4 AUC/AUC - MEKCA4 PUC/PUC



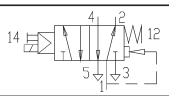
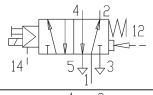
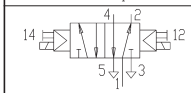
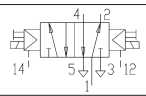
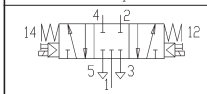
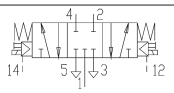
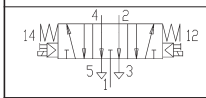
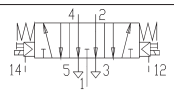
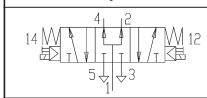
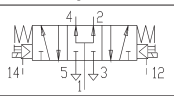
MEKCA4 SUR/SUR - MEKCA4 AUR/AUR - MEKCA4 PUR/PUR



series MEK

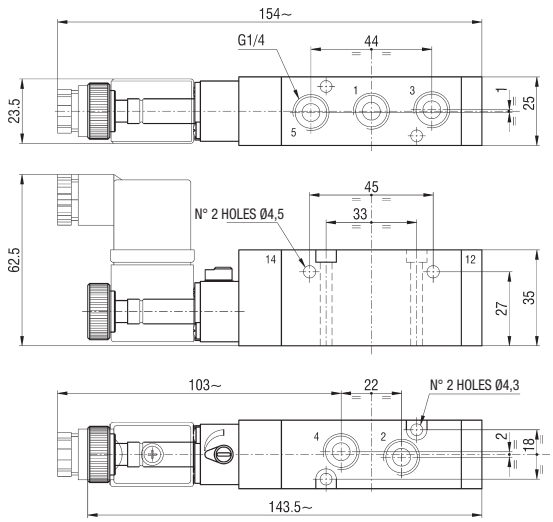
G 1/4 - 5 PORT

SOLENOID ACTUATED VALVES WITH SLEEVE Ø 9 mm G 1/4

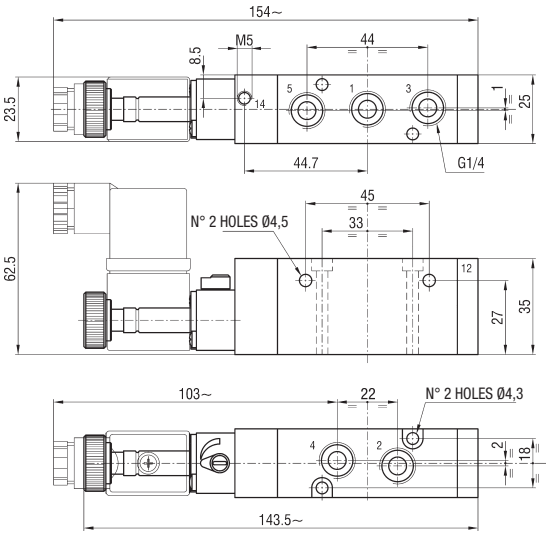
Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized			
	5/2 monostable	Solenoid	Pneumomechanical spring	22	24	900	210	MEKCA4 KUCG/ZQ
		Solenoid pilot assisted	Pneumomechanical spring pilot assisted					MEKCA4 KURG/ZQ
	5/2 bistable	Solenoid	Solenoid	16	16	900	260	MEKCA4 KUCG/KUCG
		Solenoid pilot assisted	Solenoid pilot assisted					MEKCA4 KURG/KURG
	5/3 closed centre	Solenoid	Mechanical spring	21	30	600	280	MEKCA4 SUCG/SUCG
		Solenoid pilot assisted	Mechanical spring					MEKCA4 SURG/SURG
	5/3 open centre	Solenoid	Mechanical spring	18	30	600	280	MEKCA4 AUCG/AUCG
		Solenoid pilot assisted	Mechanical spring					MEKCA4 AURG/AURG
	5/3 pressure centre	Solenoid	Mechanical spring	15	30	600	280	MEKCA4 PUCG/PUCG
		Solenoid pilot assisted	Mechanical spring					MEKCA4 PURG/PURG

* THE TYPES OF THE SOLENOID VALVES DO NOT INCLUDE COILS

MEKCA4 KUCG/ZQ



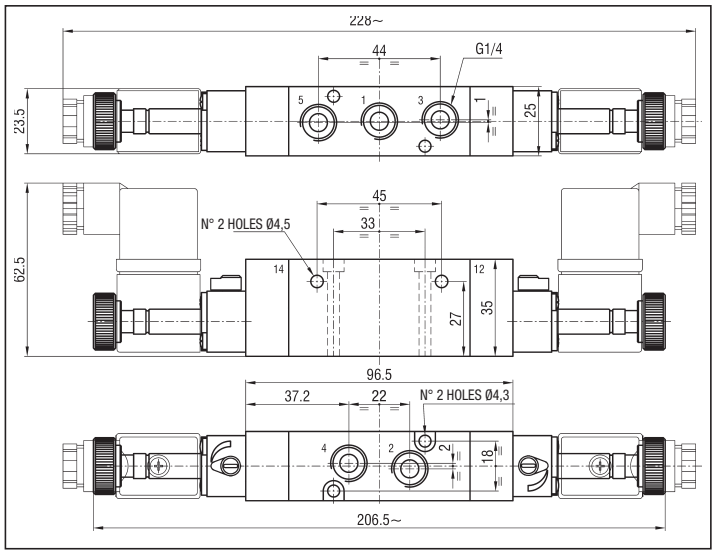
MEKCA4 KURG/ZQ



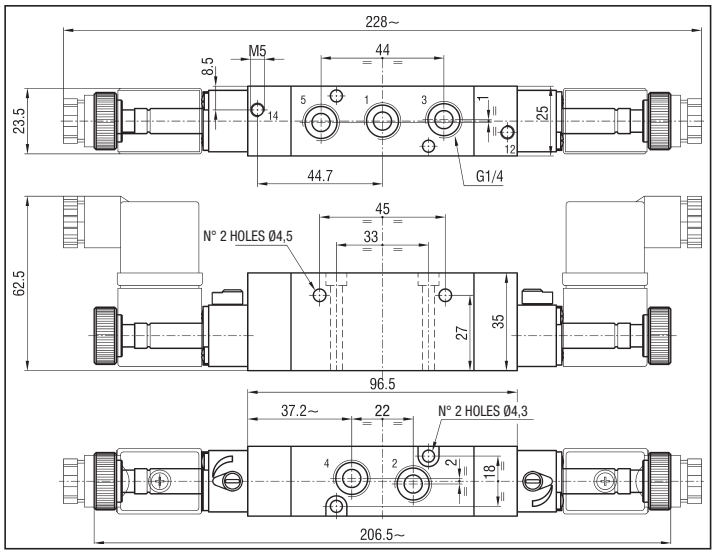
G 1/4 - 5 PORT

series MEK

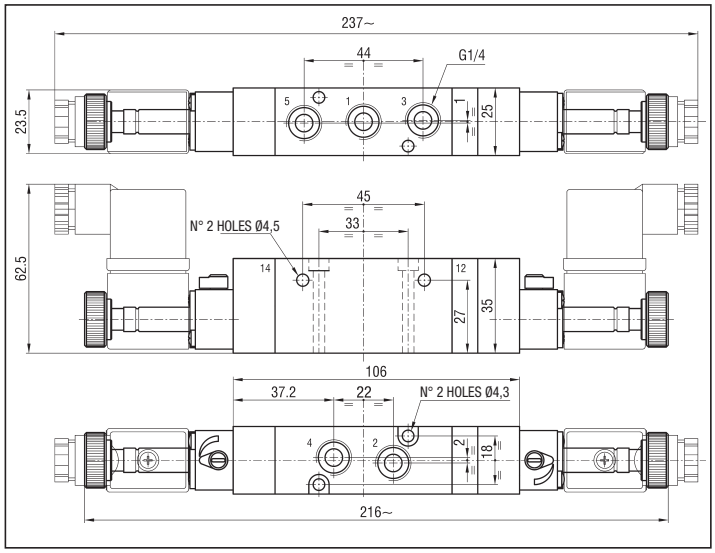
MEKCA4 KUCG/KUCG



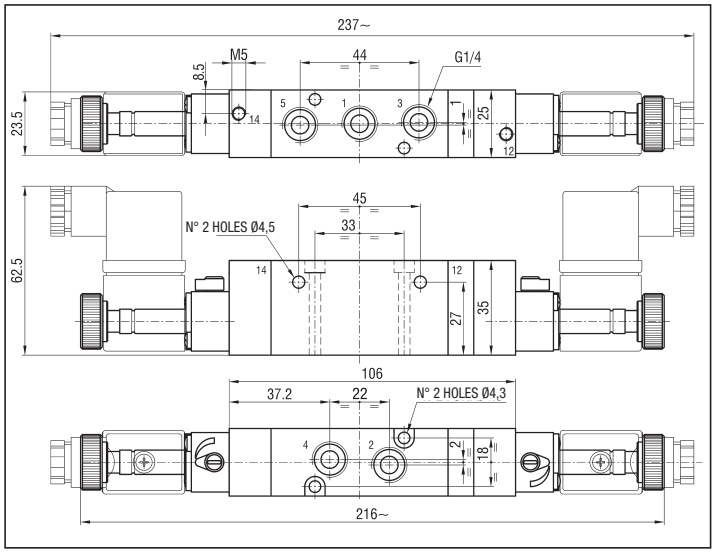
MEKCA4 KURG/KURG



MEKCA4 SUCG/SUCG - MEKCA4 PUCG/PUCG - MEKCA4 AUCG/AUCG



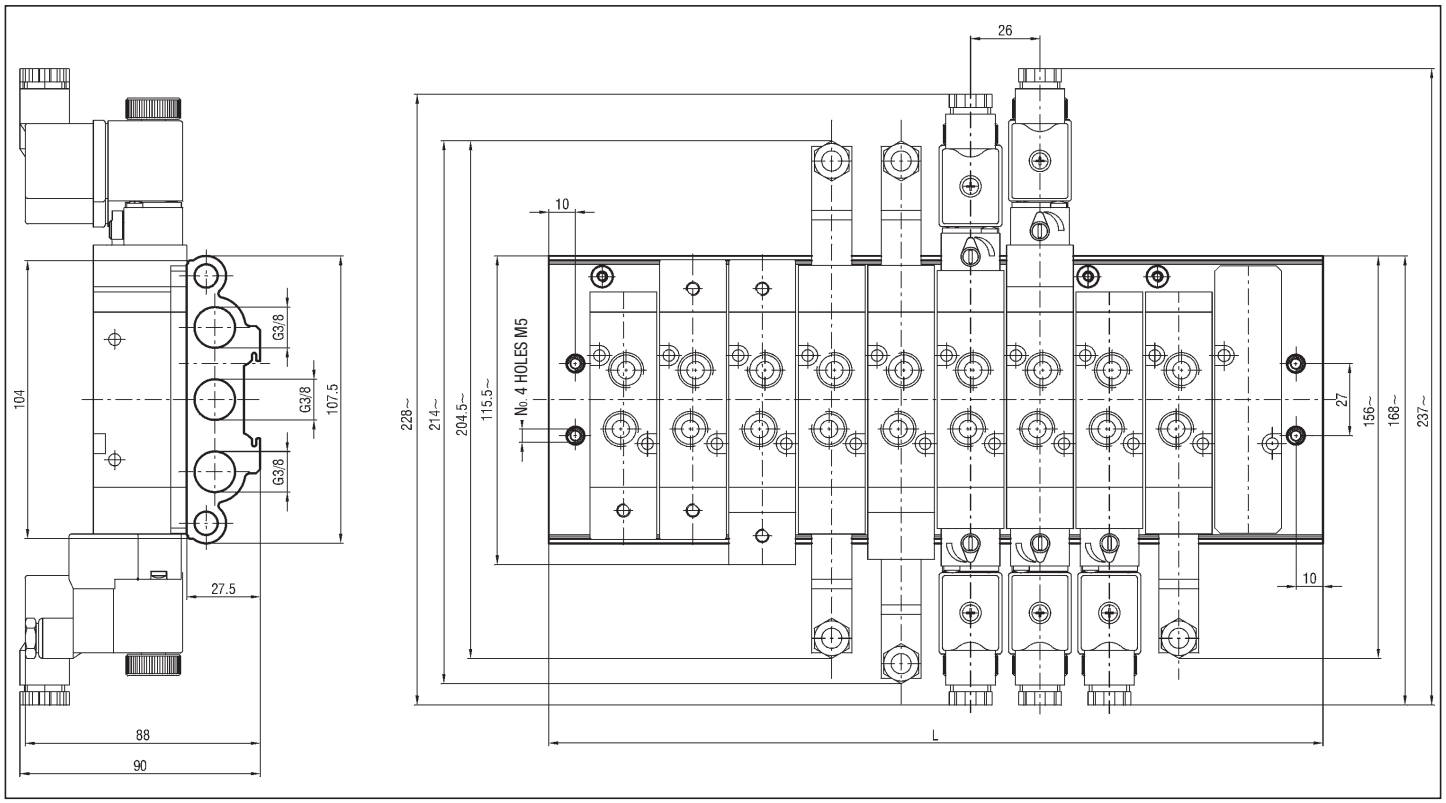
MEKCA4 SURG/SURG - MEKCA4 PURG/PURG - MEKCA4 AURG/AURG



series MEK

Accessories
Bases G 1/4

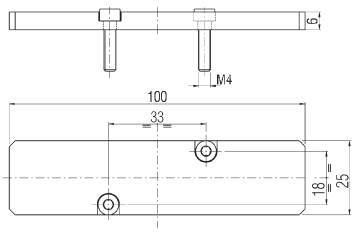
BASE FOR MANIFOLD MOUNTING OF VALVES G 1/4 - KB/MEK4 - Fit for mounting onto DIN 46277/3 rail



N° of stations	2	3	4	5	6	8	10	12	14	16	18	20
L	82	108	134	160	186	238	290	342	394	446	498	550
Weight (g)	370	475	580	685	790	1000	1210	1220	1630	1840	2050	2260
TYPE*	**KB/MEK4/2**	**KB/MEK4/3**	**KB/MEK4/4**	**KB/MEK4/5**	**KB/MEK4/6**	**KB/MEK4/8**	**KB/MEK4/10**	**KB/MEK4/12**	**KB/MEK4/14**	**KB/MEK4/16**	**KB/MEK4/18**	**KB/MEK4/20**

* BASES ARE SUPPLIED COMPLETE WITH SCREWS AND SEALS

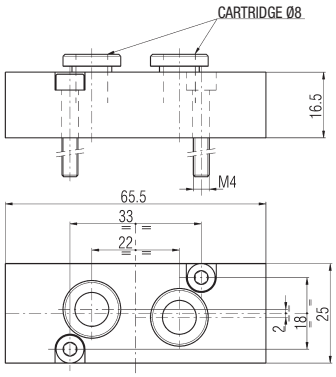
BLANKING PLATE - KIT/PC /MEK4



BLANKING PLATE IS SUPPLIED COMPLETE WITH SCREWS AND SEALS

WEIGHT 50 g

PLATE WITH PUSH-IN FITTING FOR PIPE Ø 8 mm - KIT/IR/MEK4



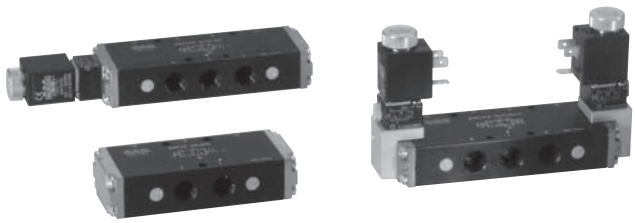
WEIGHT 90 g

Spool valves pilot and solenoid actuated G 1/8 - G 1/4 - G 1/2

series EK

DESCRIPTION

Valves series "EK" are produced in the 3/2, 5/2 and 5/3 pneumatic functions. The piloting solenoid valve can be assembled perpendicular respect the body valve, thanks to a suitable bracket. The kind of construction is based on a balanced spool with static seal, being the seals supported by distance rings integral to the body. This series of valves, in the size G 1/8 and G 1/4, is prearranged for both manifold mounting (conveyed inlet and exhausts), or supply rail mounting (conveyed inlet), by means of rear notch screws. The versions size G 1/4 - 5 port are available even with “Namur” port pattern.



TECHNICAL DATA

Operating pressure	Monostable: 2,5 ÷ 10 bar Bistable: 2 ÷ 10 bar
Working temperature	0 ÷ +70 °C (-20 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Port size	G 1/8 - G 1/4 - G 1/2
Pneumatic piloting port size	G 1/8
Nominal diameter	G 1/8 = 5 mm; G 1/4 = 7 mm; G 1/2 = 12 mm
Piloting solenoid valve	C/USCSVP - see chapter Direct acting solenoid valves on page 2.11
Coils	USB - see chapter Coils on page 2.14 USBG - see chapter Coils on page 2.14*
Electric connectors	USR 102/N9 - see chapter Connectors on page 2.15 ULR1B - see chapter Connectors on page 2.15*

*Only for single valve
(coil and connector overcome the overall dimensions of the valves)

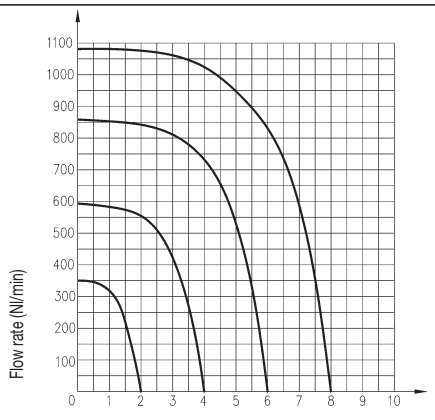
MATERIALS

Bottoms	Anodized aluminium alloy
Body	Anodized aluminium alloy
Distance rings	G 1/8 - G 1/4: Acetal resin G 1/2: Brass
Springs	Galvanized steel
Seals	NBR rubber
Spools	Anodized aluminium alloy
Piston	Anodized aluminium alloy

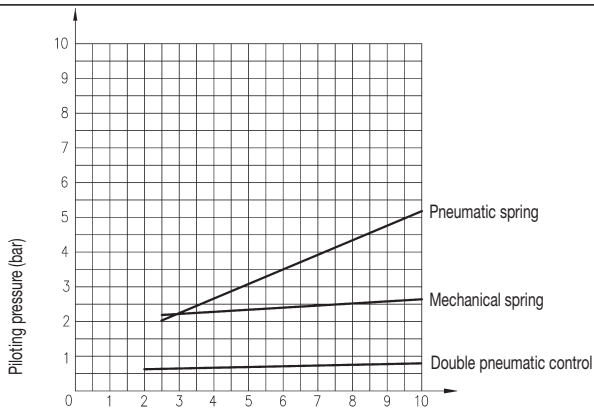
SPARE PARTS

SEALS KIT	
3 port G 1/8	EK/SG/8
3 port G 1/4	EK/SG/4
3 port G 1/2	EK/SG/2
5 port G 1/8	EKCA/SG/8
5 port G 1/4	EKCA/SG/4
5 port G 1/2	EKCA/SG/2
5 port G 1/4 Namur	ENCA/SG/4

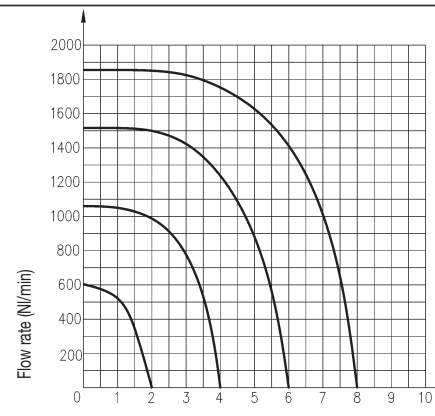
FLOW CHART - EK G 1/8 - 5/2



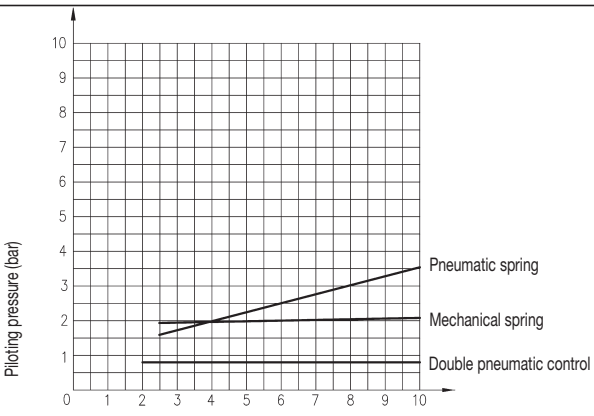
PILOTING CHART - EK G 1/8



FLOW CHART - EK G 1/4 - 5/2



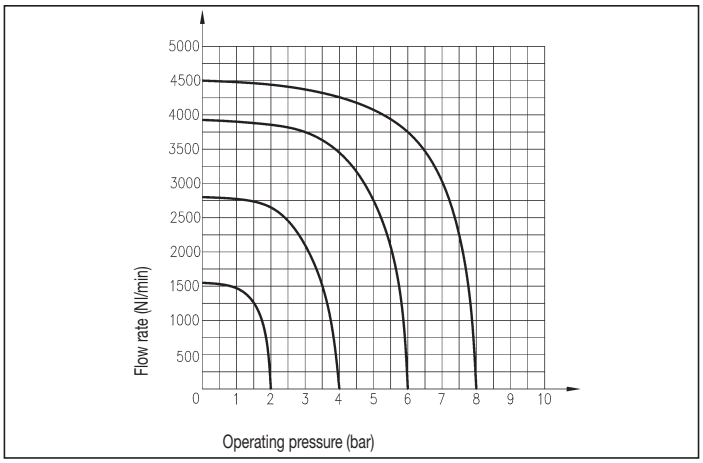
PILOTING CHART - EK G 1/4



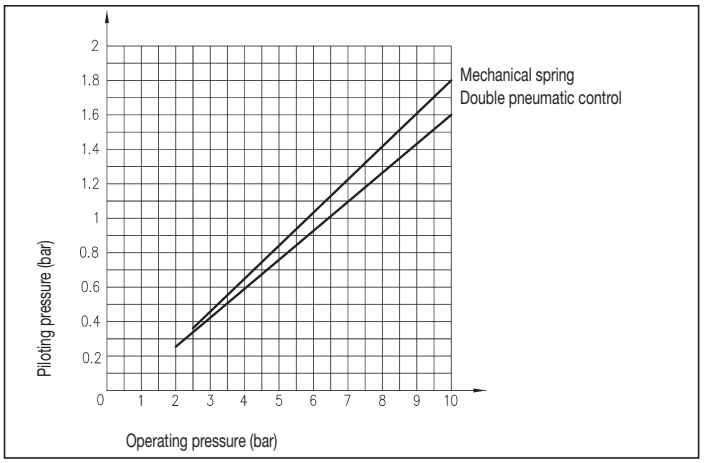
series EK

G 1/8 - 3 PORT

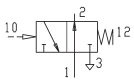
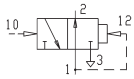
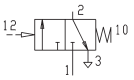
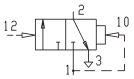
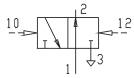
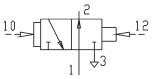
FLOW CHART - EK G 1/2 - 5/2



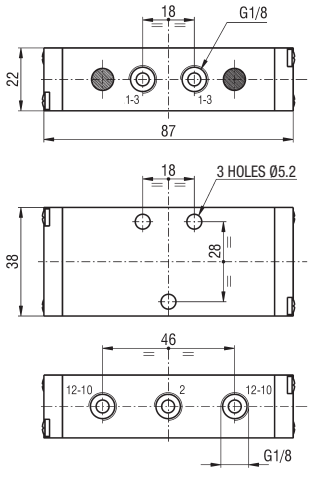
PILOTING CHART - EK G 1/2



PILOT ACTUATED VALVES G 1/8 - 3 PORT

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE
		Pilot	Return	Energized	De-energized			
	3/2 N.A. monostable	Pneumatic	Pneumatic spring	18	10	550	220	EKA8 KR/ZR
		Pneumatic	Pneumatic spring	26	16	550	215	EKA8 KR/TQ
	3/2 N.C. monostable	Pneumatic	Pneumatic spring	14	8	550	220	EKC8 KR/ZR
		Pneumatic	Pneumatic spring	30	28	550	215	EKC8 KR/TQ
	3/2 bistable	Pneumatic	Pneumatic	10	10	550	215	EK8 KR/KR
		Pneumatic	Pneumatic differential	10	15	550	215	EK8 KR/TR

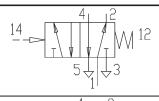
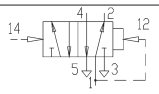
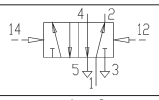
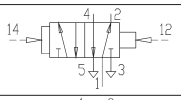
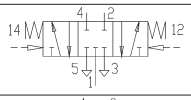
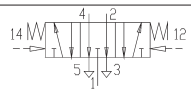
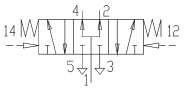
3 PORT



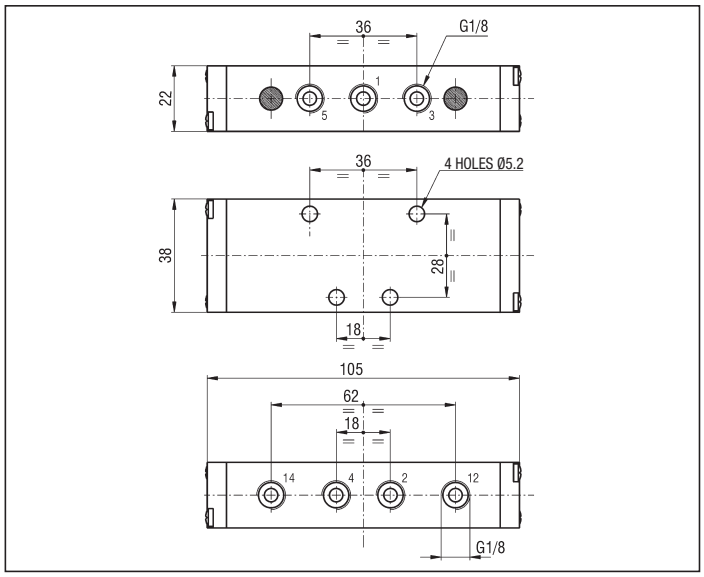
G 1/8 - 5 PORT

series EK

PILOT ACTUATED VALVES G 1/8 - 5 PORT

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE
		Pilot	Return	Energized	De-energized			
	5/2 monostable	Pneumatic	Mechanical spring	20	10	550	270	EKCA8 KR/ZR
		Pneumatic	Mechanical spring	25	15	550	260	EKCA8 KR/TQ
	5/2 bistable	Pneumatic	Pneumatic	10	10	550	230	EKCA8 KR/KR
		Pneumatic	Pneumatic differential	12	15	550	230	EKCA8 KR/TR
	5/3 closed centre	Pneumatic	Mechanical spring	18	25	425	285	EKCA8 SR/SR
	5/3 open centre	Pneumatic	Mechanical spring	18	25	500	285	EKCA8 AR/AR
	5/3 pressure centre	Pneumatic	Mechanical spring	15	20	425	285	EKCA8 PR/PR

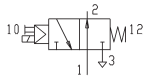
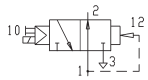
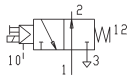
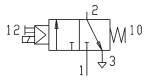
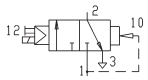
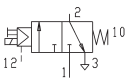
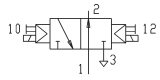
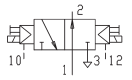
5 PORT



series EK

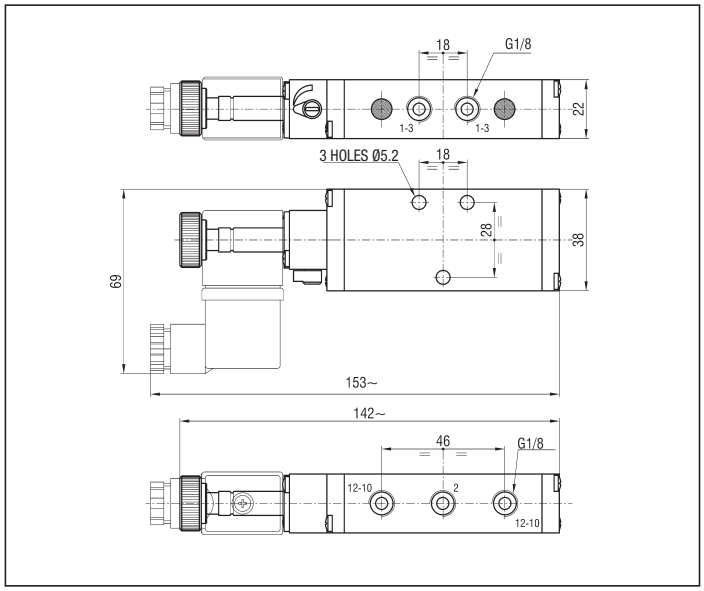
G 1/8 - 3 PORT

SOLENOID ACTUATED VALVES G 1/8 - 3 PORT

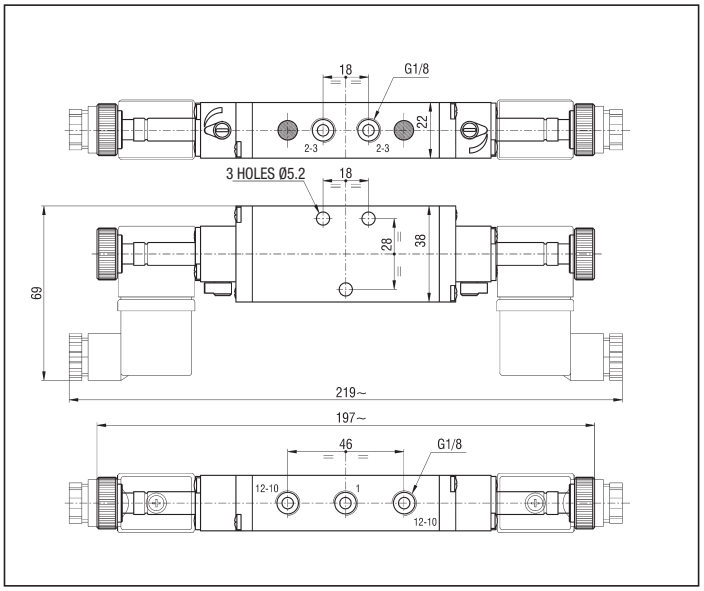
Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized			
	3/2 N.O. monostable	Solenoid	Mechanical spring	24	28	550	250	EKA8 KUC/ZR
		Solenoid	Pneumatic spring	18	27	550	245	EKA8 KUC/TQ
		Solenoid pilot assisted	Mechanical spring	24	28	550	250	EKA8 KUR/ZR
	3/2 N.C. monostable	Solenoid	Mechanical spring	32	31	550	250	EKC8 KUC/ZR
		Solenoid	Pneumatic spring	22	28	550	245	EKC8 KUC/TQ
		Solenoid pilot assisted	Mechanical spring	32	31	550	250	EKC8 KUR/ZR
	3/2 bistable	Solenoid	Solenoid	21	21	550	290	EK8 KUC/KUC
		Solenoid pilot assisted	Solenoid pilot assisted	21	21	550	290	EK8 KUR/KUR

P.S.: SUBSTITUTE THE LETTER "U" WITH THE LETTER "L" IN EACH SOLENOID CONTROL TYPE TO ORDER THE SOLENOID ACTUATED VALVES WITH SOLENOID AT 90° RESPECT THE BODY OF THE VALVE. E.G.: EKC8 KUC/TQ BECOMES EKC8 KLC/TQ (SEE ON PAGE 2.59 FOR THE MISSING DIMENSIONS)
*THE TYPES OF THE SOLENOID VALVES DO NOT INCLUDE COILS

3 PORT MONOSTABLE



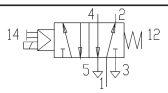
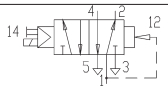
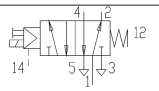
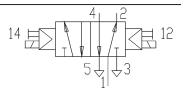
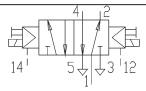
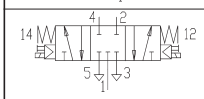
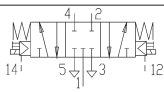
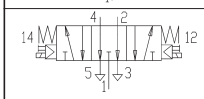
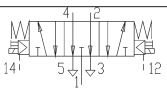
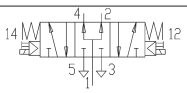
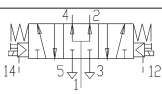
3 PORT BISTABLE



G 1/8 - 5 PORT

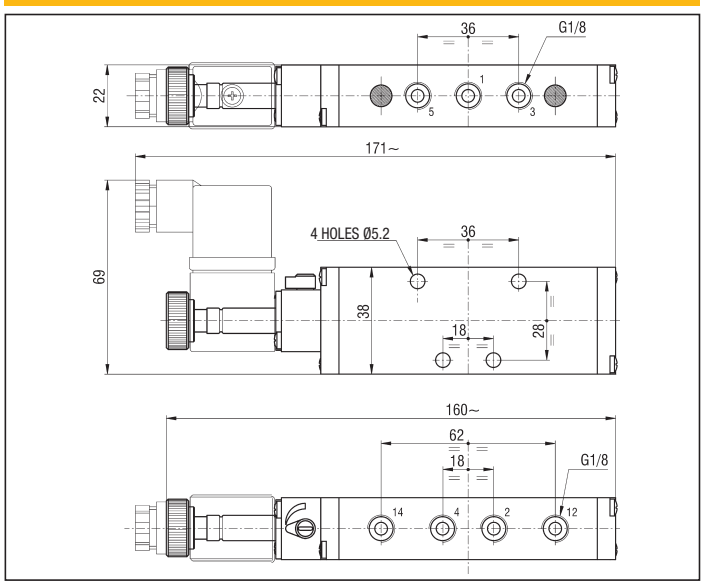
series EK

SOLENOID ACTUATED VALVES G 1/8 - 5 PORT

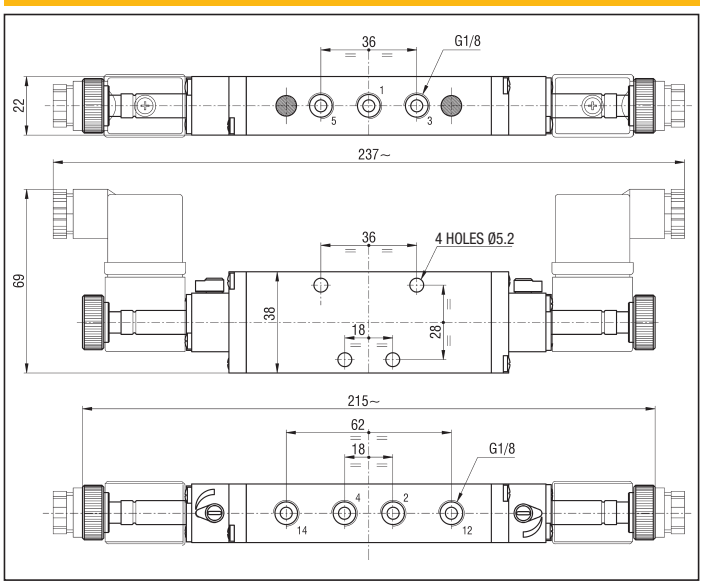
Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized			
	5/2 monostable	Solenoid	Mechanical spring	20	30	550	300	EKCA8 KUC/ZR
		Solenoid	Pneumatic spring	27	39	550	300	EKCA8 KUC/TQ
		Solenoid pilot assisted	Mechanical spring	20	30	550	300	EKCA8 KUR/ZR
	5/2 bistable	Solenoid	Solenoid	18	18	550	325	EKCA8 KUC/KUC
		Solenoid pilot assisted	Solenoid pilot assisted	18	18	550	325	EKCA8 KUR/KUR
	5/3 closed centre	Solenoid	Mechanical spring	23	37	425	335	EKCA8 SUC/SUC
		Solenoid pilot assisted	Mechanical spring	23	37	425	335	EKCA8 SUR/SUR
	5/3 open centre	Solenoid	Mechanical spring	23	37	500	345	EKCA8 AUC/AUC
		Solenoid pilot assisted	Mechanical spring	23	37	500	345	EKCA8 AUR/AUR
	5/3 pressure centre	Solenoid	Mechanical spring	20	35	425	335	EKCA8 PUC/PUC
		Solenoid pilot assisted	Mechanical spring	20	25	425	335	EKCA8 PUR/PUR

P.S.: SUBSTITUTE THE LETTER "U" WITH THE LETTER "L" IN EACH SOLENOID CONTROL TYPE TO ORDER THE SOLENOID ACTUATED VALVES WITH SOLENOID AT 90° RESPECT THE BODY OF THE VALVE. E.G.: EKCA8 KUC/TQ BECOMES EKCA8 KLC/TQ (SEE ON PAGE 2.59 FOR THE MISSING DIMENSIONS)
*THE TYPES OF THE SOLENOID VALVES DO NOT INCLUDE COILS

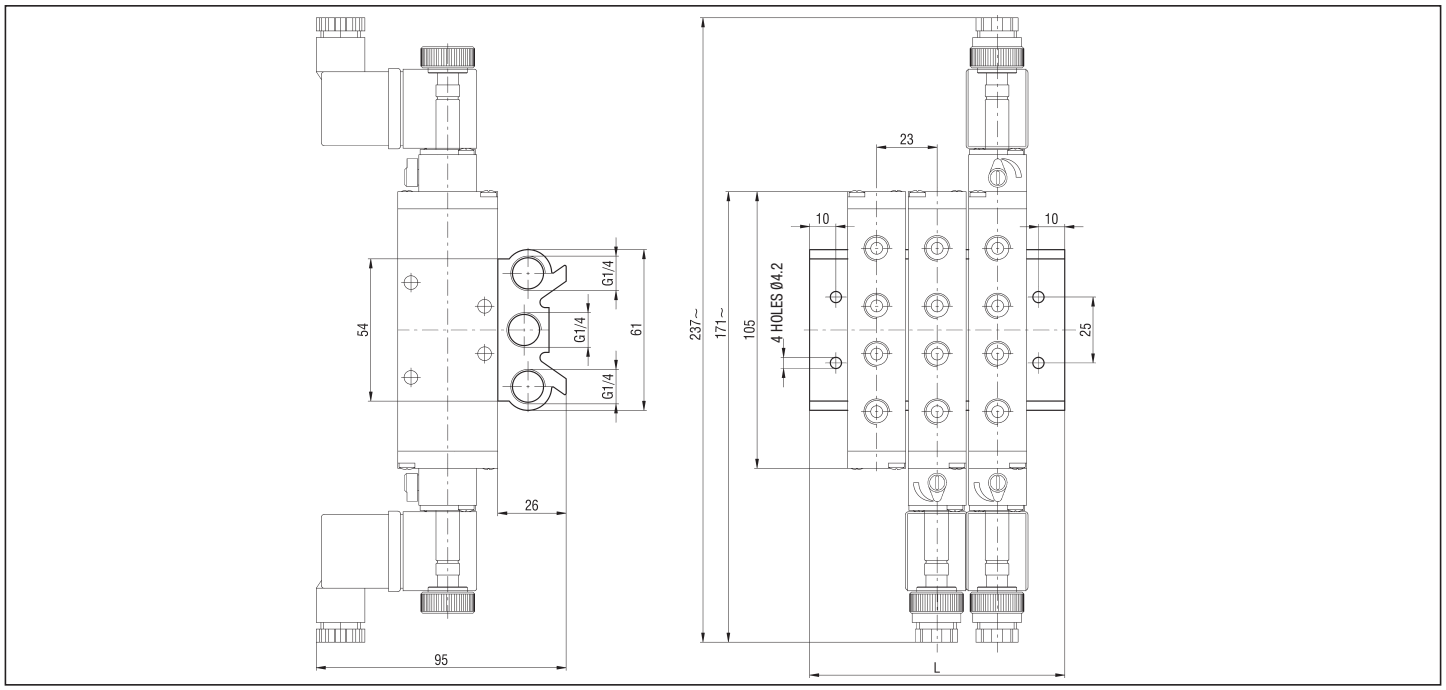
5 PORT MONOSTABLE



5 PORT AND 3 POSITION BISTABLE



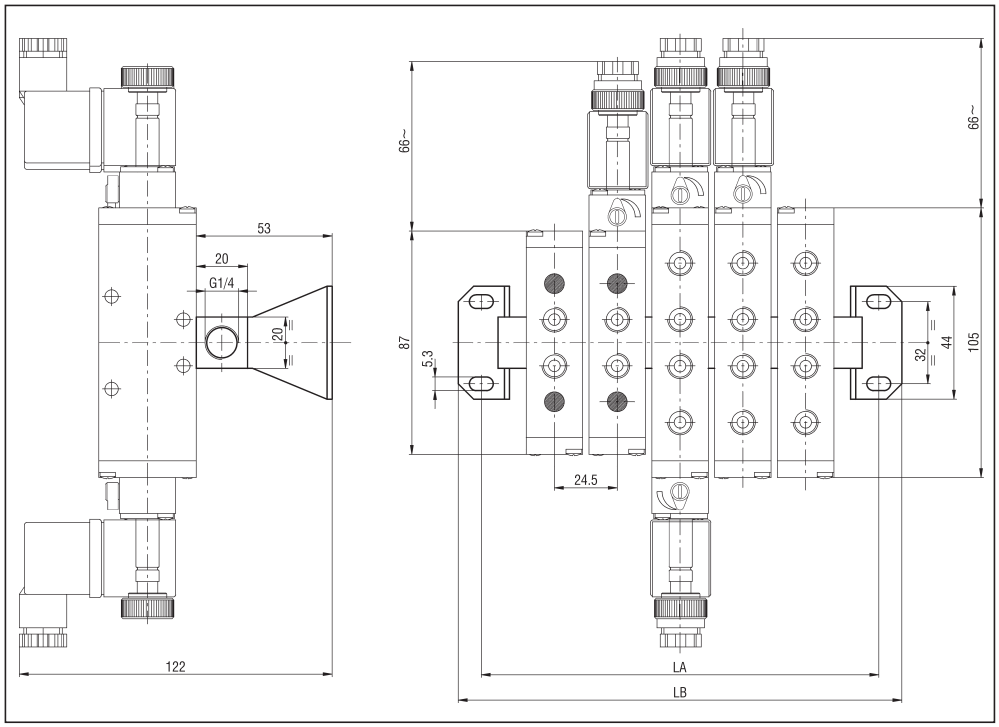
BASE FOR MANIFOLD MOUNTING OF VALVES G 1/8 - KB/EK8



No. of stations	2	3	4	5	6	8	10	12	14	16	18	20
L	74	97	120	143	166	212	258	304	350	396	442	488
Weight *(g)*	220	285	350	415	480	610	740	870	1000	1130	1260	1390
TYPE*	**KB/EK8/2**	**KB/EK8/3**	**KB/EK8/4**	**KB/EK8/5**	**KB/EK8/6**	**KB/EK8/8**	**KB/EK8/10**	**KB/EK8/12**	**KB/EK8/14**	**KB/EK8/16**	**KB/EK8/18**	**KB/EK8/20**

* BASES ARE SUPPLIED COMPLETE WITH NOTCH SCREWS AND SEALS

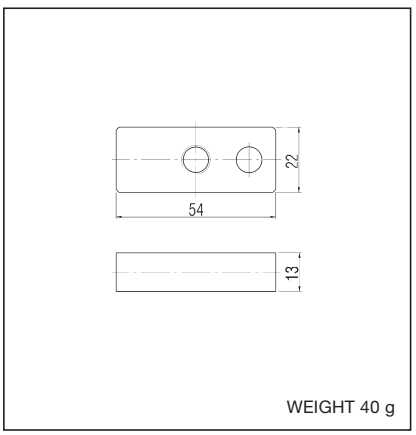
SUPPLY RAIL FOR MANIFOLD MOUNTING OF VALVES G 1/8 - CEK8



No. of stations	2	3	5
LA	83	105	150
LB	101	123	168
Weight *(g)*	135	170	240
TYPE*	**CEK8/2**	**CEK8/3**	**CEK8/5**

* SUPPLY RAILS ARE SUPPLIED COMPLETE WITH NOTCH SCREWS, SEALS AND FIXING BRACKETS

BLANKING PLATE - KIT /PC/EK8

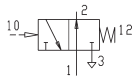
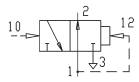
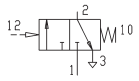
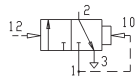
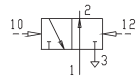
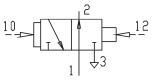


WEIGHT 40 g

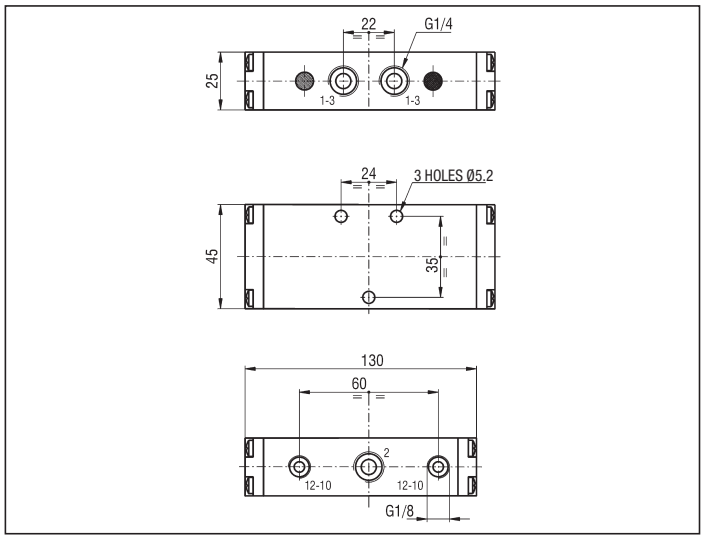
G 1/4 - 3 PORT

series EK

PILOT ACTUATED VALVES G 1/4 - 3 PORT

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE
		Pilot	Return	Energized	De-energized			
	3/2 N.O. monostable	Pneumatic	Mechanical spring	21	14	950	335	EKA4 KR/ZR
		Pneumatic	Pneumatic spring	28	10	950	325	EKA4 KR/TQ
	3/2 N.C. monostable	Pneumatic	Mechanical spring	21	14	950	335	EKC4 KR/ZR
		Pneumatic	Pneumatic spring	25	11	950	325	EKC4 KR/TQ
	3/2 bistable	Pneumatic	Pneumatic	11	11	950	330	EK4 KR/KR
		Pneumatic	Pneumatic differential	10	18	950	330	EK4 KR/TR

3 PORT

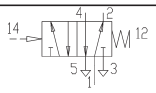
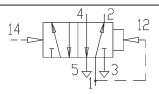
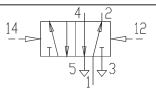
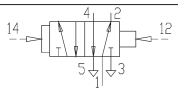
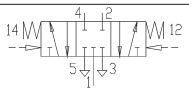
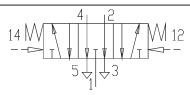
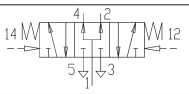


2

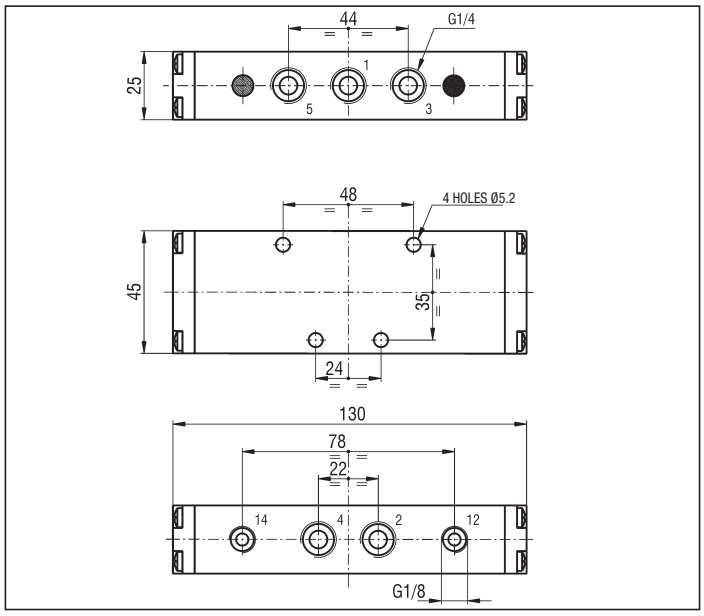
series EK

G 1/4 - 5 PORT

PILOT ACTUATED VALVES G 1/4 - 5 PORT

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE
		Pilot	Return	Energized	De-energized			
	5/2 monostable	Pneumatic	Mechanical spring	18	14	900	385	EKCA4 KR/ZR
		Pneumatic	Pneumatic spring	25	11	900	370	EKCA4 KR/TQ
	5/2 bistable	Pneumatic	Pneumatic	11	11	900	370	EKCA4 KR/KR
		Pneumatic	Pneumatic differential	10	20	900	370	EKCA4 KR/TR
	5/3 closed centre	Pneumatic	Mechanical spring	20	14	510	420	EKCA4 SR/SR
	5/3 open centre	Pneumatic	Mechanical spring	20	14	850	415	EKCA4 AR/AR
	5/3 pressure centre	Pneumatic	Mechanical spring	20	14	690	415	EKCA4 PR/PR

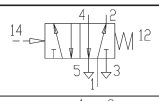
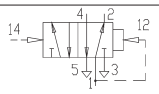
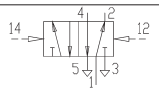
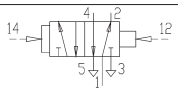
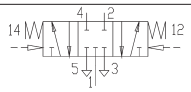
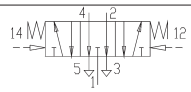
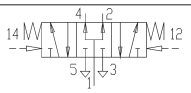
5 PORT



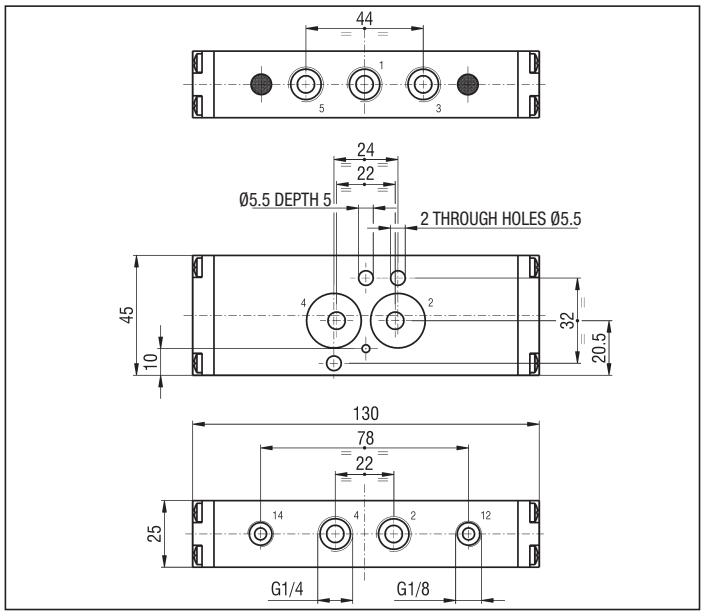
G 1/4 - 5 PORT

series EK

PILOT ACTUATED VALVES “NAMUR” PORT PATTERN - G 1/4 - 5 PORT

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE
		Pilot	Return	Energized	De-energized			
	5/2 monostable	Pneumatic	Mechanical spring	18	14	900	390	ENCA4 KR/ZR
		Pneumatic	Pneumatic spring	25	11	900	375	ENCA4 KR/TQ
	5/2 bistable	Pneumatic	Pneumatic	11	11	900	375	ENCA4 KR/KR
		Pneumatic	Pneumatic differential	10	20	900	375	ENCA4 KR/TR
	5/3 closed centre	Pneumatic	Mechanical spring	20	14	510	425	ENCA4 SR/SR
	5/3 open centre	Pneumatic	Mechanical spring	20	14	850	420	ENCA4 AR/AR
	5/3 pressure centre	Pneumatic	Mechanical spring	20	14	690	420	ENCA4 PR/PR

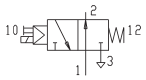
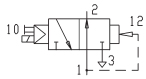
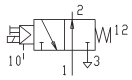
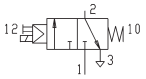
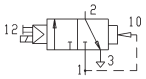
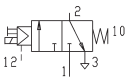
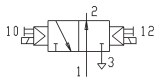
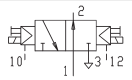
“NAMUR” PORT PATTERN - 5 PORT



series EK

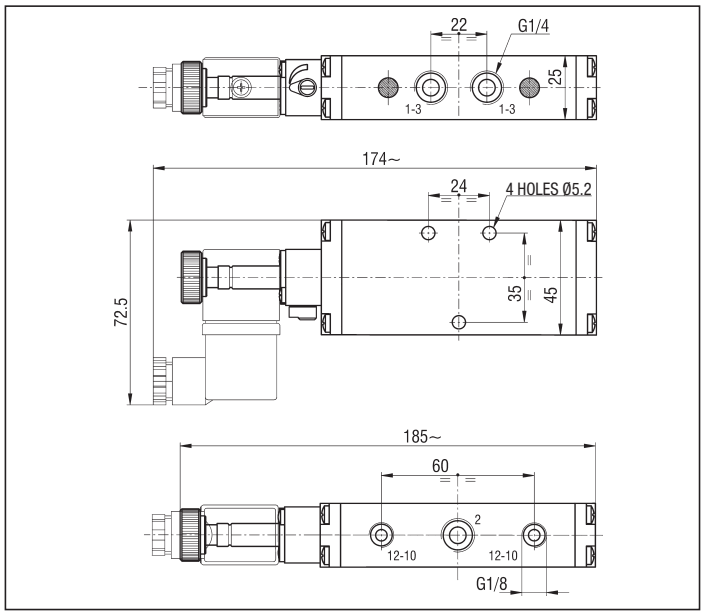
G 1/4 - 3 PORT

SOLENOID ACTUATED VALVES G 1/4 - 3 PORT

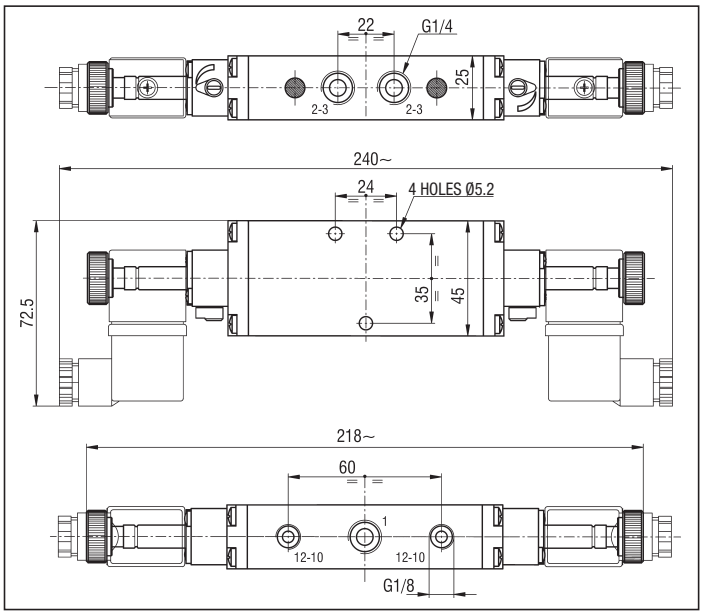
Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized			
	3/2 N.O. monostable	Solenoid	Mechanical spring	22	60	950	385	EKA4 KUC/ZR
		Solenoid	Pneumatic spring	24	50	950	370	EKA4 KUC/TQ
		Solenoid pilot assisted	Mechanical spring	22	60	950	385	EKA4 KUR/ZR
	3/2 N.C. monostable	Solenoid	Mechanical spring	22	60	950	385	EKC4 KUC/ZR
		Solenoid	Pneumatic spring	24	50	950	370	EKC4 KUC/TQ
		Solenoid pilot assisted	Mechanical spring	22	60	950	385	EKC4 KUR/ZR
	3/2 bistable	Solenoid	Solenoid	23	23	950	405	EK4 KUC/KUC
		Solenoid pilot assisted	Solenoid pilot assisted	23	23	950	405	EK4 KUR/KUR

P.S.: SUBSTITUTE THE LETTER "U" WITH THE LETTER "L" IN EACH SOLENOID CONTROL TYPE TO ORDER THE SOLENOID ACTUATED VALVES WITH SOLENOID AT 90° RESPECT THE BODY OF THE VALVE. E.G.: EKC4 KUC/TQ BECOMES EKC4 KLC/TQ (SEE ON PAGE 2.59 FOR THE MISSING DIMENSIONS)
*THE TYPES OF THE SOLENOID VALVES DO NOT INCLUDE COILS

3 PORT MONOSTABLE



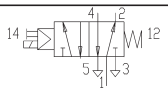
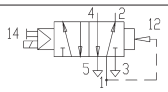
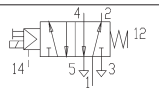
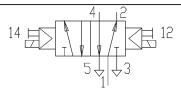
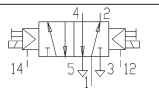
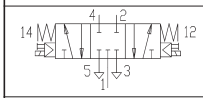
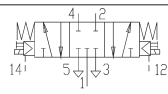
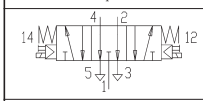
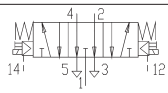
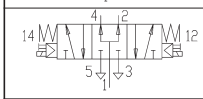
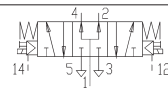
3 PORT BISTABLE



G 1/4 - 5 PORT

series EK

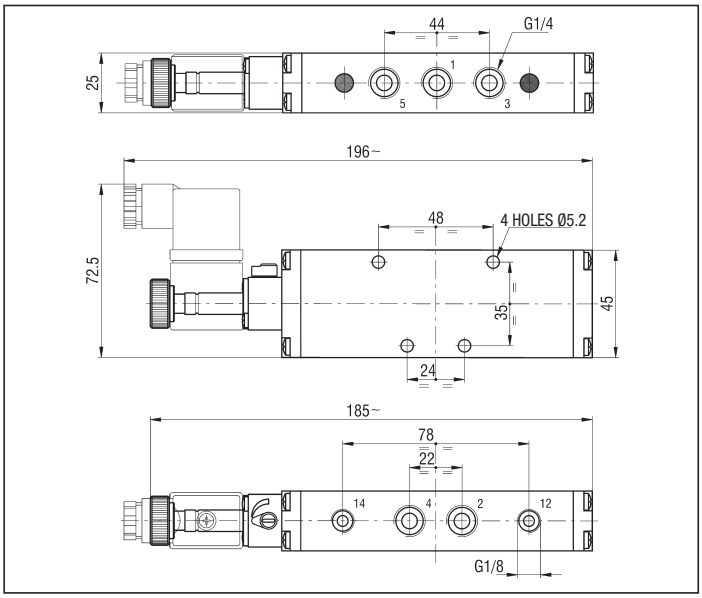
SOLENOID ACTUATED VALVES G 1/4 - 5 PORT

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized			
	5/2 monostable	Solenoid	Mechanical spring	32	65	900	430	EKCA4 KUC/ZR
		Solenoid	Pneumatic spring	32	65	900	415	EKCA4 KUC/TQ
		Solenoid pilot assisted	Mechanical spring	32	65	900	430	EKCA4 KUR/ZR
	5/2 bistable	Solenoid	Solenoid	21	21	900	475	EKCA4 KUC/KUC
		Solenoid pilot assisted	Solenoid pilot assisted	21	21	900	475	EKCA4 KUR/KUR
	5/3 closed centre	Solenoid	Mechanical spring	25	50	510	490	EKCA4 SUC/SUC
		Solenoid pilot assisted	Mechanical spring	25	50	510	490	EKCA4 SUR/SUR
	5/3 open centre	Solenoid	Mechanical spring	25	50	850	485	EKCA4 AUC/AUC
		Solenoid pilot assisted	Mechanical spring	25	50	850	485	EKCA4 AUR/AUR
	5/3 pressure centre	Solenoid	Mechanical spring	25	50	690	490	EKCA4 PUC/PUC
		Solenoid pilot assisted	Mechanical spring	25	50	690	490	EKCA4 PUR/PUR

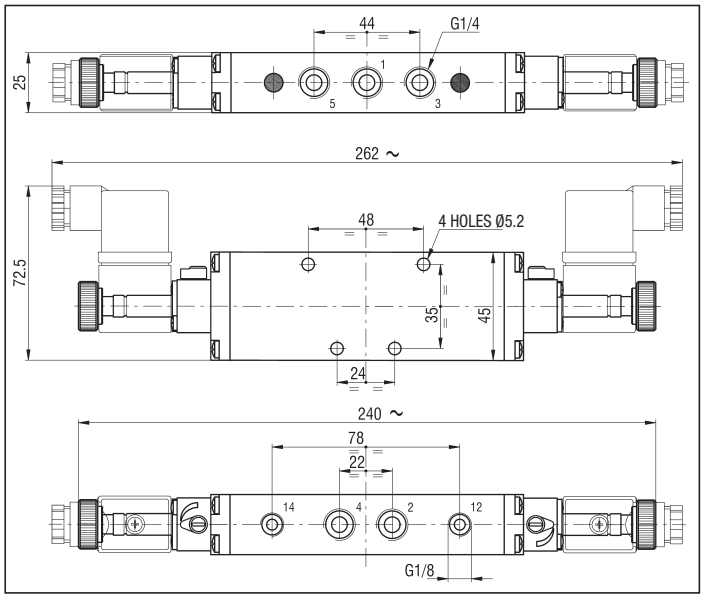
P.S.: SUBSTITUTE THE LETTER "U" WITH THE LETTER "L" IN EACH SOLENOID CONTROL TYPE TO ORDER THE SOLENOID ACTUATED VALVES WITH SOLENOID AT 90° RESPECT THE BODY OF THE VALVE. E.G.: EKCA4 KUC/TQ BECOMES EKCA4 KLC/TQ (SEE ON PAGE 2.59 FOR THE MISSING DIMENSIONS)

*THE TYPES OF THE SOLENOID VALVES DO NOT INCLUDE COILS

5 PORT MONOSTABLE



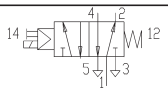
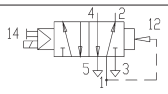
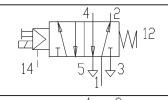
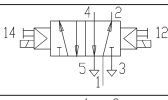
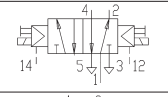
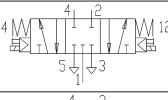
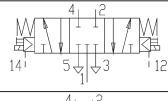
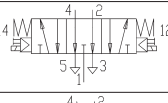
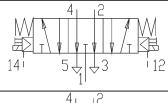
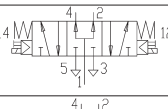
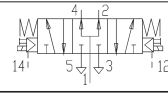
5 PORT AND 3 POSITION BISTABLE



series EK

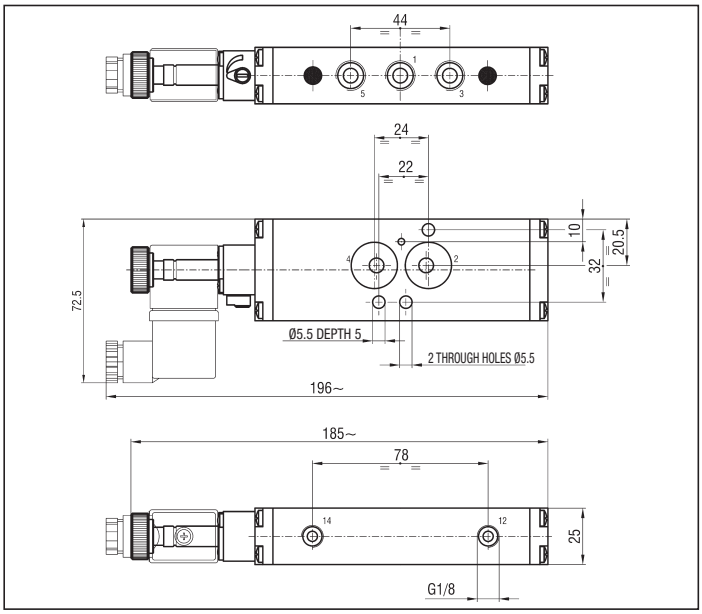
G 1/4 - 5 PORT

SOLENOID ACTUATED VALVES "NAMUR" PORT PATTERN - G 1/4 - 5 PORT

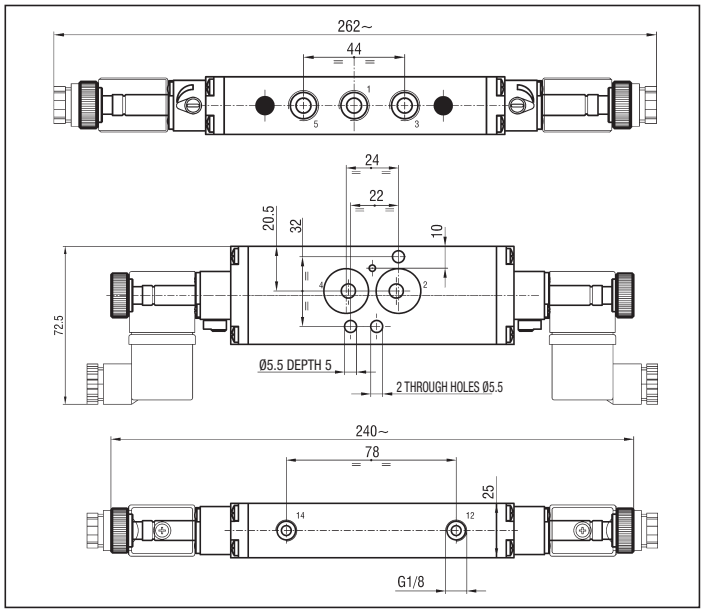
Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized			
	5/2 monostable	Solenoid	Mechanical spring	32	65	900	440	ENCA4 KUC/ZR
		Solenoid	Pneumatic spring	32	65	900	425	ENCA4 KUC/TQ
		Solenoid pilot assisted	Mechanical spring	32	65	900	440	ENCA4 KUR/ZR
	5/2 bistable	Solenoid	Solenoid	21	21	900	485	ENCA4 KUC/KUC
		Solenoid pilot assisted	Solenoid pilot assisted	21	21	900	485	ENCA4 KUR/KUR
	5/3 closed centre	Solenoid	Mechanical spring	25	50	510	500	ENCA4 SUC/SUC
		Solenoid pilot assisted	Mechanical spring	25	50	510	500	ENCA4 SUR/SUR
	5/3 open centre	Solenoid	Mechanical spring	25	50	850	495	ENCA4 AUC/AUC
		Solenoid pilot assisted	Mechanical spring	25	50	850	495	ENCA4 AUR/AUR
	5/3 pressure centre	Solenoid	Mechanical spring	25	50	690	500	ENCA4 PUC/PUC
		Solenoid pilot assisted	Mechanical spring	25	50	690	500	ENCA4 PUR/PUR

P.S.: SUBSTITUTE THE LETTER "U" WITH THE LETTER "L" IN EACH SOLENOID CONTROL TYPE TO ORDER THE SOLENOID ACTUATED VALVES WITH SOLENOID AT 90° RESPECT THE BODY OF THE VALVE.
E.G.: ENCA4 KUC/TQ BECOMES ENCA4 KLC/TQ (SEE ON PAGE 2.59 FOR THE MISSING DIMENSIONS) *THE TYPES OF THE SOLENOID VALVES DO NOT INCLUDE COILS

"NAMUR" PORT PATTERN - 5 PORT MONOSTABLE



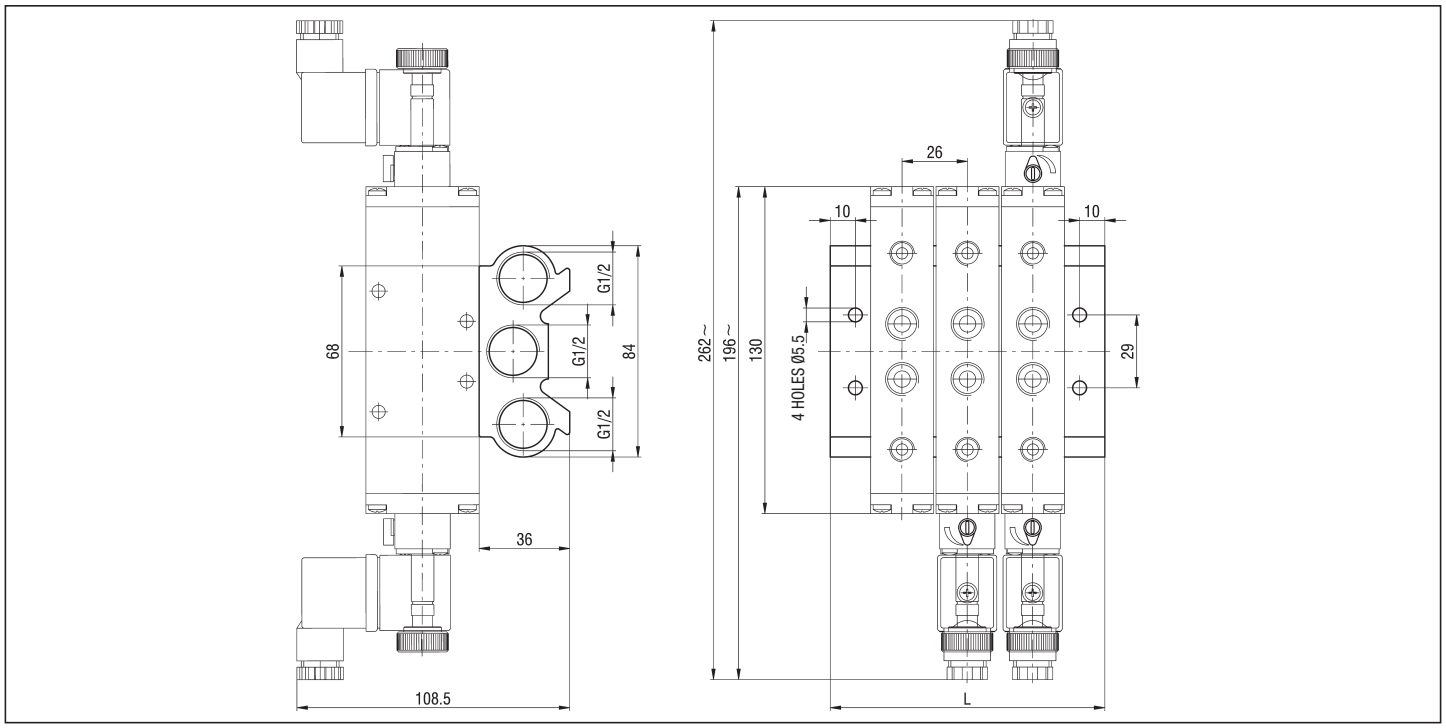
"NAMUR" PORT PATTERN - 5 PORT AND 3 POSITION BISTABLE



Accessories
Bases G 1/4

series EK

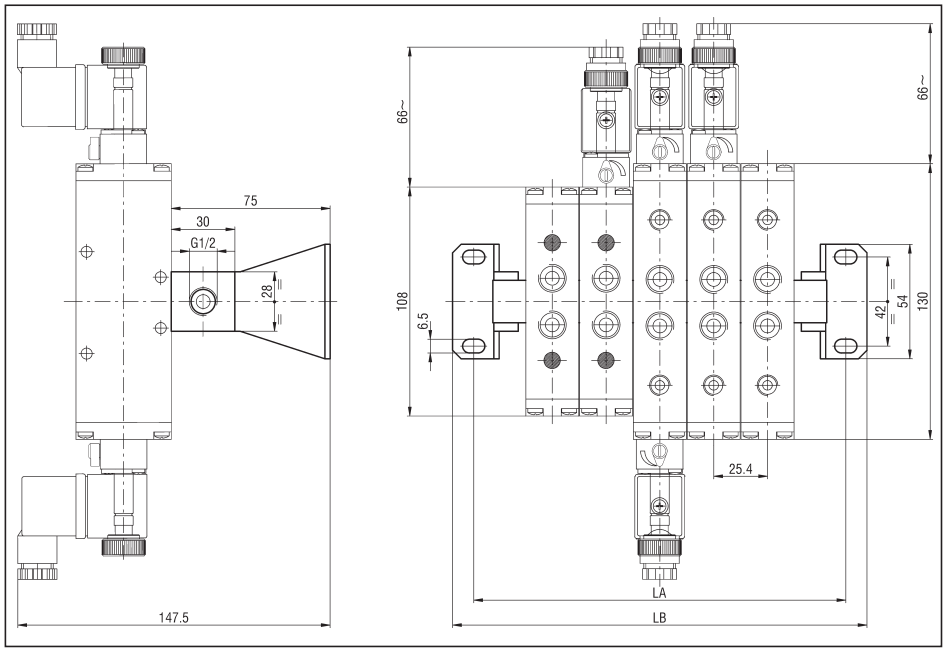
BASE FOR MANIFOLD MOUNTING OF VALVES G 1/4 - KB/EK4



No. of stations	2	3	4	5	6	8	10	12	14	16	18	20
L	83	109	135	161	187	239	291	343	395	447	499	551
Weight (g)	460	590	720	850	980	1240	1500	1760	2020	2280	2540	2800
TYPE*	**KB/EK4/2**	**KB/EK4/3**	**KB/EK4/4**	**KB/EK4/5**	**KB/EK4/6**	**KB/EK4/8**	**KB/EK4/10**	**KB/EK4/12**	**KB/EK4/14**	**KB/EK4/16**	**KB/EK4/18**	**KB/EK4/20**

* BASES ARE SUPPLIED COMPLETE WITH NOTCH SCREWS AND SEALS

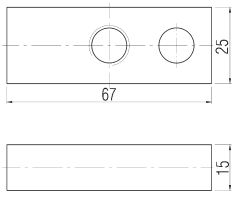
SUPPLY RAIL FOR MANIFOLD MOUNTING OF VALVES G 1/4 - CEK4



No. of stations	2	3	5
LA	99	125	176
LB	119	145	196
Weight (g)	310	390	550
TYPE*	**CEK4/2**	**CEK4/3**	**CEK4/5**

* SUPPLY RAILS ARE SUPPLIED COMPLETE WITH NOTCH SCREWS, SEALS AND FIXING BRACKETS

BLANKING PLATE - KIT/PC/EK4

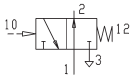
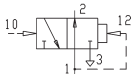
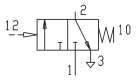
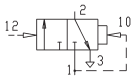
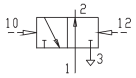


WEIGHT 65 g

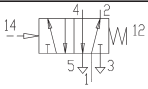
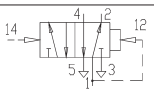
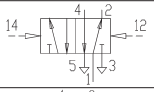
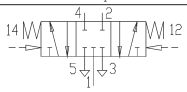
series EK

G 1/2 - 3 and 5 PORT

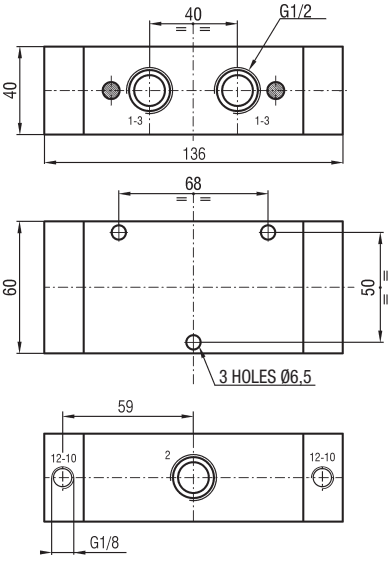
PILOT ACTUATED VALVES G 1/2 - 3 PORT

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE
		Pilot	Return	Energized	De-energized			
	3/2 N.O. monostable	Pneumatic	Mechanical spring	21	27	2400	770	EKA2 KR/ZR
	3/2 N.O. monostable	Pneumatic	Mechanical spring	21	27	2400	760	EKA2 KR/TQ
	3/2 N.C. monostable	Pneumatic	Mechanical spring	21	27	2200	770	EKC2 KR/ZR
	3/2 N.C. monostable	Pneumatic	Mechanical spring	21	27	2200	760	EKC2 KR/TQ
	3/2 bistable	Pneumatic	Pneumatic	20	20	2200	790	EK2 KR/KR

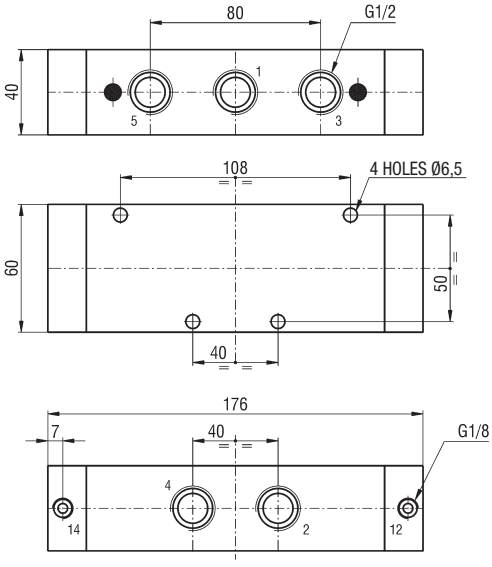
SOLENOID ACTUATED VALVES G 1/2 - 5 PORT

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE
		Pilot	Return	Energized	De-energized			
	5/2 monostable	Solenoid	Mechanical spring	21	27	2800	1010	EKCA2 KR/ZR
		Solenoid	Pneumatic spring	21	27	2800	1000	EKCA2 KR/TQ
	5/2 bistable	Solenoid	Solenoid	20	20	2800	1000	EKCA2 KR/KR
	5/3 closed centre	Solenoid	Mechanical spring	20	25	1700	1020	EKCA2 SR/SR

3 PORT BISTABLE



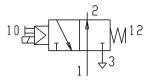
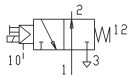
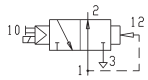
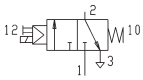
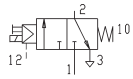
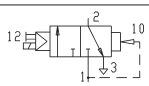
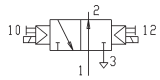
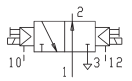
5 PORT BISTABLE



G 1/2 - 3 PORT

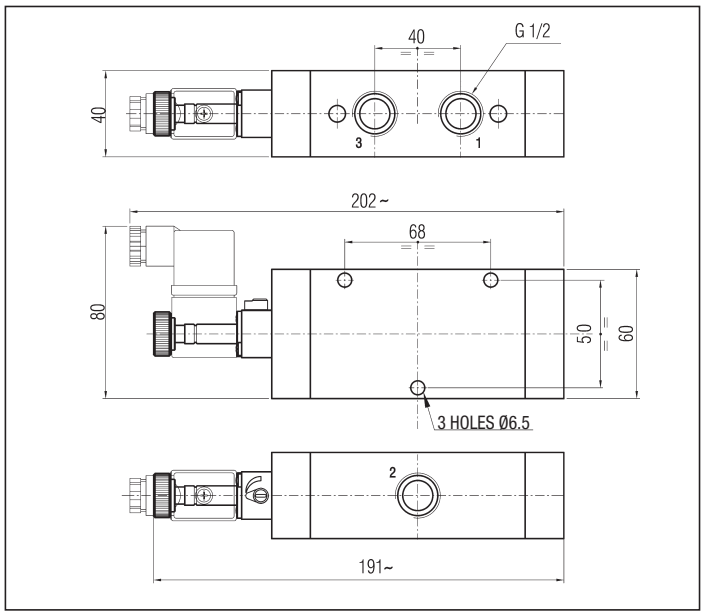
series EK

SOLENOID ACTUATED VALVES G 1/2 - 3 PORT

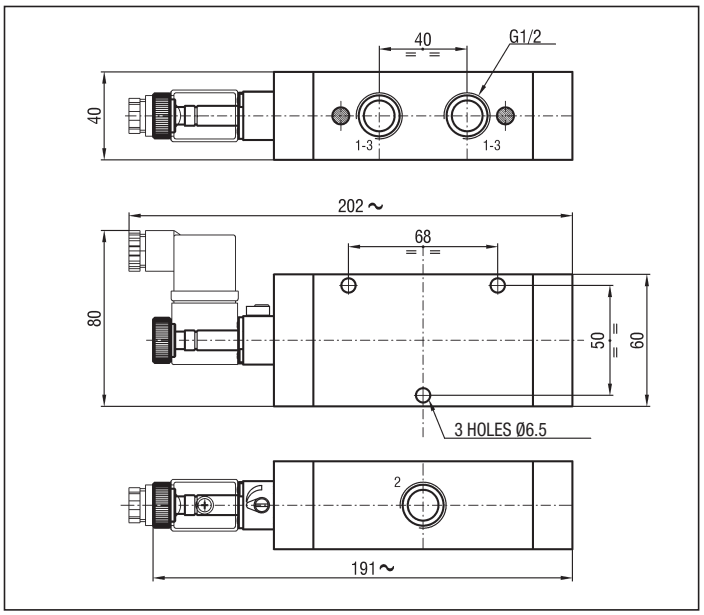
Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized			
	3/2 N.O. monostable	Solenoid	Mechanical spring	30	90	2400	800	EKA2 KUC/ZR
		Solenoid pilot assisted	Mechanical spring	30	90	2400	800	EKA2 KUR/ZR
		Solenoid	Mechanical spring	30	90	2400	790	EKA2 KUC/TQ
	3/2 N.C. monostable	Solenoid	Mechanical spring	30	90	2200	800	EKC2 KUC/ZR
		Solenoid pilot assisted	Mechanical spring	30	90	2200	800	EKC2 KUR/ZR
		Solenoid	Mechanical spring	30	90	2200	790	EKC2 KUC/TQ
	3/2 bistable	Solenoid	Solenoid	25	25	2200	850	EK2 KUC/KUC
		Solenoid pilot assisted	Solenoid pilot assisted	25	25	2200	850	EK2 KUR/KUR

P.S.: SUBSTITUTE THE LETTER “U” WITH THE LETTER “L” IN EACH SOLENOID CONTROL TYPE TO ORDER THE SOLENOID ACTUATED VALVES WITH SOLENOID AT 90° RESPECT THE BODY OF THE VALVE.
E.G.: EKA2 KUC/TQ BECOMES EKA2 KLC/TQ (SEE ON PAGE 2.59 FOR THE MISSING DIMENSIONS)
*THE TYPES OF THE SOLENOID VALVES DO NOT INCLUDE COILS

3 PORT MONOSTABLE



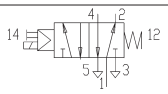
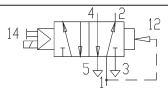
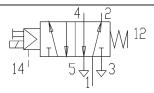
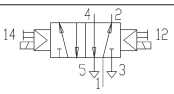
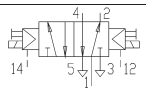
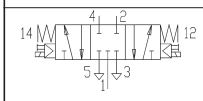
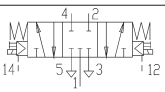
3 PORT BISTABLE



series EK

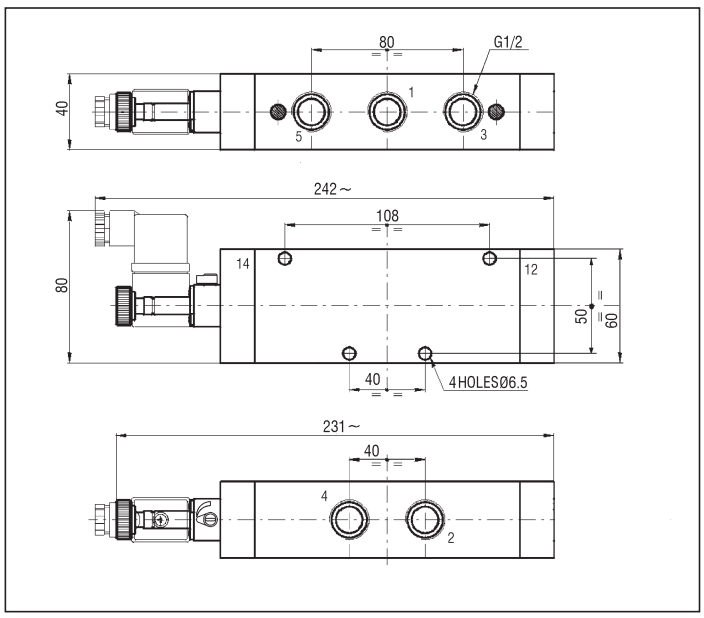
G 1/2 - 5 PORT

SOLENOID ACTUATED VALVES G 1/2 - 5 PORT

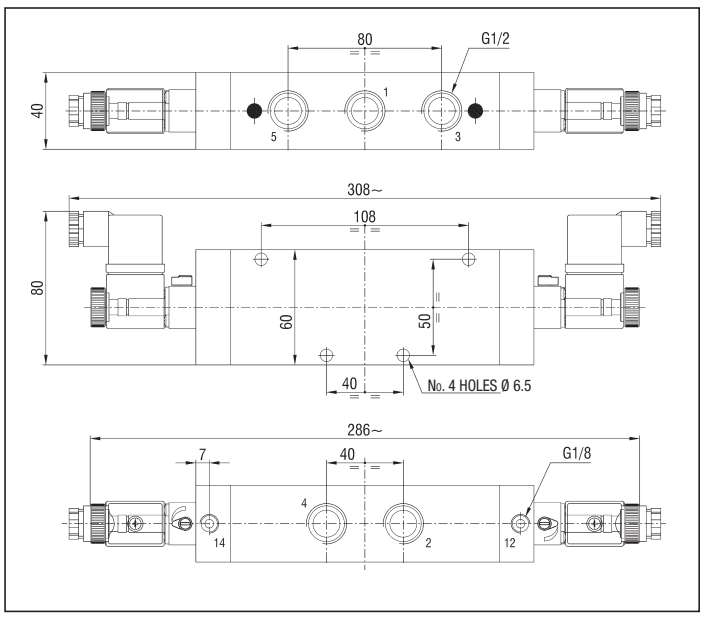
Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized			
	5/2 monostable	Solenoid	Mechanical spring	30	90	2800	1025	EKCA2 KUC/ZR
		Solenoid	Pneumatic spring	30	90	2800	1015	EKCA2 KUC/TQ
		Solenoid pilot assisted	Mechanical spring	30	90	2800	1025	EKCA2 KUR/ZR
	5/2 bistable	Solenoid	Solenoid	25	25	2800	1075	EKCA2 KUC/KUC
		Solenoid pilot assisted	Solenoid pilot assisted	25	25	2800	1075	EKCA2 KUR/KUR
	5/3 closed centre	Solenoid	Mechanical spring	25	80	1700	1085	EKCA2 SUC/SUC
		Solenoid pilot assisted	Mechanical spring	25	80	1700	1085	EKCA2 SUR/SUR

P.S.: SUBSTITUTE THE LETTER “U” WITH THE LETTER “L” IN EACH SOLENOID CONTROL TYPE TO ORDER THE SOLENOID ACTUATED VALVES WITH SOLENOID AT 90° RESPECT THE BODY OF THE VALVE.
E.G.: EKCA2 KUC/TQ BECOMES EKCA2 KLC/TQ (SEE ON PAGE 2.59 FOR THE MISSING DIMENSIONS)
*THE TYPES OF THE SOLENOID VALVES DO NOT INCLUDE COILS

5 VIE MONOSTABLE



5 VIE BISTABLE



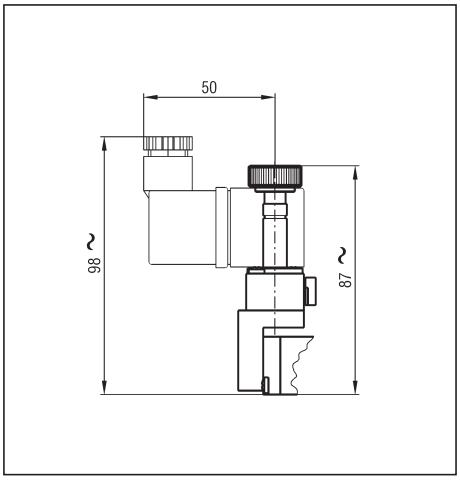
90° solenoid actuated valves

series EK

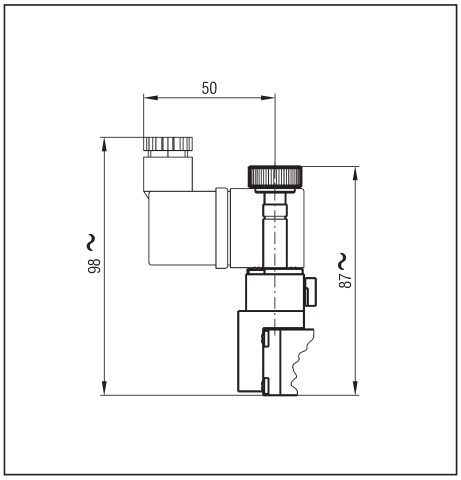
SOLENOID ACTUATED VALVES WITH SOLENOID AT 90°

SUBSTITUTE THE LETTER “U” WITH THE LETTER “L” IN EACH SOLENOID CONTROL TYPE TO ORDER THE SOLENOID ACTUATED VALVES WITH SOLENOID AT 90° RESPECT THE BODY OF THE VALVE. E.G.: EKCA2 KUC/TQ BECOMES EKCA2 KLC/TQ

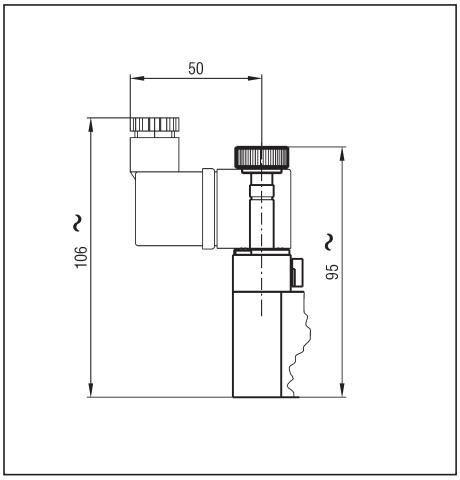
G 1/8



G 1/4

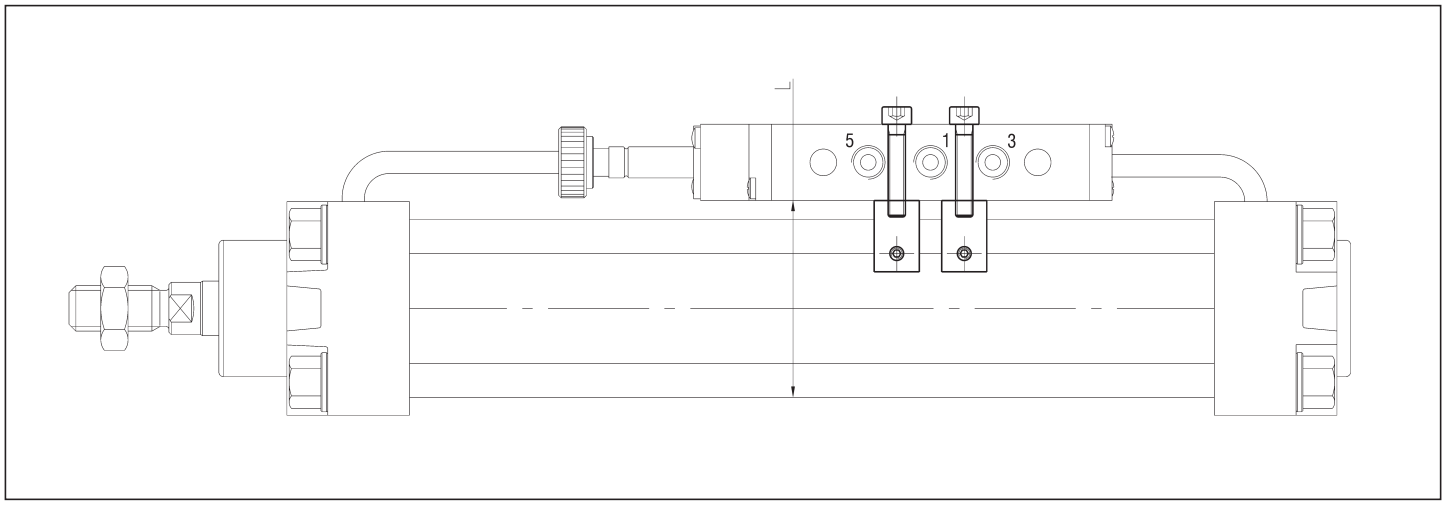


G 1/2



ACCESSORIES

MOUNTING BRACKET FOR PILOT AND SOLENOID ACTUATED VALVES TYPES EK 4 - EK 8 ON CYLINDER SERIES “CPUI”
(see from page 1.25)



Ø CYLINDER	L	TYPE*
32	50,5	SQ32-40/EK
40	57,5	
50	69	SQ50-63/EK
63	79,5	
80	95,5	SQ80-100/EK
100	113	

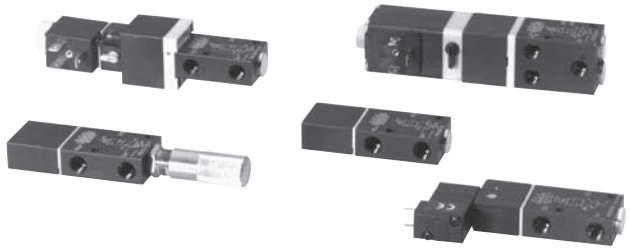
* BRACKETS ARE SUPPLIED COMPLETE WITH DOWELS AND SCREWS
P.S.: PLEASE CHECK BEFORE ORDERING THE COUPLED DIMENSIONS OF THE CYLINDER WITH THE VALVE

series UK

Poppet valves pilot and solenoid actuated G 1/8 - G 1/4 - G 1/2 - G 1

DESCRIPTION

Valves series "UK" are produced in the 2/2, 3/2 and 5/2 monostable pneumatic functions. In the 3 port solenoid control version with small pilot system, sizes G 1/8 and G 1/4, support the 15 mm direct acting solenoid valve (type UMCSV with fixed position). All the other electric versions can support the 32 mm direct acting solenoid valve, type ULCSV/R (with fixed position), type C/USCSVG with sleeve Ø 9 mm (with fixed position and rotatable coils series USB and USBG) or the amplifier valve XVF4 for a sensible pneumatic piloting (see page 3.36).
The 3/2 N.C. pilot actuated valves can also be used to switch vacuum thanks to a suitably reinforced spring.
The poppet design assures high flow and high life. This series of valves, in the sizes G 1/8, G 1/4 and G 1/2, is prearranged for base mounting with conveyed inlet by means of rear notch screws.



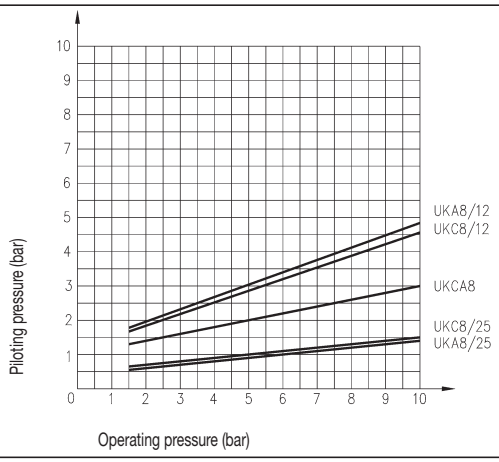
TECHNICAL DATA

Operating pressure	Solenoid actuated: 1,5 ÷ 10 bar Pilot actuated: 1,5 ÷ 12 bar
Working temperature	0 ÷ +70 °C (-20 °C with dry air)
Fluid	Filtered, unlubricated or lubricated compressed air - vacuum
Port size	G 1/8 - G 1/4 - G 1/2 - G 1
Pneumatic piloting port size	G 1/8
Nominal diameter	G 1/8 = 6 mm; G 1/4 = 8,5 mm; G 1/2 = 12 mm; G 1 = 23 mm
Piloting solenoid valves	UMCSV - see chapter Direct acting solenoid valves on page 2.3 ULCSV/R - see chapter Direct acting solenoid valves on page 2.6 C/USCSVG - see chapter Direct acting solenoid valves on page 2.13
Pneumatic piloting valve	XVF4 - see chapter Complementary valves on page 3.37
Coils (only for C/USCSVG)	USB - see chapter Coils on page 2.14 USBG - see chapter Coils on page 2.14
Electric connectors	USR 102/N9 - see chapter Connectors on page 2.15 ULR1B - see chapter Connectors on page 2.15 MEK 192/N - see chapter Connectors on page 2.15

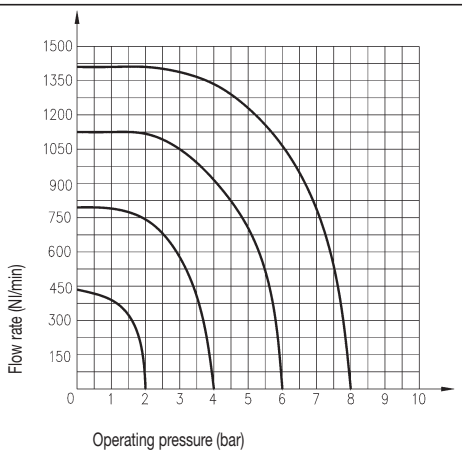
MATERIALS

Control rod	Hardened and nickel-plated steel
Body	Anodized aluminium alloy
Springs	Stainless steel
Seals	NBR rubber
Bush rod	Brass
Piston	Acetal resin
Terminal strip	Acetal resin
Washer	Brass
End plug	Nickel-plated brass
Clamping screws	Steel

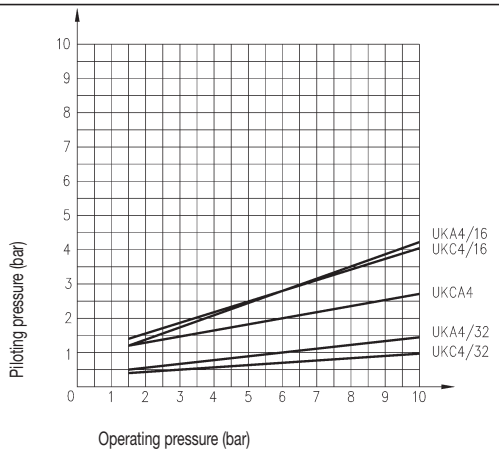
PILOTING CHART - UK G 1/8



FLOW CHART - UK G 1/8 - 5/2



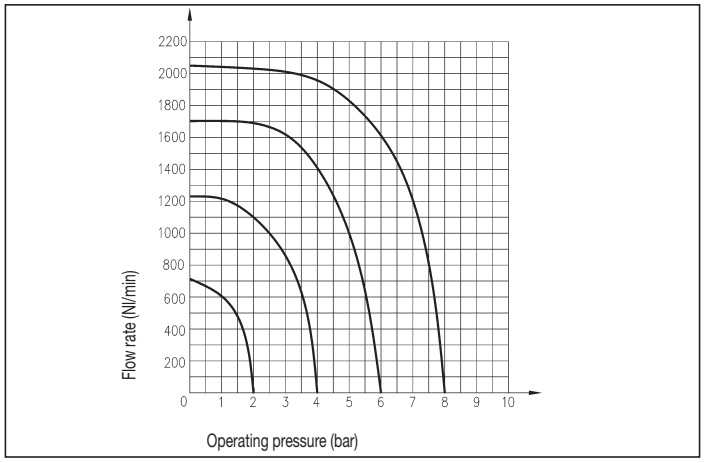
PILOTING CHART - UK G1/4



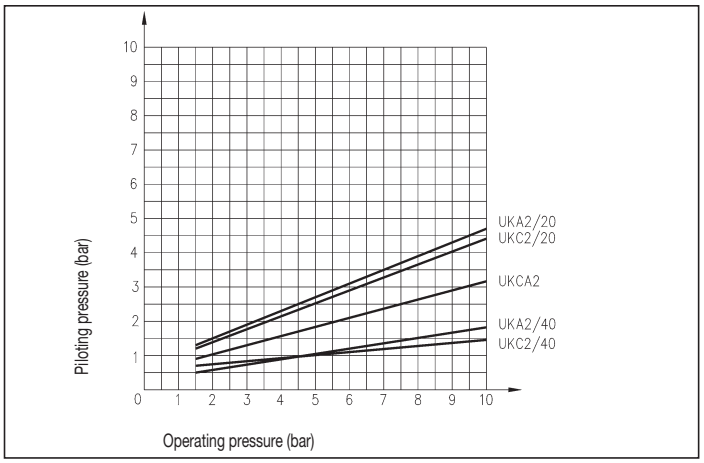
G 1/8 - G1/4 - G 1/2 - G 1

series UK

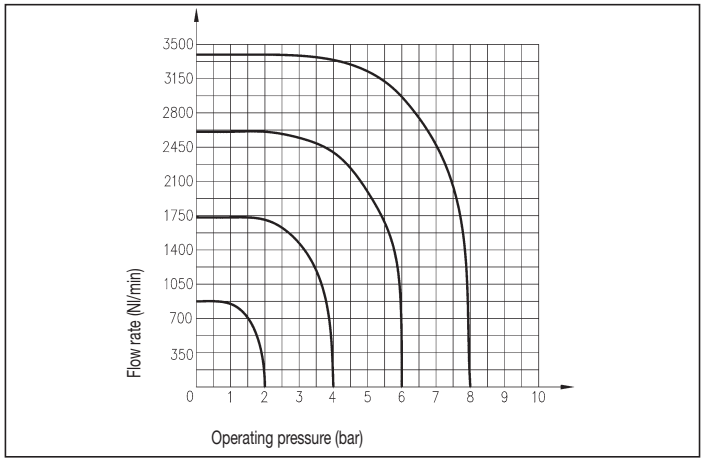
FLOW CHART - UK G 1/4 - 5/2



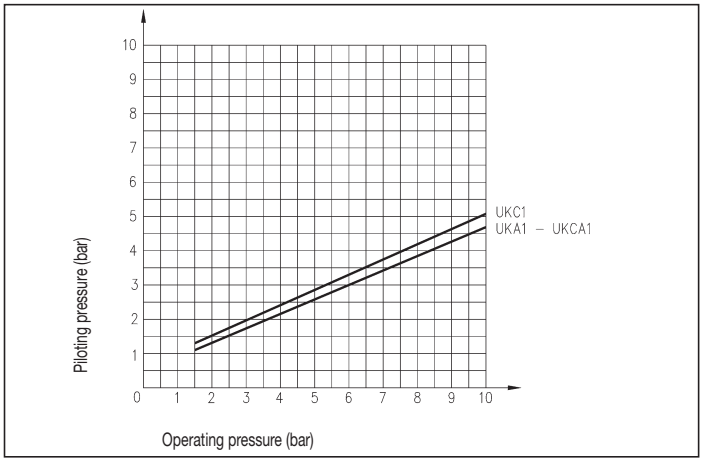
PILOTING CHART - UK G 1/2



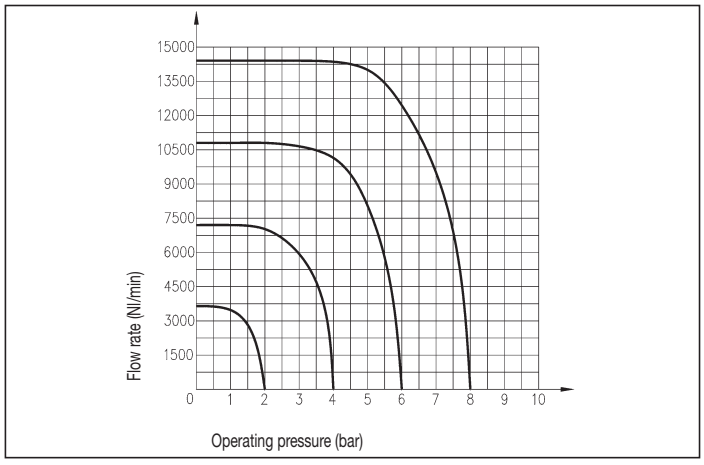
FLOW CHART UK - G 1/2 - 5/2



PILOTING CHART - UK G 1



FLOW CHART - UK G 1 - 5/2



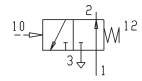
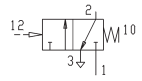
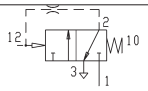
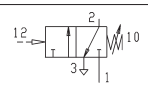
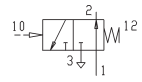
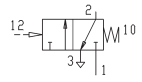
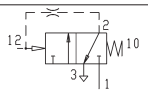
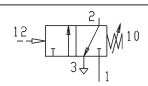
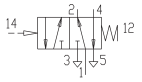
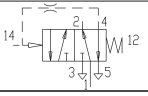
SPARE PARTS

SEALS KIT	
3/2 N.O. G 1/8 small pilot system	UKA/12/SG/8
3/2 N.C. G 1/8 small pilot system	UKC/12/SG/8
3/2 N.O. G 1/8 big pilot system	UKA/25/SG/8
3/2 N.C. G 1/8 big pilot system	UKC/25/SG/8
5/2 G 1/8	UKCA/SG/8
3/2 N.O. G 1/4 small pilot system	UKA/16/SG/4
3/2 N.C. G 1/4 small pilot system	UKC/16/SG/4
3/2 N.O. G 1/4 big pilot system	UKA/32/SG/4
3/2 N.C. G 1/4 big pilot system	UKC/32/SG/4
5/2 G 1/4	UKCA/SG/4
3/2 N.O. G 1/2 small pilot system	UKA/20/SG/2
3/2 N.C. G 1/2 small pilot system	UKC/20/SG/2
3/2 N.O. G 1/2 big pilot system	UKA/40/SG/2
3/2 N.C. G 1/2 big pilot system	UKC/40/SG/2
5/2 G 1/2	UKCA/SG/2
3/2 N.O. G 1	UKA/SG/1
3/2 N.C. G 1	UKC/SG/1

series UK

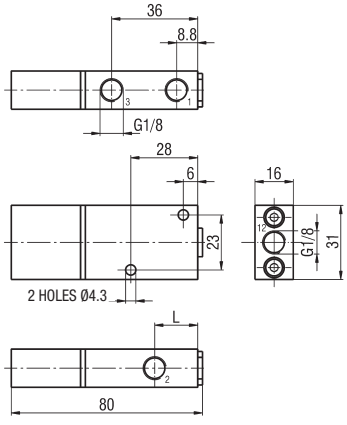
G 1/8 - 2, 3 and 5 PORT

PILOT ACTUATED VALVES* G 1/8 - 2, 3 and 5 PORT

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized			
	3/2 N.O. monostable	Small pneumatic	Mechanical spring	18	34	700	115	UKA 8/12
	3/2 N.C. monostable	Small pneumatic	Mechanical spring	20	29	700	115	UKC 8/12
		Servo fed small pneumatic	Mechanical spring	20	29	700	115	UKC 8/12/SA
		Adjustable small pneumatic	Mechanical spring	–	–	700	180	UKC 8/12/T
	3/2 N.O. monostable	Big pneumatic	Mechanical spring	18	38	700	135	UKA 8/25
	3/2 N.C. monostable	Big pneumatic	Mechanical spring	18	38	700	135	UKC 8/25**
		Servo fed big pneumatic	Mechanical spring	18	38	700	135	UKC 8/25/SA
		Adjustable big pneumatic	Mechanical spring	–	–	700	200	UKC 8/25/T
	5/2 monostable	Pneumatic	Mechanical spring	19	40	650	195	UKCA8
		Servo fed pneumatic	Mechanical spring	19	40	650	195	UKCA8/SA

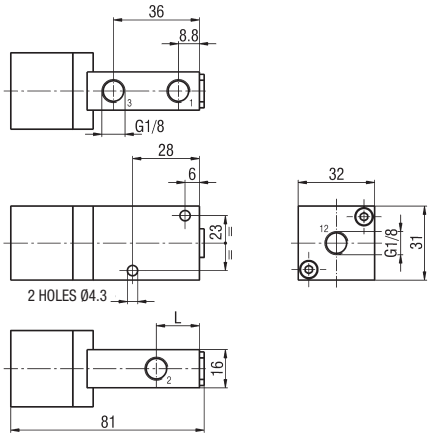
* FOR THE PILOT ACTUATED VALVES OBTAINABLE WITH XVF4 SEE THE TABLE SOLENOID ACTUATED VALVES ON PAGE 2.64
** IF THE TYPE INCLUDES THE SUFFIX "/MR," THIS VALVE CAN BE USED TO SWITCH VACUUM
P.S.: ADD AT THE TYPE OF THE VALVES 3/2 THE LETTER "H" BETWEEN THE LETTERS "K" AND "A" (OR "C") TO ORDER 2/2 N.O. (OR 2/2 N.C.) VALVES.
E.G.: UKHA 8/12; UKHC 8/25

3 PORT SMALL PNEUMATIC



FUNCTION	L
3/2 N.O.	23
3/2 N.C.	18

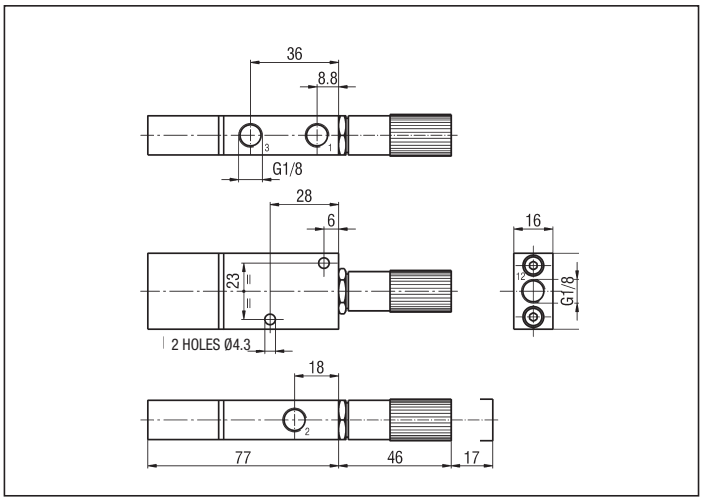
3 PORT BIG PNEUMATIC



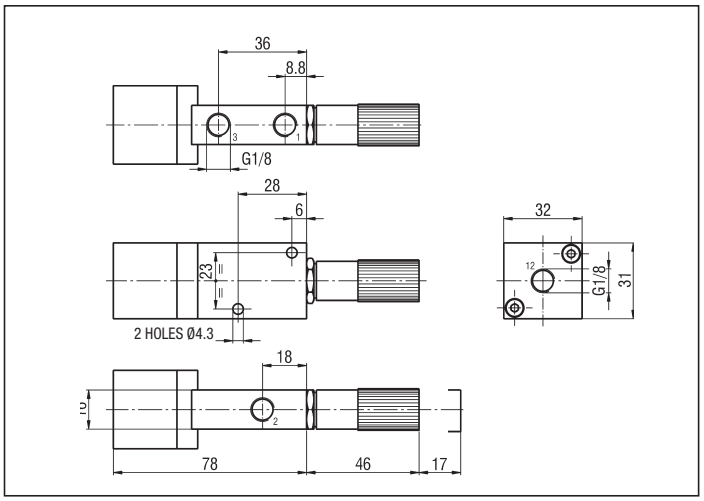
G 1/8 - 2, 3 and 5 PORT

series UK

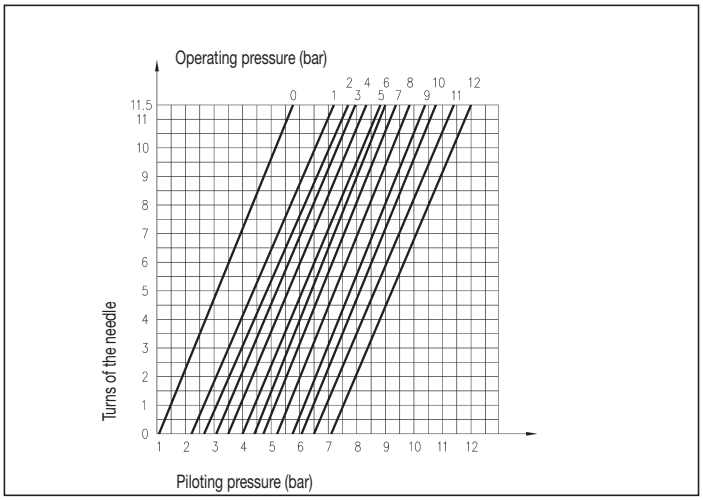
UKC 8/12/T



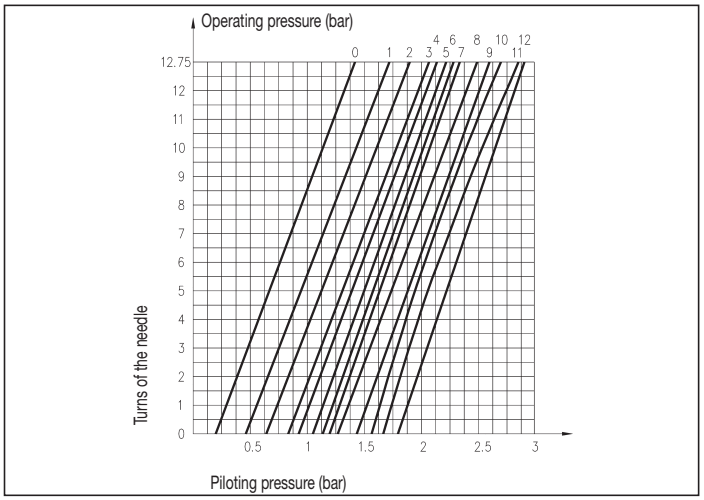
UKC 8/25/T



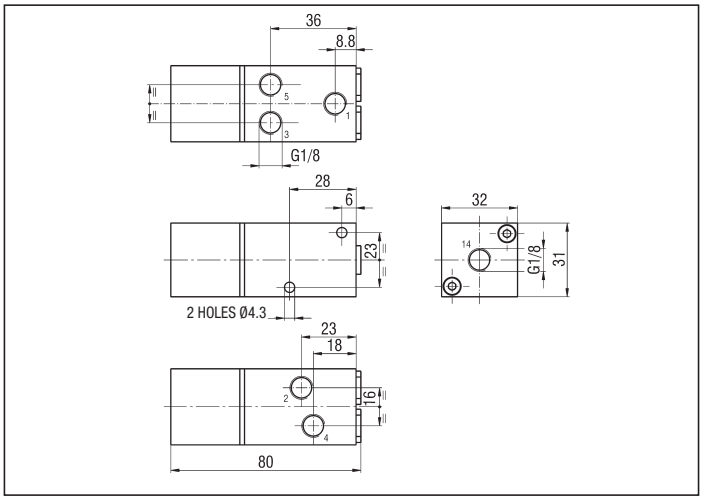
SPRING CALIBRATION UKC8/12/T



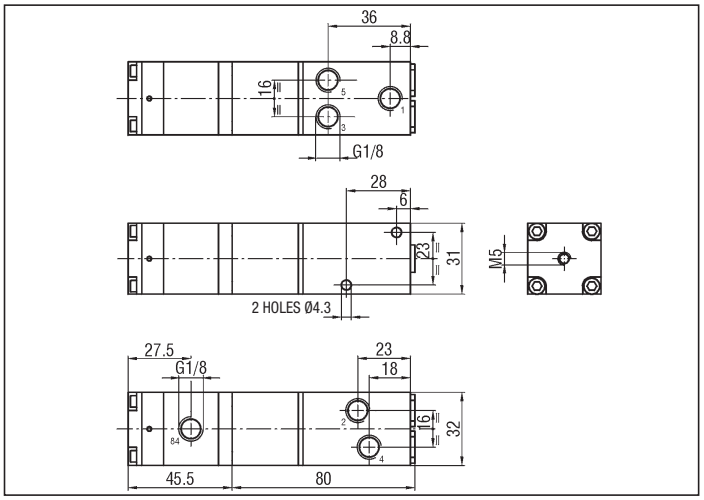
SPRING CALIBRATION UKC8/25/T



5 PORT



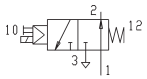
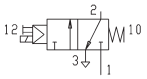
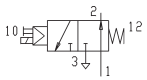
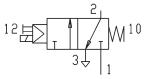
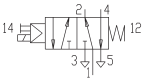
5 PORT WITH XVF4



series UK

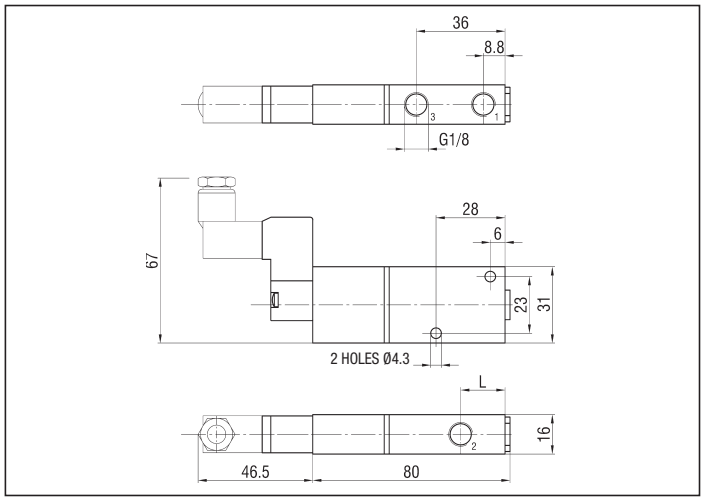
G 1/8 - 2, 3 and 5 PORT

SOLENOID ACTUATED VALVES G 1/8 - 2, 3 and 5 PORT

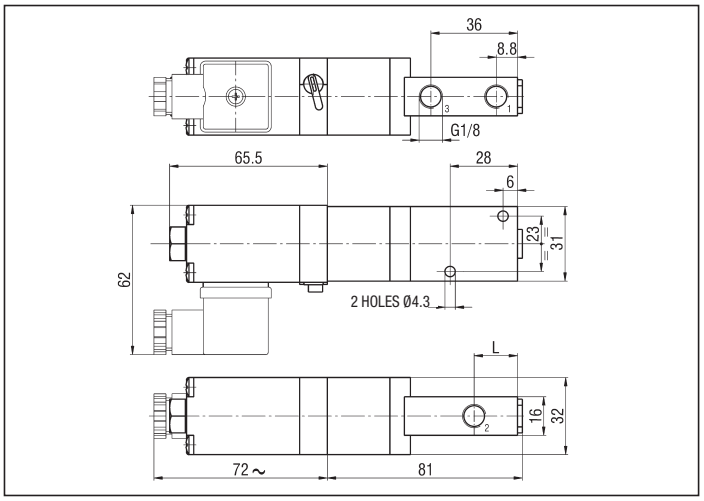
Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	type
		Pilot	Return	Energized	De-energized			
	3/2 N.O. monostable	Small solenoid	Mechanical spring	10	28	700	108	UKA 8/12/U*
	3/2 N.C. monostable	Small solenoid	Mechanical spring	10	28	700	108	UKC 8/12/U*
	3/2 N.O. monostable	Big solenoid	Mechanical spring	18	38	700	135	UKA 8/25/U**
	3/2 N.C. monostable	Big solenoid	Mechanical spring	18	38	700	135	UKC 8/25/U**
	5/2 monostable	Solenoid	Mechanical spring	19	40	650	203	UKCA 8/U**

* TYPES OF THESE SOLENOID VALVES INCLUDE THE PILOTING SOLENOID VALVES “UMCSV” - SEE ON PAGE 2.3 (SPECIFY THE VOLTAGE IN THE ORDER)
** TYPES OF THESE SOLENOID VALVES DO NOT INCLUDE THE PILOTING SOLENOID VALVES (SEE ON PAGE 2.6 FOR “ULCSV/R” AND ON PAGE 2.13 FOR “C/USCSVG”)
WHEREAS USING AS PILOT THE VALVE “XVF4” THE RESULT IS A LOW PRESSURE PILOT ACTUATED VALVE (FOR “XVF4” - SEE ON PAGE 3.37)
P.S.: ADD AT THE TYPE OF THE VALVES 3/2 THE LETTER “H” BETWEEN THE LETTERS “K” AND “A” (OR “C”) TO ORDER 2/2 N.O. (OR 2/2 N.C.) VALVES.
E.G.: UKHA 8/12/U; UKHC 8/25/U

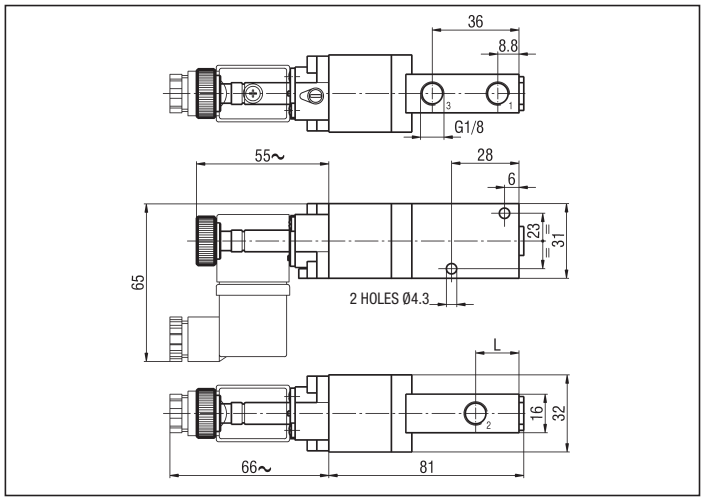
3 PORT SMALL SOLENOID



3 PORT BIG SOLENOID WITH ULCSV/R



3 PORT BIG SOLENOID WITH C/USCSVG

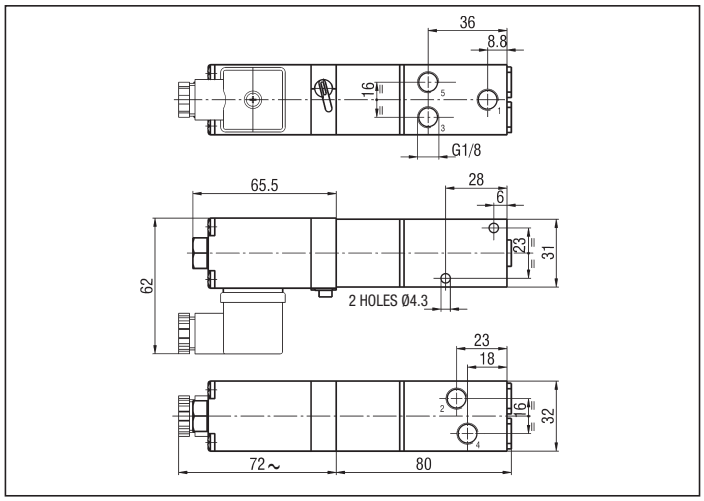


FUNCTION	L
3/2 N.O.	23
3/2 N.C.	18

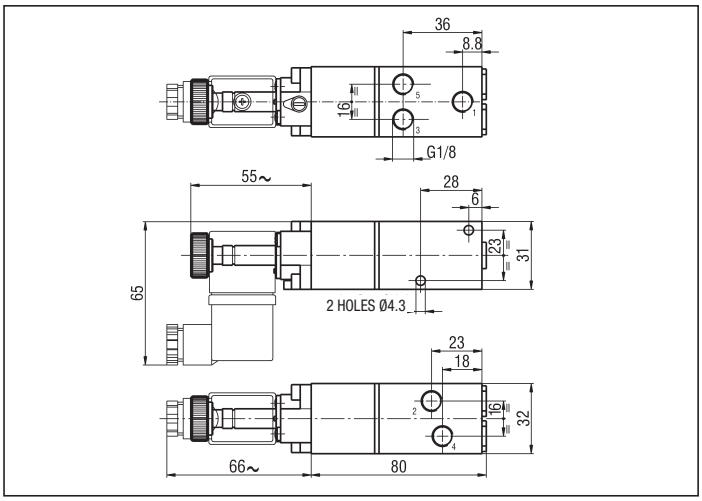
Accessories
Bases G 1/8

series UK

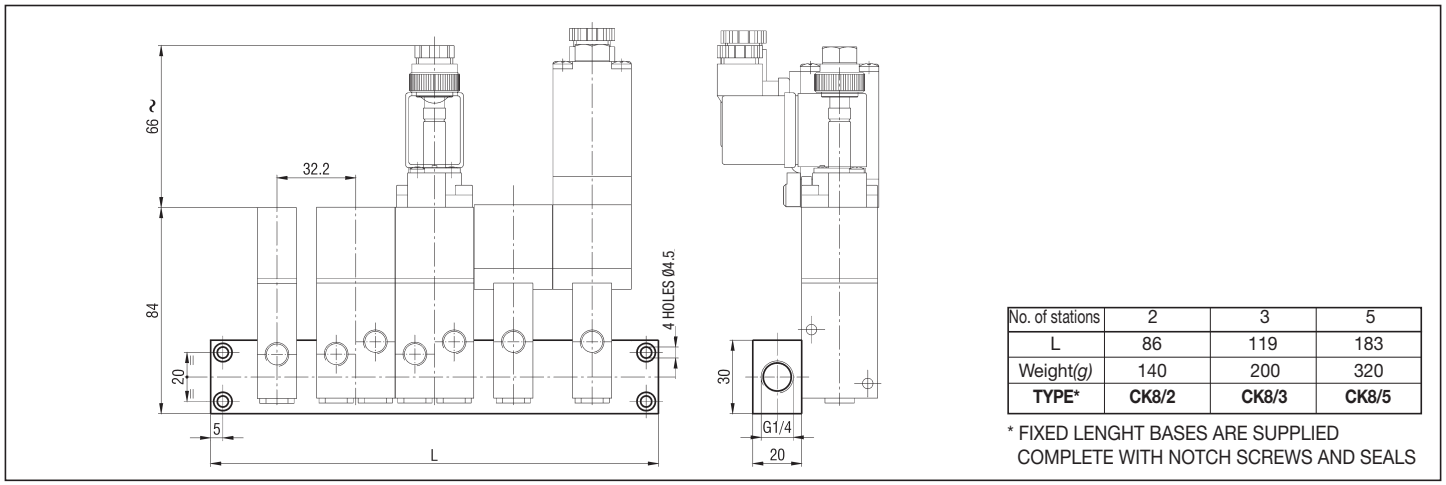
5 PORT WITH ULCSV/R



5 PORT WITH C/USCSVG



FIXED LENGHT BASE FOR MANIFOLD MOUNTING OF VALVES G 1/8 - CK8



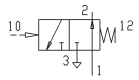
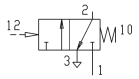
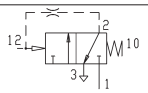
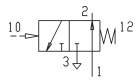
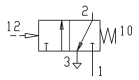
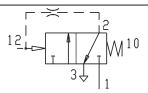
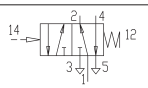
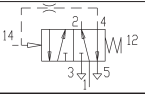
No. of stations	2	3	5
L	86	119	183
Weight(g)	140	200	320
TYPE*	**CK8/2**	**CK8/3**	**CK8/5**

* FIXED LENGHT BASES ARE SUPPLIED COMPLETE WITH NOTCH SCREWS AND SEALS

series UK

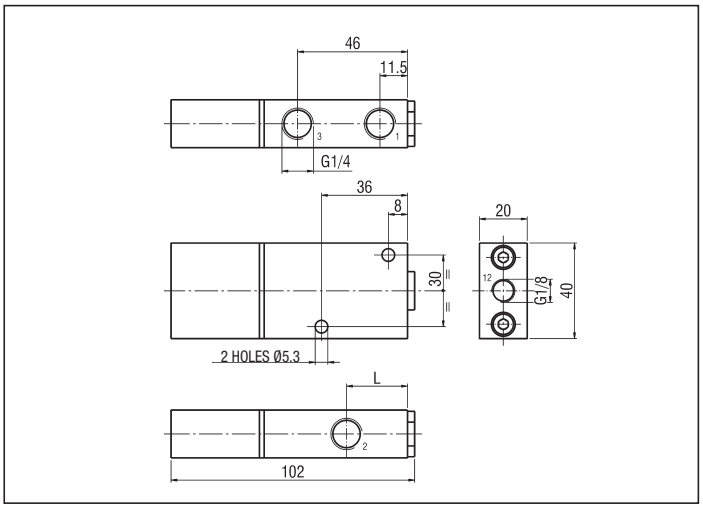
G 1/4 - 2, 3 and 5 PORT

PILOT ACTUATED VALVES* G 1/4 - 2, 3 and 5 PORT

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE
		Pilot	Return	Energized	De-energized			
	3/2 N.O. monostable	Small pneumatic	Mechanical spring	20	30	950	225	UKA 4/16
	3/2 N.C. monostable	Small pneumatic	Mechanical spring	20	30	1100	225	UKC 4/16
		Servo fed small pneumatic	Mechanical spring	16	30	1100	225	UKC 4/16/SA
	3/2 N.O. monostable	Big pneumatic	Mechanical spring	20	30	950	280	UKA 4/32
	3/2 N.C. monostable	Big pneumatic	Mechanical spring	20	30	1100	280	UKC 4/32**
		Servo fed big pneumatic	Mechanical spring	20	28	1100	280	UKC 4/32/SA
	5/2 monostable	Pneumatic	Mechanical spring	24	45	1000	415	UKCA 4
		Servo fed pneumatic	Mechanical spring	24	45	1000	415	UKCA 4/SA

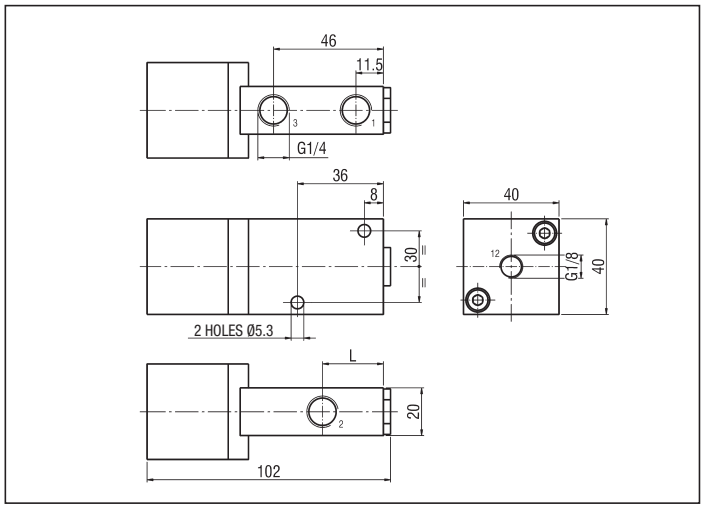
* FOR THE PILOT ACTUATED VALVES OBTAINABLE WITH “XVF4” SEE THE TABLE SOLENOID ACTUATED VALVES ON PAGE 2.67
** IF THE TYPE INCLUDES THE SUFFIX “/MR,” THIS VALVE CAN BE USED TO SWITCH VACUUM
P.S.: ADD AT THE TYPE OF THE VALVES 3/2 THE LETTER “H” BETWEEN THE LETTERS “K” AND “A” (OR “C”) TO ORDER 2/2 N.O. (OR 2/2 N.C.) VALVES.
E.G.: UKHA 4/16; UKHC 4/32

3 PORT SMALL PNEUMATIC



FUNCTION	L
3/2 N.O.	30
3/2 N.C.	25,5

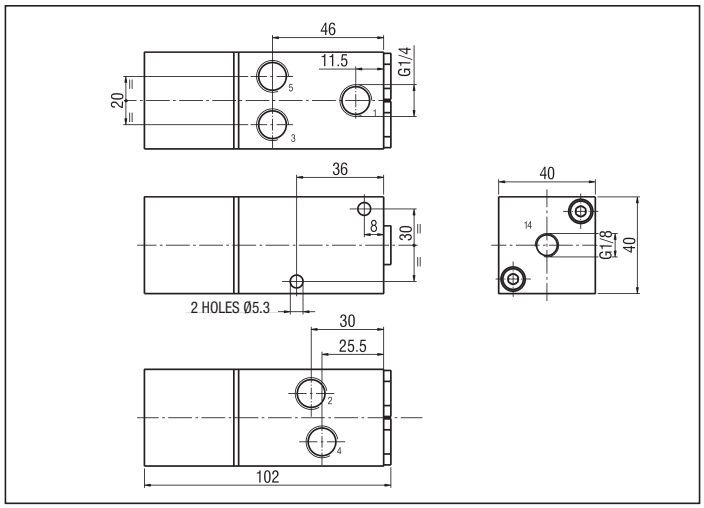
3 PORT BIG PNEUMATIC



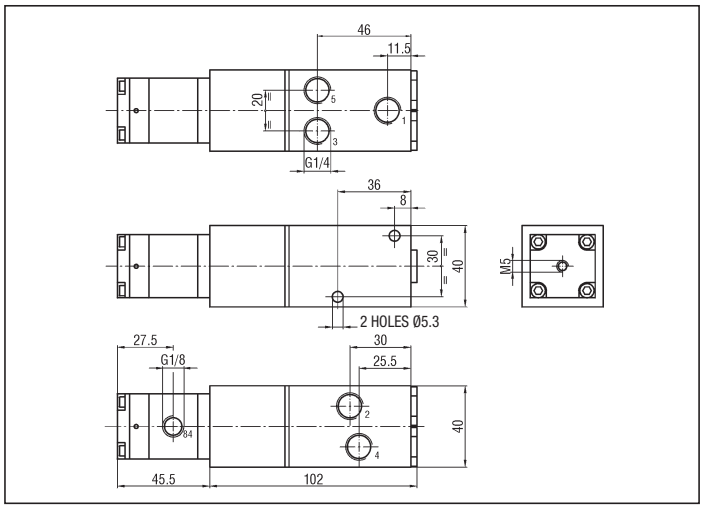
G 1/4 - 2, 3 and 5 PORT

series UK

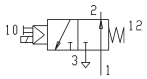
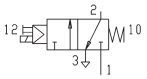
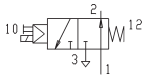
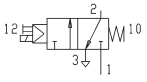
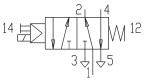
5 PORT



5 PORT WITH XVF4

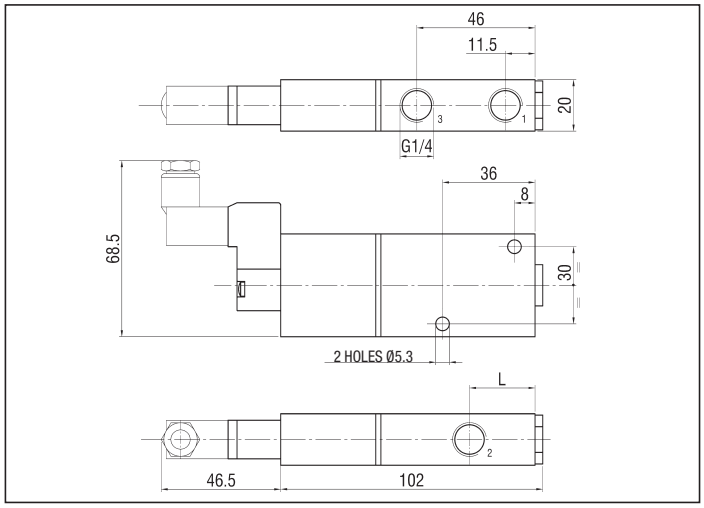


SOLENOID ACTUATED VALVES G 1/4 - 2, 3 and 5 PORT

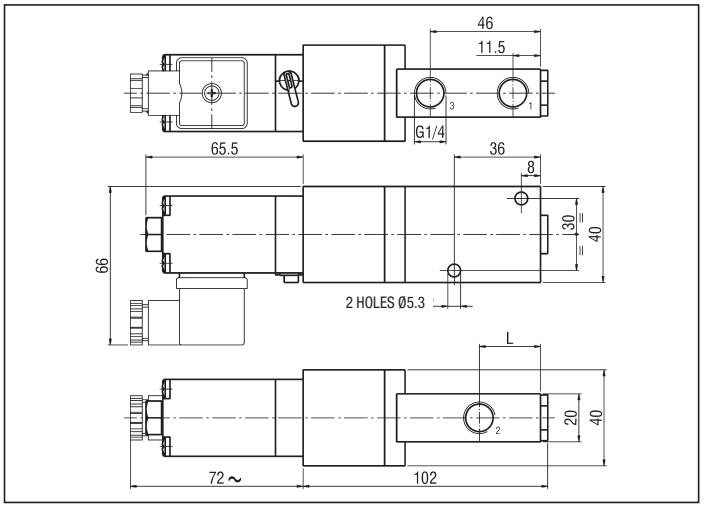
Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE
		Pilot	Return	Energized	De-energized			
	3/2 N.O. monostable	Small solenoid	Mechanical spring	10	28	950	225	UKA 4/16/U*
	3/2 N.C. monostable	Small solenoid	Mechanical spring	10	28	1100	230	UKC 4/16/U*
	3/2 N.O. monostable	Big solenoid	Mechanical spring	20	30	950	280	UKA 4/32/U**
	3/2 N.C. monostable	Big solenoid	Mechanical spring	20	30	1100	280	UKC 4/32/U**
	5/2 monostable	Solenoid	Mechanical spring	24	45	1000	415	UKCA 4/U**

* TYPES OF THESE SOLENOID VALVES INCLUDE THE PILOTING SOLENOID VALVES “UMCSV” - SEE ON PAGE 2.3 (SPECIFY THE VOLTAGE IN THE ORDER)
** TYPES OF THESE SOLENOID VALVES DO NOT INCLUDE THE PILOTING SOLENOID VALVES (SEE ON PAGE 2.6 FOR “ULCSV/R” AND ON PAGE 2.13 FOR “C/USCSVG”)
WHEREAS USING AS PILOT THE VALVE “XVF4” THE RESULT IS A LOW PRESSURE PILOT ACTUATED VALVE (FOR “XVF4” - SEE ON PAGE 3.37)
P.S.: ADD AT THE TYPE OF THE VALVES 3/2 THE LETTER “H” BETWEEN THE LETTERS “K” AND “A” (OR “C”) TO ORDER 2/2 N.O. (OR 2/2 N.C.) VALVES.
E.G.: UKHA 4/16/U; UKHC 4/32/U

3 PORT SMALL SOLENOID



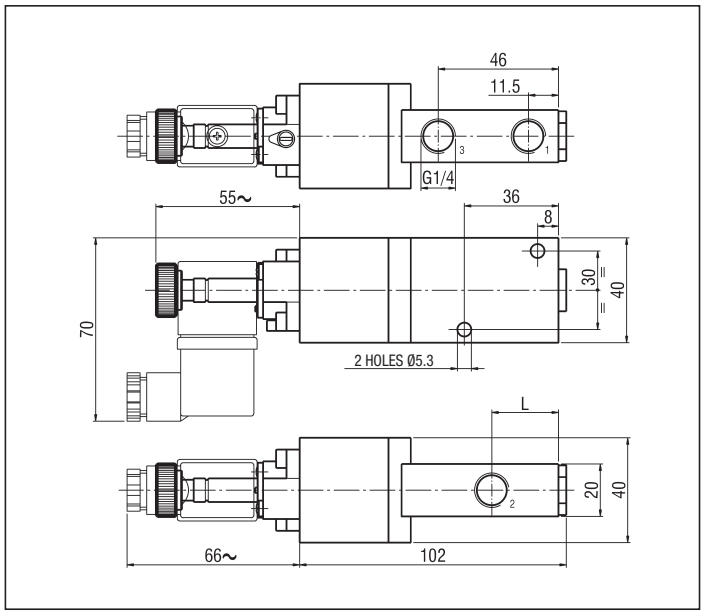
3 PORT BIG SOLENOID WITH ULCSV/R



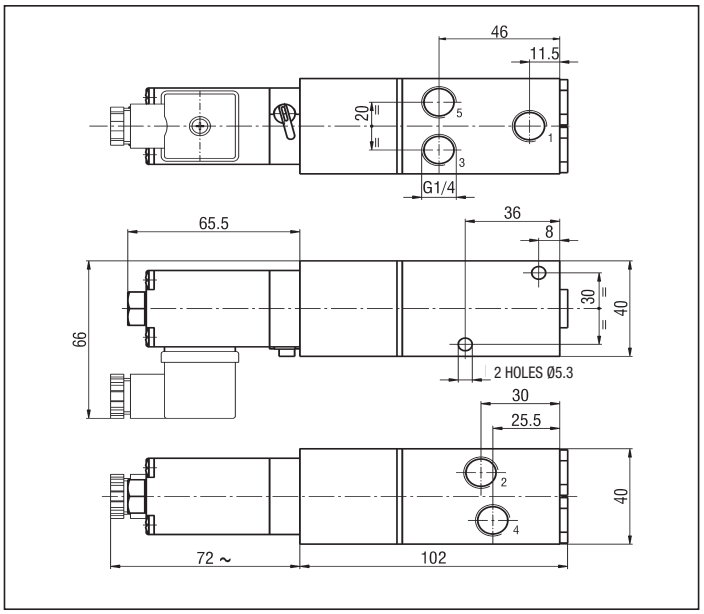
series UK

G 1/4 - 2, 3 and 5 PORT Bases

3 PORT BIG SOLENOID WITH C/USCSVG

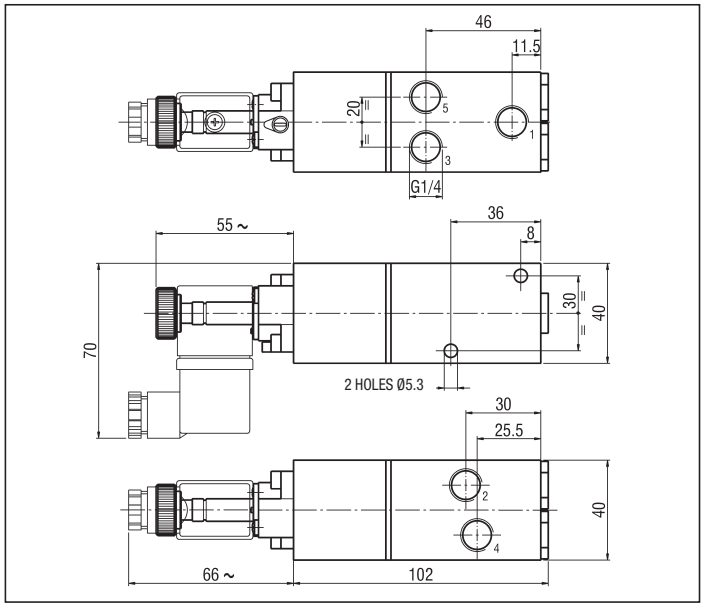


5 PORT WITH ULCSV/R

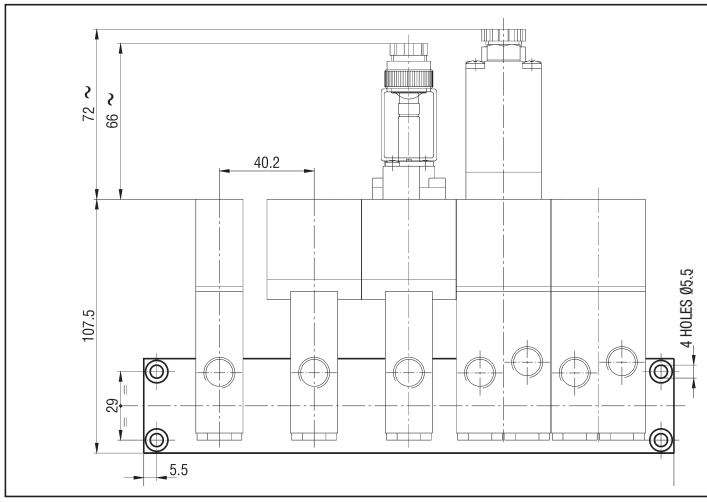


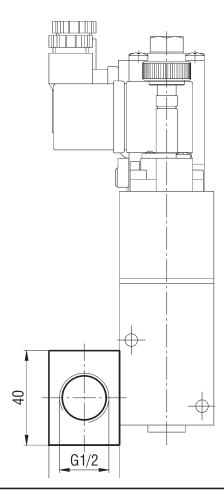
FUNCTION	L
3/2 N.O.	30
3/2 N.C.	25,5

5 PORT WITH C/USCSVG



FIXED LENGHT BASE FOR MANIFOLD MOUNTING OF VALVES G 1/4 - CK4





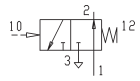
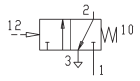
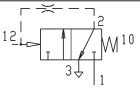
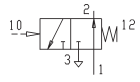
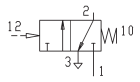
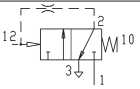
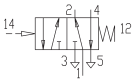
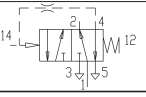
No. of stations	2	3	4	5	8
L	104	145	185	225	345
Weight *(g)*	335	475	615	755	1175
TYPE*	**CK4/2**	**CK4/3**	**CK4/4**	**CK4/5**	**CK4/8**

* FIXED LENGHT BASES ARE SUPPLIED COMPLETE WITH NOTCH SCREWS AND SEALS

G 1/4 - 2, 3 and 5 PORT

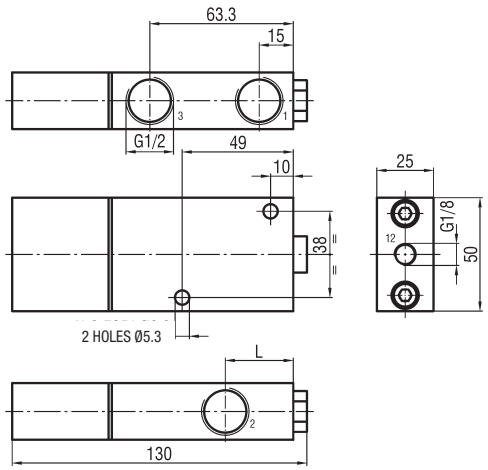
series UK

PILOT ACTUATED VALVES* G 1/2 - 2, 3 and 5 PORT

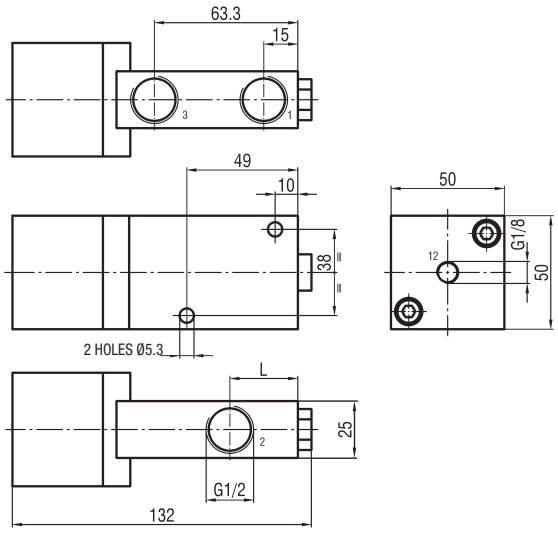
Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE
		Pilot	Return	Energized	De-energized			
	3/2 N.O. monostable	Small pneumatic	Mechanical spring	24	32	1900	420	UKA 2/20
	3/2 N.C. monostable	Small pneumatic	Mechanical spring	24	32	2100	420	UKC 2/20
		Servo fed small pneumatic	Mechanical spring	25	32	2100	520	UKC 2/20/SA
	3/2 N.O. monostable	Big pneumatic	Mechanical spring	24	32	1900	520	UKA 2/40
	3/2 N.C. monostable	Big pneumatic	Mechanical spring	24	32	2100	520	UKC 2/40**
		Servo fed big pneumatic	Mechanical spring	20	30	2100	520	UKC 2/40/SA
	5/2 monostable	Pneumatic	Mechanical spring	24	40	2000	800	UKCA 2
		Servo fed pneumatic	Mechanical spring	24	40	2000	800	UKCA 2/SA

* FOR THE PILOT ACTUATED VALVES OBTAINABLE WITH “XVF4” SEE THE TABLE SOLENOID ACTUATED VALVES ON PAGE 2.70
** IF THE TYPE INCLUDES THE SUFFIX “/MR,” THIS VALVE CAN BE USED TO SWITCH VACUUM
P.S.: ADD AT THE TYPE OF THE VALVES 3/2 THE LETTER “H” BETWEEN THE LETTERS “K” AND “A” (OR “C”) TO ORDER 2/2 N.O. (OR 2/2 N.C.) VALVES.
E.G.: UKHA 2/20; UKHC 2/20

3 PORT SMALL PNEUMATIC



3 PORT BIG PNEUMATIC

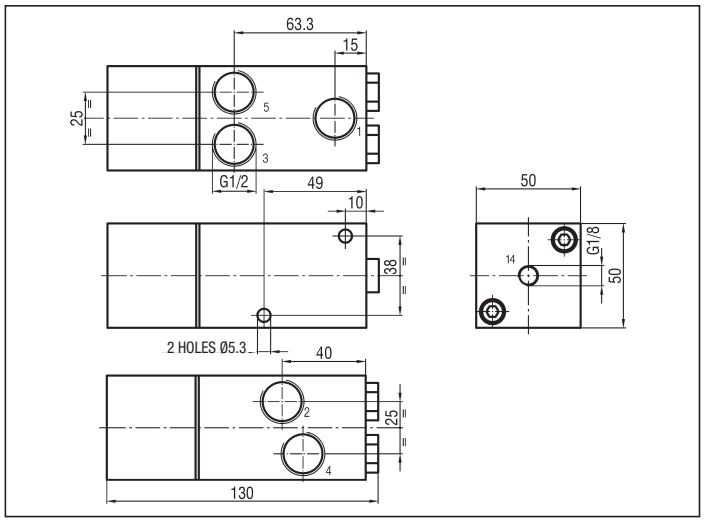


FUNCTION	L
3/2 N.O.	40
3/2 N.C.	30

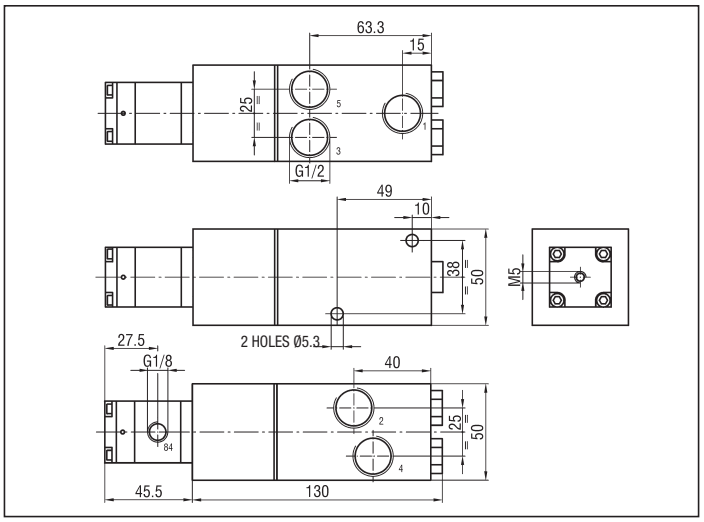
series UK

G 1/2 - 2, 3 and 5 PORT

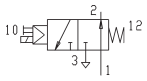
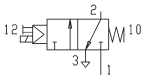
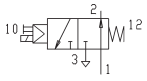
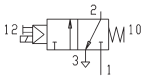
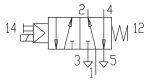
5 PORT



5 PORT WITH XVF4

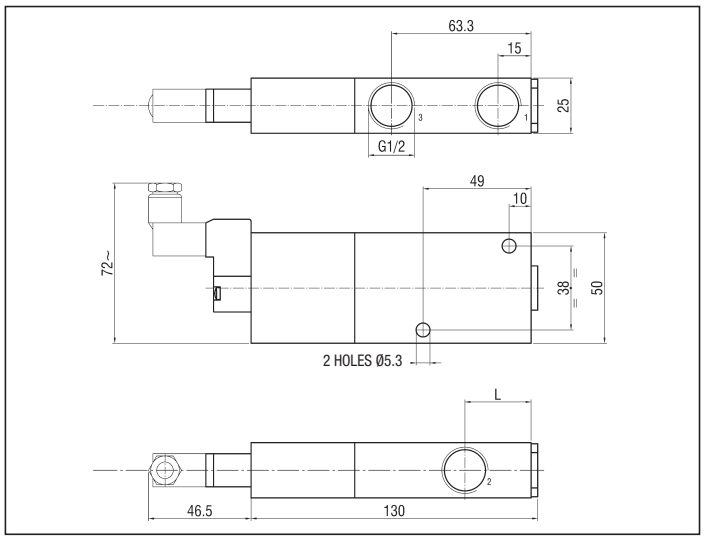


SOLENOID ACTUATED VALVES G 1/2 - 2, 3 and 5 PORT

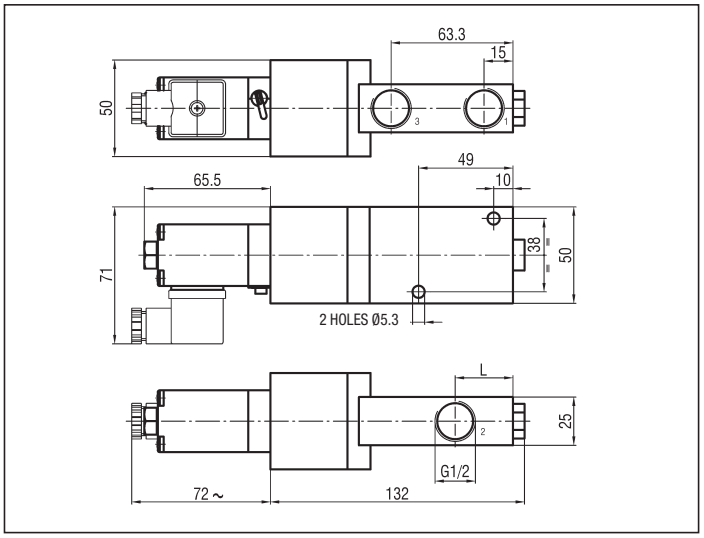
Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE
		Pilot	Return	Energized	De-energized			
	3/2 N.O. monostable	Small solenoid	Mechanical spring	24	32	1900	430	UKA 2/20/U*
	3/2 N.C. monostable	Small solenoid	Mechanical spring	24	32	2100	440	UKC 2/20/U*
	3/2 N.O. monostable	Big solenoid	Mechanical spring	24	32	1900	530	UKA 2/40/U**
	3/2 N.C. monostable	Big solenoid	Mechanical spring	24	32	2100	540	UKC 2/40/U**
	5/2 monostable	Solenoid	Mechanical spring	24	32	2000	810	UKCA 2/U**

* TYPES OF THESE SOLENOID VALVES INCLUDE THE PILOTING SOLENOID VALVES “UMCSV” - SEE ON PAGE 2.3 (SPECIFY THE VOLTAGE IN THE ORDER)
** TYPES OF THESE SOLENOID VALVES DO NOT INCLUDE THE PILOTING SOLENOID VALVES (SEE ON PAGE 2.6 FOR “ULCSV/R” AND ON PAGE 2.13 FOR “C/USCSVG”) WHEREAS USING AS PILOT THE VALVE “XVF4” THE RESULT IS A LOW PRESSURE PILOT ACTUATED VALVE (FOR “XVF4” - SEE ON PAGE 3.37)
P.S.: ADD AT THE TYPE OF THE VALVES 3/2 THE LETTER “H” BETWEEN THE LETTERS “K” AND “A” (OR “C”) TO ORDER 2/2 N.O. (OR 2/2 N.C.) VALVES.

3 PORT SMALL SOLENOID



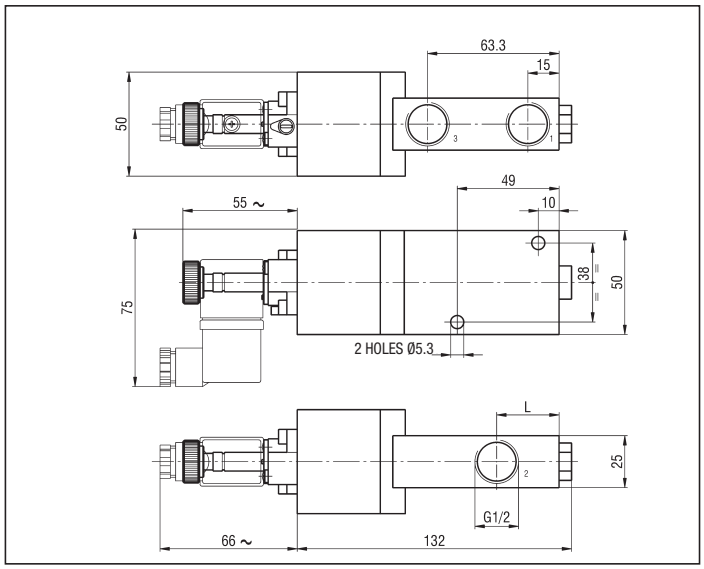
3 PORT BIG SOLENOID WITH ULCSV/R



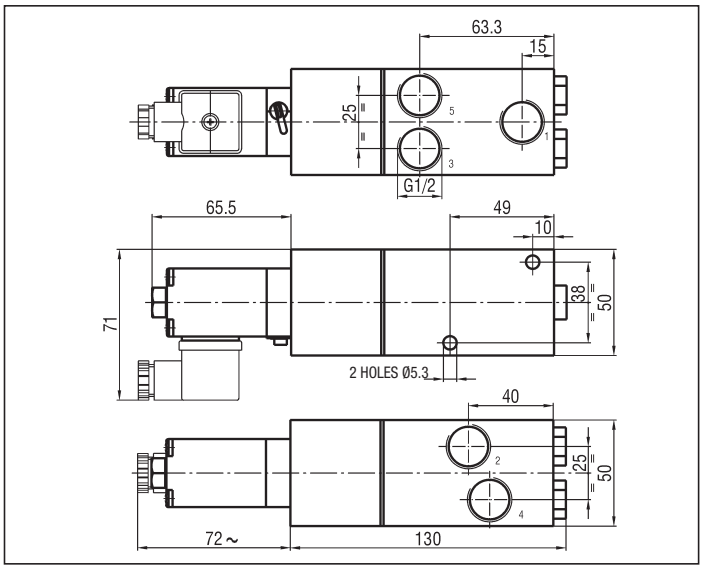
G 1/2 - 2, 3 and 5 PORT
Bases

series UK

3 PORT BIG SOLENOID WITH C/USCSVG

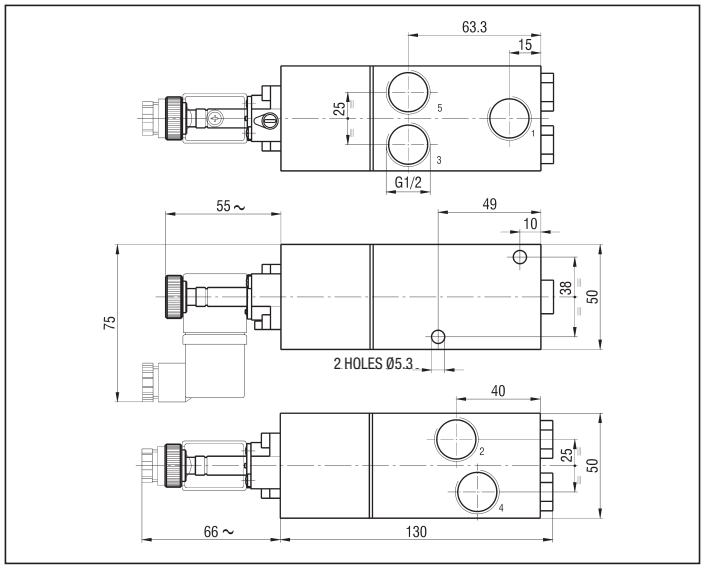


5 PORT WITH ULCSV/R

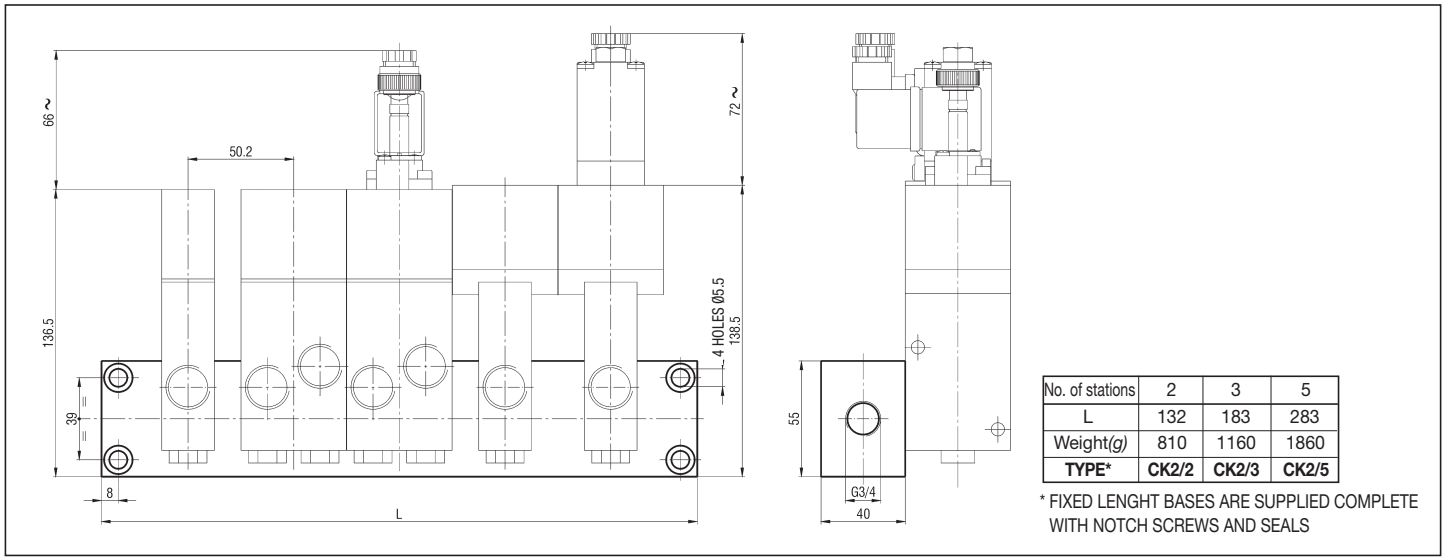


FUNCTION	L
3/2 N.O.	40
3/2 N.C.	30

5 PORT WITH C/USCSVG



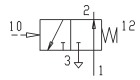
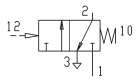
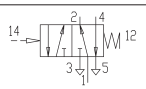
FIXED LENGHT BASE FOR MANIFOLD MOUNTING OF VALVES G 1/2 - CK2



No. of stations	2	3	5
L	132	183	283
Weight(g)	810	1160	1860
TYPE*	**CK2/2**	**CK2/3**	**CK2/5**

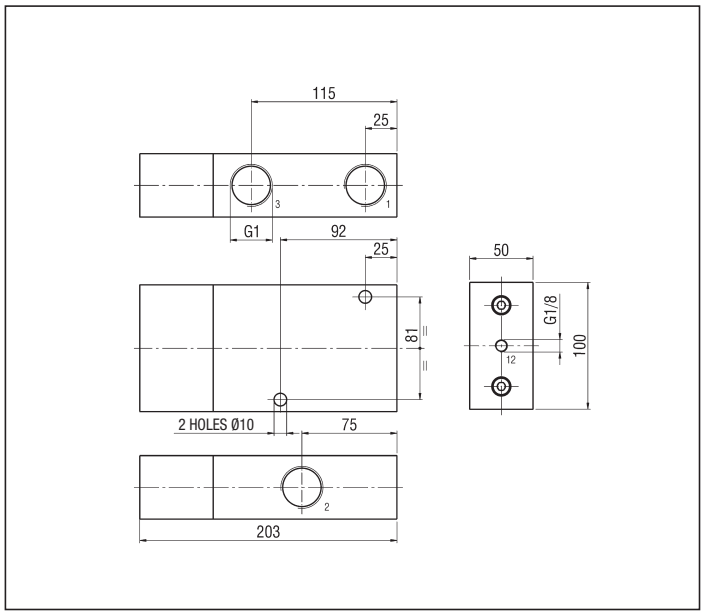
* FIXED LENGHT BASES ARE SUPPLIED COMPLETE WITH NOTCH SCREWS AND SEALS

PILOT ACTUATED VALVES* G 1 - 2, 3 AND 5 PORT

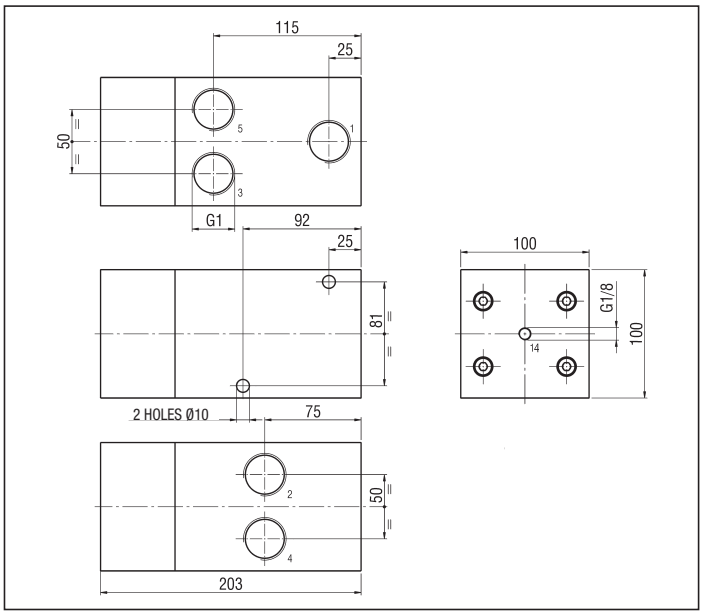
Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE
		Pilot	Return	Energized	De-energized			
	3/2 N.O. monostable	Small pneumatic	Mechanical spring	40	65	11300	2550	UKA 1
	3/2 N.C. monostable	Small pneumatic	Mechanical spring	40	65	7800	2550	UKC 1**
	5/2 monostable	Pneumatic	Mechanical spring	40	70	8050	5160	UKCA 1

* FOR THE PILOT ACTUATED VALVES OBTAINABLE WITH “XVF4” SEE THE TABLE SOLENOID ACTUATED VALVES ON PAGE 2.73
** IF THE TYPE INCLUDES THE SUFFIX “/MR,” THIS VALVE CAN BE USED TO SWITCH VACUUM
P.S.: ADD AT THE TYPE OF THE VALVES 3/2 THE LETTER “H” BETWEEN THE LETTERS “K” AND “A” (OR “C”) TO ORDER 2/2 N.O. (OR 2/2 N.C.) VALVES.
E.G.: UKHA 1; UKHC 1

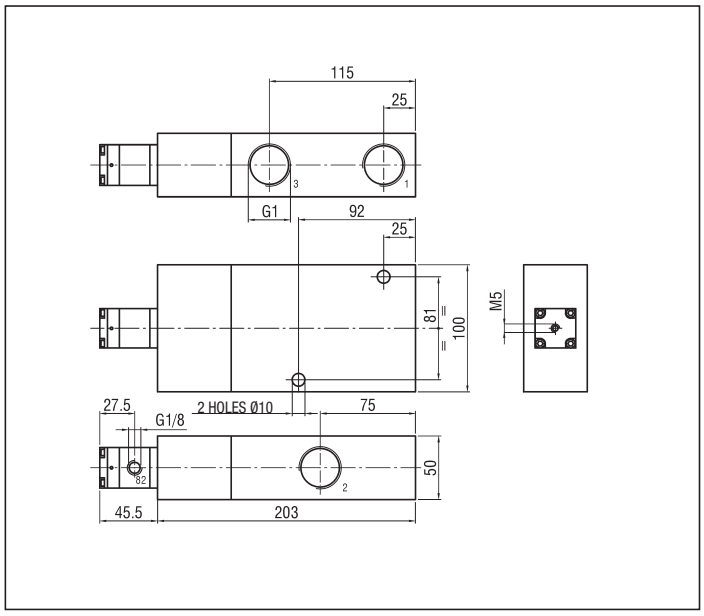
UKA 1 - UKC 1



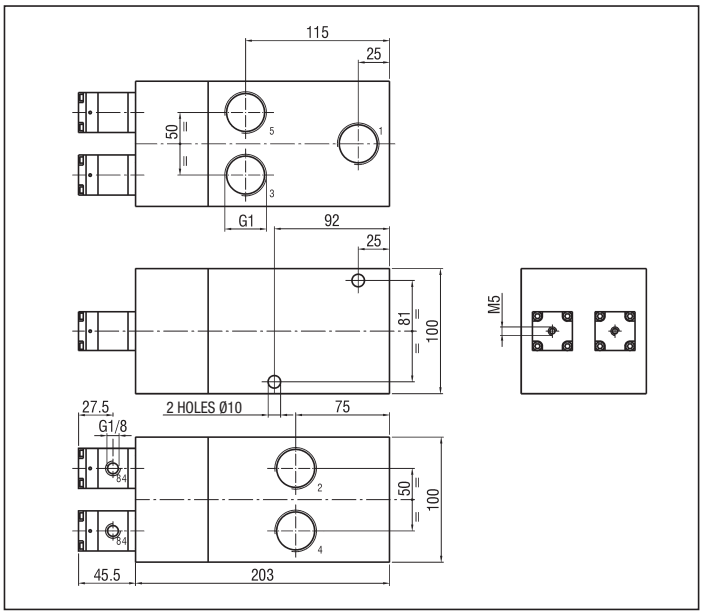
UKCA 1



3 PORT WITH XVF4



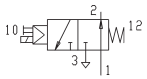
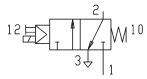
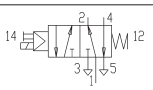
5 PORT WITH XVF4



G 1 - 2, 3 and 5 PORT

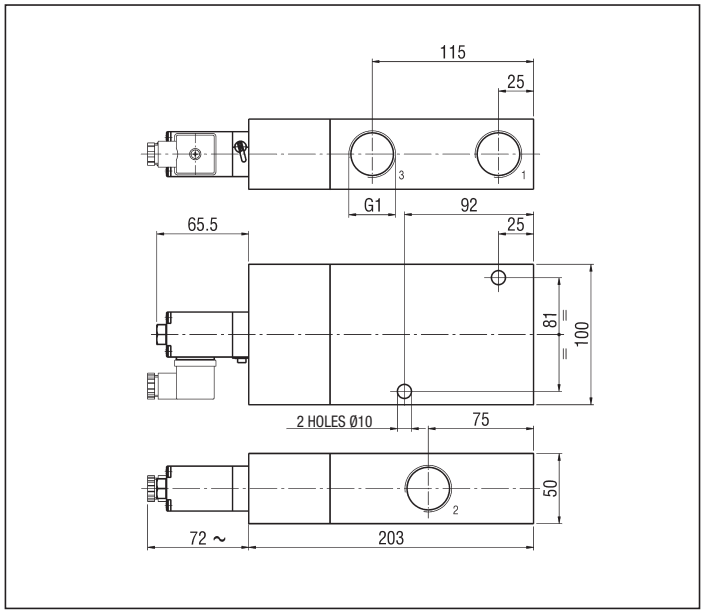
series UK

SOLENOID ACTUATED VALVES G 1 - 2, 3 AND 5 PORT

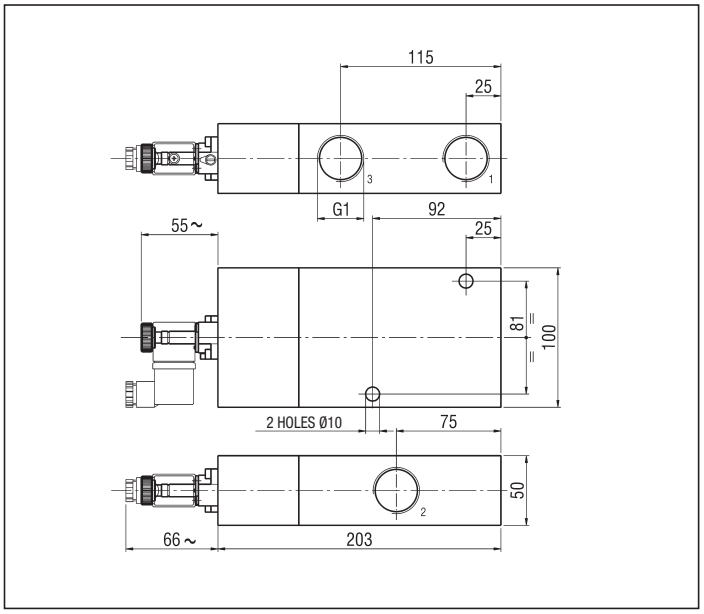
Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized			
	3/2 N.O. monostable	Small solenoid	Mechanical spring	40	65	11300	2600	UKA 1/U
	3/2 N.C. monostable	Small solenoid	Mechanical spring	40	65	7800	2550	UKC 1/U
	5/2 monostable	Solenoid	Mechanical spring	40	70	8050	5100	UKCA 1/U

* THE TYPES OF THE SOLENOID VALVES DO NOT INCLUDE THE PILOTING SOLENOID VALVES (SEE ON PAGE 2.6 FOR "ULCSV/R" AND ON PAGE 2.13 FOR "C/USCSVG") WHEREAS USING AS PILOT THE VALVE "XVF4" THE RESULT IS A LOW PRESSURE PILOT ACTUATED VALVE (FOR "XVF4" - SEE ON PAGE 3.37)
P.S.: ADD AT THE TYPE OF THE VALVES 3/2 THE LETTER "H" BETWEEN THE LETTERS "K" AND "A" (OR "C") TO ORDER 2/2 N.O. (OR 2/2 N.C.) VALVES.
E.G.: UKHA 1/U; UKHC 1/U

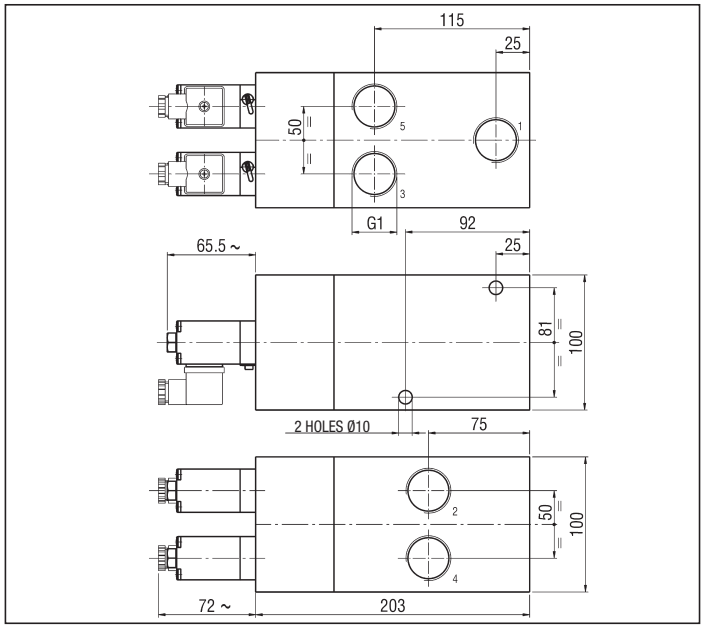
3 PORT WITH ULCSV/R



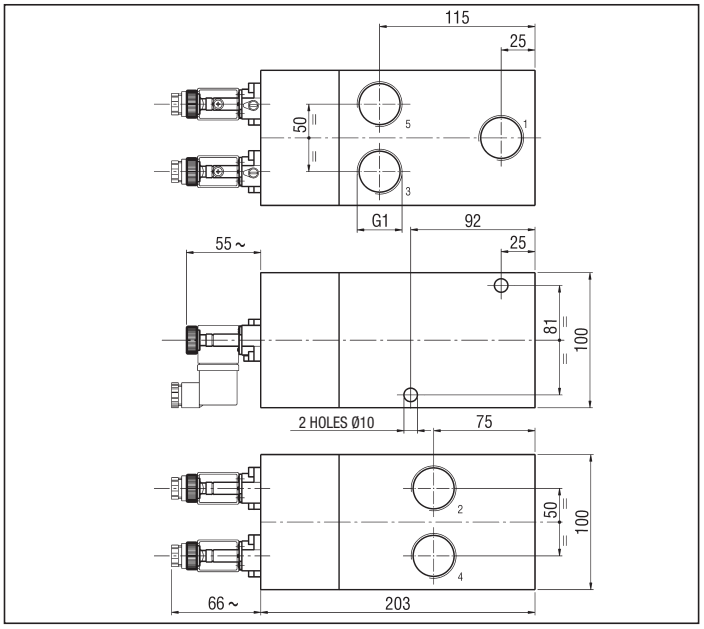
3 PORT WITH C/USCSVG



5 PORT WITH ULCSV/R



5 PORT WITH C/USCSVG

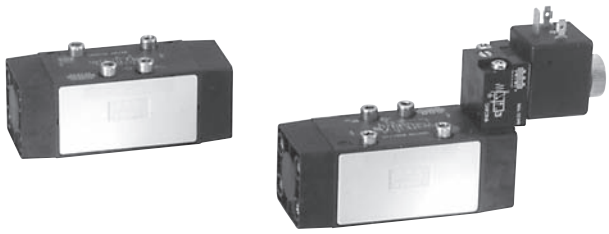


series UDS ISO

Valves to ISO 5599/1 standard pilot and solenoid actuated sizes 1 - 2 - 3

DESCRIPTION

Valves series “UDS ISO” are produced in the 5/2 and 5/3 pneumatic functions according to the interface to ISO 5599/1 standard and they are mounted onto single or manifold bases, bottom or side ported. The ex CNOMO solenoid valve, with manual override (screwdriver type C/UECSVB or button type C/UECSPB), in the solenoid actuated version is mounted with coil type USBG side 30 mm (that allows a greater yield) or type USB side 22 mm.



TECHNICAL DATA

Operating pressure	Monostable: 2,5 ÷ 10 bar Bistable: 1,5 ÷ 10 bar
Working temperature	0 ÷ +50 °C (-20 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Port size	Interface to ISO 5599/1
Pneumatic piloting port size	Interface to ISO 5599/1
Piloting solenoid valves	C/UECSVB - C/UECSPB - see chapter Direct acting solenoid valves series ex CNOMO on page 2.12
Coils	USBG - see chapter Coils on page 2.14 USB - see chapter Coils on page 2.14
Electric connectors	ULR1B - see chapter Connectors on page 2.15 USR102/N9 - see chapter Connectors on page 2.15

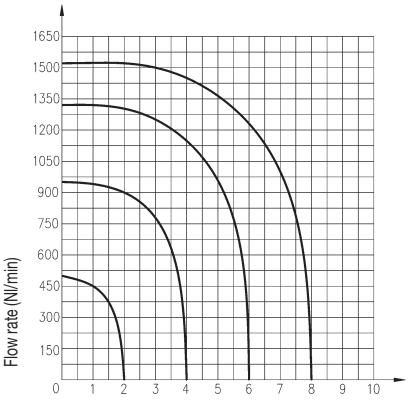
MATERIALS

Bottoms	Size 1 - 2: Techno-polymer Size 3: Aluminium alloy
Body	Size 1 -2: Techno-polymer Size 3: Aluminium alloy
Distance rings	Acetal resin
Springs	Galvanized steel
Seals	NBR rubber + steel insert
Spool	Aluminium alloy
Piston	Aluminium alloy

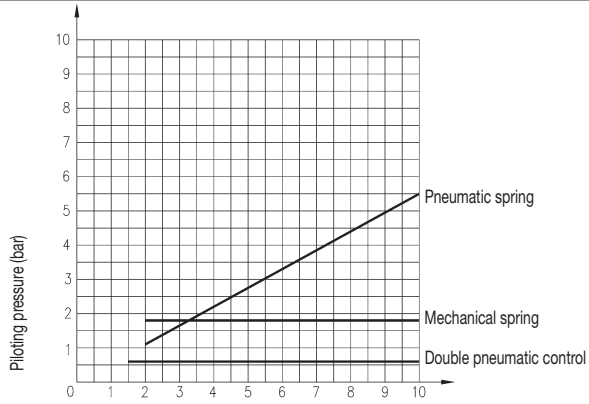
SPARE PARTS

SEALS KIT	
Size 1	UDS/SG/105
Size 2	UDS/SG/212
Size 3	UDSI/SG/3

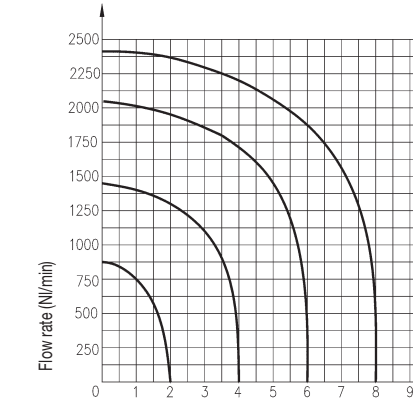
FLOW CHART SIZE 1



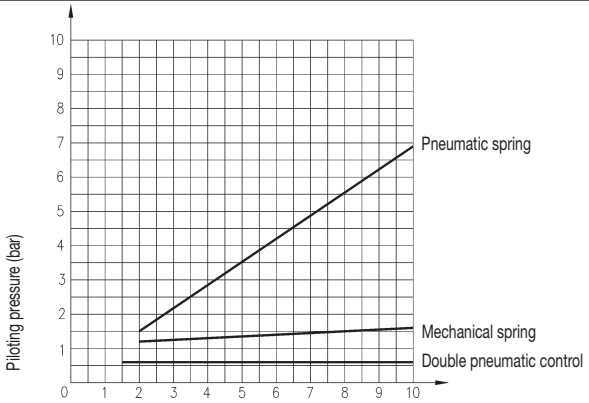
PILOTING CHART SIZE 1



FLOW CHART SIZE 2



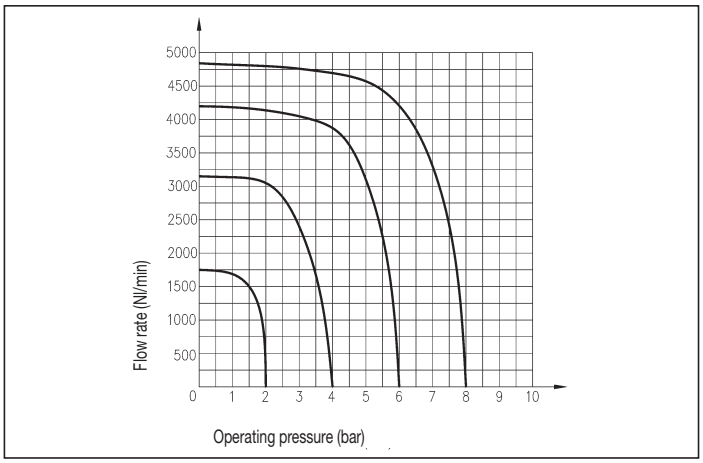
PILOTING CHART SIZE 2



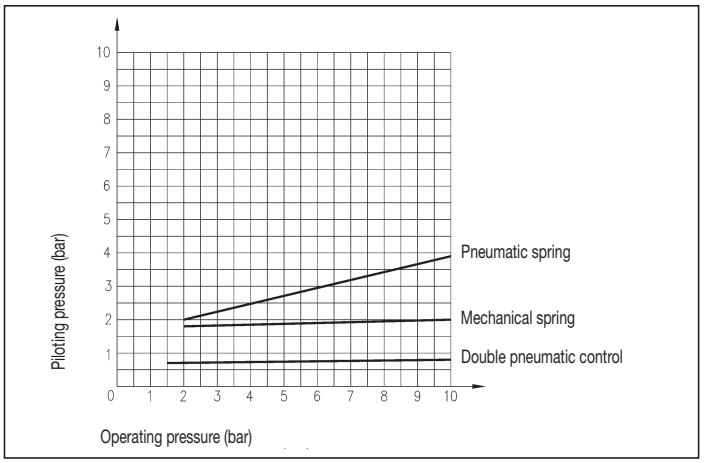
Size 1

series UDS ISO

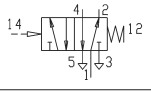
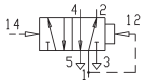
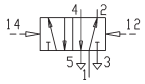
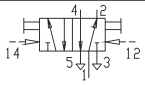
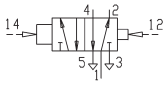
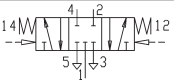
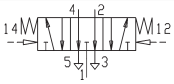
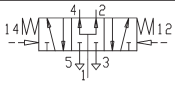
FLOW CHART SIZE 3



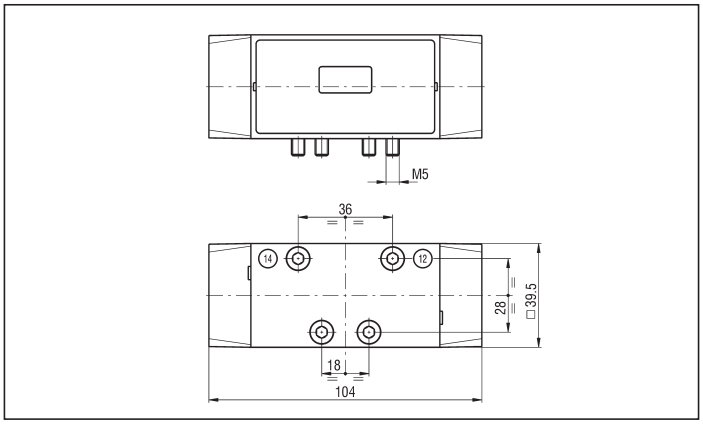
PILOTING CHART SIZE 3



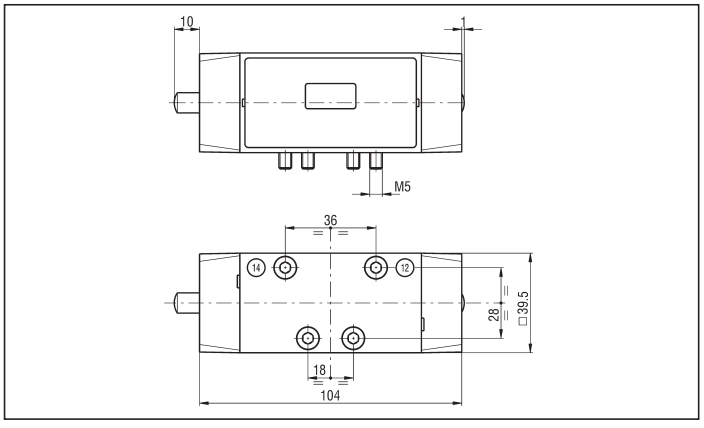
PILOT ACTUATED VALVES SIZE 1

Symbol	Function	Controls		Response times at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE
		Actuation	Return	Energized	De-energized			
	5/2 monostable	Pneumatic	Mechanical spring	20	30	960	230	UDS 105 KR/ZR
		Pneumatic	Pneumatic spring	20	14	960	230	UDS 105 KR/TQ
	5/2 bistable	Pneumatic	Pneumatic	15	15	960	230	UDS 105 KR/KR
	5/2 bistable with override on body valve	Pneumatic	Pneumatic	15	15	960	250	UDS 105 KRP/KRP
	5/2 bistable	Pneumatic	Pneumatic differential	15	20	960	230	UDS 105 KR/TR
	5/3 closed centre	Pneumatic	Mechanical spring	20	25	580	275	UDS 105 SR/SR
	5/3 open centre	Pneumatic	Mechanical spring	20	25	800	275	UDS 105 AR/AR
	5/3 pressure centre	Pneumatic	Mechanical spring	20	25	1100	275	UDS 105 PR/PR

5 PORT SIZE 1



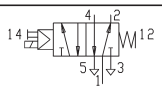
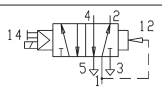
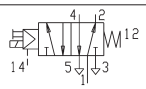
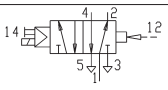
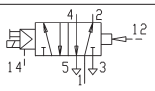
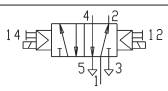
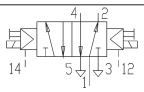
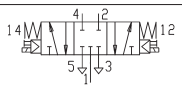
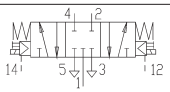
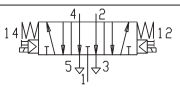
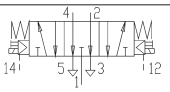
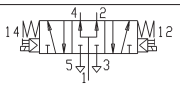
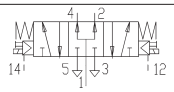
5 PORT SIZE 1 WITH MANUAL OVERRIDE ON BODY VALVE



Size 1

series UDS ISO

SOLENOID ACTUATED VALVES SIZE 1

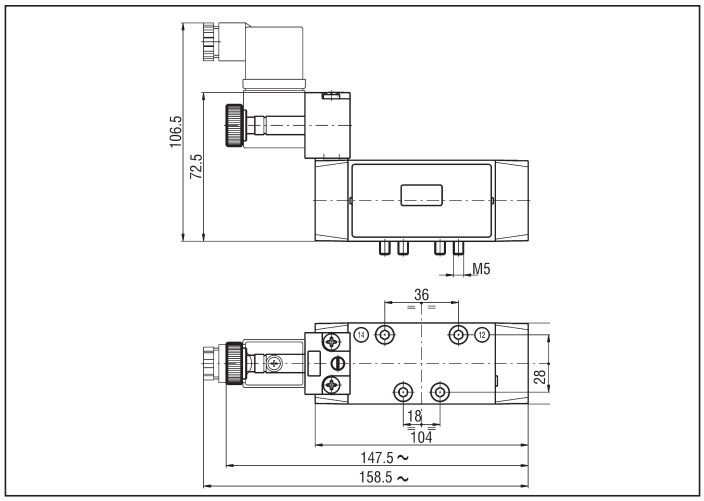
Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized			
	5/2 monostable	Solenoid	Mechanical spring	20	30	960	305	UDS 105 KUEC/ZR
		Solenoid	Pneumatic spring	20	30	960	305	UDS 105 KUEC/TQ
		Solenoid pilot assisted	Mechanical spring	20	30	960	305	UDS 105 KUER/ZR
	5/2 bistable	Solenoid	Small pneumatic	20	25	960	310	UDS 105 KUEC/TR
		Solenoid pilot assisted	Small pneumatic	20	25	960	310	UDS 105 KUER/TR
		Solenoid	Solenoid	15	15	960	375	UDS 105 KUEC/KUEC
		Solenoid pilot assisted	Solenoid pilot assisted	15	15	960	375	UDS 105 KUER/KUER
	5/3 closed centre	Solenoid	Mechanical spring	20	25	580	425	UDS 105 SUEC/SUEC
		Solenoid pilot assisted	Mechanical spring	20	25	580	425	UDS 105 SUER/SUER
	5/3 open centre	Solenoid	Mechanical spring	20	25	800	425	UDS 105 AUEC/AUEC
		Solenoid pilot assisted	Mechanical spring	20	25	800	425	UDS 105 AUER/AUER
	5/3 pressure centre	Solenoid	Mechanical spring	20	25	1100	425	UDS 105 PUEC/PUEC
		Solenoid pilot assisted	Mechanical spring	20	25	1100	425	UDS 105 PUER/PUER

* - SUBSTITUTE THE LETTER “E” WITH THE LETTER “P” IN EACH SOLENOID CONTROL TYPE TO ORDER THE SOLENOID ACTUATED VALVES TO ISO STANDARD WITH MANUAL OVERRIDE (MONOSTABLE BUTTON) ON THE PILOTING SOLENOID VALVES, E.G.: UDS 105 KUEC/TR BECOMES UDS 105 KUPC/TR - UDS 105 KUEC/KUEC BECOMES UDS 105 KUPC/KUPC
- CANCEL THE LETTER “E” FROM THE TYPE TO ORDER THE SOLENOID ACTUATED VALVES TO ISO STANDARD WITHOUT THE PILOTING SOLENOID VALVES, E.G.: UDS 105 KUEC/ZR BECOMES UDS 105 KUC/ZR
- THE TYPES OF THE SOLENOID VALVES DO NOT INCLUDE COILS

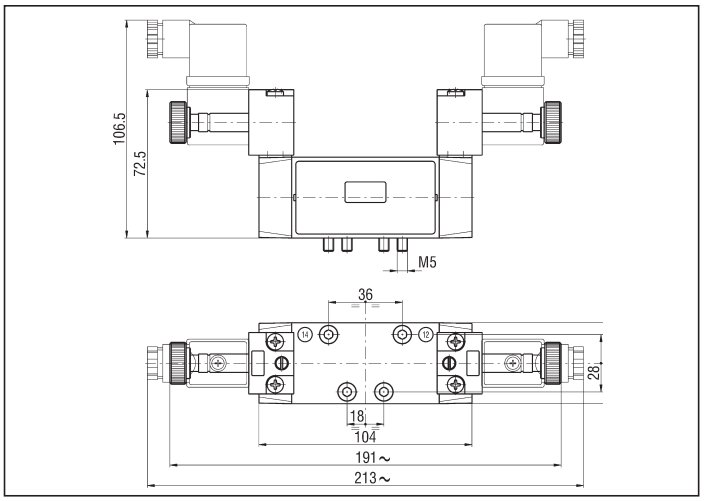
Size 2

series UDS ISO

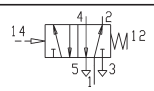
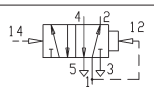
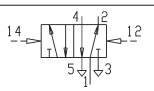
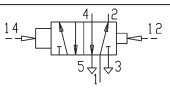
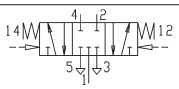
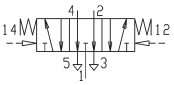
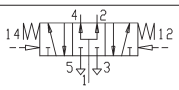
5 PORT SIZE 1 MONOSTABLE



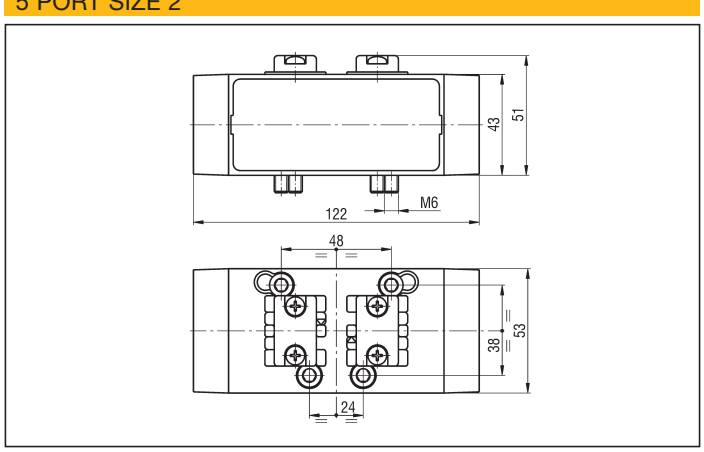
5 PORT SIZE 1 BISTABLE AND 3 POSITIONS



PILOT ACTUATED VALVES SIZE 2

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE
		Pilot	Return	Energized	De-energized			
	5/2 monostable	Pneumatic	Mechanical spring	47	50	1500	515	UDS 212 KR/ZR
		Pneumatic	Pneumatic spring	47	50	1500	510	UDS 212 KR/TQ
	5/2 bistable	Pneumatic	Pneumatic	23	23	1500	515	UDS 212 KR/KR
		Pneumatic	Pneumatic differential	20	40	1500	515	UDS 212 KR/TR
	5/3 closed centre	Pneumatic	Mechanical spring	30	35	1000	580	UDS 212 SR/SR
	5/3 open centre	Pneumatic	Mechanical spring	30	35	1200	580	UDS 212 AR/AR
	5/3 pressure centre	Pneumatic	Mechanical spring	30	35	1300	580	UDS 212 PR/PR

5 PORT SIZE 2

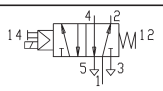
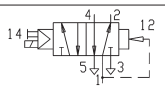
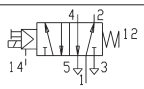
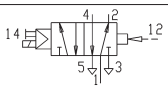
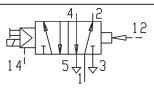
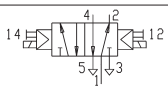
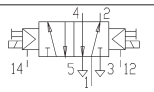
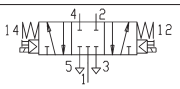
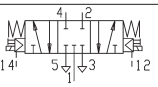
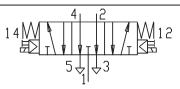
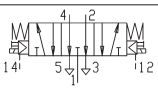
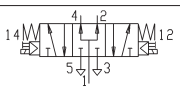
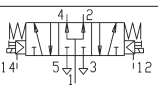


series UDS ISO

Size 2

2

SOLENOID ACTUATED VALVES SIZE 2

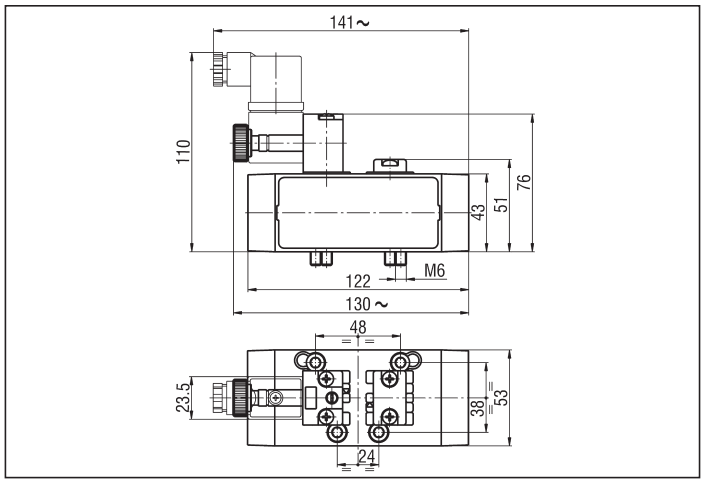
Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized			
	5/2 monostable	Solenoid	Mechanical spring	40	45	1500	580	UDS 212 KUEC/ZR
		Solenoid	Pneumatic spring	47	50	1500	580	UDS 212 KUEC/TQ
		Solenoid pilot assisted	Mechanical spring	40	45	1500	580	UDS 212 KUER/ZR
	5/2 bistable	Solenoid	Small pneumatic	40	45	1500	580	UDS 212 KUEC/TR
		Solenoid pilot assisted	Small pneumatic	40	45	1500	580	UDS 212 KUER/TR
		Solenoid	Solenoid	20	20	1500	635	UDS 212 KUEC/KUEC
		Solenoid pilot assisted	Solenoid pilot assisted	20	20	1500	635	UDS 212 KUER/KUER
	5/3 closed centre	Solenoid	Mechanical spring	30	35	1000	720	UDS 212 SUEC/SUEC
		Solenoid pilot assisted	Mechanical spring	30	35	1000	720	UDS 212 SUER/SUER
	5/3 open centre	Solenoid	Mechanical spring	30	35	1200	720	UDS 212 AUEC/AUEC
		Solenoid pilot assisted	Mechanical spring	30	35	1200	720	UDS 212 AUER/AUER
	5/3 pressure centre	Solenoid	Mechanical spring	30	35	1300	720	UDS 212 PUEC/PUEC
		Solenoid pilot assisted	Mechanical spring	30	35	1300	720	UDS 212 PUER/PUER

* - SUBSTITUTE THE LETTER “E” WITH THE LETTER “P” IN EACH SOLENOID CONTROL TYPE TO ORDER THE SOLENOID ACTUATED VALVES TO ISO STANDARD WITH MANUAL OVERRIDE (MONOSTABLE BUTTON) ON THE PILOTING SOLENOID VALVES, E.G.: UDS 212 KUEC/TR BECOMES UDS 212 KUPC/TR - UDS 212 KUEC/KUEC BECOMES UDS 212 KUPC/KUPC
- CANCEL THE LETTER “E” FROM THE TYPE TO ORDER THE SOLENOID ACTUATED VALVES TO ISO STANDARD WITHOUT THE PILOTING SOLENOID VALVES, E.G.: UDS 212 KUEC/ZR BECOMES UDS 212 KUC/ZR
- THE TYPES OF THE SOLENOID VALVES DO NOT INCLUDE COILS

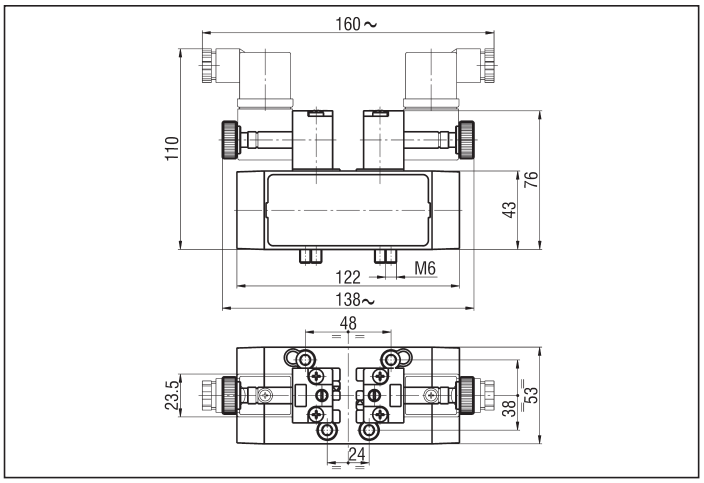
Size 3

series UDS ISO

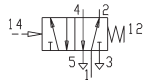
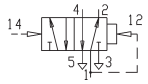
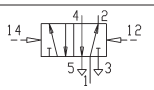
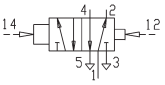
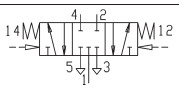
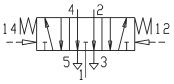
5 PORT SIZE 2 MONOSTABLE



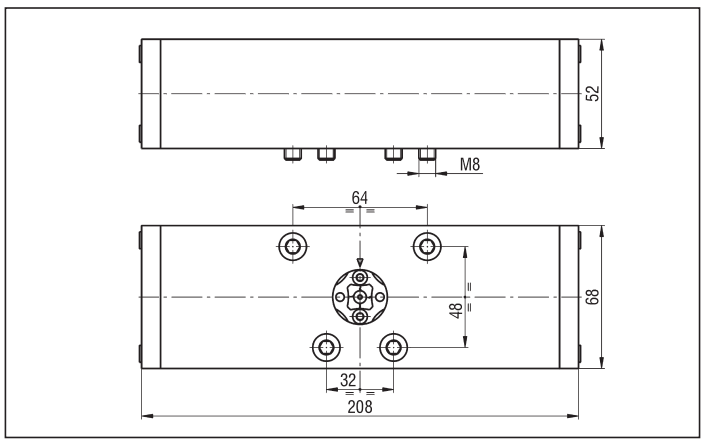
5 PORT SIZE 2 BISTABLE AND 3 POSITIONS



PILOT ACTUATED VALVES SIZE 3

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE
		Pilot	Return	Energized	De-energized			
	5/2 monostable	Pneumatic	Mechanical spring	38	42	3000	1995	UDSI 3 KR/ZR
		Pneumatic	Pneumatic spring	38	42	3000	1985	UDSI 3 KR/TQ
	5/2 bistable	Pneumatic	Pneumatic	28	28	3000	1965	UDSI 3 KR/KR
		Pneumatic	Pneumatic differential	28	35	3000	1965	UDSI 3 KR/TR
	5/3 closed centre	Pneumatic	Mechanical spring	27	32	2900	2020	UDSI 3 SR/SR
	5/3 open centre	Pneumatic	Mechanical spring	27	32	3000	2020	UDSI 3 AR/AR

5 PORT SIZE 3

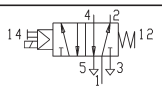
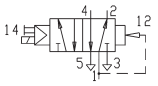
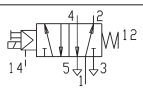
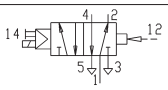
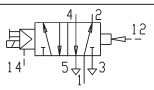
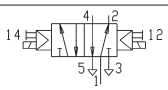
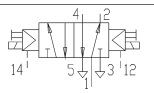
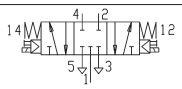
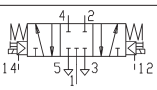
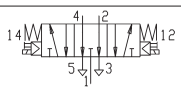
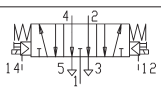


series UDS ISO

Size 3

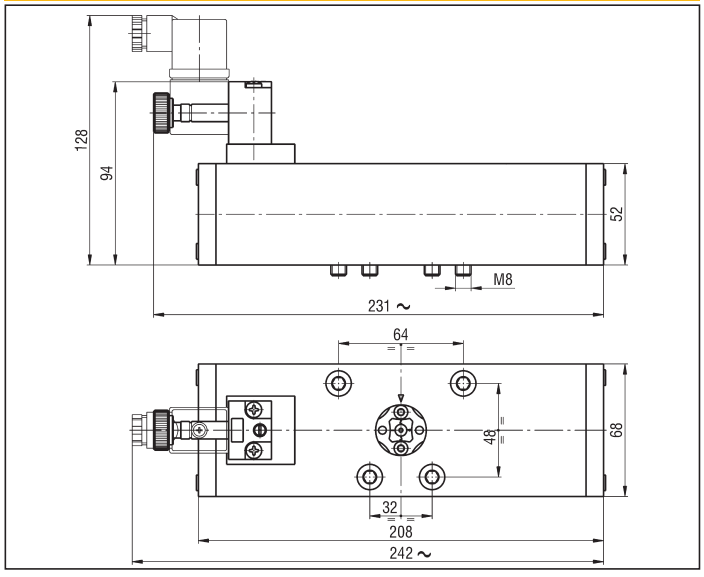
2

SOLENOID ACTUATED VALVES SIZE 3

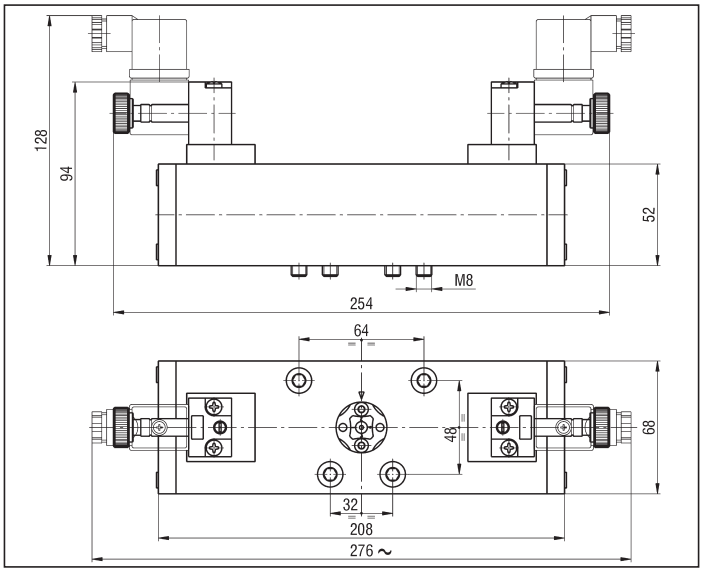
Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized			
	5/2 monostable	Solenoid	Mechanical spring	40	42	3100	2120	UDSI 3 KUEC/ZR
		Solenoid	Pneumatic spring	40	42	3100	2120	UDSI 3 KUEC/TQ
		Solenoid pilot assisted	Mechanical spring	40	42	3100	2120	UDSI 3 KUER/ZR
	5/2 bistable	Solenoid	Small pneumatic	40	45	3100	2120	UDSI 3 KUEC/TR
		Solenoid pilot assisted	Small pneumatic	40	45	3100	2120	UDSI 3 KUER/TR
		Solenoid	Solenoid	28	28	3100	2180	UDSI 3 KUEC/KUEC
		Solenoid pilot assisted	Solenoid pilot assisted	28	28	3100	2180	UDSI 3 KUER/KUER
	5/3 closed centre	Solenoid	Mechanical spring	27	32	2900	2180	UDSI 3 SUEC/SUEC
		Solenoid pilot assisted	Mechanical spring	27	32	2900	2180	UDSI 3 SUER/SUER
	5/3 open centre	Solenoid	Mechanical spring	27	32	3000	2180	UDSI 3 AUEC/AUEC
		Solenoid pilot assisted	Mechanical spring	27	32	3000	2180	UDSI 3 AUER/AUER

* - SUBSTITUTE THE LETTER “E” WITH THE LETTER “P” IN EACH SOLENOID CONTROL TYPE TO ORDER THE SOLENOID ACTUATED VALVES TO ISO STANDARD WITH MANUAL OVERRIDE (MONOSTABLE BUTTON) ON THE PILOTING SOLENOID VALVES, E.G.: UDSI 3 KUEC/TR BECOMES UDSI 3 KUPC/TR - UDS1 3 KUEC/KUEC BECOMES UDSI 3 KUPC/KUPC
- CANCEL THE LETTER “E” FROM THE TYPE TO ORDER THE SOLENOID ACTUATED VALVES TO ISO STANDARD WITHOUT THE PILOTING SOLENOID VALVES, E.G.: UDSI 3 KUEC/ZR BECOMES UDSI 3 KUC/ZR - THE TYPES OF THE SOLENOID VALVES DO NOT INCLUDE COILS

5 PORT SIZE 3 MONOSTABLE



5 PORT SIZE 3 BISTABLE E 3 POSITIONS

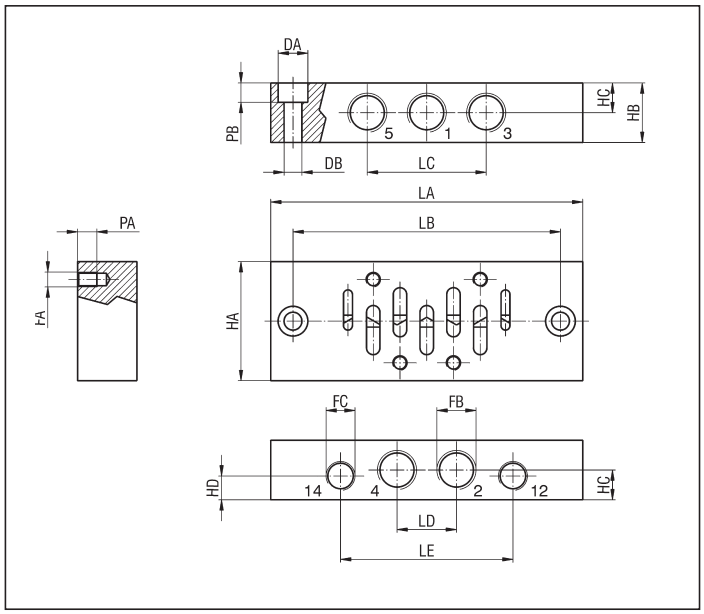


Accessories

Single bases to ISO 5599/1
standard sizes 1-2-3
obtained from drawn light alloy

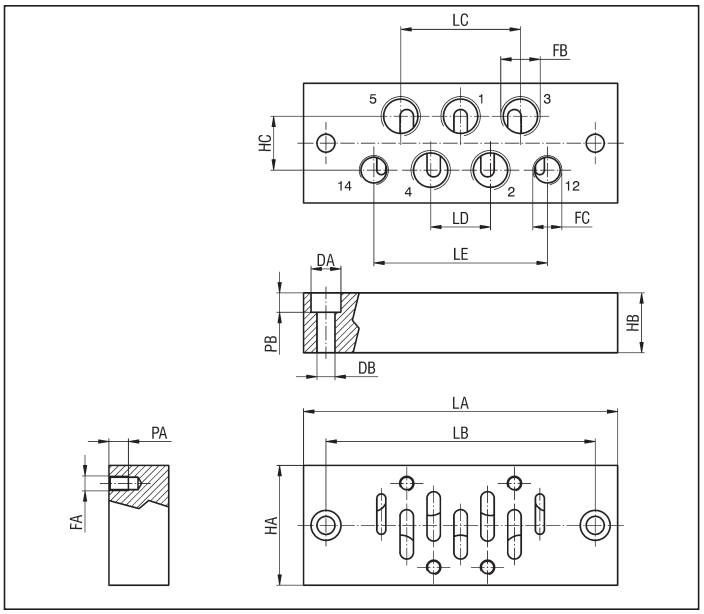
series UDS ISO

SINGLE BASE SIDE PORTED - UDP/ISO SIZE /S



TYPE	UDP/ISO1/S8	UDP/ISO1/S4	UDP/ISO2/S4	UDP/ISO2/S3	UDP/ISO3/S2
Weight *(g)*	205	240	485	455	1090
SIZE	1		2		3
DA	10	10	12	12	15
DB	6	6	7	7	9
FA	M5	M5	M6	M6	M8
FB	G 1/8	G 1/4	G 1/4	G 3/8	G 1/2
FC	G 1/8	G 1/8	G 1/8	G 1/8	G 1/8
HA	40	40	55	55	70
HB	20	25	28	28	32
HC	8	14,5	13	15	16
HD	8	8	8	8	8
LA	105	105	130	130	208
LB	90	90	110	110	180
LC	36	40	48	52	64
LD	18	20	24	26	32
LE	58	58	68	70	90
PA	6,5	6,5	10	10	10
PB	6,5	6,5	8	8	11

SINGLE BASE BOTTOM PORTED - UDP/ISO SIZE /B

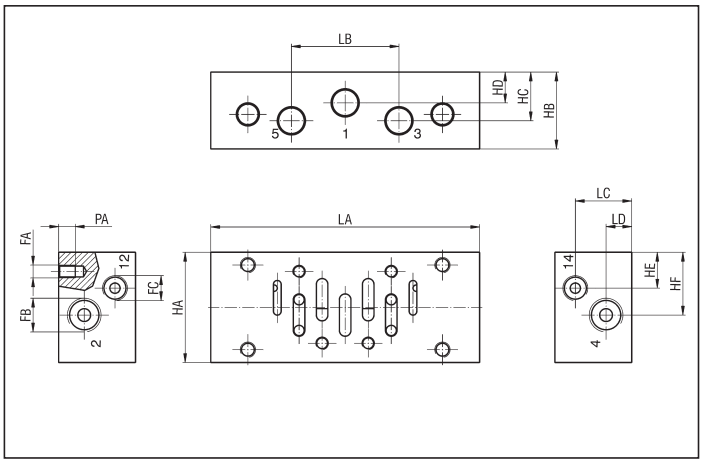


TYPE	UDP/ISO1/B8	UDP/ISO1/B4	UDP/ISO2/B4	UDP/ISO2/B3	UDP/ISO3/B2
Weight *(g)*	200	190	495	470	1160
SIZE	1		2		3
DA	10	10	12	12	15
DB	6	6	7	7	9
FA	M5	M5	M6	M6	M8
FB	G 1/8	G 1/4	G 1/4	G 3/8	G 1/2
FC	G 1/8	G 1/8	G 1/8	G 1/8	G 1/8
HA	40	40	55	55	70
HB	20	20	28	28	32
HC	16	18	22	23	27
LA	105	105	130	130	208
LB	90	90	110	110	180
LC	36	40	48	52	64
LD	18	20	24	26	32
LE	58	58	68	70	90
PA	8	8	10	10	10
PB	6,5	6,5	8	8	11

series UDS ISO

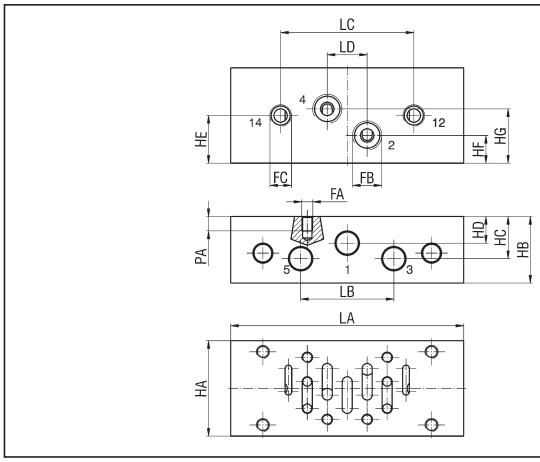
Manifold bases to ISO 5599/1 standard sizes 1-2-3 obtained from drawn light alloy

MANIFOLD BASE SIDE PORTED - UDP/ISO SIZE /MS/Q



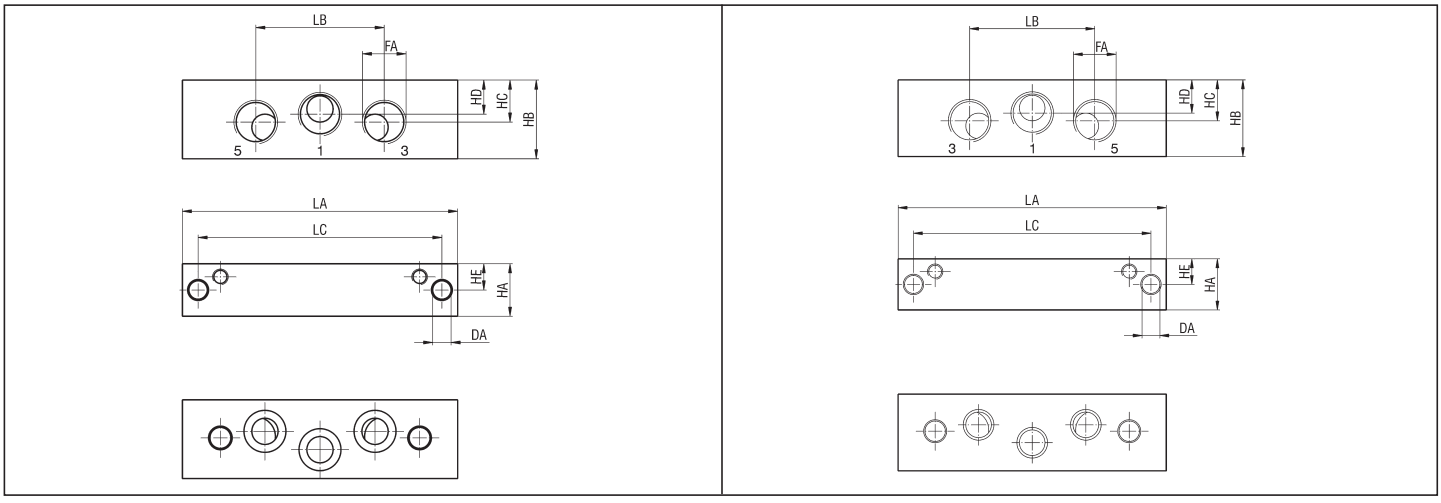
TYPE	UDP/ISO1/8MS/Q	UDP/ISO1/4MS/Q	UDP/ISO2/3MS/Q
Weight (g)	320	310	660
SIZE	ISO 1		ISO 2
FA	M5	M5	M6
FB	G 1/8	G 1/4	G 3/8
FC	G 1/8	G 1/8	G 1/8
HA	43	43	55
HB	30	30	40
HC	19	19	24
HD	12	12	17
HE	14	14	17,5
HF	24,5	24,5	30
LA	105	105	130
LB	42	42	54
LC	22	22	30
LD	10	10	12,5
PA	6,5	6,5	8

MANIFOLD BASE BOTTOM PORTED - UDP/ISO SIZE M/Q



TYPE	UDP/ISO1/8M/Q	UDP/ISO1/4M/Q	UDP/ISO2/3M/Q	UDP/ISO3/2M/Q
Weight (g)	320	315	665	1640
SIZE	ISO 1		ISO 2	ISO 3
FA	M5	M5	M6	M8
FB	G 1/8	G 1/4	G 3/8	G 1/2
FC	G 1/8	G 1/8	G 1/8	G 1/8
HA	43	43	55	70
HB	30	30	40	50
HC	19	19	24	27
HD	12	12	17	27
HE	21,5	21,5	27,5	35
HF	12,5	12,5	16,5	23,5
HG	24,5	24,5	32,5	42,5
LA	105	105	130	208
LB	42	42	54	88
LC	60	60	74	125
LD	18	18	24	42
PA	6,5	6,5	8	10

INPUT PLATES (pair) - UDP/ISO SIZE /...M/L



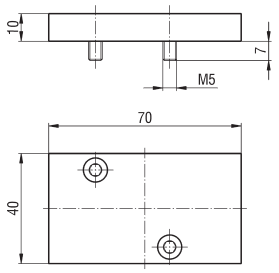
TYPE	UDP/ISO1/3M/L	UDP/ISO2/2M/L	UDP/ISO3/1M/L
Weight (g)	280	460	2355
SIZE	ISO 1	ISO 2	ISO 3
DA	7	7	9
FA	G 3/8	G 1/2	G 1
HA	20	20	50
HB	30	40	50
HC	16	22	25
HD	13	15	25
HE	10	10	25
LA	105	130	208
LB	49	59	94
LC	93	118	180

Accessories

Manifold bases to ISO 5599/1 standard sizes 1-2-3 obtained from drawn light alloy

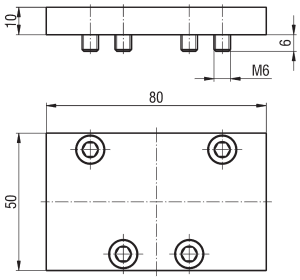
series UDS ISO

BLANKING PLATE ISO 1 - UDP/ISO1/PC



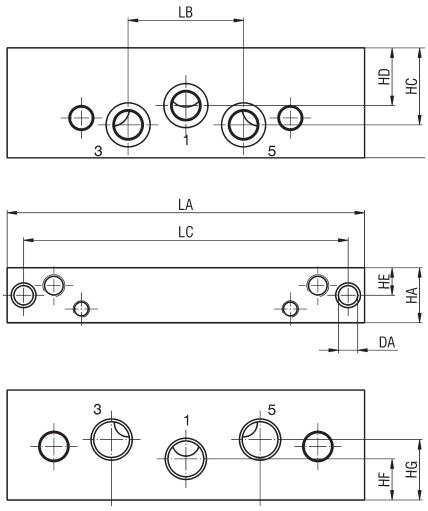
WEIGHT 80 g

BLANKING PLATE ISO 2 - UDP/ISO2/PC



WEIGHT 115 g

SIZE ADAPTER ISO 1-2 AND ISO 2-3 - UDP/ISO SIZE



TYPE	UDP/ISO1-2	UDP/ISO2-3
Weight (g)	245	1305
SIZE	1-2	2-3
DA	7	9
HA	20	50
HB	40	50
HC	28	32
HD	21	35
HE	10	25
HF	15	25
HG	22	25
LA	130	208
LB	42	54
LC	118	180
LD	54	88

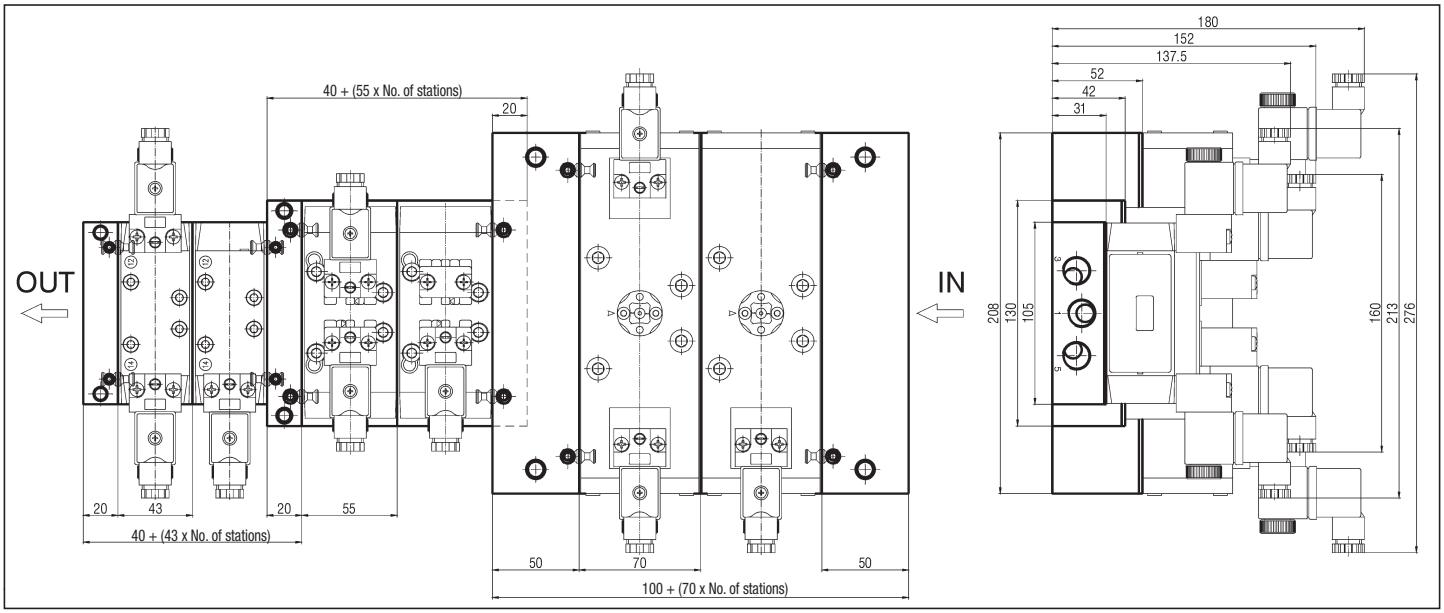
KIT ASSEMBLY BASES

Kit assembly bases ISO 1	KIT/UDP/ISO 1
Kit assembly bases ISO 2	KIT/UDP/ISO 2
Kit assembly bases ISO 3	KIT/UDP/ISO 3

DIAPHRAGM - UDP/ISO SIZE /T

TYPE	UDP/ISO1/T	UDP/ISO2/T	UDP/ISO3/T
SIZE	1	2	3

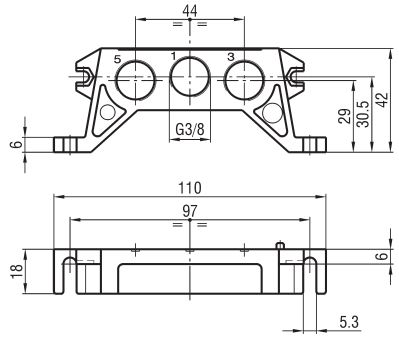
EXAMPLE OF ASSEMBLY



series UDS ISO

Manifold bases to ISO 5599/1 standard size 1 obtained from die-cast light alloy

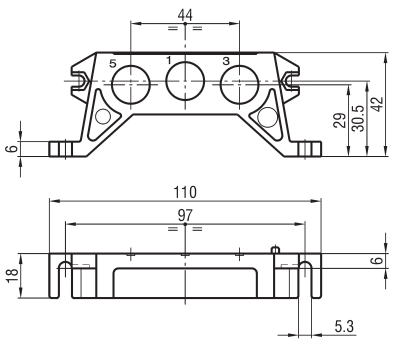
INPUT PLATE - UDP/ISO1PE



WEIGHT 80 g

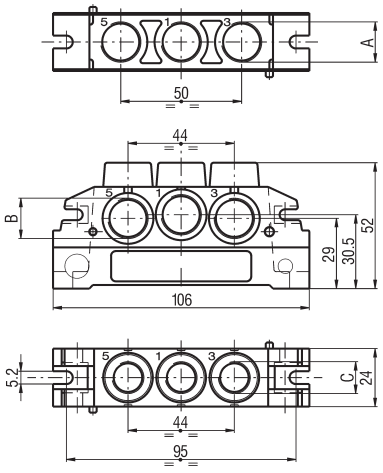
INPUT PLATE IS SUPPLIED COMPLETE WITH SCREWS AND SEALS

BLIND TERMINAL PLATE - UDP/ISO1PT



WEIGHT 80 g

UNIVERSAL PLATE

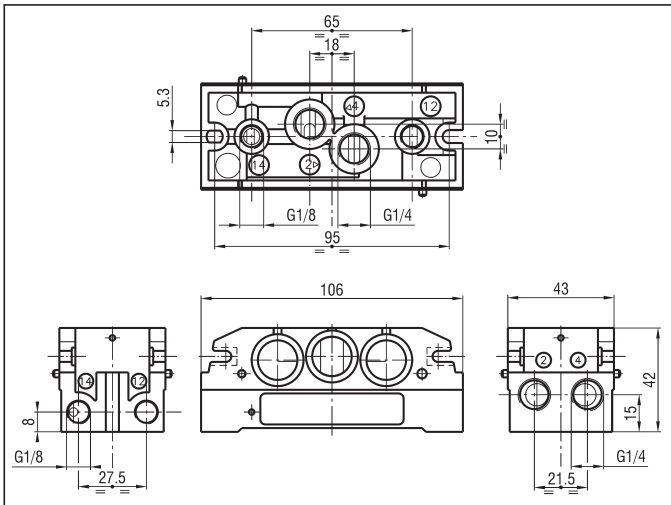


WEIGHT 150 g

DESCRIPTION	A	B	C	TYPE
Intermediate plate, bottom ported	G 3/8	-	-	UDP/ISO1PUI
Intermediate plate, side ported	-	G 3/8	-	UDP/ISO1PUL
Intermediate plate, top ported	-	-	G 1/4	UDP/ISO1PUS
Intermediate plate with blind holes	G 3/8	G 3/8	G 1/4	UDP/ISO1PU

PLATES ARE SUPPLIED COMPLETE WITH SCREWS AND SEALS

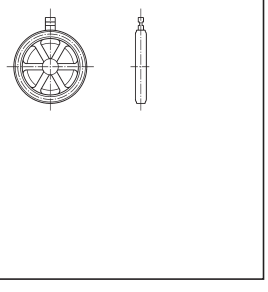
MANIFOLD BASE, SIDE AND BOTTOM PORTED - UDP/ISO1BM



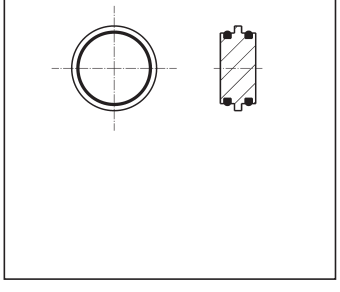
WEIGHT 250 g

MANIFOLD BASE IS SUPPLIED COMPLETE WITH SCREWS, SEALS AND PLUGS (USE A FLUID SEAL)

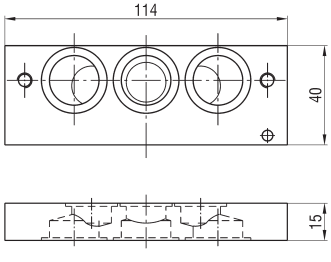
DIAPHRAGM - UDP/ISO1D



DIAPHRAGM - UDP/ISO2D



SIZE ADAPTER ISO 1-2 - UDP/ISODT1-2



WEIGHT 170 g

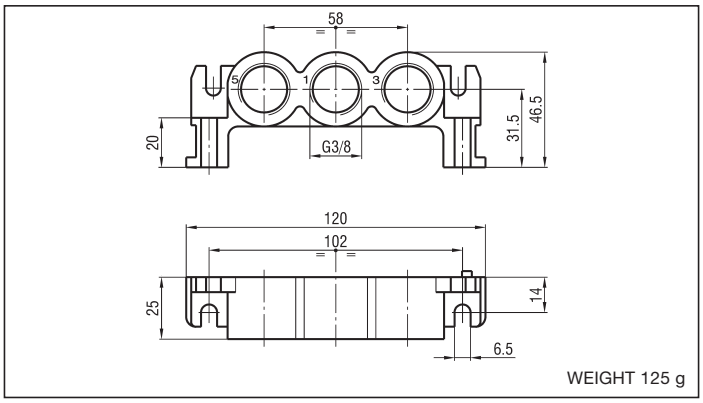
SIZE ADAPTER IS SUPPLIED COMPLETE WITH SCREWS AND SEALS

Accessories

Manifold bases to ISO 5599/1 standard size 2 obtained from die-cast light alloy

series UDS ISO

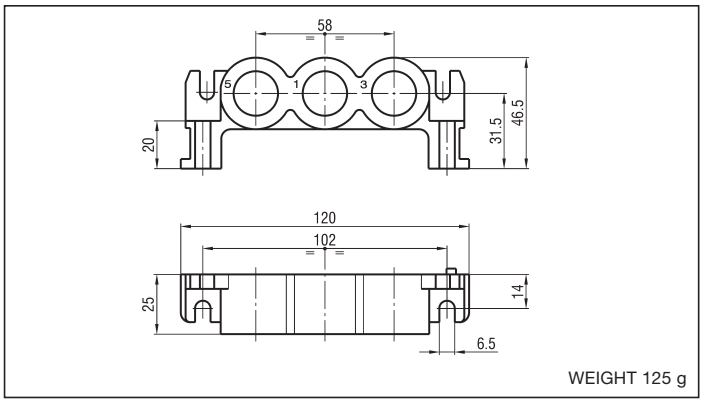
INPUT PLATE - UDP/ISO2PE



WEIGHT 125 g

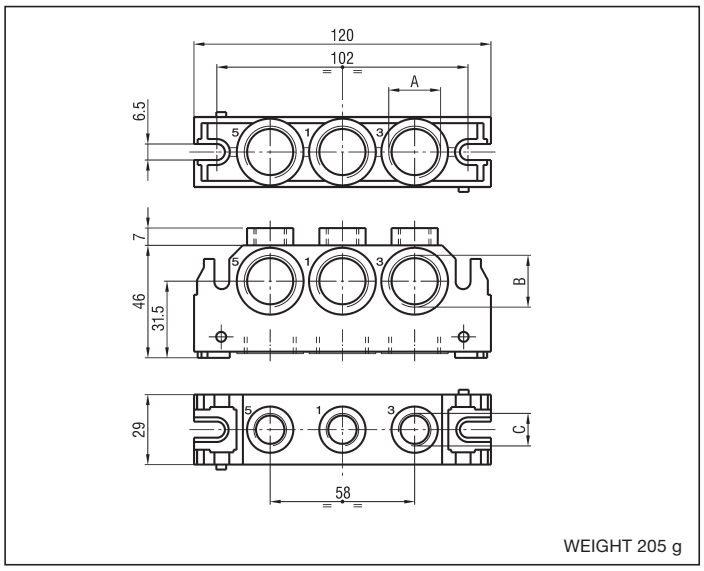
INPUT PLATE IS SUPPLIED COMPLETE WITH SCREWS AND SEALS

BLIND TERMINAL PLATE - UDP/ISO2PT



WEIGHT 125 g

UNIVERSAL PLATE

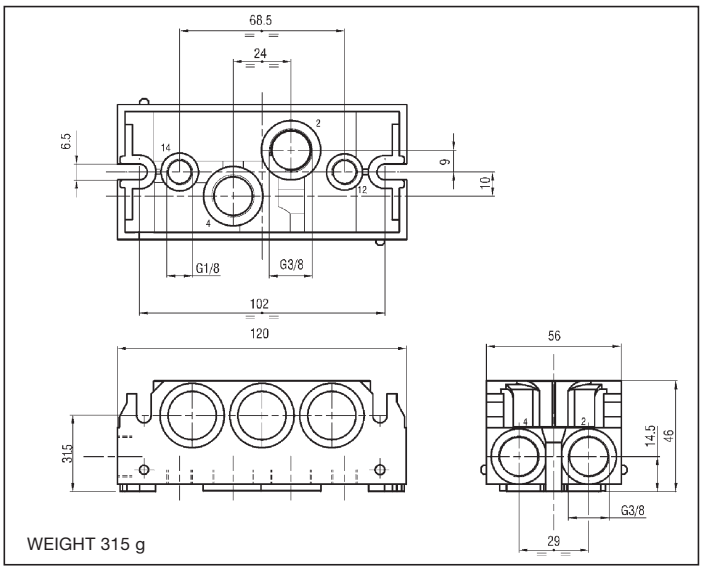


WEIGHT 205 g

DESCRIPTION	A	B	C	TYPE
Intermediate plate, bottom ported	G 1/2	-	-	UDP/ISO2PUI
Intermediate plate, side ported	-	G 1/2	-	UDP/ISO2PUL
Intermediate plate, top ported	-	-	G 1/4	UDP/ISO2PUS
Intermediate plate with blind holes	G 1/2	G 1/2	G 1/4	UDP/ISO2PU

PLATES ARE SUPPLIED COMPLETE WITH SCREWS AND SEALS

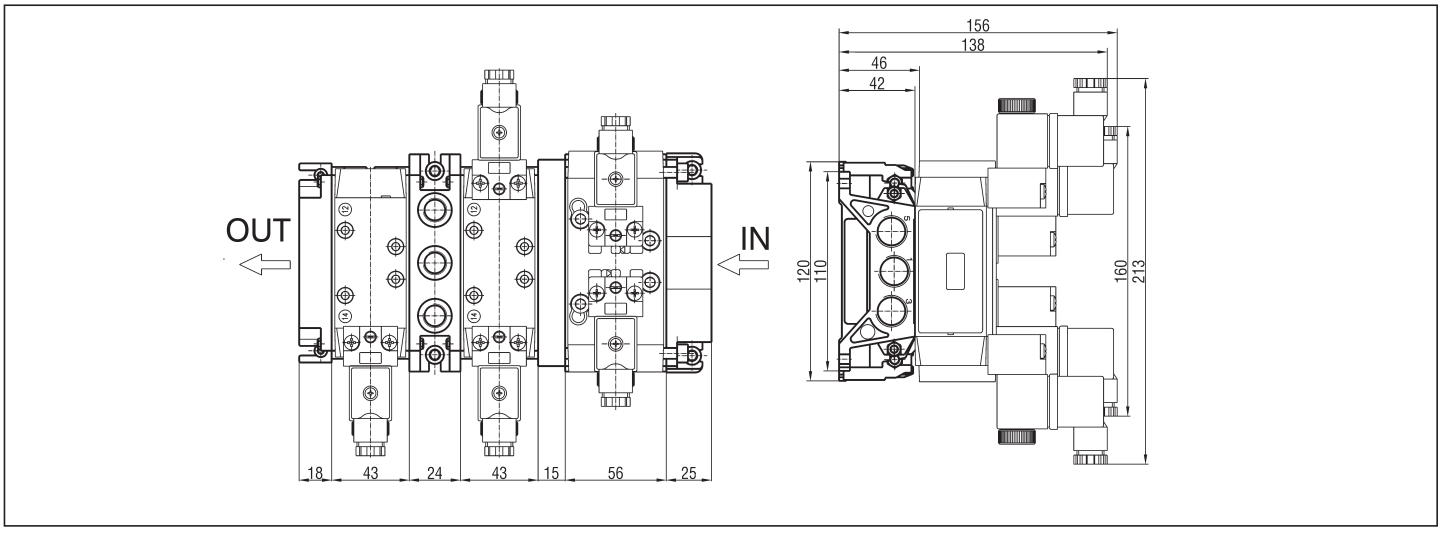
MANIFOLD BASE, SIDE AND BOTTOM PORTED - UDP/ISO2BM



WEIGHT 315 g

MANIFOLD BASE IS SUPPLIED COMPLETE WITH SCREWS, SEALS AND PLUGS (USE A FLUID SEAL)

EXAMPLE OF ASSEMBLY



series UDS CETOP

Valves to ex CETOP RP 32 P standard pilot and solenoid actuated sizes 05 - 12 - 35

DESCRIPTION

Valves series "UDS CETOP" are produced in the 5/2 and 5/3 pneumatic functions according to the interface to ex CETOP RP 32 P standard and they are mounted onto single bases, bottom or side ported, or onto manifold bases, bottom ported.
All the solenoid actuated versions support the 32 mm direct acting solenoid valve type ULCSV/R (with fixed position) or the amplifier valve type XVF4 for a sensible pneumatic piloting (see page 3.36).

TECHNICAL DATA

Operating pressure	Monostable: 2,5 ÷ 10 bar Bistable: 2 ÷ 10 bar
Working temperature	0 ÷ +70 °C (-20 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Port size	Interface to ex CETOP RP 32 P standard
Pneumatic piloting port size	Interface to ex CETOP RP 32 P standard
Piloting solenoid valve	ULCSV/R - see chapter Direct acting solenoid valves on page 2.6
Pneumatic piloting valve	XVF4 - see chapter Complementary valves on page 3.37
Electric connector	ULR1B - see chapter Connectors on page 2.15

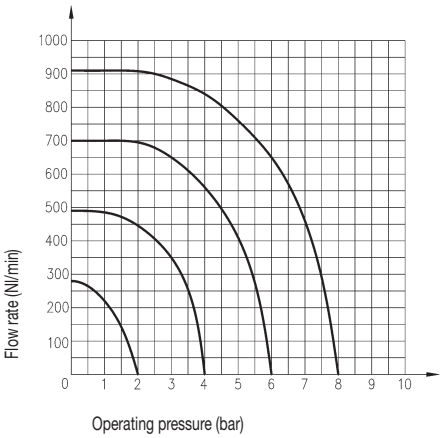
MATERIALS

Bottoms	Anodized aluminium alloy
Body	Anodized aluminium alloy
Distance rings	Acetal resin
Springs	Galvanized steel
Seals	NBR rubber + steel insert
Spool	Anodized aluminium alloy
Piston	Anodized aluminium alloy

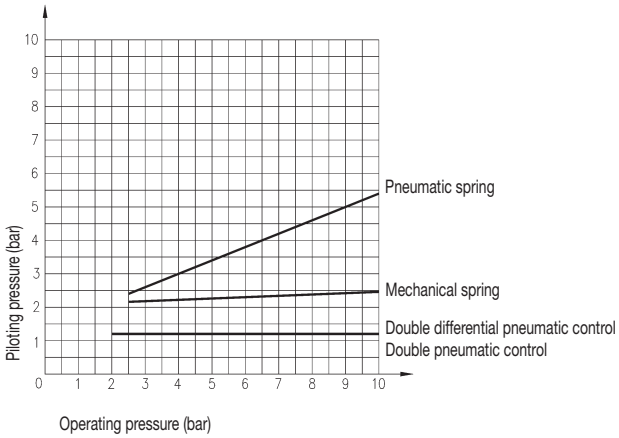
SPARE PARTS

SEALS KIT	
Size 05	UDS/SG/05
Size 12	UDS/SG/12
Size 35	UDS/SG/35

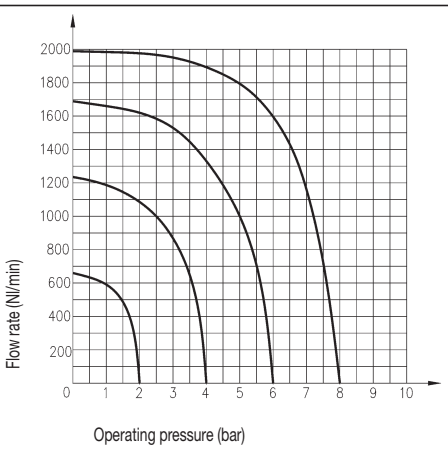
FLOW CHART SIZE 05



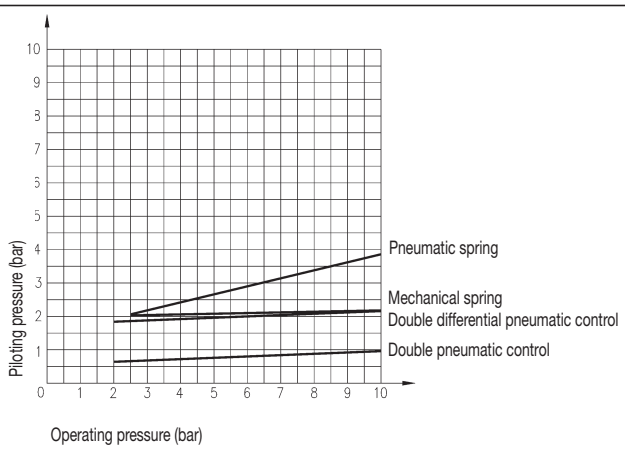
PILOTING CHART SIZE 05



FLOW CHART SIZE 12



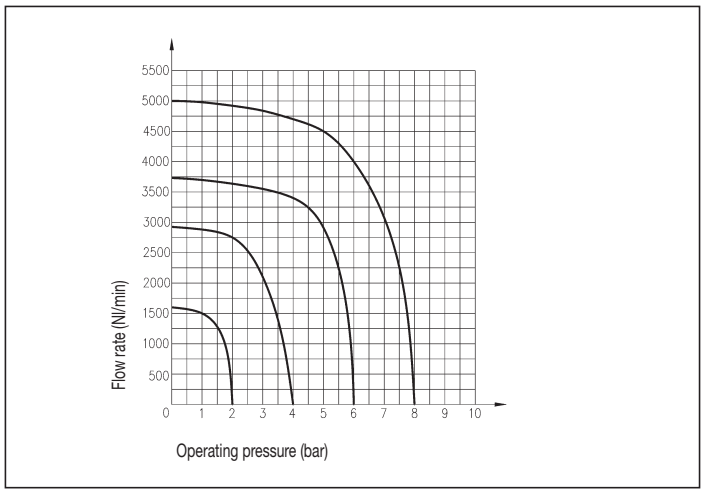
PILOTING CHART SIZE 12



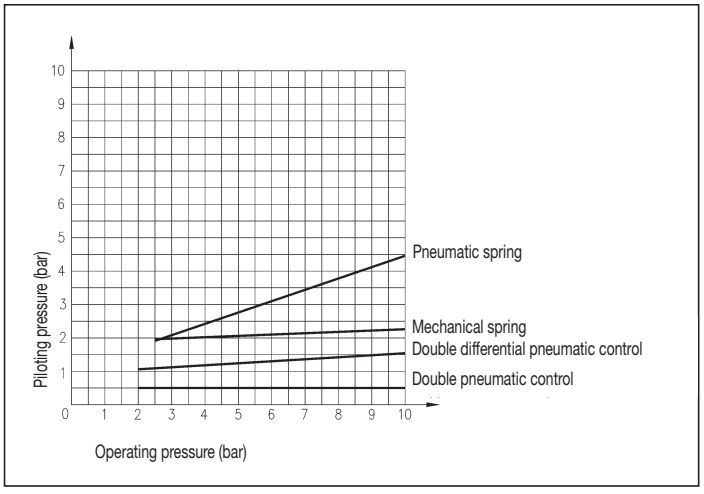
Sizes 05 - 12 - 35

series UDS CETOP

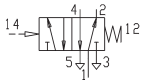
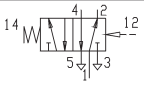
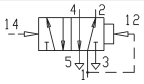
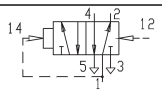
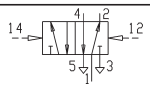
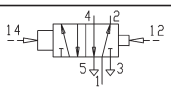
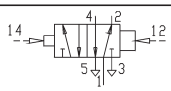
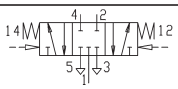
FLOW CHART SIZE 35



PILOTING CHART SIZE 35

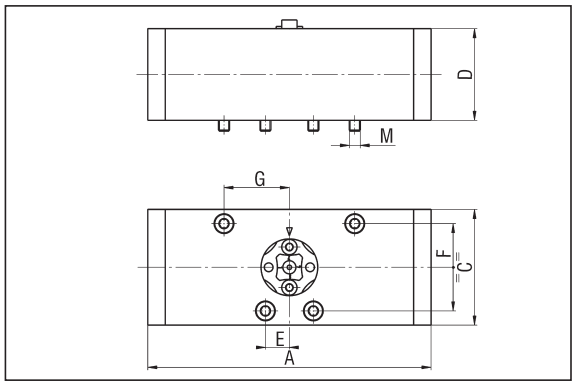


PILOT ACTUATED VALVES* SIZES 05 - 12 - 35

Symbol	Function	Controls		Response times at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	Size	TYPE
		Pilot	Return	Energized	De-energized				
	5/2 monostable	Pneumatic	Mechanical spring	29	38	415	310	05	UDS 05 KR/ZR
				30	48	950	760	12	UDS 12 KR/ZR
				42	41	2800	1945	35	UDS 35 KR/ZR
		Mechanical spring	Pneumatic	29	38	415	310	05	UDS 05 ZR/KR
				30	48	950	760	12	UDS 12 ZR/KR
				42	41	2800	1945	35	UDS 35 ZR/KR
		Pneumatic	Pneumatic spring	42	34	415	325	05	UDS 05 KR/TQ
				44	59	950	770	12	UDS 12 KR/TQ
				69	71	2800	1900	35	UDS 35 KR/TQ
		Pneumatic spring	Pneumatic	42	34	415	325	05	UDS 05 TQ/KR
				44	59	950	770	12	UDS 12 TQ/KR
				69	71	2800	1900	35	UDS 35 TQ/KR
	5/2 bistable	Pneumatic	Pneumatic	27	27	415	305	05	UDS 05 KR/KR
				28	28	950	745	12	UDS 12 KR/KR
				36	36	2800	1910	35	UDS 35 KR/KR
		Pneumatic	Pneumatic differential	27	27	415	310	05	UDS 05 KR/TR
				28	28	950	770	12	UDS 12 KR/TR
				36	36	2800	1900	35	UDS 35 KR/TR
		Pneumatic differential	Pneumatic	27	27	415	310	05	UDS 05 TR/KR
				28	28	950	770	12	UDS 12 TR/KR
				36	36	2800	1900	35	UDS 35 TR/KR
	5/3 closed centre	Pneumatic	Mechanical spring	30	34	315	325	05	UDS 05 SR/SR
				42	33	815	790	12	UDS 12 SR/SR
				27	31	2650	1980	35	UDS 35 SR/SR

* FOR THE LOW PRESSURE PILOT ACTUATED VALVES OBTAINABLE WITH “XVF4” SEE THE TABLE SOLENOID ACTUATED VALVES ON PAGE 2.88

5 PORT

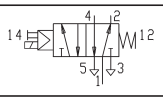
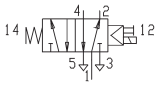
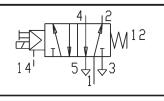
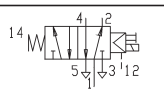
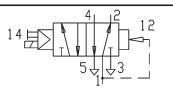
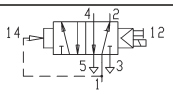
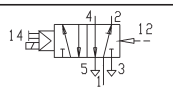
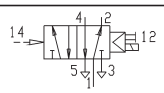
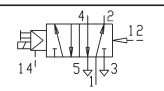
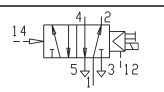
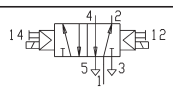
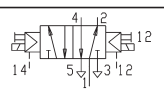
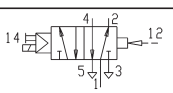
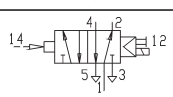
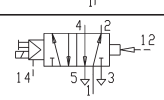
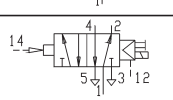
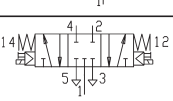
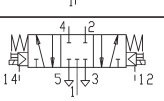


SIZE	A	C	D	E	F	G	M
05	104	38	30	9	26	24	M4
12	130	53	42	11	40	30	M5
35	208	68	52	20	48	54	M8

Sizes 05 - 12 - 35

series UDS CETOP

SOLENOID ACTUATED VALVES SIZES 05 - 12 - 35

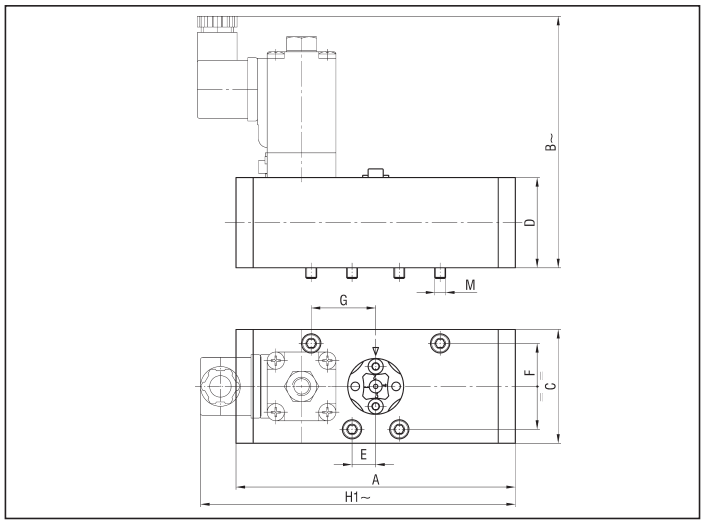
Symbol	Function	Controls		Response times at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	Size	TYPE*
		Actuation	Return	Energized	De-energized				
	5/2 monostable	Solenoid	Mechanical spring	29	38	415	310	05	UDS 05 KUC/ZR
				30	48	950	765	12	UDS 12 KUC/ZR
				47	39	2800	1970	35	UDS 35 KUC/ZR
		Mechanical spring	Solenoid	29	38	415	310	05	UDS 05 ZR/KUC
				30	48	950	765	12	UDS 12 ZR/KUC
				47	39	2800	1970	35	UDS 35 ZR/KUC
		Solenoid pilot assisted	Mechanical spring	29	38	415	310	05	UDS 05 KUR/ZR
				30	48	950	765	12	UDS 12 KUR/ZR
				47	39	2800	1970	35	UDS 35 KUR/ZR
		Mechanical spring	Solenoid pilot assisted	29	38	415	310	05	UDS 05 ZR/KUR
				30	48	950	765	12	UDS 12 ZR/KUR
				47	39	2800	1970	35	UDS 35 ZR/KUR
		Solenoid	Pneumatic spring	42	34	415	325	05	UDS 05 KUC/TQ
				44	59	950	785	12	UDS 12 KUC/TQ
				76	49	2800	1940	35	UDS 35 KUC/TQ
		Pneumatic spring	Solenoid	42	34	415	325	05	UDS 05 TQ/KUC
				44	59	950	785	12	UDS 12 TQ/KUC
				76	49	2800	1940	35	UDS 35 TQ/KUC
	5/2 bistable	Solenoid	Pneumatic	27	27	415	305	05	UDS 05 KUC/KR
				28	28	950	745	12	UDS 12 KUC/KR
				36	36	2800	1910	35	UDS 35 KUC/KR
		Pneumatic	Solenoid	27	27	415	310	05	UDS 05 KR/KUC
				28	28	950	765	12	UDS 12 KR/KUC
				36	36	2800	1910	35	UDS 35 KR/KUC
		Solenoid pilot assisted	Pneumatic	27	27	415	310	05	UDS 05 KUR/KR
				28	28	950	765	12	UDS 12 KUR/KR
				36	36	2800	1910	35	UDS 35 KUR/KR
		Pneumatic	Solenoid pilot assisted	27	27	415	310	05	UDS 05 KR/KUR
				28	28	950	765	12	UDS 12 KR/KUR
				36	36	2800	1910	35	UDS 35 KR/KUR
		Solenoid	Solenoid	27	27	415	305	05	UDS 05 KUC/KUC
				28	28	950	745	12	UDS 12 KUC/KUC
				36	36	2800	1910	35	UDS 35 KUC/KUC
		Solenoid pilot assisted	Solenoid pilot assisted	27	27	415	305	05	UDS 05 KUR/KUR
				28	28	950	745	12	UDS 12 KUR/KUR
				36	36	2800	1910	35	UDS 35 KUR/KUR
		Solenoid	Small pneumatic	27	27	415	315	05	UDS 05 KUC/TR
				28	28	950	775	12	UDS 12 KUC/TR
				36	36	2800	1900	35	UDS 35 KUC/TR
		Small pneumatic	Solenoid	27	27	415	315	05	UDS 05 TR/KUC
				28	28	950	775	12	UDS 12 TR/KUC
				36	36	2800	1900	35	UDS 35 TR/KUC
		Solenoid pilot assisted	Small pneumatic	27	27	415	315	05	UDS 05 KUR/TR
				28	28	950	775	12	UDS 12 KUR/TR
				36	36	2800	1900	35	UDS 35 KUR/TR
		Small pneumatic	Solenoid pilot assisted	27	27	415	315	05	UDS 05 TR/KUR
				28	28	950	775	12	UDS 12 TR/KUR
				36	36	2800	1900	35	UDS 35 TR/KUR
	5/3 closed centre	Solenoid	Mechanical spring	30	34	315	325	05	UDS 05 SUC/SUC
				42	33	815	795	12	UDS 12 SUC/SUC
				34	38	2650	1980	35	UDS 35 SUC/SUC
		Solenoid pilot assisted	Mechanical spring	30	34	315	325	05	UDS 05 SUR/SUR
				42	33	815	795	12	UDS 12 SUR/SUR
				34	38	2650	1980	35	UDS 35 SUR/SUR

* THE TYPES OF THE SOLENOID VALVES DO NOT INCLUDE THE PILOTING SOLENOID VALVES (SEE ON PAGE 2.6 FOR "ULCSV/R") WHEREAS USING AS PILOT THE VALVE "XVF4" THE RESULT IS A LOW PRESSURE PILOT ACTUATED VALVE (FOR "XVF4" - SEE ON PAGE 3.37)

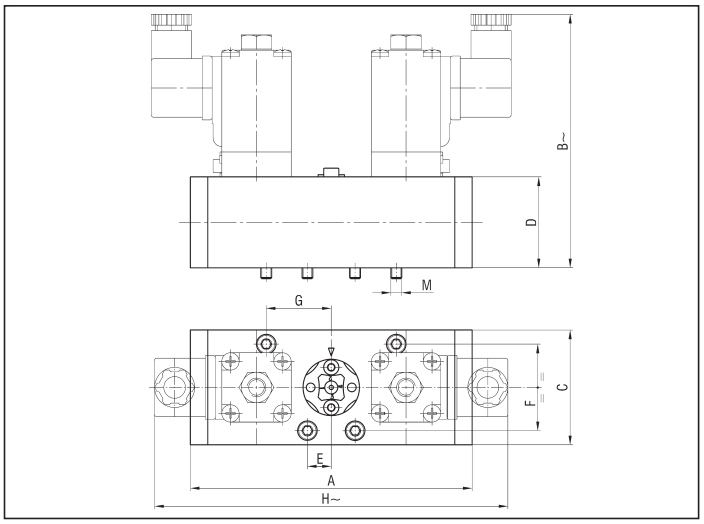
Sizes 05 - 12 - 35 and single bases

series UDS CETOP

5 PORT MONOSTABLE

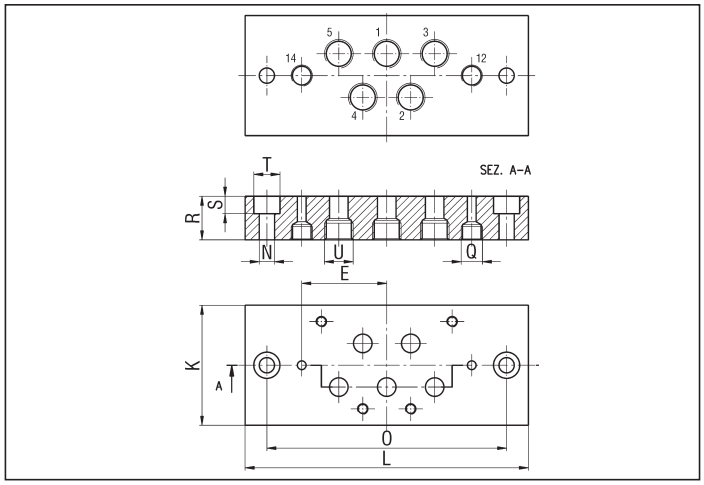


5 PORT AND 3 POSITIONS BISTABLE

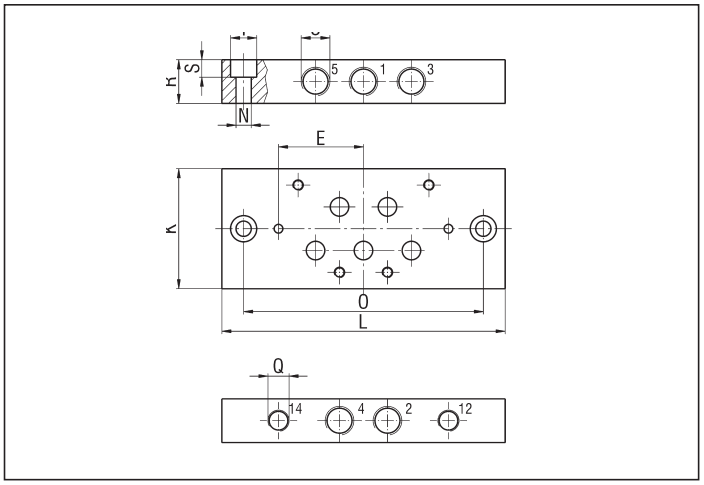


SIZE	A	B	C	D	E	F	G	H	H1	M
05	104	105	38	30	9	26	24	135	120	M4
12	130	117	53	42	11	40	30	158	144	M5
35	208	127	68	52	20	58	54	233	221	M8

SINGLE BASE, BOTTOM PORTED - UDP...B



SINGLE BASE, SIDE PORTED - UDP...S

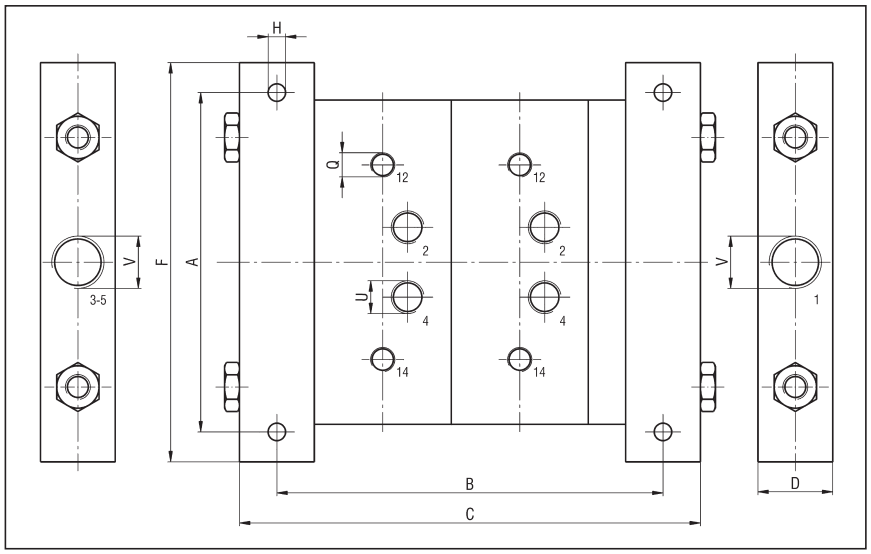


SIZE	Weight (g)	TYPE	Weight (g)	SIZE	E	K	L	N	O	Q	R	S	T	U
UDP8B	170	UDP8S	160	05	30	40	105	6	90	G 1/8	16	6,5	10	G 1/8
UDP4B	365	UDP4S	340	12	39	55	130	7	110	G 1/8	20	8	12	G 1/4
UDP2B	1170	UDP2S	1125	35	65	70	208	9	180	G 1/8	32	11	15	G 1/2

series UDS CETOP

Sizes 05 - 12 - 35 and manifold bases

MANIFOLD BASES, BOTTOM PORTED - UDP...M/



SIZE	A	D	F	H	Q	U	V
05	110	30	130	6	G 1/8	G 1/8	G 1/4
12	136	40	160	7	G 1/8	G 1/4	G 1/2
35	210	50	240	9	G 1/8	G 1/2	G 3/4

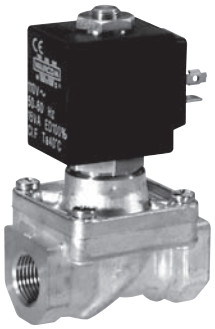
No. of stations	2	3	4	5	6	7	8	9	10
B	115	155	195	235	275	315	355	395	435
C	150	190	230	270	310	350	390	430	470
Weight *(g)*	1165	1480	1795	2110	2425	2740	3055	3370	3685
TYPE Size 05	**UDP8M/2**	**UDP8M/3**	**UDP8M/4**	**UDP8M/5**	**UDP8M/6**	**UDP8M/7**	**UDP8M/8**	**UDP8M/9**	**UDP8M/10**
B	155	210	265	320	375	430	485	540	595
C	197	252	307	362	417	472	527	582	63
Weight *(g)*	2340	3040	3740	4440	5140	5840	6540	7240	7940
TYPE Size 12	**UDP4M/2**	**UDP4M/3**	**UDP4M/4**	**UDP4M/5**	**UDP4M/6**	**UDP4M/7**	**UDP4M/8**	**UDP4M/9**	**UDP4M/10**
B	170	240	310	380	-	-	-	-	-
C	236	306	376	446	-	-	-	-	-
Weight *(g)*	5680	7240	9000	10760					
TYPE Size 35	**UDP2M/2**	**UDP2M/3**	**UDP2M/4**	**UDP2M/5**	**-**	**-**	**-**	**-**	**-**

Solenoid valves for industrial media
G 1/8 ÷ G 2

series W

DESCRIPTION

The solenoid valves series "W" can be directly actuated, servo-assisted or with mixed actuation. These solenoid valves, produced in the 2/2 N.C. pneumatic function, are used in several industrial fields, thanks to their compatibility with a large range of fluids.



TECHNICAL DATA

Operating pressure	(See tables below)
Working temperature range	NBR -10 ÷ +90 °C EPDM < +140 °C FPM -10 ÷ +130 °C
Fluid	(See technical information)
Port size	G 1/8 ÷ G 2
Coils	WE3A - see on page 2.93 WE2A - see on page 2.93 WE5A - see on page 2.93
Electric connectors	USR102/N9 - see chapter Connectors on page 2.15 ULR1B - see chapter Connectors on page 2.15

MATERIALS

Body	Brass
Sleeve	Brass
Moving core	Stainless steel
Springs	Stainless steel
Seals	NBR EPDM FPM

TECHNICAL INFORMATION

Seal type	Duty field
NBR	Water max. 70 °C, air max. 90 °C, mineral oils and derivates - hydrocarbons (methane, ethane, propane, butane, kerosene and gas oil)
EPDM	Hot water and steam max. 140 °C, detergents, solutions of sodium and potassium, hydraulic fluids and polar solvents (not to be used with mineral oils and grease)
FPM (Viton®)	For general purpose max. 130 °C

Calculation of the flow rate

For liquids $Q = Kv\sqrt{\frac{\Delta p}{\rho}}$

For gases $Qn = 26\ Kv\ \sqrt{\Delta p\ P}$

Kv = Flow coefficient

Q = m^3/h Flow rate

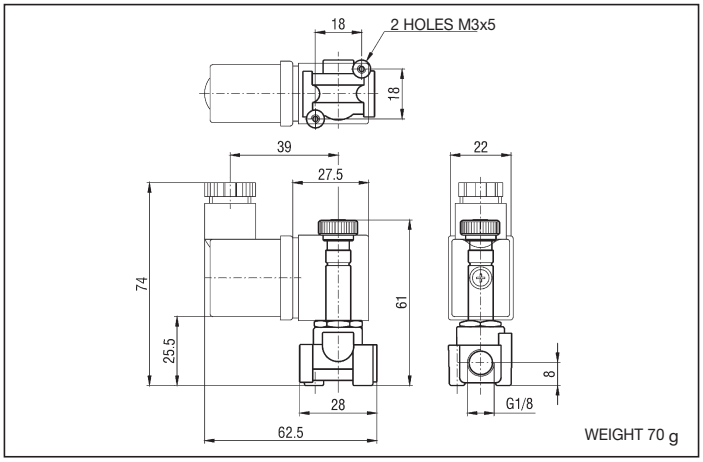
Qn = m^3/h Normal flow rate (20 °C and 760 mm Hg)

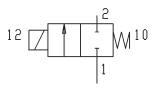
P = bar Absolute downstream pressure

Δp = bar Pressure drop (differential pressure between the upstream and downstream pressure)

p = Kg/dm^3 Specific gravity (ratio of density of the substance to the density of water at 4°C)

2 PORT G 1/8 - DIRECTLY ACTUATED

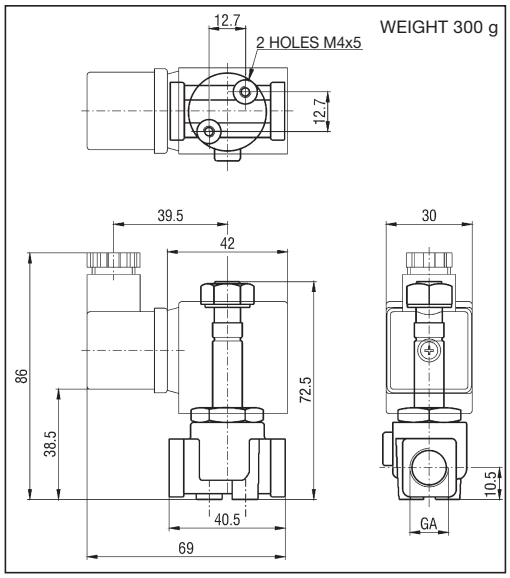


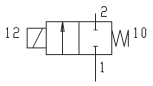
Symbol	Function	Differential pressure (bar) MIN.	Differential pressure (bar) MAX. AC	Differential pressure (bar) MAX. DC	Kv	Nominal orifice (mm)	Port size	TYPE**
	2/2 N.C.	0	25	25	0,04	1,2	G 1/8	W 105 1 * E3A
		0	16	16	0,06	1,5	G 1/8	W 105 2 * E3A
		0	12	10	0,09	2	G 1/8	W 105 3 * E3A
		0	8	5,5	0,14	2,5	G 1/8	W 105 4 * E3A
		0	5	2	0,19	3,1	G 1/8	W 105 5 * E3A

* SPECIFY THE SEALING TYPE: B = NBR; V = FPM; E = EPDM

** THE TYPES OF THE SOLENOID VALVES DO NOT INCLUDE COILS (SEE “WE3A” ON PAGE 2.93)

2 PORT G 1/8 - G 1/4 DIRECTLY ACTUATED

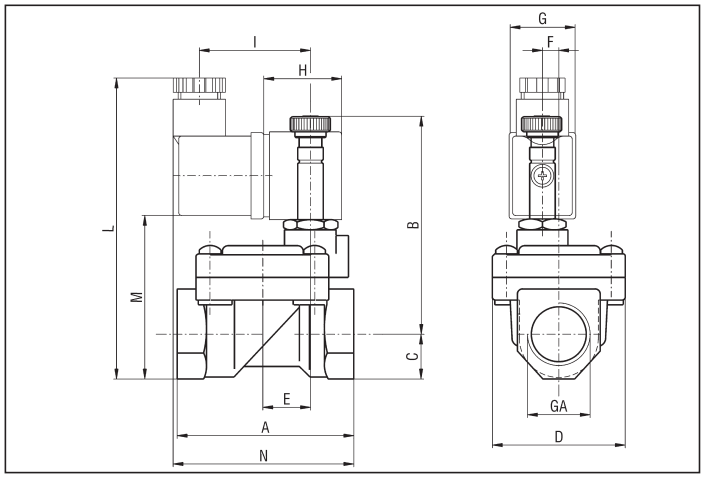


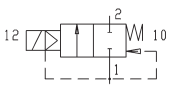
Symbol	Function	Differential pressure (bar) MIN.	MAX. AC	MAX. DC	Kv	Nominal orifice (mm)	Port size (GA)	TYPE**
	2/2 N.C.	0	30	26	0,07	1,5	G 1/8	W106 1 * E2A
		0	22	20	0,1	2	G 1/8	W106 2 * E2A
		0	16	14	0,15	2,5	G 1/8	W 106 3 * E2A
		0	10	8	0,32	3,5	G 1/8	W 106 4 * E2A
		0	30	26	0,07	1,5	G 1/4	W 106 5 * E2A
		0	22	20	0,1	2	G 1/4	W 106 6 * E2A
		0	16	14	0,15	2,5	G 1/4	W 106 7 * E2A
		0	10	8	0,32	3,5	G 1/4	W 106 8 * E2A
		0	6,5	3,5	0,41	4,5	G 1/4	W 106 9 * E2A
		0	4	1,8	0,47	5,2	G 1/4	W 106 10 * E2A
		0	-	1	0,64	6,4	G 1/4	W 106 11 * E2A

* SPECIFY THE SEALING TYPE: B = NBR; V = FPM; E = EPDM

** THE TYPES OF THE SOLENOID VALVES DO NOT INCLUDE COILS (SEE “WE2A” ON PAGE 2.93)

2 PORT G 3/8 - G 2 SERVO ASSISTED



Symbol	Function	Differential pressure (bar) MIN.	MAX. AC	MAX. DC	Kv	Nominal orifice (mm)	Port size (GA)	TYPE**
	2/2 N.C.	0,15	15	15	2	12	G 3/8	W 107 1 * E3A
		0,15	15	15	2,2	12	G 1/2	W 107 2 * E3A
		0,15	13	13	5,2	18	G 3/4	W 107 3 * E3A
		0,15	10	10	10,2	24	G 1	W 107 4 * E3A
		0,15	10	10	18	37	G 1 1/4	W 107 5 * E2A
		0,15	10	10	21	37	G 1 1/2	W 107 6 * E2A
		0,15	10	10	36	50	G 2	W 107 7 * E2A

* SPECIFY THE SEALING TYPE: B = NBR, V = FPM, E = EPDM

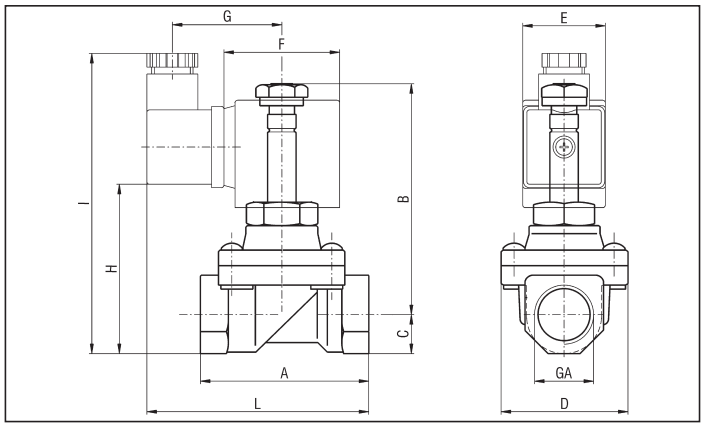
** THE TYPES OF THE SOLENOID VALVES DO NOT INCLUDE COILS (SEE “WE2A” AND “WE3A” ON PAGE 2.93) THAT HAVE PREFERABLY TO BE MOUNTED TOWARD THE HIGH

GA	A	B	C	D	E	F	G	H	I	L	M	N	WEIGHT (g)
G 3/8	60	70	14	45	16	6	22	27,5	39	102	53,5	62,5	450
G 1/2	60	70	14	45	16	6	22	27,5	39	102	53,5	62,5	450
G 3/4	75	74	18	55	20	8,5	22	27,5	39	108	59,5	66	660
G 1	96	85	20	72	32	-	22	27,5	39	120	71,5	64,5	1200
G 1 1/4	144	107	28	102	45	-	30	42	39,5	128	79,5	75,5	3200
G 1 1/2	144	107	28	102	45	-	30	42	39,5	128	79,5	75,5	2900
G 2	152	116,5	35	119	48	-	30	42	39,5	159	110,5	76,5	4500

G 1/8 ÷ G 2 - Coils

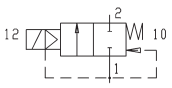
series W

2 PORT G 3/8 - G 1 WITH MIXED ACTUATION



GA	A	B	C	D	E *WE2A*	E *WE5A*	F *WE2A*	F *WE5A*
G 3/8	59	83	14	45	30	36	42	47,5
G 1/2	59	83	14	45	30	36	42	47,5
G 3/4	79	90	18	55	-	36	-	47,5
G 1	96	101	20	72	-	36	-	47,5

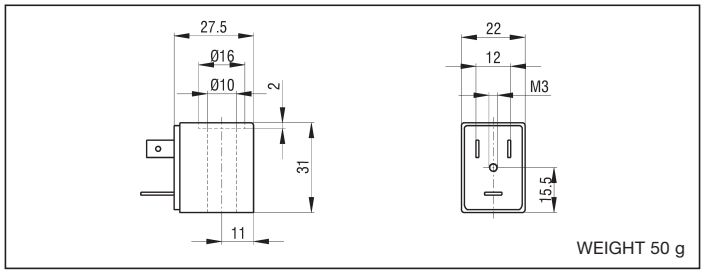
G *WE2A*	G *WE5A*	H *WE2A*	H *WE5A*	I *WE2A*	I *WE5A*	L *WE2A*	L *WE5A*	WEIGHT *(g)*
39,5	42,5	58,5	58	106	105,5	79	82	580
39,5	42,5	58,5	58	106	105,5	79	82	530
-	42,5	-	69	-	116,5	-	89,5	750
-	42,5	-	82	-	129,5	-	100	1200

Symbol	Function	Differential pressure (bar) MIN.	MAX. AC	MAX. DC	Kv	Nominal orifice (mm)	Port size (GA)	TYPE**
	2/2 N.C.	0	10	-	2	12	G 3/8	W 108 1 * E2A
		0	10	-	2,2	12	G 1/2	W 108 2 * E2A
		0	12	10	2	12	G 3/8	W 108 1 * E5A
		0	12	10	2,2	12	G 1/2	W 108 2 * E5A
		0	9	-	4,5	18	G 3/4	W 108 3 * E5A
		0	7	-	8,5	24	G 1	W 108 4 * E5A

* SPECIFY THE SEALING TYPE: B = NBR; V = FPM; E = EPDM

** THE TYPES OF THE SOLENOID VALVES DO NOT INCLUDE COILS (SEE "WE2A" AND "WE3A") THAT HAVE PREFERABLY TO BE MOUNTED TOWARD THE HIGH

COIL TYPE WE3A



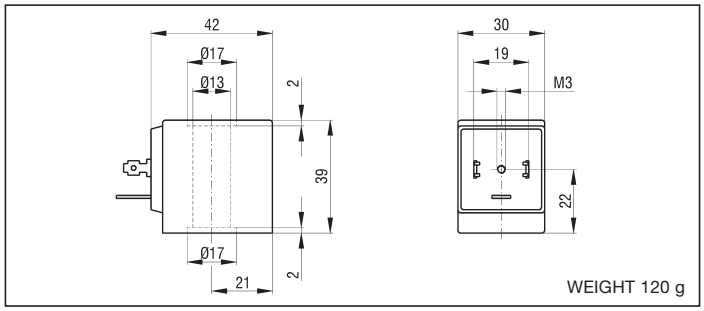
WEIGHT 50 g

Power consumption	DC: 5,5 W AC: 11 VA (inrush)

DESCRIPTION	TYPE
COIL 22 mm 24 V DC	WE3A/02400
COIL 22 mm 24 V AC	WE3A/02450-60
COIL 22 mm 110 V AC	WE3A/11050-60
COIL 22 mm 220 V AC	WE3A/22050-60

ELECTRIC CONNECTOR "USR 102/N9" (SEE ON PAGE 2.15)

COIL TYPE WE2A



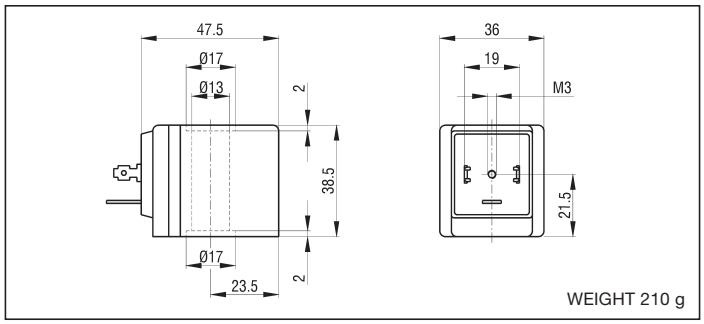
WEIGHT 120 g

Power consumption	DC: 8 W AC: 20 VA (inrush)

DESCRIPTION	TYPE
COIL 30 mm 24 V DC	WE2A/02400
COIL 30 mm 24 V AC	WE2A/02450-60
COIL 30 mm 110 V AC	WE2A/11050-60
COIL 30 mm 220 V AC	WE2A/22050-60

ELECTRIC CONNECTOR "ULR1B " (SEE ON PAGE 2.15)

COIL TYPE WE5A



WEIGHT 210 g

Power consumption	DC: 23 W AC: 40 VA (inrush)

DESCRIPTION	TYPE
COIL 36 mm 24 V DC	WE5A/02400
COIL 36 mm 24 V AC	WE5A/02450-60
COIL 36 mm 110 V AC	WE5A/11050-60
COIL 36 mm 220 V AC	WE5A/22050-60

ELECTRIC CONNECTOR "ULR1B " (SEE ON PAGE 2.15)

series EV

Valves for vacuum solenoid pilot assisted actuated G 1/8 ÷ G 2

DESCRIPTION

Valves for vacuum series "EV" are produced only in the 3/2 N.O. and 3/2 N.C. pneumatic functions with solenoid pilot assisted actuation.

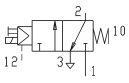
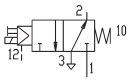
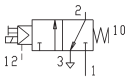
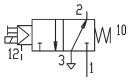
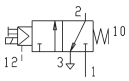
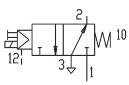
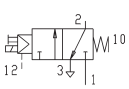
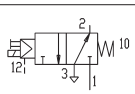
TECHNICAL DATA

Maximum vacuum	755 mm Hg
Pneumatic piloting pressure	3 ÷ 10 bar
Working temperature	-20 ÷ +40°C
Fluid	Vacuum
Port size	G 1/8 - G 1/4 - G 3/8 - G 1/2 - G 3/4 - G 1 - G 1 ½ - G 2
Coils	G 1/8: WE3A - see Coils on page 2.93 G 1/4 - G 3/8: USB - see chapter Coils on page 2.14 G 1/2 ÷ G 2: WE2A - see Coils on page 2.93
Electric connectors	USR102/N9 - see chapter Connectors on page 2.15 ULR1B - see chapter Connectors on page 2.15

MATERIALS

Bottoms	Anodized aluminium
Body	Anodized aluminium
Springs	Stainless steel
Sleeve	Nickel-plated brass
Core	Stainless steel
Piston	Aluminium
Diaphragm and plunger	Polyurethane

3 PORT SOLENOID PILOT ASSISTED ACTUATED VALVES

Symbol	Function	Controls		Response times at 6 bar (ms)		Maximum flow rate pump *(m3/h)*	Port size	Size	TYPE**
		Actuation	Return	Energized	De-energized				
	3/2 N.C. - 3/2 N.O.*	Solenoid pilot assisted	Mechanical spring	15	25	1,5	G 1/8	163	EV8
	3/2 N.C. - 3/2 N.O.*			18	28	4	G 1/4	462	EV4
	3/2 N.C. - 3/2 N.O.*			18	28	10	G 3/8	451	EV3
	3/2 N.C. - 3/2 N.O.*			20	40	20	G 1/2	780	EV2
	3/2 N.C. - 3/2 N.O.*			20	40	20	G 3/4	750	EV6
	3/2 N.C. - 3/2 N.O.*			20	45	90	G 1	1212	EV1
	3/2 N.C. - 3/2 N.O.*			60	40	180	G 1½	3300	EV12
	3/2 N.C. - 3/2 N.O.*			80	50	250	G 2	9800	EV16

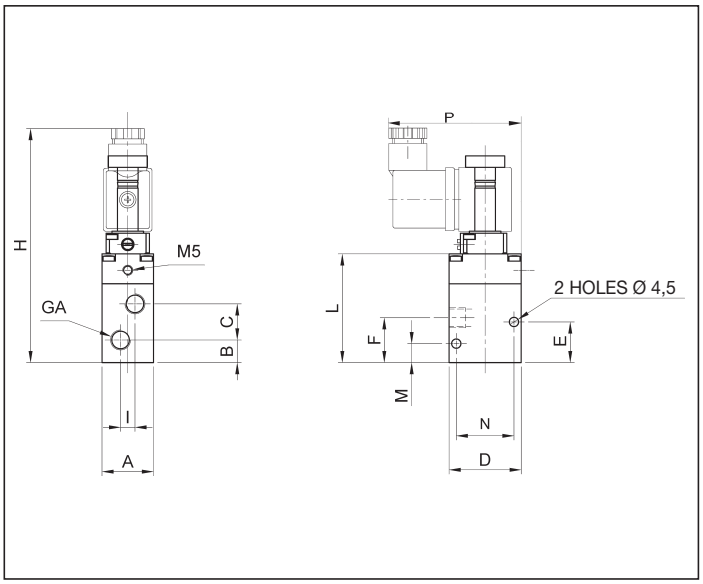
* FOR VERSION N.O. ARRANGE THE CONNECTIONS AS INDICATED: 1 = EXHAUST
2 = OUTPUT
3 = PUMP

**THE TYPES OF THE SOLENOID VALVES DO NOT INCLUDE COILS

G 1/8 ÷ G 2

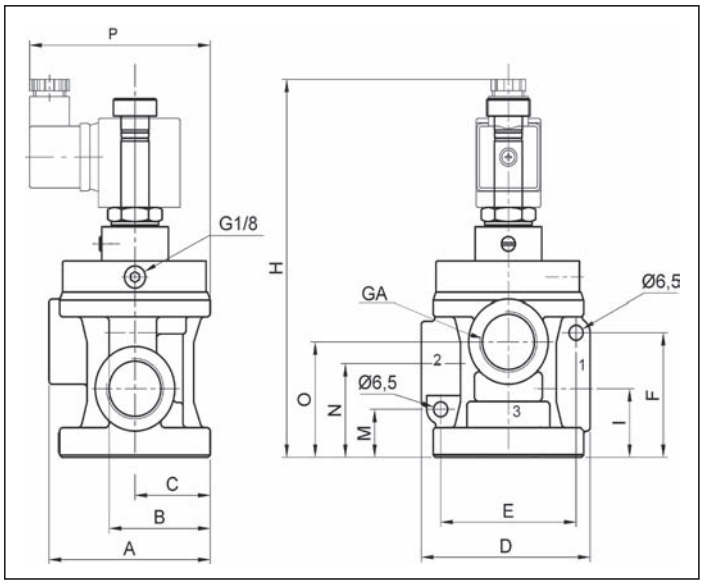
series EV

EV8 - EV4 - EV3



TYPE	A	B	C	D	E	F	GA	H	I	L	M	N	P
EV8	25	11	17.5	35	19.7	21.7	G 1/8	112.7	7	52.7	9.2	28	65
EV4	32	24	23.5	59	36	36	G 1/4	136	-	74.5	24.5	40	89
EV3	32	24	23.5	59	36	36	G 3/8	136	-	74.5	24.5	40	89

EV2 - EV6 - EV1 - EV12 - EV16



TYPE	A	B	C	D	E	F	GA	H	I	M	N	O	P
EV2	75	47	35	78.5	63	54.5	G 1/2	152	30	21	41	50.5	85.5
EV6	75	47	35	78.5	63	54.5	G 3/4	152	30	21	41	50.5	85.5
EV1	94	55	45	101	78	62.5	G 1	168	38	25.5	51	64	95
EV12	138	84	59	158	113	113	G 1½	240	68	34	68	96	-
EV16	183.5	113.5	78.5	210	150	152	G 2	310	92	48	92	129	-

series VM

Vacuum generators
G 1/8 ÷ G 1

DESCRIZIONE

Valves series “VM” generate vacuum using the Venturi effect.
These valves found a specific employment in the aspiration from single work points with a suction cap.

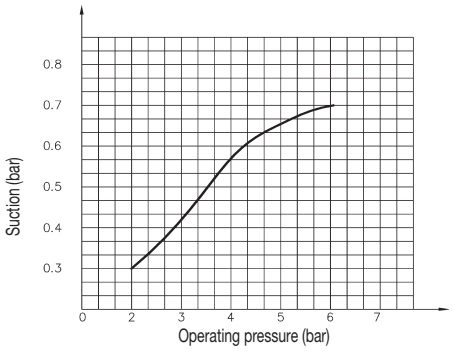
TECHNICAL DATA

Operating pressure	1 ÷ 10 bar
Fluid	Vacuum
Feeding fluid	Compressed air
Port size	G 1/8 - G 1/4 - G 3/8 - G 1/2 - G 3/4 - G 1
Nominal diameter	1,5 mm
Max. vacuum capability	0,7 bar

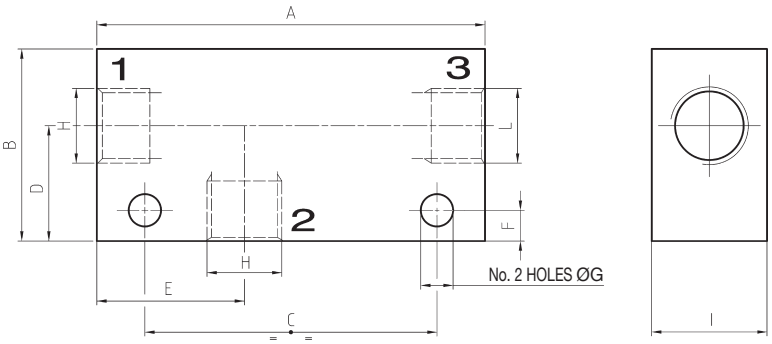
MATERIALS

Body	Anodized aluminium alloy
Nozzle	Brass
Seals	NBR rubber

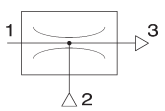
SUCTION CHART



DIMENSIONS AND WEIGHT VM



1 = FEEDING FLUID
2 = SUCTION
3 = EXHAUST

Symbol	A	B	C	D	E	F	G	I	H	L	WEIGHT *(g)*	TYPE
	50.5	25	38	15	19.2	4	4.2	15	G 1/8	G 1/8	50	VM8
	58	30	38	19.5	23	4	4.2	25	G 1/4	G 1/4	90	VM4
	71.5	30	52	18.5	31	4.5	5.2	25	G 3/8	G 3/8	146	VM3
	75	35	56	21	33	4.5	5.2	30	G 1/2	G 1/2	203	VM2
	90.5	50	61.5	28.5	49.4	4.5	5.2	50	G 3/4	G 1/4	692	VM15
	97	50	68	28.5	52.4	4.5	5.2	50	G 1	G 1/4	643	VM1

VALVES
manually and mechanically actuated and complementary valves

Index chapter 3

Waircom complementary and manually/mechanically actuated valves: overview

As already described in the overview of the previous chapter, even for this series of valves we can find both poppet and spool construction, in order to satisfy the different applications.

As inferable by their definition, these valves can be actuated or by a mechanical device or by an operator, and they can be used together with some complementary valves, that, in spite of their definition, are of great importance for the proper and efficiency functioning of each pneumatic circuits.

Minivalves manually and mechanically actuated

series M

DESCRIPTION

Minivalves series "M" are produced in the 2/2 and 3/2 pneumatic functions in both side and bottom ported versions, with push-in fittings on body valve for pipe Ø 4 mm or M5 threaded connections; the version G 1/8 bottom ported is also available. Thanks to the suitable adapter types MCS-SA and MCS-SAD these minivalves support the "BRETER" Ø 22 mm actuators for panel mounting. The same actuators can control 1 or 2 minivalves, thus it's possible to obtain the 3/2, 5/2, 5/3 open centre and the 5/3 pressure centre pneumatic functions.

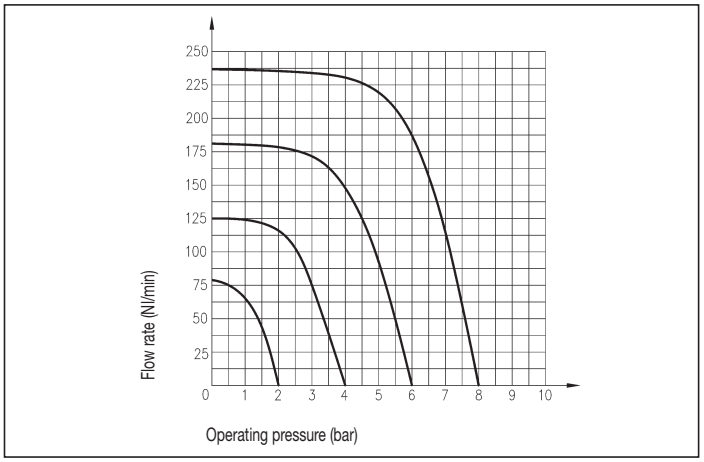
TECHNICAL DATA

Operating pressure	2 ÷ 10 bar
Working temperature	0 ÷ +60 °C (-20 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Port size	Push-in fittings for pipe Ø 4 mm - M5 - G 1/8
Nominal diameter	2,5 mm
Controls	
Mechanical	Plunger; roller lever; unidirectional roller lever
Manual	Tapper; actuators for panel mounting

MATERIALS

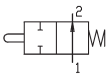
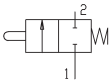
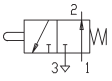
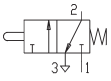
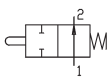
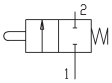
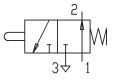
Body	Anodized aluminium alloy
Bushing and guide	Nickel - plated brass
Springs	Stainless steel
Seals	NBR rubber
Connections	Nickel - plated brass, plastic material
Controls	
Tapper; Swivel	Glass stiffened polyamide
Plunger; Roller	Nickel - plated brass
Lever	Steel

FLOW CHART - M



3

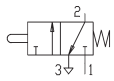
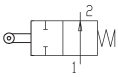
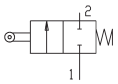
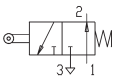
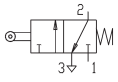
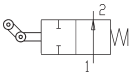
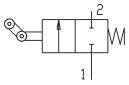
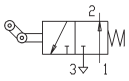
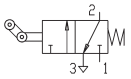
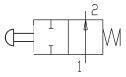
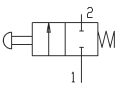
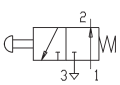
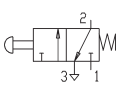
2 AND 3 PORT N.C. - N.O.

Symbol	Function	Controls		Actuation force at 6 bar (N)	Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	Port size	TYPE
		Pilot	Return					
	2/2 N.O. monostable	Plunger	Mechanical spring	13	83	40	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MHAS4 MHAS4/L MHASM5 MHASM5/L MHAS1/8
	2/2 N.C. monostable	Plunger	Mechanical spring	13	83	40	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MHCS4 MHCS4/L MHCSM5 MHCSM5/L MHCS1/8
	3/2 N.O. monostable	Plunger	Mechanical spring	13	83	40	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MAS4 MAS4/L MASM5 MASM5/L MAS1/8
	3/2 N.C. monostable	Plunger	Mechanical spring	13	83	40	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MCS4 MCS4/L MCSM5 MCSM5/L MCS1/8
	2/2 N.O. monostable	Plunger for panel mounting	Mechanical spring	13	83	60	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MHAP4 MHAP4/L MHAPM5 MHAPM5/L MHAP1/8
	2/2 N.C. monostable	Plunger for panel mounting	Mechanical spring	13	83	60	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MHCP4 MHCP4/L MHCPM5 MHCPM5/L MHCP1/8
	3/2 N.O. monostable	Plunger for panel mounting	Mechanical spring	13	83	60	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MAP4 MAP4/L MAPM5 MAPM5/L MAP1/8

series M

Minivalves manually and mechanically actuated

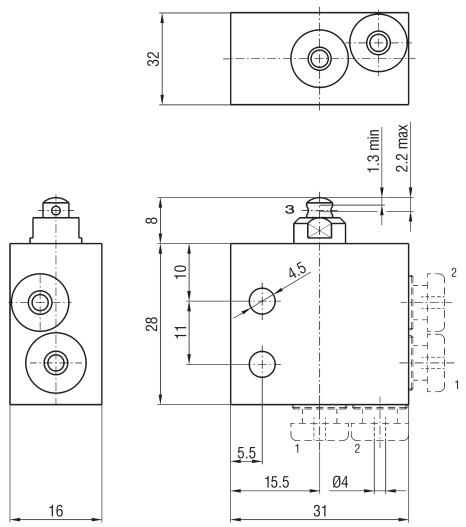
2 AND 3 PORT N.C. - N.O.

Symbol	Function	Controls		Actuation force at 6 bar (N)	Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	Port size	TYPE
		Pilot	Return					
	3/2 N.C. monostable	Plunger for panel mounting	Mechanical spring	13	83	60	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MCP4 MCP4/L MCPM5 MCPM5/L MCP1/8
	2/2 N.O. monostable	Roller lever	Mechanical spring	7	83	50	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MHALR4 MHALR4/L MHALRM5 MHALRM5/L MHALR1/8
	2/2 N.C. monostable	Roller lever	Mechanical spring	7	83	50	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MHCLR4 MHCLR4/L MHCLRM5 MHCLRM5/L MHCLR1/8
	2/2 N.O. monostable	Roller lever	Mechanical spring	7	83	50	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MALR4 MALR4/L MALRM5 MALRM5/L MALR1/8
	3/2 N.C. monostable	Unidiretional Roller lever	Mechanical spring	7	83	50	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MCLR4 MCLR4/L MCLRM5 MCLRM5/L MCLR1/8
	2/2 N.O. monostable	Unidiretional Roller lever	Mechanical spring	7	83	50	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MHALRU4 MHALRU4/L MHALRUM5 MHALRUM5/L MHALRU1/8
	2/2 N.C. monostable	Unidiretional Roller lever	Mechanical spring	7	83	50	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MHCLRU4 MHCLRU4/L MHCLRUM5 MHCLRUM5/L MHCLRU1/8
	3/2 N.O. monostable	Unidiretional Roller lever	Mechanical spring	7	83	50	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MALRU4 MALRU4/L MALRUM5 MALRUM5/L MALRU1/8
	3/2 N.C. monostable	Unidiretional Roller lever	Mechanical spring	7	83	50	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MCLRU4 MCLRU4/L MCLRUM5 MCLRUM5/L MCLRU1/8
	2/2 N.O. monostable	Tapper	Mechanical spring	7	83	50	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MHAT4 MHAT4/L MHATM5 MHATM5/L MHAT1/8
	2/2 N.C. monostable	Tapper	Mechanical spring	7	83	50	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MHCT4 MHCT4/L MHCTM5 MHCTM5/L MHCT1/8
	3/2 N.O. monostable	Tapper	Mechanical spring	7	83	50	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MAT4 MAT4/L MATM5 MATM5/L MAT1/8
	3/2 N.C. monostable	Tapper	Mechanical spring	7	83	50	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MCT4 MCT4/L MCTM5 MCTM5/L MCT1/8

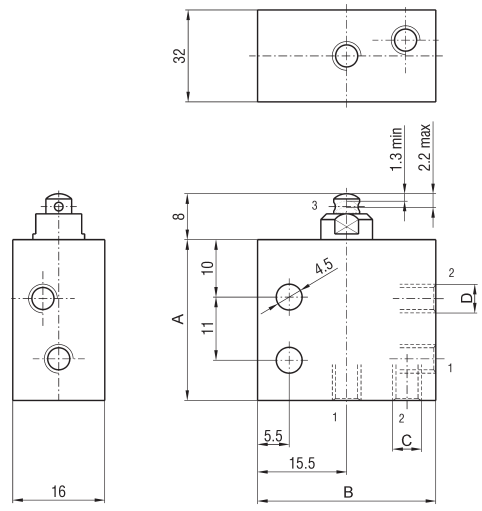
Minivalves manually and mechanically actuated

series M

PLUNGER - Ø 4 mm SIDE AND BOTTOM PORTED



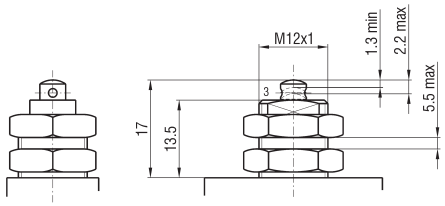
PLUNGER - M5 THREADED CONNECTIONS SIDE AND BOTTOM PORTED - G 1/8 BOTTOM PORTED



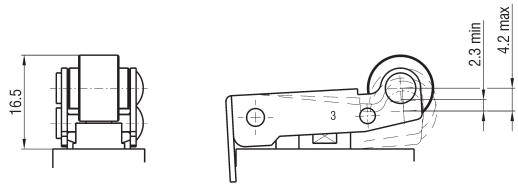
	M5	G1/8
A	28	31
B	31	40
C	M5	G1/8
D	M5	–

CONTROLS

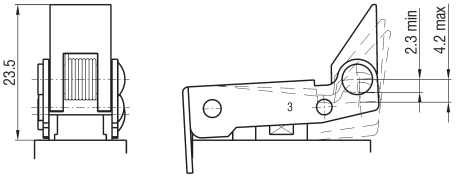
PLUNGER FOR PANEL MOUNTING



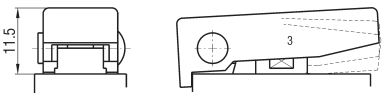
ROLLER LEVER



UNIDIRECTIONAL ROLLER LEVER



TAPPER



series M

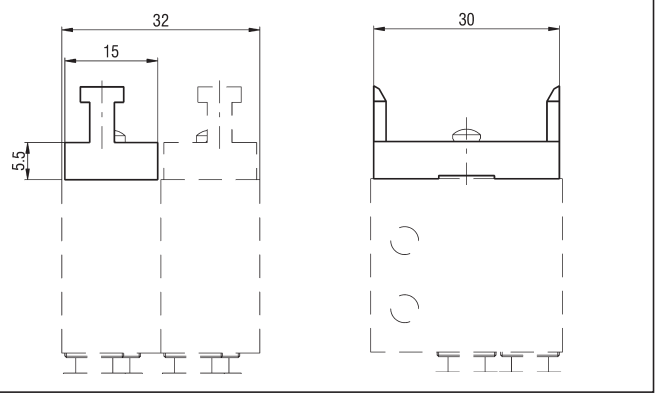
Accessories

Actuators for panel mounting

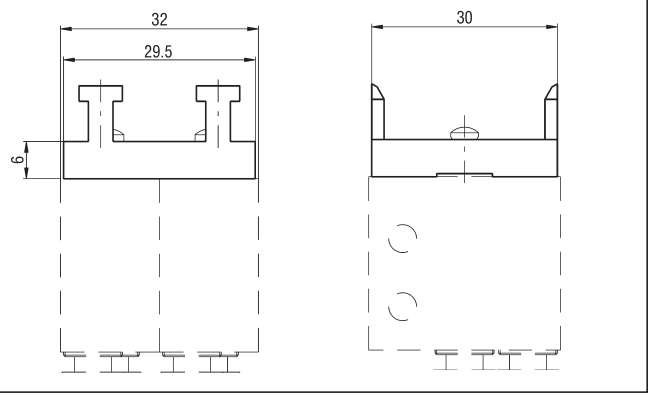
ACTUATORS FOR PANEL MOUNTING

Symbol	Description	Function	TYPE	Symbol	Description	Function	TYPE
	Protected monostable push-button BLACK RED GREEN	0 ← 1	MCS - PMN MCS - PMR MCS - PMV		Black bistable short-lever switch	0 1	MCS - LCB
	Red monostable mushroom	0 ← 1	MCS - FMR		Black monostable short-lever switch, 3 position with return to the centre	1 → 0 ← 2	MCS - LCSM
	Red bistable mushroom (rotate to unlock)	0 1	MCS - FBR		Black short-lever switch, 3 stable positions	1 0 2	MCS - LCSB
	Black monostable short-lever switch	0 ← 1	MCS - LCM		Bistable key (extractable in both the 2 positions)	0 1	MCS - CB2

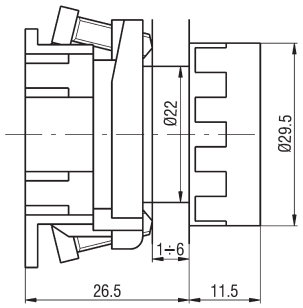
ADAPTER TYPE MCS-SA FOR ACTUATORS



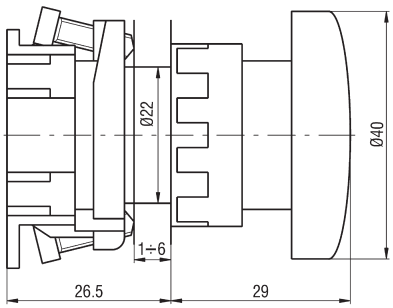
DOUBLE ADAPTER TYPE MCS-SAD FOR ACTUATORS



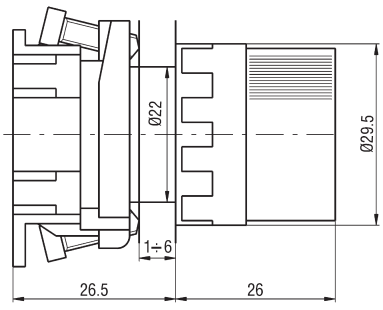
PUSH-BUTTON



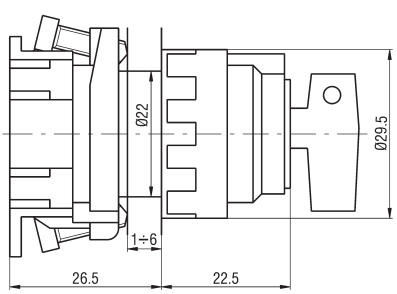
MUSHROOM



SHORT-LEVER SWITCH



BISTABLE KEY



series EK

Spool valves manually and mechanically actuated G 1/8 - G 1/4 - G 1/2

DESCRIPTION

Valves series "EK" are produced in the 3/2, 5/2 and 5/3 pneumatic functions; the kind of construction is based on a balanced spool. In the mechanically actuated version these valves are available only for the size G 1/8 and G 1/4, while the manually actuated versions are available in the different sizes and they are suitable for panel mounting (except for size G 1/2).

TECHNICAL DATA

Operating pressure	0 ÷10 bar 3 ÷10 bar
Working temperature	0 ÷ +60 °C (con aria secca -20 °C)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Port size	G 1/8 - G 1/4 - G 1/2
Nominal diameter	G 1/8 = 5 mm G 1/4 = 8 mm G 1/2 = 12 mm
Controls	
Mechanical	Plunger; roller lever; whisker; released pressure key
Manual	Drawer; front lever; lateral knob; actuators for panel mounting (see on page 3.6)

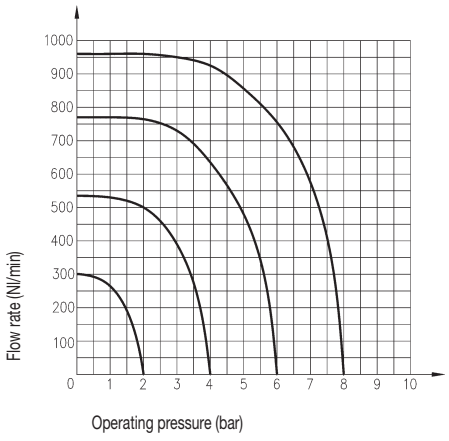
SPARE PARTS

SEALS KIT	
3 port G 1/8	EK/M/SG/8
5 port G 1/8	EKCA/M/SG/8
3 port G 1/4	EK/M/SG/4
5 port G 1/4	EKCA/M/SG/4
5 port G 1/2	EKCA/M/SG/2

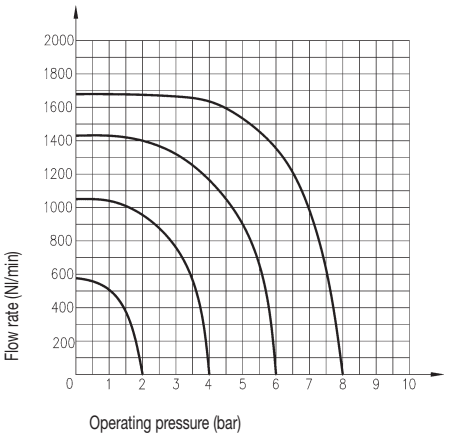
MATERIALS

Bottoms	Front: aluminium alloy or plastic - Rear: aluminium alloy
Body	Anodized aluminium alloy
Distance rings	Acetal resin
Springs	Galvanized steel
Seals	NBR rubber
Spool	Anodized aluminium alloy
Controls	
Lever; Ball	Steel
Whisker	Stainless steel
Released pressure key	Anodized aluminium alloy
Plunger	Brass
Bellows	Elastomer
Knobs; Handgrips	Plastic material
Roller	Ball bearing (plastic material upon request)

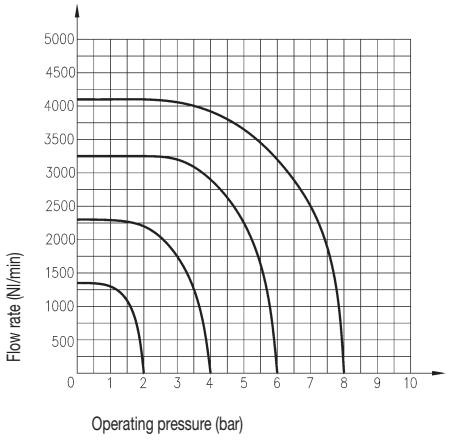
FLOW CHART - EK G 1/8 - 5/2



FLOW CHART - EK G 1/4 - 5/2



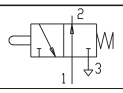
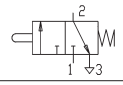
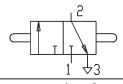
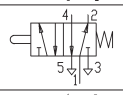
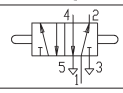
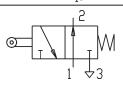
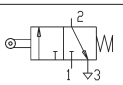
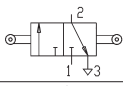
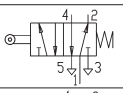
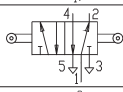
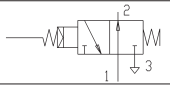
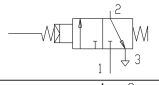
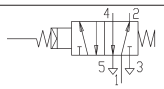
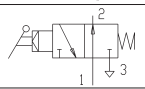
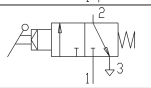
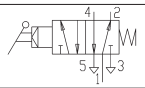
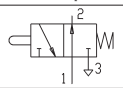
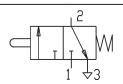
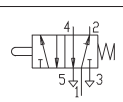
FLOW CHART - EK G 1/2 - 5/2



G 1/8 - 3 and 5 PORT

series EK

MECHANICALLY ACTUATED VALVES G 1/8

Symbol	Function	Controls		Actuation force at 6 bar (N)	Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE
		Pilot	Return				
	3/2 N.O. monostable	Plunger	Mechanical spring	32	390	135	EK8/PS
	3/2 N.C. monostable						
	3/2 bistable	Plunger	Plunger	32	390	140	EK8/PSS
	5/2 monostable	Plunger	Mechanical spring	32	490	165	EKCA8/PS
	5/2 bistable	Plunger	Plunger	32	490	170	EKCA8/PSS
	3/2 N.O. monostable	Roller lever	Mechanical spring	15	390	160	EK8/LR*
	3/2 N.C. monostable						
	3/2 bistable	Roller lever	Roller lever	15	390	200	EK8/LRLR*
	5/2 monostable	Roller lever	Mechanical spring	15	490	190	EKCA8/LR*
	5/2 bistable	Roller lever	Roller lever	15	490	225	EKCA8/LRLR*
	3/2 N.O. monostable	Piloted whisker (sensitive)	Mechanical spring	1,5	420	230	EKA8/A
	3/2 N.C. monostable						EKC8/A
	5/2 monostable	Piloted whisker (sensitive)	Mechanical spring	1,5	490	260	EKCA8/A
	3/2 N.O. monostable	Piloted released pressure key (sensitive)	Mechanical spring	1,5	420	210	EKA8/TD
	3/2 N.C. monostable						EKC8/TD
	5/2 monostable	Piloted released pressure key (sensitive)	Mechanical spring	1,5	490	230	EKCA8/TD
	3/2 N.O. monostable	Piloted plunger for panel mounting (sensitive)	Mechanical spring	1,5	420	230	EKA8/Q
	3/2 N.C. monostable						EKC8/Q
	5/2 monostable	Piloted plunger for panel mounting (sensitive)	Mechanical spring	1,5	490	260	EKCA8/Q

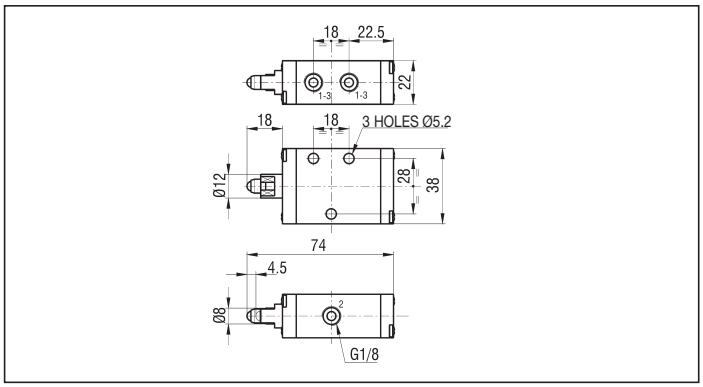
* - ADD THE LETTER “U” TO THE TYPE TO ORDER THE UNIDIRECTIONAL ROLLER VALVES - E.G.: EKCA8/LRLRU
- ADD THE LETTER “N” TO THE TYPE TO ORDER THE VALVES WITH PLASTIC ROLLER - E.G.: EK8/LRN

3

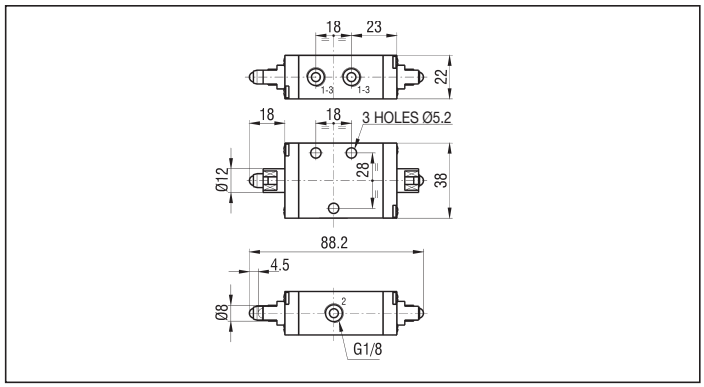
series EK

G 1/8 - 3 and 5 PORT

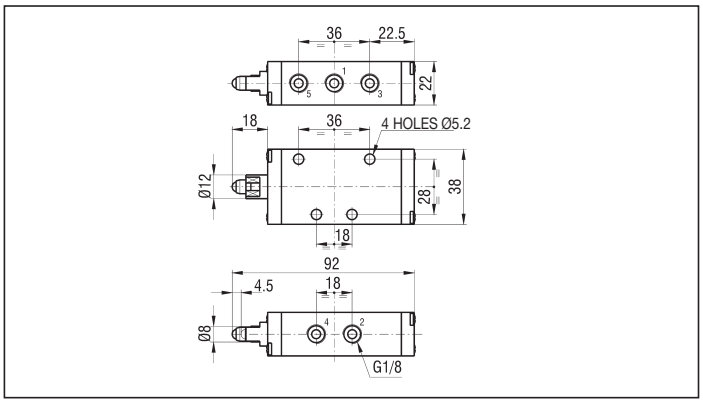
EK8/PS



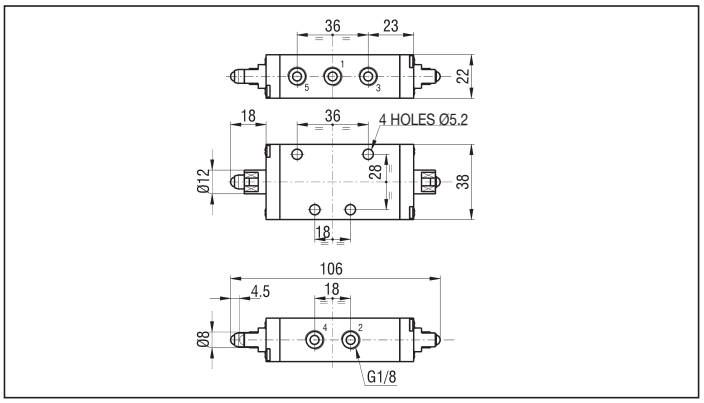
EK8/PSS



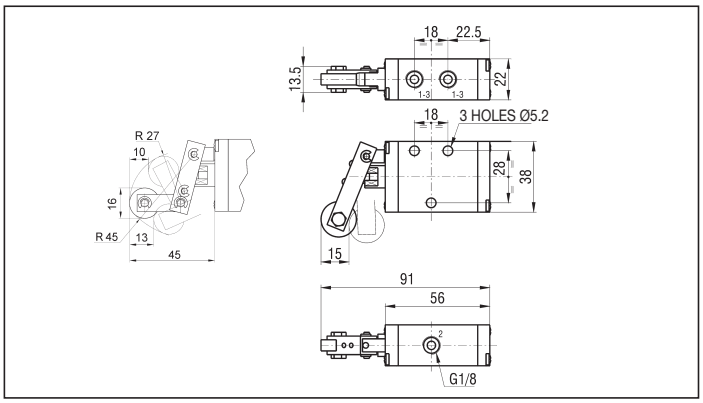
EKCA8/PS



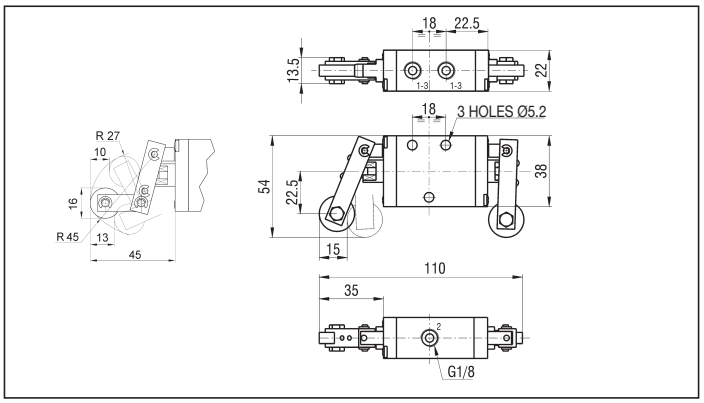
EKCA8/PSS



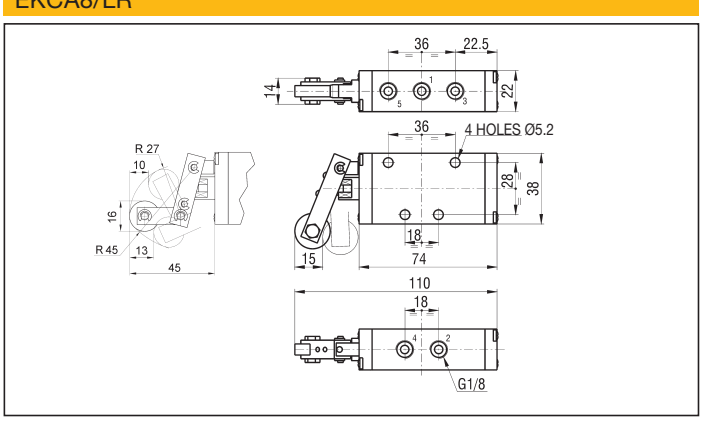
EK8/LR*



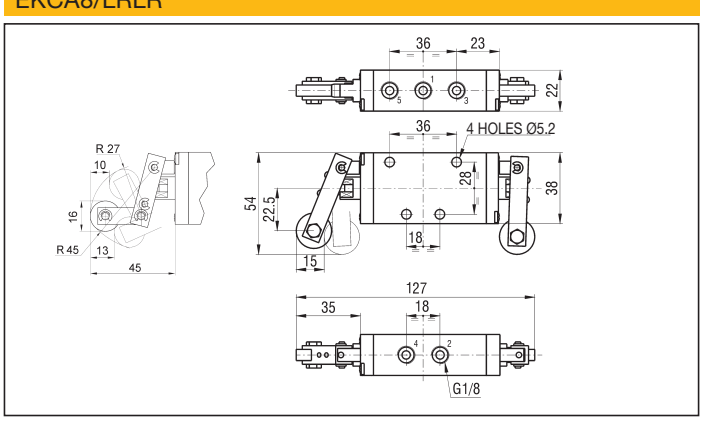
EK8/LRLR*



EKCA8/LR*



EKCA8/LRLR*

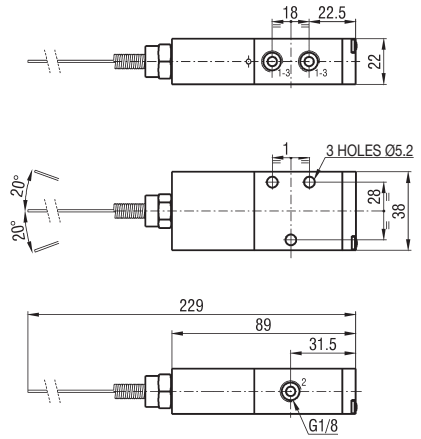


* - ADD THE LETTER “U” TO THE TYPE TO ORDER THE UNIDIRECTIONAL ROLLER VALVES - E.G.: EKCA8/LRLRU
- ADD THE LETTER “N” TO THE TYPE TO ORDER THE VALVES WITH PLASTIC ROLLER - E.G.: EK8/LRN

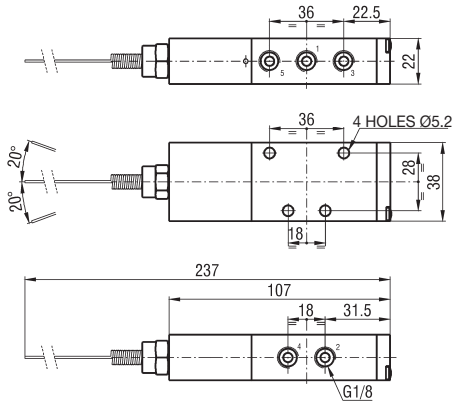
G 1/8 - 3 and 5 PORT

series EK

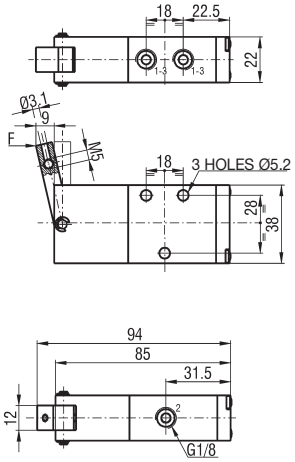
EKA8/A - EKC8/A



EKCA8/A

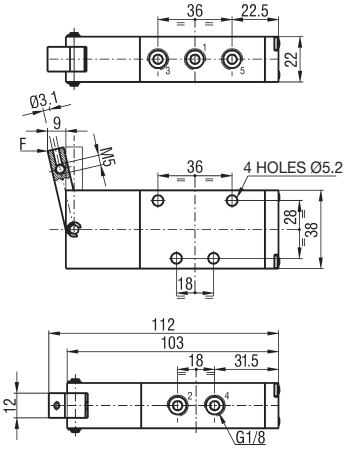


EKA8/TD - EKC8/TD*



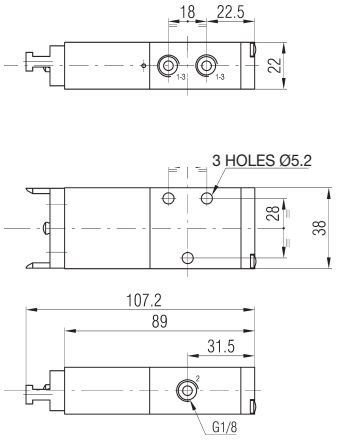
* IT IS POSSIBLE TO INCREASE THE SENSITIVITY OF THE KEY USING A Ø 3 mm EXTENSION ON THE SAME KEY

EKCA8/TD*



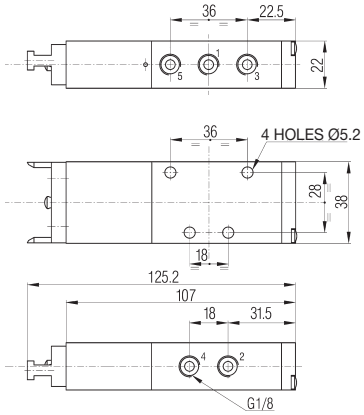
* IT IS POSSIBLE TO INCREASE THE SENSITIVITY OF THE KEY USING A Ø 3 mm EXTENSION ON THE SAME KEY

EKC8/Q - EKA8/Q



P.S.: SEE ACTUATORS FOR PANEL MOUNTING ON PAGE 3.6

EKCA8/Q

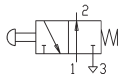
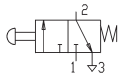
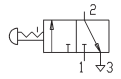
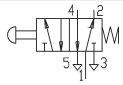
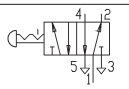
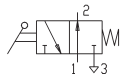
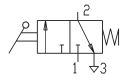
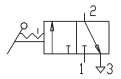
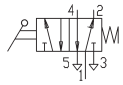
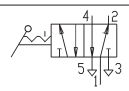
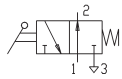
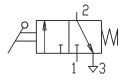
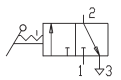
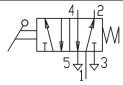
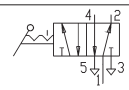
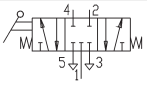
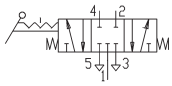
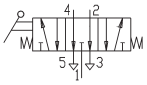
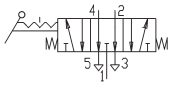


P.S.: SEE ACTUATORS FOR PANEL MOUNTING ON PAGE 3.6

series EK

G 1/8 - 3 and 5 PORT

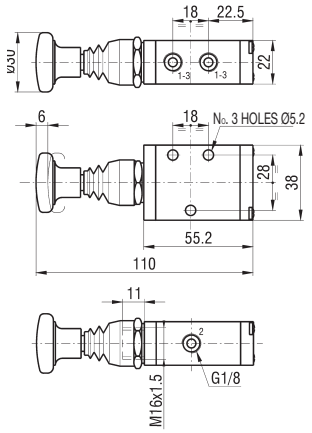
MANUALLY ACTUATED VALVES G 1/8

Symbol	Function	Controls		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight *(g)*	TYPE
		Pilot	Return			
	3/2 N.O. monostable	Drawer	Mechanical spring	480	155	EK8/T
	3/2 N.C. monostable					
	3/2 bistable	Drawer	Drawer	480	155	EK8/TF
	5/2 monostable	Drawer	Mechanical spring	480	185	EKCA8/T
	5/2 bistable	Drawer	Drawer	480	185	EKCA8/TF
	3/2 N.O. monostable	Front lever	Mechanical spring	480	150	EK8/MV
	3/2 N.C. monostable					
	3/2 bistable	Front lever	Front lever	480	150	EK8/MVF
	5/2 monostable	Front lever	Mechanical spring	480	185	EKCA8/MV
	5/2 bistable	Front lever	Front lever	480	185	EKCA8/MVF
	3/2 N.O. monostable	Lateral knob	Mechanical spring	480	155	EK8/M
	3/2 N.C. monostable					
	3/2 bistable	Lateral knob	Lateral knob	480	185	EK8/MF
	5/2 monostable	Lateral knob	Mechanical spring	480	205	EKCA8/M
	5/2 bistable	Lateral knob	Lateral knob	480	205	EKCA8/MF
	5/3 monostable closed centre	Lateral knob	Mechanical spring	300	205	EKCA8/MS
	5/3 stable closed centre	Lateral knob	Lateral knob	300	205	EKCA8/MSF
	5/3 monostable open centre	Lateral knob	Mechanical spring	300	205	EKCA8/MA
	5/3 stable open centre	Lateral knob	Lateral knob	300	205	EKCA8/MAF

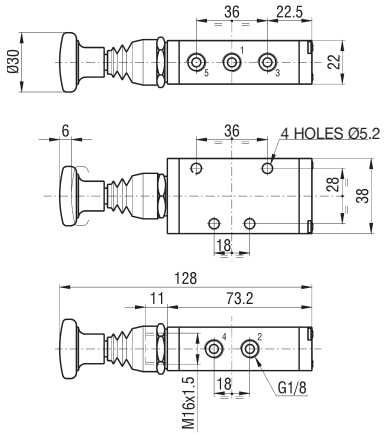
G 1/8 - 3 and 5 PORT

series EK

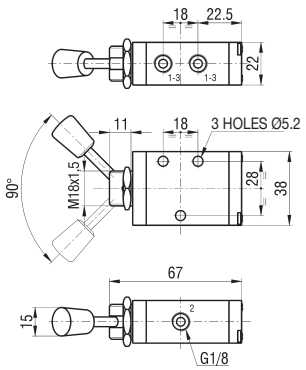
EK8/T - EK8/TF



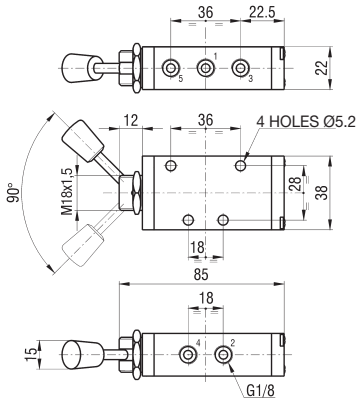
EKCA8/T - EKCA8/TF



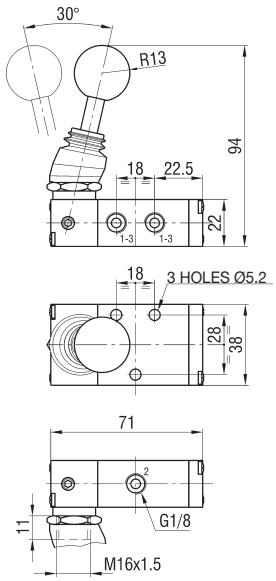
EK8/MV - EK8/MVF



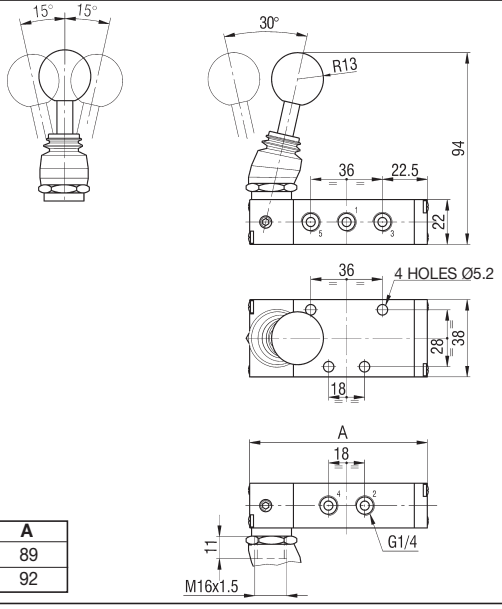
EKCA8/MV - EKCA8/MVF



EK8/M - EK8/MF



5/2 - 5/3 LATERAL KNOB

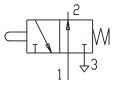
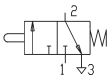
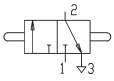
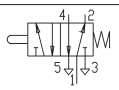
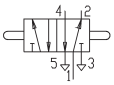
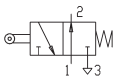
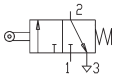
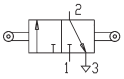
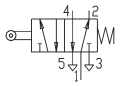
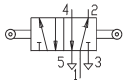


FUNCTION	A
5/2	89
5/3	92

series EK

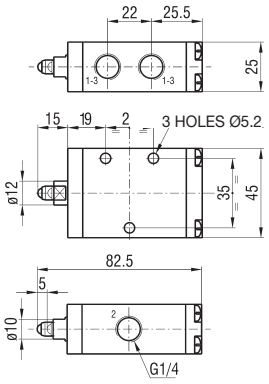
G 1/4 - 3 and 5 PORT

MECHANICALLY ACTUATED VALVES G 1/4

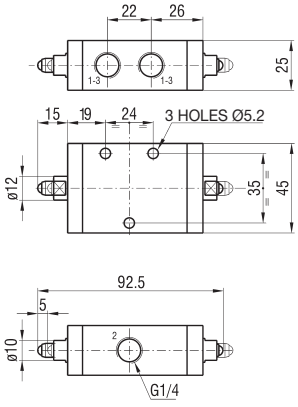
Symbol	Function	Controls		Actuation force at 6 bar (N)	Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE
		Pilot	Return				
	3/2 N.O. monostable	Drawer	Mechanical spring	51	900	205	EK4/PS
	3/2 N.C. monostable						
	3/2 bistable	Drawer	Drawer	9,5	900	200	EK4/PSS
	5/2 monostable	Drawer	Mechanical spring	51	900	250	EKCA4/PS
	5/2 bistable	Drawer	Drawer	9,5	900	250	EKCA4/PSS
	3/2 N.O. monostable	Front lever	Mechanical spring	21	900	270	EK4/LR*
	3/2 N.C. monostable						
	3/2 bistable	Front lever	Front lever	16	900	325	EK4/LRLR*
	5/2 monostable	Front lever	Mechanical spring	21	900	320	EKCA4/LR*
	5/2 bistable	Front lever	Front lever	16	900	380	EKCA4/LRLR*

* ADD THE LETTER “N“ TO THE TYPE TO ORDER THE VALVES WITH PLASTIC ROLLER - E.G.: EK4/LRN

EK4/PS



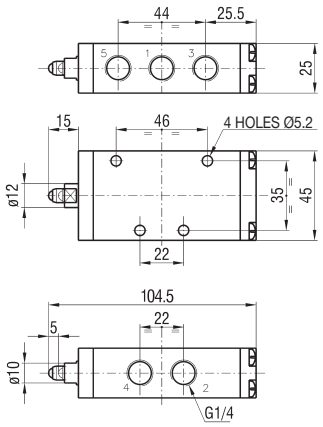
EK4/PSS



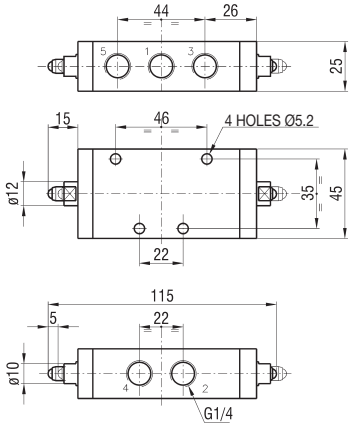
G 1/4 - 3 and 5 PORT

series EK

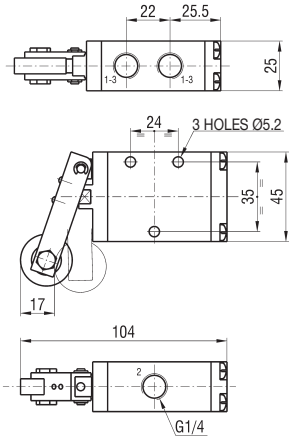
EKCA4/PS



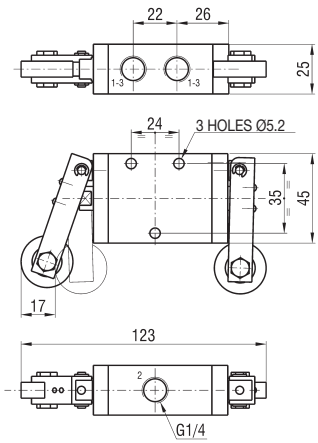
EKCA4/PSS



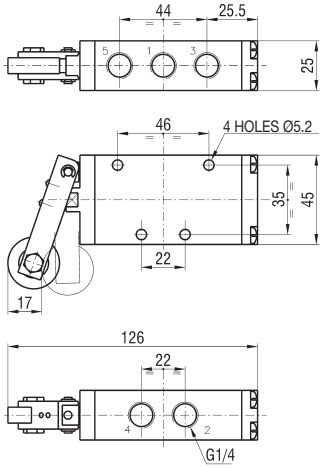
EK4/LR*



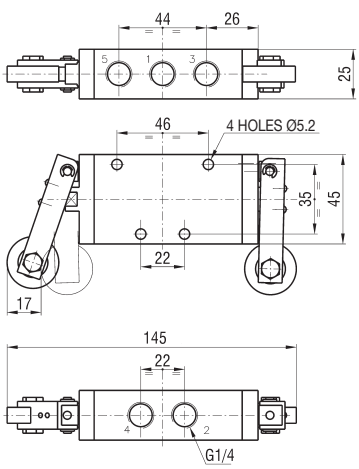
EK4/LRLR*



EKCA4/LR*



EKCA4/LRLR*

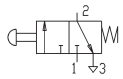
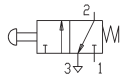
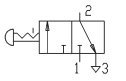
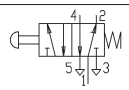
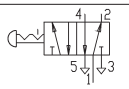
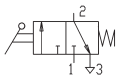
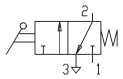
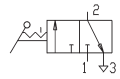
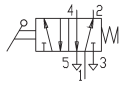
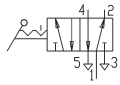
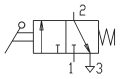
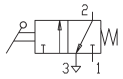
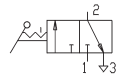
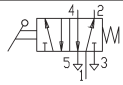
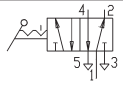
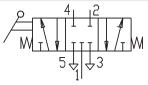
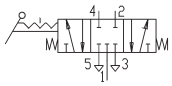
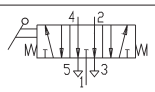
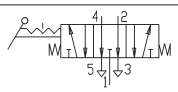


* ADD THE LETTER “N“ TO THE TYPE TO ORDER THE VALVES WITH PLASTIC ROLLER - E.G.: EK4/LRN

series EK

G 1/4 - 3 and 5 PORT

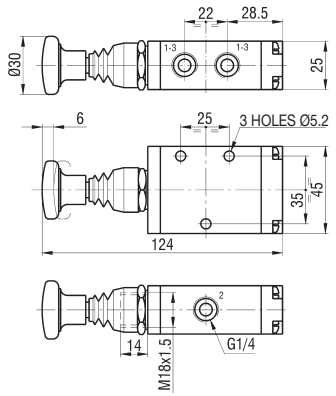
MANUALLY ACTUATED VALVES G 1/4

Symbol	Function	Controls		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight *(g)*	TYPE
		Pilot	Return			
	3/2 N.O. monostable	Drawer	Mechanical spring	900	240	EK4/T
	3/2 N.C. monostable					
	3/2 bistable	Drawer	Drawer	900	240	EK4/TF
	5/2 monostable	Drawer	Mechanical spring	900	305	EKCA4/T
	5/2 bistable	Drawer	Drawer	900	305	EKCA4/TF
	3/2 N.O. monostable	Front lever	Mechanical spring	920	230	EK4/MV
	3/2 N.C. monostable					
	3/2 bistable	Front lever	Front lever	920	230	EK4/MVF
	5/2 monostable	Front lever	Mechanical spring	920	185	EKCA4/MV
	5/2 bistable	Front lever	Front lever	920	185	EKCA4/MVF
	3/2 N.O. monostable	Lateral knob	Mechanical spring	920	255	EK4/M
	3/2 N.C. monostable					
	3/2 bistable	Lateral knob	Lateral knob	920	250	EK4/MF
	5/2 monostable	Lateral knob	Mechanical spring	920	310	EKCA4/M
	5/2 bistable	Lateral knob	Lateral knob	920	310	EKCA4/MF
	5/3 monostable closed centre	Lateral knob	Mechanical spring	780	310	EKCA4/MS
	5/3 stable closed centre	Lateral knob	Lateral knob	780	310	EKCA4/MSF
	5/3 monostable open centre	Lateral knob	Mechanical spring	780	310	EKCA4/MA
	5/3 stable open centre	Lateral knob	Lateral knob	780	310	EKCA4/MAF

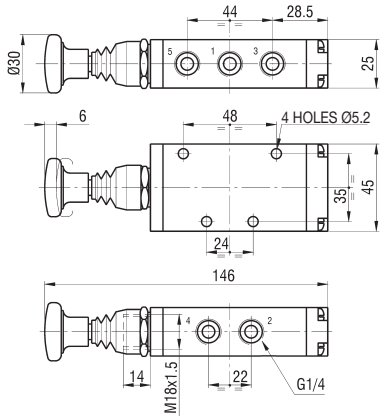
G 1/4 - 3 and 5 PORT

series EK

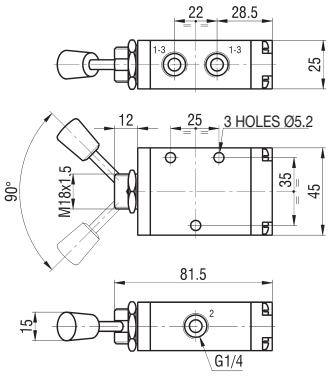
EK4/T - EK4/TF



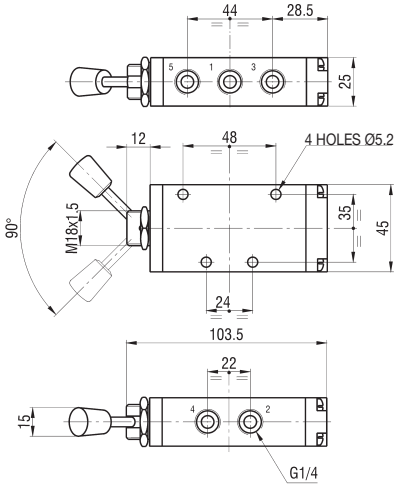
EKCA4/T - EKCA4/TF



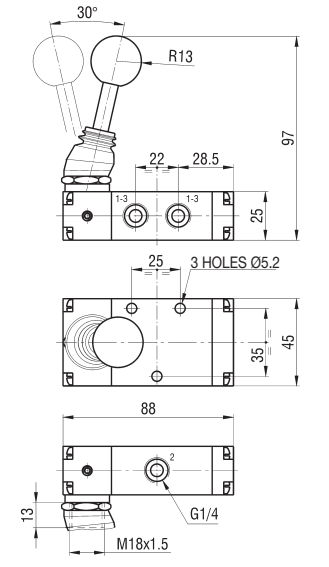
EK4/MV - EK4/MVF



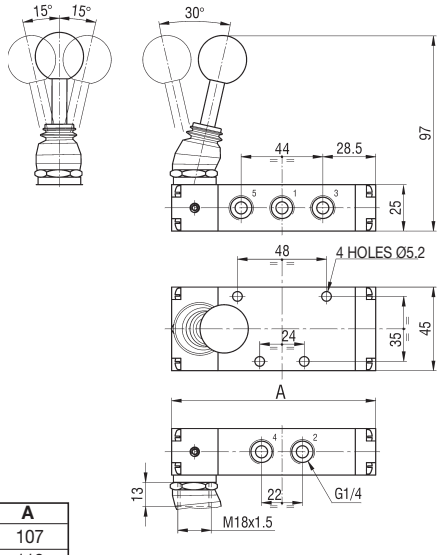
EKCA4/MV - EKCA4/MVF



EK4/M - EK4/MF



5/2 - 5/3 LATERAL KNOB

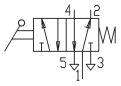
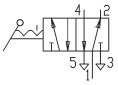
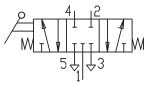
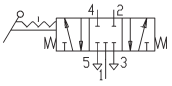
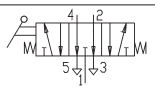
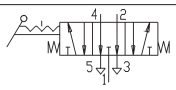


FUNCTION	A
5/2	107
5/3	110

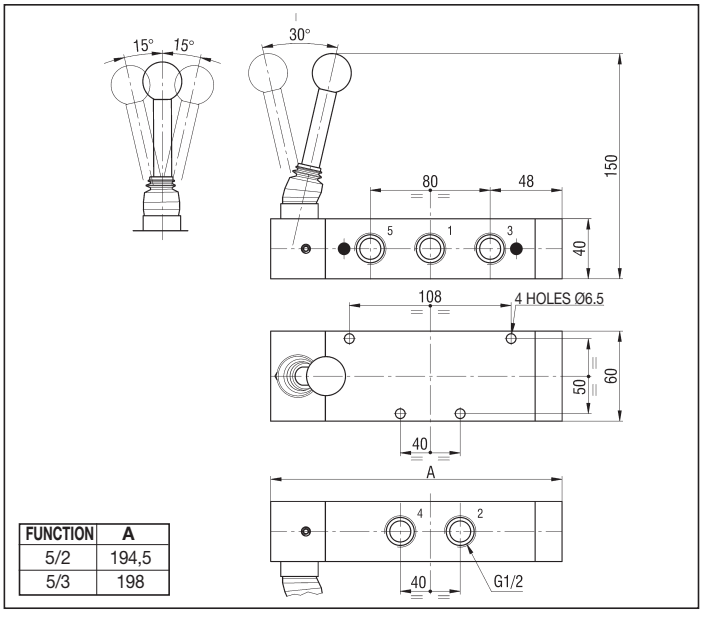
series EK

G 1/2 - 5 PORT

MANUALLY ACTUATED VALVES G 1/2

Symbol	Function	Controls		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight *(g)*	TYPE
		Pilot	Return			
	5/2 monostable	Lateral knob	Mechanical spring	2250	1200	EKCA2/M
	5/2 bistable	Lateral knob	Lateral knob	2250	1200	EKCA2/MF
	5/3 monostable closed centre	Lateral knob	Mechanical spring	2000	1200	EKCA2/MS
	5/3 stable closed centre	Lateral knob	Lateral knob	2000	1200	EKCA2/MSF
	5/3 monostable open centre	Lateral knob	Mechanical spring	2000	1200	EKCA2/MA
	5/3 stable open centre	Lateral knob	Lateral knob	2000	1200	EKCA2/MAF

5/2 - 5/3 LATERAL KNOB



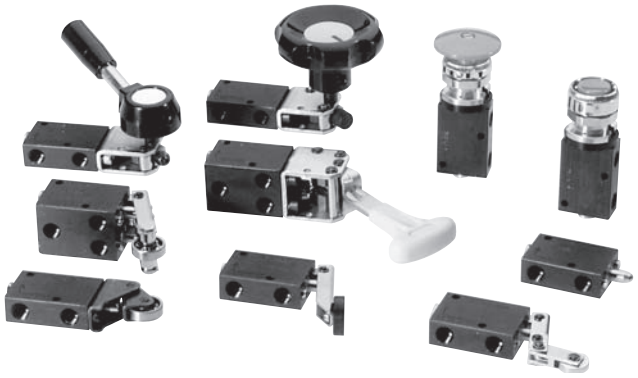
FUNCTION	A
5/2	194,5
5/3	198

Poppet valves
manually and mechanically actuated
G 1/8 - G 1/4 - G 1/2

series CA

DESCRIPTION

Valves series "CA" are produced in the 2/2, 3/2, 3/3, 5/2 and 5/3 pneumatic functions. The poppet kind of construction and the very rugged control allow the valve to stand high stress.
The push-button and mushroom controls are available only in the 3/2 monostable pneumatic functions for the size G 1/8.



TECHNICAL DATA

Operating pressure	0 ÷ 12 bar
Working temperature	0 ÷ +70 °C (-20 °C with dry air)
Fluid	Filtered, unlubricated or lubricated compressed air
Port size	G 1/8 - G 1/4 - G 1/2
Nominal diameter	G 1/8 = 6 mm
	G 1/4 = 8 mm
	G 1/2 =12 mm
Controls	
Mechanical	Plunger; roller lever; short roller lever; unidirectional roller lever
Manual	Tapper; push-button; mushroom; vertical knob; lateral knob; lateral hand-wheel

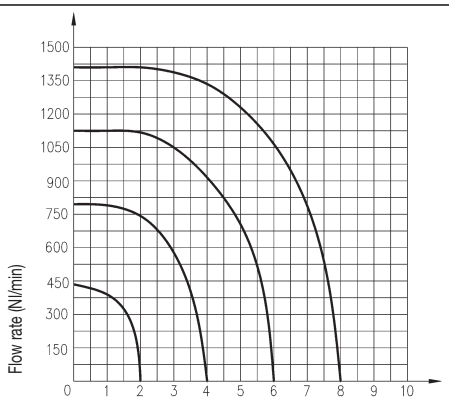
MATERIALS

Control rod	Hardened and nickel - plated steel
Body	Anodized aluminium alloy
Springs	Stainless steel
Seals	NBR rubber
Piston	Acetal resin
Guide bushing	Brass
Bottom plug	Nickel - plated brass
Controls	
Lever	Steel
Plunger	Nickel - plated brass
Knobs; handgrips; push-buttons	Plastic material
Roller	Ball bearing (plastic material upon request)

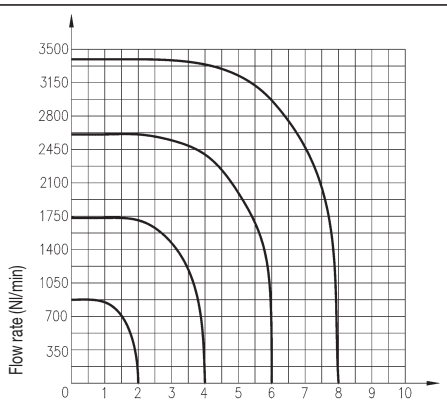
SPARE PARTS

SEALS KIT	
3/2 N.O. G 1/8	A/SG/8
3/2 N.C. G 1/8	C/SG/8
5/2 G 1/8	CA/SG/8
3/2 N.O. G 1/4	A/SG/4
3/2 N.C. G 1/4	C/SG/4
5/2 G 1/4	CA/SG/4
3/2 N.O. G 1/2	A/SG/2
3/2 N.C. G 1/2	C/SG/2
5/2 G 1/2	CA/SG/2

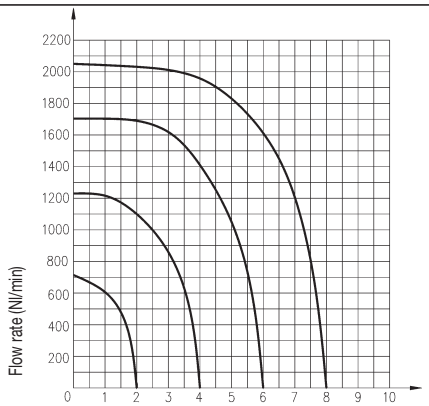
FLOW CHART - CA G 1/8 - 5/2



FLOW CHART - CA G 1/2 - 5/2



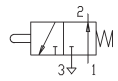
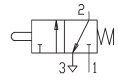
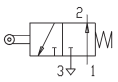
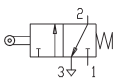
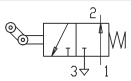
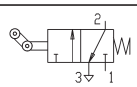
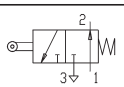
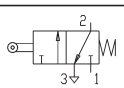
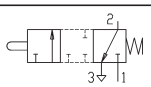
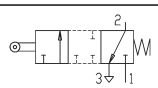
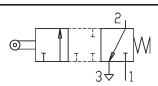
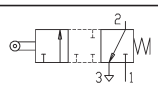
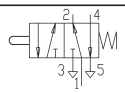
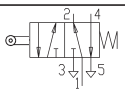
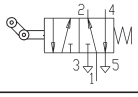
FLOW CHART - CA G 1/4 - 5/2



series CA

G 1/8 - G 1/4 - G 1/2
2, 3 and 5 PORT

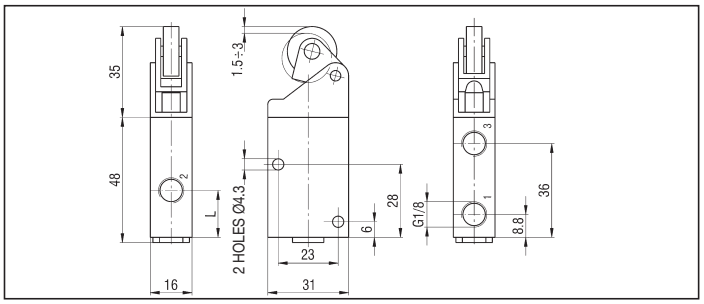
MECHANICALLY ACTUATED VALVES G 1/8 - G 1/4 - G 1/2

Symbol	Function	Controls		Actuation force at 6 bar (N)	Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	Port size	TYPE
		Pilot	Return					
	3/2 N.O. monostable	Plunger	Mechanical spring	38	740	70	G 1/8	AS 8
				60	950	150	G 1/4	AS4
				88	2200	300	G 1/2	AS2
	3/2 N.C. monostable	Plunger	Mechanical spring	36	815	70	G 1/8	CS8
				64	950	150	G 1/4	CS4
				85	2250	300	G 1/2	CS2
	3/2 N.O. monostable	Roller lever	Mechanical spring	23	740	95	G 1/8	ALR8
				35	950	215	G 1/4	ALR4
				53	2200	415	G 1/2	ALR2
	3/2 N.C. monostable	Roller lever	Mechanical spring	24	815	95	G 1/8	CLR8
				34	950	215	G 1/4	CLR4
				52	2250	415	G 1/2	CLR2
	3/2 N.O. monostable	Unidirectional roller lever	Mechanical spring	30	740	100	G 1/8	ALRU8
				53	950	200	G 1/4	ALRU4
				64	2200	405	G 1/2	ALRU2
	3/2 N.C. monostable	Unidirectional roller lever	Mechanical spring	26	815	100	G 1/8	CLRU8
				50	950	200	G 1/4	CLRU4
				63	2250	405	G 1/2	CLRU2
	3/2 N.O. monostable	Short roller lever	Mechanical spring	35	740	110	G 1/8	AR8
	3/2 N.C. monostable	Short roller lever	Mechanical spring	33	815	110	G 1/8	CR8
	3/2 N.C. monostable	Plunger	Mechanical spring	48	815	70	G 1/8	FCS8*
				162	950	150	G 1/4	FCS4*
	3/2 N.C. monostable	Roller lever	Mechanical spring	25	815	95	G 1/8	FCLR8*
				70	950	215	G 1/4	FCLR4*
	3/2 N.C. monostable	Unidirectional roller lever	Mechanical spring	27	815	95	G 1/8	FCLRU8*
				80	950	215	G 1/4	FCLRU4*
	3/2 N.C. monostable	Short roller lever	Mechanical spring	69	815	110	G 1/8	FCR8*
	5/2 monostable	Plunger	Mechanical spring	62	650	140	G 1/8	CASS8
				103	1040	305	G 1/4	CASS4
				120	2050	600	G 1/2	CASS2
	5/2 monostable	Roller lever	Mechanical spring	38	650	190	G 1/8	CALR8
				64	1040	405	G 1/4	CALR4
				45	2050	765	G 1/2	CALR2
	5/2 monostable	Unidirectional roller lever	Mechanical spring	43	650	190	G 1/8	CALRU8
				68	1040	405	G 1/4	CALRU4
				94	2050	775	G 1/2	CALRU2

P.S.: ADD THE LETTER “N” AFTER THE LETTER “R” IN THE TYPE TO ORDER THE VALVES WITH PLASTIC ROLLER (AVAILABLE ONLY FOR THE SIZES G 1/8 AND G 1/4). E.G.: CLRN8
PUT THE LETTER “H” BEFORE THE TYPE OF 3/2 VALVES TO ORDER THE 2/2 N.O. AND 2/2 N.C. VALVES. E.G.: HCS8; HAR8

* THE WAYS AREN’T COMMUNICATING IN THE INTERMEDIATE PHASE OF ACTUATION

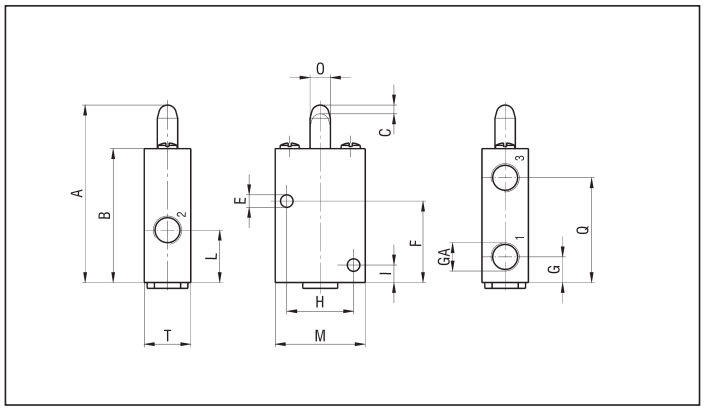
3/2 SHORT ROLLER LEVER



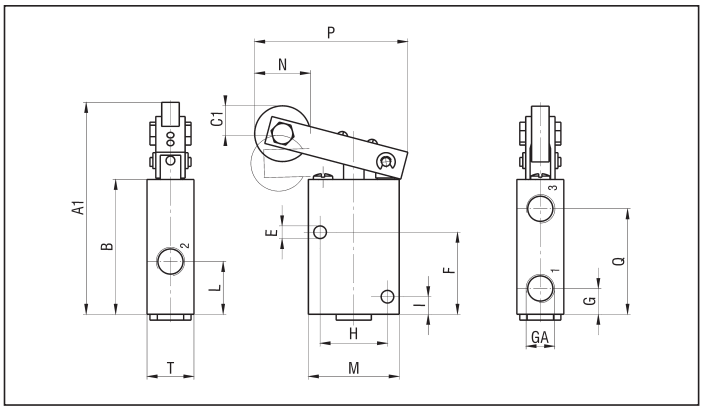
G 1/8 - G 1/4 - G 1/2
2, 3 and 5 PORT

series CA

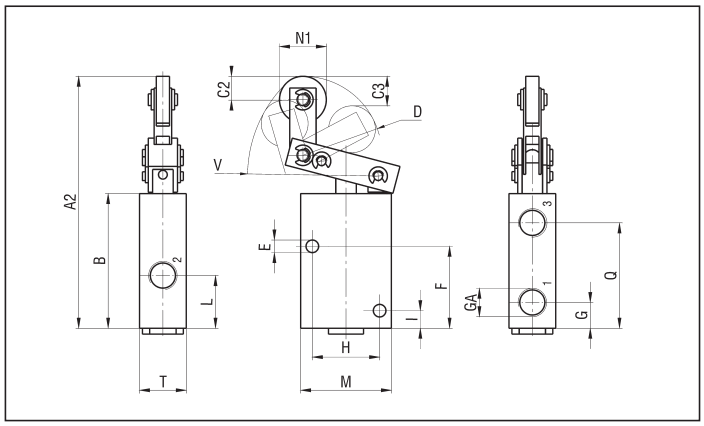
3/2 PLUNGER



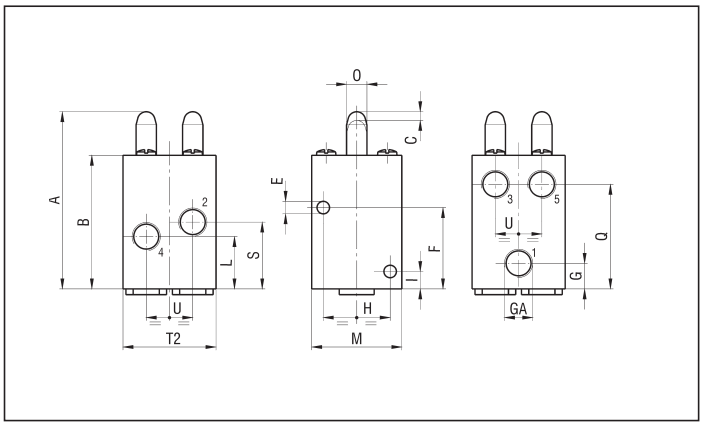
3/2 ROLLER LEVER



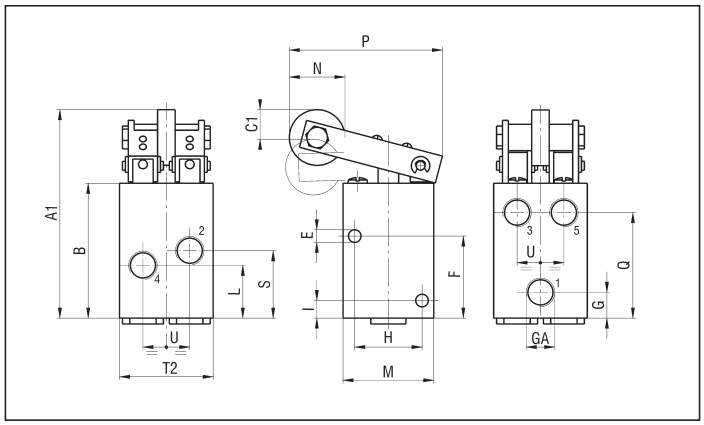
3/2 UNIDIRECTIONAL ROLLER LEVER



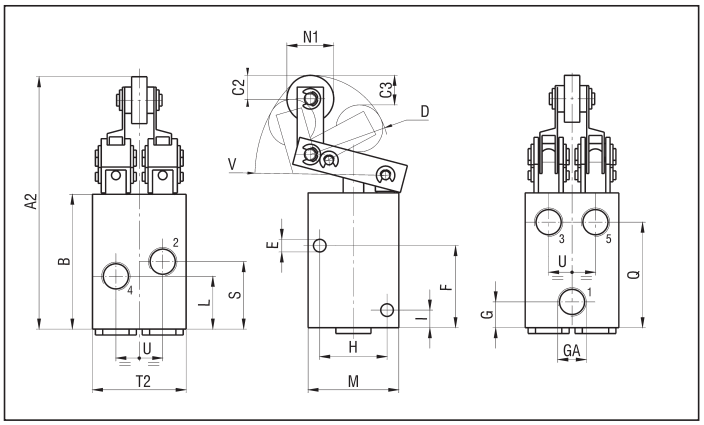
5/2 PLUNGER



5/2 ROLLER LEVER



5/2 UNIDIRECTIONAL ROLLER LEVER



GA	A	A1	A2	B	C		C1		C2		C3	D	E	F
					min	max	min	max	min	max				
G 1/8	59	74	88	46	1,5	3	5,5	10	5	8	10	27	4,3	28
G 1/4	75	95	111	60	2	4	7,5	13,5	5	8	12	35	5,3	35
G 1/2	100	123	142	80	3	5,5	10,5	15,5	7	10	14	42,5	6,4	49

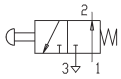
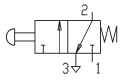
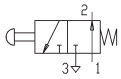
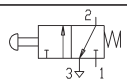
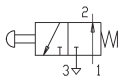
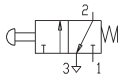
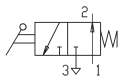
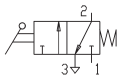
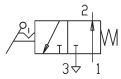
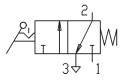
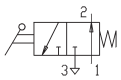
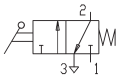
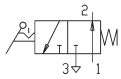
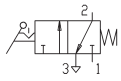
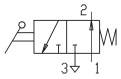
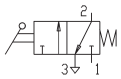
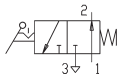
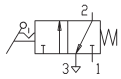
GA	G	H	I	L		M	N	N1	O	P	Q	S	T	T2
				N.O.	N.C.									
G 1/8	8,8	23	6	23	18	31	19	16	6,9	53	36	23	16	32
G 1/4	11,5	30	8	30	25,5	40	26	19	9	69	46	30	20	40
G 1/2	15	38	10	40	30	50	32	24	12	80,5	63,3	40	25	50

GA	U	V
G 1/8	16	46
G 1/4	20	54
G 1/2	25	70

series CA

G 1/8 - G 1/4 - G 1/2
2 and 3 PORT

2 AND 3 PORT MANUALLY ACTUATED G 1/8 - G 1/4 - G 1/2

Symbol	Function	Controls		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight *(g)*	Port size	TYPE
		Pilot	Return				
	3/2 N.O. monostable	Tapper	Mechanical spring	740	90	G 1/8	AT8
				950	195	G 1/4	AT4
				2200	415	G 1/2	AT2
	3/2 N.C. monostable	Tapper	Mechanical spring	815	90	G 1/8	CT8
				950	205	G 1/4	CT4
				2250	425	G 1/2	CT2
	3/2 N.O. monostable	Push-button	Mechanical spring	740	125	G 1/8	AQB8*
	3/2 N.C. monostable	Push-button	Mechanical spring	815	125	G 1/8	CQB8*
	3/2 N.O. monostable	Mushroom	Mechanical spring	740	125	G 1/8	AQF8*
	3/2 N.C. monostable	Mushroom	Mechanical spring	815	125	G 1/8	CQF8*
	3/2 N.O. monostable	Vertical knob	Mechanical spring	740	185	G 1/8	AM8
				950	355	G 1/4	AM4
				2200	655	G 1/2	AM2
	3/2 N.C. monostable	Vertical knob	Mechanical spring	815	185	G 1/8	CM8
				950	355	G 1/4	CM4
				2250	655	G 1/2	CM2
	3/2 N.O. bistable	Vertical knob	Vertical knob	740	180	G 1/8	AM8F
				950	345	G 1/4	AM4F
				2200	645	G 1/2	AM2F
	3/2 N.C. bistable	Vertical knob	Vertical knob	815	180	G 1/8	CM8F
				950	345	G 1/4	CM4F
				2250	645	G 1/2	CM2F
	3/2 N.O. monostable	Lateral knob	Mechanical spring	740	240	G 1/8	AML8
				950	400	G 1/4	AML4
	3/2 N.C. monostable	Lateral knob	Mechanical spring	815	240	G 1/8	CML8
				950	400	G 1/4	CML4
	3/2 N.O. bistable	Lateral knob	Lateral knob	740	245	G 1/8	AML8F
				950	390	G 1/4	AML4F
	3/2 N.C. bistable	Lateral knob	Lateral knob	815	245	G 1/8	CML8F
				950	390	G 1/4	CML4F
	3/2 N.O. monostable	Lateral hand-wheel	Mechanical spring	740	270	G 1/8	AVL8
				950	415	G 1/4	AVL4
	3/2 N.C. monostable	Lateral hand-wheel	Mechanical spring	815	270	G 1/8	CVL8
				950	415	G 1/4	CVL4
	3/2 N.O. bistable	Lateral hand-wheel	Lateral hand-wheel	740	265	G 1/8	AVL8F
				950	405	G 1/4	AVL4F
	3/2 N.C. bistable	Lateral hand-wheel	Lateral hand-wheel	815	265	G 1/8	CVL8F
				950	405	G 1/4	CVL4F

* PUSH-BUTTON COLOUR: N = BLACK; R = RED; V = GREEN

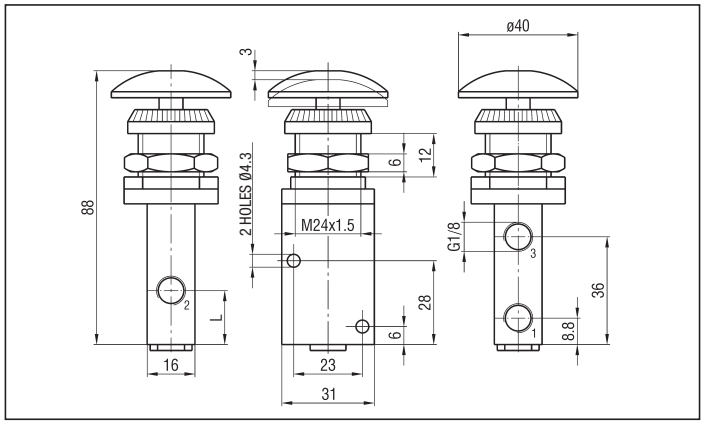
P.S.: THE VERSION WITH BLACK VERTICAL KNOB IS AVAILABLE ONLY IN THE SIZES G 1/8 AND G 1/4; TO ORDER THIS VERSION ADD THE SUFFIX "/E" TO THE TYPE. E.G.: CM8/E; AM8/E

PUT THE LETTER "H" BEFORE THE TYPE OF 3/2 VALVES TO ORDER THE 2/2 N.O. AND 2/2 N.C. VALVES. E.G.: HCM4; HAT2

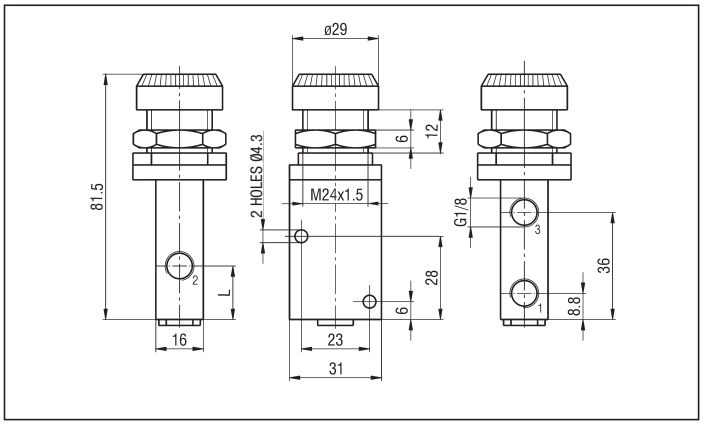
G 1/8 - G 1/4 - G 1/2
2 and 3 PORT

series CA

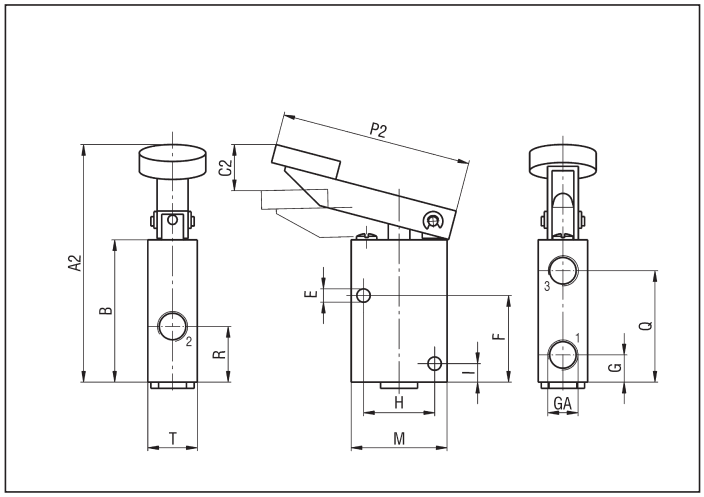
3/2 MUSHROOM



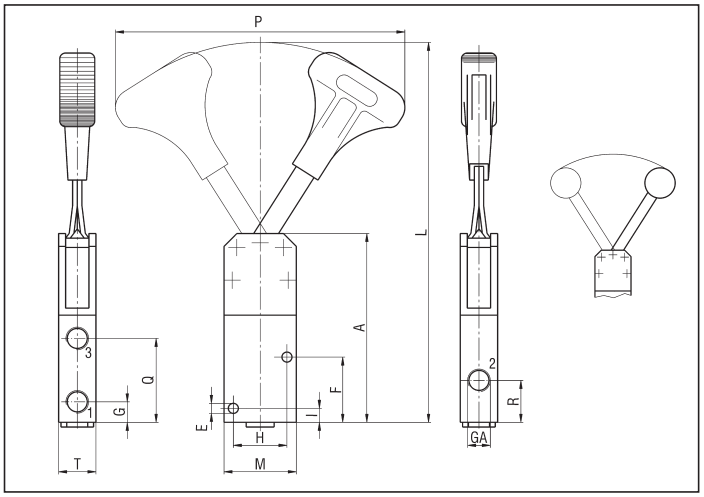
3/2 PUSH-BUTTON



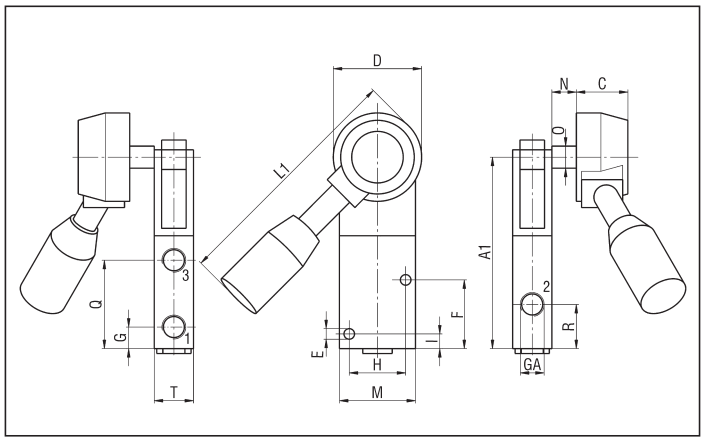
3/2 TAPPER



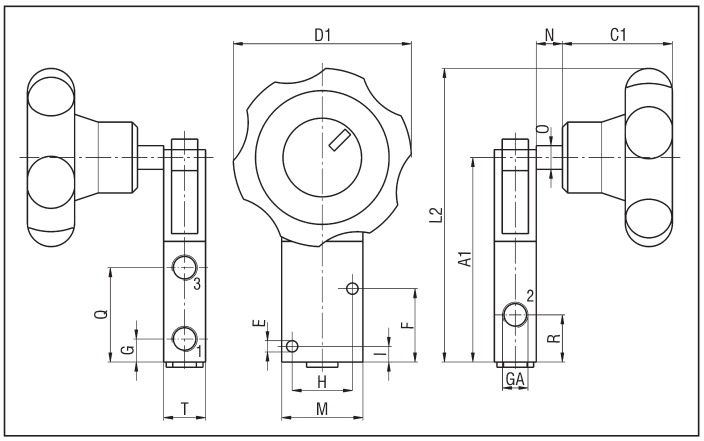
3/2 VERTICAL KNOB



3/2 LATERAL KNOB



3/2 LATERAL HAND-WHEEL



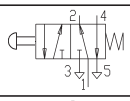
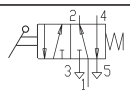
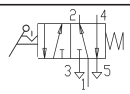
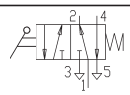
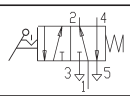
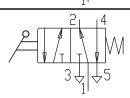
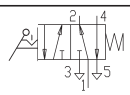
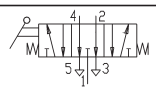
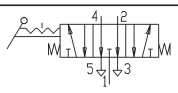
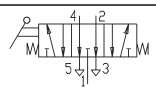
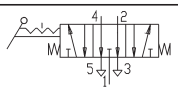
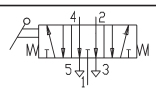
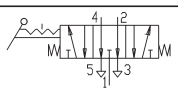
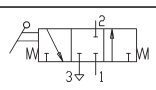
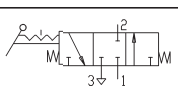
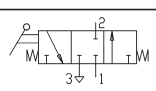
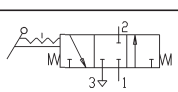
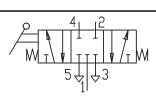
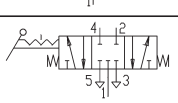
GA	A	A1	A2	B	C	C1	C2		D	D1	E	F	G	H
							min	max						
G 1/8	80	77	78	46	20	42	8	15,5	36	70	4,3	28	8,8	23
G 1/4	100	95	98	60	20	42	11	22,5	36	70	5,3	35	11,5	30
G 1/2	130	124	100	80	-	-	28	35	-	-	6,4	49	15	38

GA	I	L	L1	L2	M	N	O	P	P2	Q	R		T
											N.O.	N.C.	
G 1/8	6	162	100	112	31	10	9	124	60	36	23	18	16
G 1/4	8	188	100	130	40	10	9	152	83	46	30	25,5	20
G 1/2	10	238	-	-	50	-	-	180	145	63,3	40	30	25

series CA

G 1/8 - G 1/4 - G 1/2
3 and 5 PORT

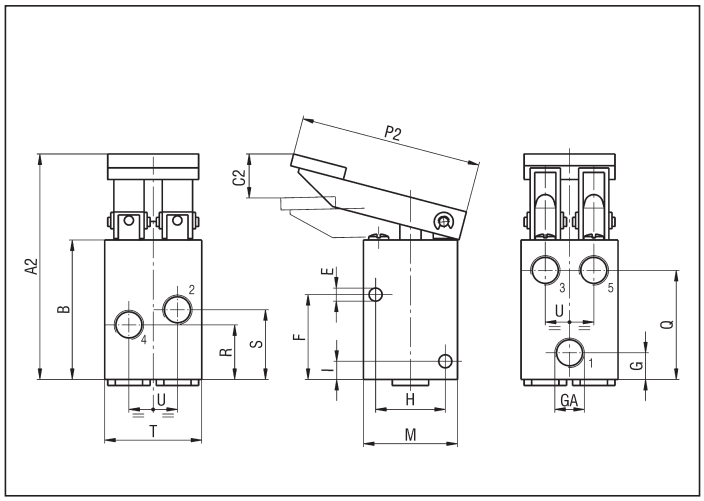
3 PORT, 3 POSITIONS AND 5 PORT MANUALLY ACTUATED VALVES G 1/8 - G 1/4 - G 1/2

Symbol	Function	Controls		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight *(g)*	Port size	TYPE
		Pilot	Return				
	5/2 monostable	Tapper	Mechanical spring	650	180	G 1/8	CAT8
				1040	405	G 1/4	CAT4
				2050	790	G 1/2	CAT2
	5/2 monostable	Vertical knob	Mechanical spring	650	315	G 1/8	CAM8
				1040	600	G 1/4	CAM4
				2050	1160	G 1/2	CAM2
	5/2 bistable	Vertical knob	Vertical knob	650	290	G 1/8	CAM8F
				1040	570	G 1/4	CAM4F
				2050	1065	G 1/2	CAM2F
	5/2 monostable	Lateral knob	Mechanical spring	650	375	G 1/8	CAML8
				1040	650	G 1/4	CAML4
	5/2 bistable	Lateral knob	Lateral knob	650	365	G 1/8	CAML8F
				1040	635	G 1/4	CAML4F
	5/2 monostable	Hand-wheel	Mechanical spring	650	395	G 1/8	CAVL8
				1040	665	G 1/4	CAVL4
	5/2 bistable	Lateral hand-wheel	Lateral hand-wheel	650	380	G 1/8	CAVL8F
				1040	650	G 1/4	CAVL4F
	5/3 monostable open centre	Vertical knob	Mechanical spring	815	315	G 1/8	CCM8
				950	605	G 1/4	CCM4
				2250	1165	G 1/2	CCM2
	5/3 stable open centre	Vertical knob	Vertical knob	815	290	G 1/8	CCM8F
				950	575	G 1/4	CCM4F
				2250	1095	G 1/2	CCM2F
	5/3 monostable open centre	Lateral knob	Mechanical spring	815	385	G 1/8	CCML8
				950	675	G 1/4	CCML4
	5/3 stable open centre	Lateral knob	Lateral knob	815	370	G 1/8	CCML8F
				950	650	G 1/4	CCML4F
	5/3 monostable open centre	Lateral hand-wheel	Mechanical spring	815	405	G 1/8	CCVL8
				950	690	G 1/4	CCVL4
	5/3 stable open centre	Lateral hand-wheel	Lateral hand-wheel	815	385	G 1/8	CCVL8F
				950	660	G 1/4	CCVL4F
	3/3 monostable closed centre	Vertical knob	Mechanical spring	815	310	G 1/8	HCCM8
				950	600	G 1/4	HCCM4
	3/3 stable closed centre	Lateral knob	Mechanical spring	815	310	G 1/8	HCCM8F
				950	600	G 1/4	HCCM4F
	3/3 monostable closed centre	Lateral knob	Mechanical spring	815	310	G 1/8	HCCML8
				950	600	G 1/4	HCCML4
	3/3 stable closed centre	Vertical knob	Mechanical spring	815	310	G 1/8	HCCML8F
				950	600	G 1/4	HCCML4F
	5/3 monostable closed centre	Vertical knob	Mechanical spring	815	740	G 1/8	XH4CM8
				950	1605	G 1/4	XH4CM4
				2250	3185	G 1/2	XH4CM2
	5/3 stable closed centre	Vertical knob	Vertical knob	815	680	G 1/8	XH4CM8F
				1400	1555	G 1/4	XH4CM4F
				2250	3080	G 1/2	XH4CM2F

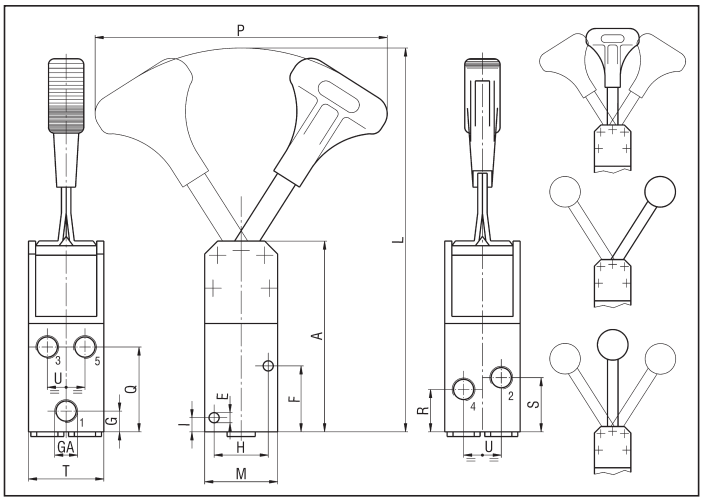
G 1/8 - G 1/4 - G 1/2
3 and 5 PORT

series CA

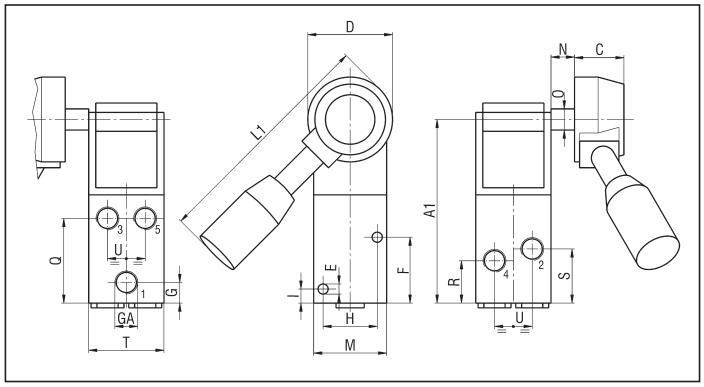
5/2 TAPPER



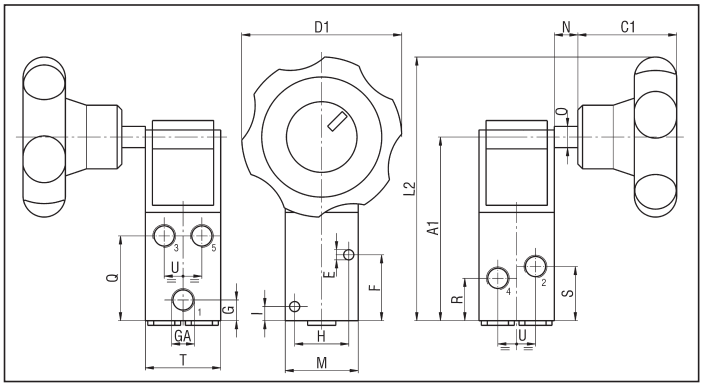
5/2 - 5/3 C.A. - 3/3 VERTICAL KNOB



5/2 - 5/3 C.A. - 3/3 C.C. LATERAL KNOB



5/2 LATERAL HAND-WHEEL



GA	A	A1	A2	B	C	C1	C2		D	D1	E	F	G	H
							min	max						
G 1/8	80	77	75,5	46	20	42	8	15,5	36	70	4,3	28	8,8	23
G 1/4	100	95	95	60	20	42	11	22,5	36	70	5,3	35	11,5	30
G 1/2	130	124	83	80	-	-	28	35	-	-	6,4	49	15	38

GA	I	L	L1	L2	M	N	O	P	P2	Q	R		S	T
											N.O.	N.C.		
G 1/8	6	162	100	112	31	10	9	124	60	36	23	18	23	32
G 1/4	8	188	100	130	40	10	9	152	83	46	30	25,5	30	40
G 1/2	10	238	-	-	50	-	-	180	145	63,3	40	30	40	50

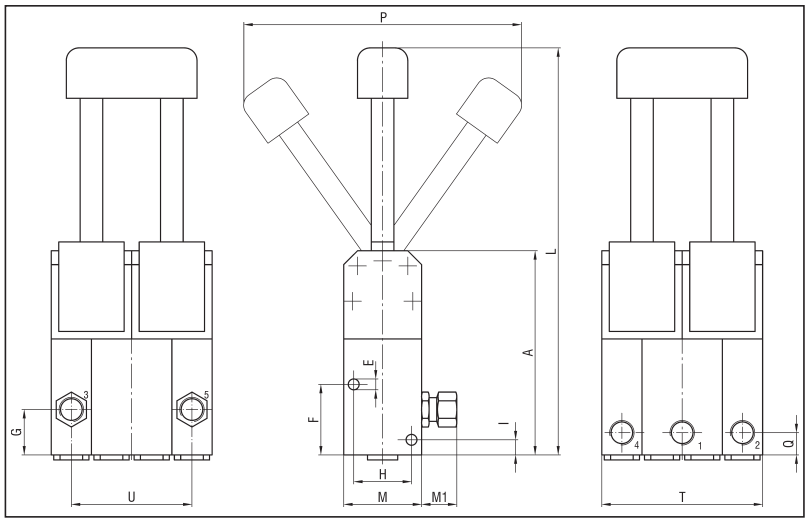
GA	U
G 1/8	16
G 1/4	20
G 1/2	25

P.S.: THE VERSION WITH BLACK VERTICAL KNOB IS AVAILABLE ONLY IN THE SIZES G 1/8 AND G 1/4; TO ORDER THIS VERSION ADD THE SUFFIX “/E” TO THE TYPE. E.G.: CAM8/E; CCM8/E

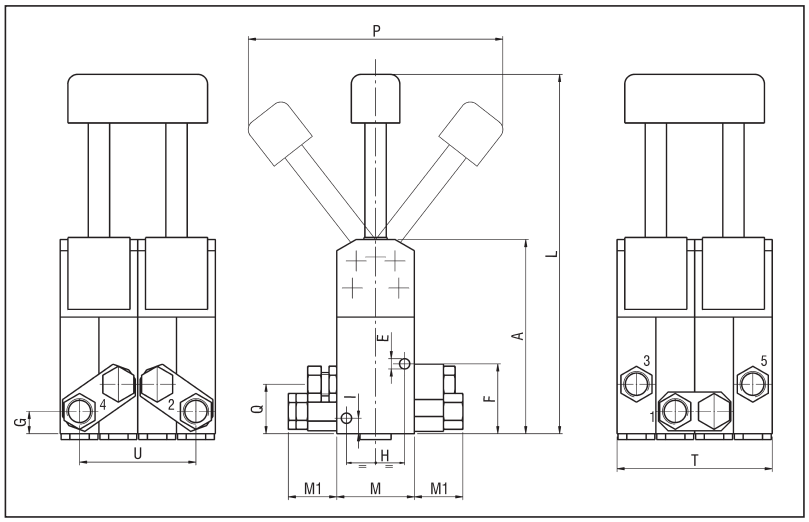
series CA

G 1/8 - G 1/4 - G 1/2
5 PORT

5/3 C.C. VERTICAL KNOB G 1/8



5/3 C.C. VERTICAL KNOB G 1/4 - G 1/2



GA	A	E	F	G	H	I	L	M	M1	P		Q	T	U
										with catch	without catch			
G 1/8	81	4,3	28	8,8	23	6	157,5	31	15	111	70	18	64	48
G 1/4	100	5,3	35	11,5	30	8	185	40	24	132	84	25,5	80	60
G 1/2	130	6,4	49	15	38	10	235	50	29	162	60	30	100	75

Valves
pedal actuated G 1/8 - G 1/4

series **PC**

DESCRIPTION

Pedal actuated valves series "PC" are produced in the 3/2 and 5/2 pneumatic functions, with or without protection, and they are based on direct acting poppet valves and direct acting or pilot assisted spool valves in the sizes G 1/8 and G 1/4.
The catch on the pedal allows obtaining the bistable pneumatic functions, while the safety device avoids the accidental actuation of the same pedal.

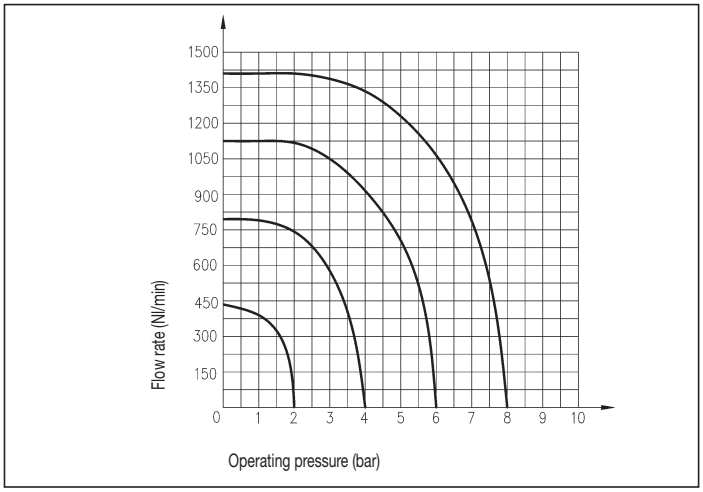
TECHNICAL DATA

Operating pressure	0 ÷ 10 bar (with direct acting valves) 2,5 ÷ 10 bar (with pilot assisted valves)
Working temperature	0 ÷ +50 °C (-10 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Port size	G 1/8 - G 1/4
Nominal diameter	G 1/8 = 6 mm G 1/4 = 8,5 mm

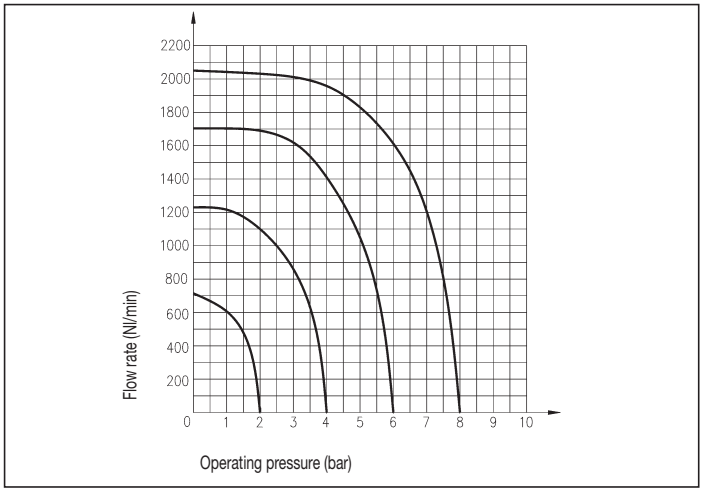
MATERIALS

Control rod	Hardened and nickel - plated steel – nickel - plated brass
Body	Anodized aluminium alloy
Spool	Aluminium alloy
Springs	Stainless steel
Seals	NBR rubber
Protection cover	Die - cast aluminium - Plastic material
Safety device	Plastic material
Catch	Plastic material
Control lever	Press-forged aluminium - Plastic material

FLOW CHART - PC G 1/8 - 5/2



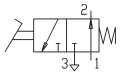
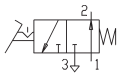
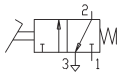
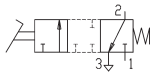
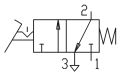
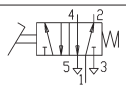
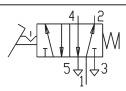
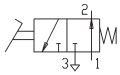
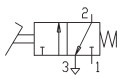
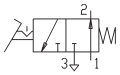
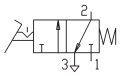
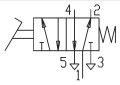
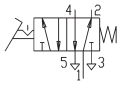
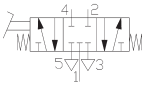
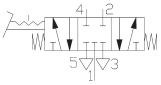
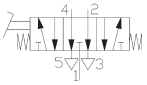
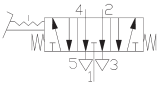
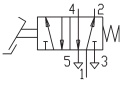
FLOW CHART - PC G 1/4 - 5/2



series PC

G 1/8 - G 1/4 - 3 and 5 PORT

PEDAL ACTUATED VALVES G 1/8 - G 1/4

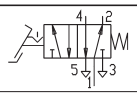
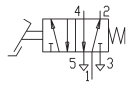
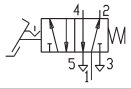
Symbol	Function	Protection	Actuation	Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight *(g)*	Port size	TYPE
	3/2 N.O. monostable	–	Direct acting	740	565	G 1/8	AP8
				950	700	G 1/4	AP4
	3/2 N.O. bistable	–	Direct acting	740	1020	G 1/8	AP8F
	3/2 N.C. monostable	–	Direct acting	815	570	G 1/8	CP8
				950	700	G 1/4	CP4
	3/2 N.C. monostable	–	Direct acting	815	570	G 1/8	FCP8*
	3/2 N.C. bistable	–	Direct acting	815	1015	G 1/8	CP8F
	5/2 monostable	–	Direct acting	650	915	G 1/8	CAP8
	5/2 bistable	–	Direct acting	650	1025	G 1/8	CAP8F
	3/2 N.O. monostable	–	Direct acting	900	970	G 1/4	PNP4
	3/2 N.C. monostable						
	3/2 N.O. bistable	–	Direct acting	900	970	G 1/4	PNP4/F
	3/2 N.C. bistable						
	5/2 monostable	–	Direct acting	900	1020	G 1/4	PNPCA4
	5/2 bistable	–	Direct acting	900	1020	G 1/4	PNPCA4/F
	5/3 monostable closed centre	–	Direct acting	780	1020	G 1/4	PNPCA4/S
	5/3 stable closed centre	–	Direct acting	780	1020	G 1/4	PNPCA4/SF
	5/3 monostable open centre	–	Direct acting	780	1020	G 1/4	PNPCA4/A
	5/3 stable open centre	–	Direct acting	780	1020	G 1/4	PNPCA4/AF
	5/2 with safety device monostable	Plastic	Pilot assisted	900	1350	G 1/4	PCA4

* THE WAYS AREN'T COMMUNICATING IN THE INTERMEDIATE PHASE OF ACTUATION

Pedal actuated valves
G 1/8 - G 1/4

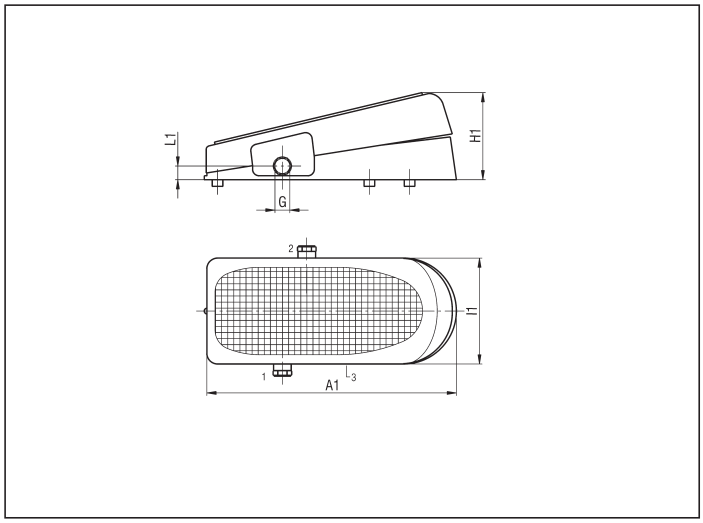
series PC

PEDAL ACTUATED VALVES G 1/8 - G 1/4

Symbol	Function	Protection	Actuation	Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	Port size	TYPE
	5/2 with safety device bistable	Plastic	Pilot assisted	900	1350	G 1/4	PCA4/F
	5/2 with safety device monostable	Metallic	Pilot assisted	900	1750	G 1/4	PCA4M
	5/2 with safety device bistable	Metallic	Pilot assisted	900	1750	G 1/4	PCA4M/F

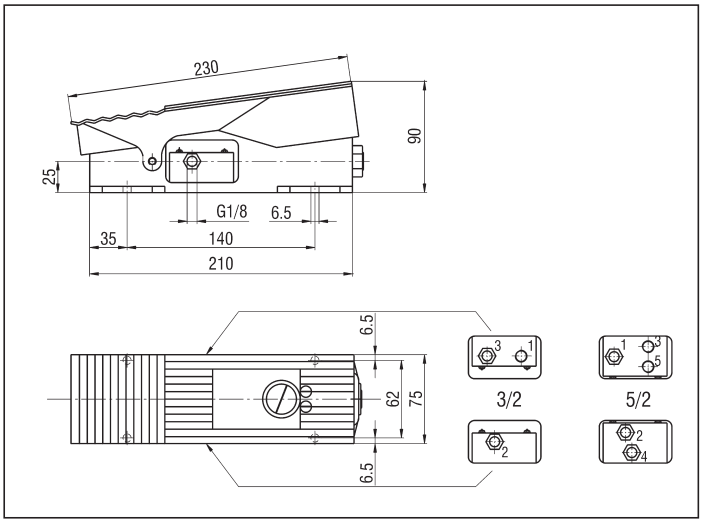
3

AP8 - AP4 - CP8 - CP4 - FCP8

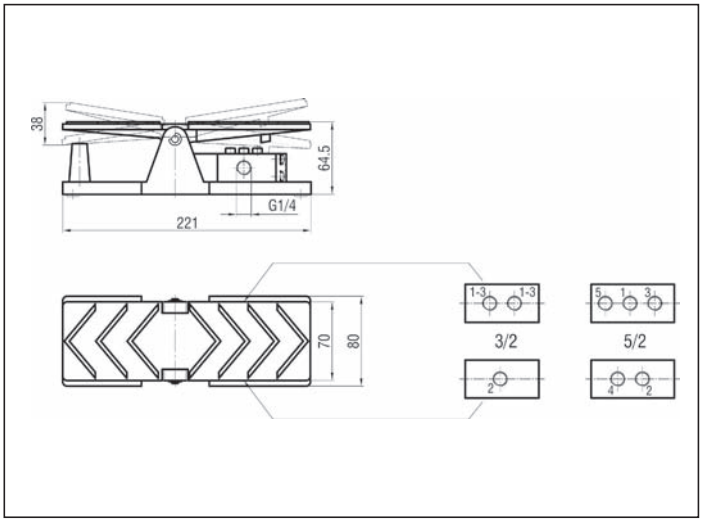


G	A1	H1	I1	L1
G 1/8	193	70	83	11
G 1/4	193	70	83	13

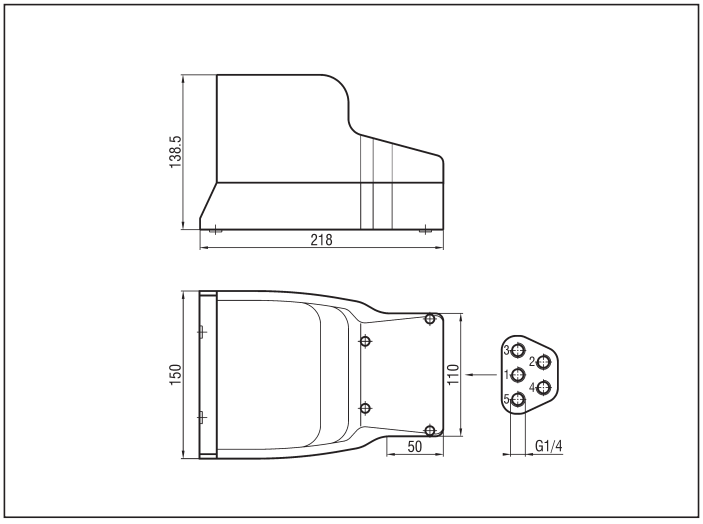
AP8F - CP8F - CAP8 - CAP8F



3/2 - 5/2 - 5/3 BALANCING WITHOUT PROTECTION - PNP



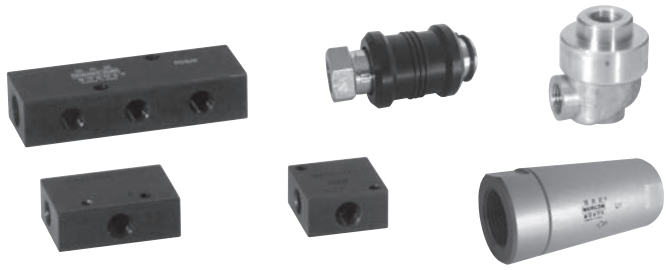
5 PORT PLASTIC AND METALLIC PROTECTION - PCA



Complementary valves: shuttle, quick exhaust and check valves

DESCRIPTION

Complementary valves are very important components of the pneumatic circuits. This group includes the:
SHUTTLE VALVES: these valves are used when there is the necessity to convey, in one pipeline, two pneumatic flows coming from two different pipelines without any interference; in fact the compressed air flows from one of the two inlet ports to the working port while the second inlet port is excluded.
QUICK EXHAUST VALVES: air flows from the inlet port to the working port while the exhaust port is closed. By shutting off the inlet port, the compressed air from the working port is exhausted through the exhaust port.
CHECK VALVES: these valves are used to prevent loss of pressure in a pipeline when the inlet is connected to the exhaust; the compressed air can flow freely from the inlet to the working port while the opposite direction is blocked.



3

SHUTTLE VALVES SERIES DS

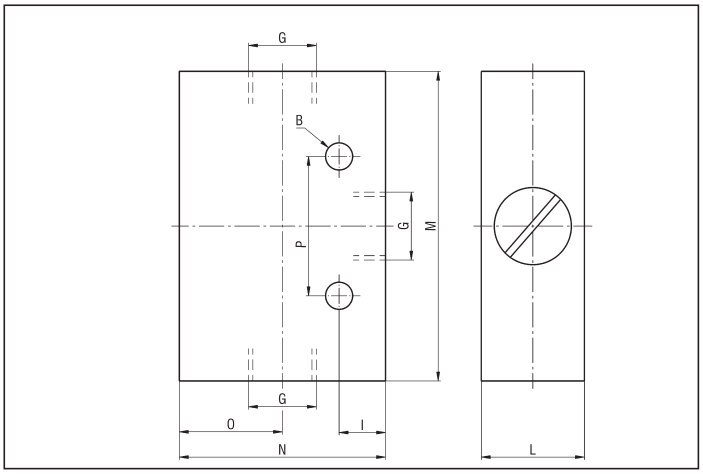
TECHNICAL DATA

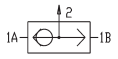
Maximum pressure	12 bar
Working temperature	0 ÷ +80°C (-20 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Port size	G 1/8 - G 1/4 - G 3/8 - G 1/2

MATERIALS

Body	Aluminium alloy
Seals	NBR rubber

DIMENSIONS AND WEIGHTS DS



Symbol	B	I	L	M	N	O	P	Flow rate at 6 bar ΔP=1 bar (Nl/min)	Pmin *(bar)*	Weight *(g)*	G	TYPE
	4,2	6	16	46	31	13	22	700	0,2	60	G 1/8	DS8
	5,2	8	20	60	40	17,5	27	1700	0,4	125	G 1/4	DS4
	6,4	10	25	80	50	22	38	3400	0,3	235	G 3/8	DS3
	6,4	12	30	100	60	26	48	5000	0,6	435	G 1/2	DS2

QUICK EXHAUST VALVES SERIES D3/

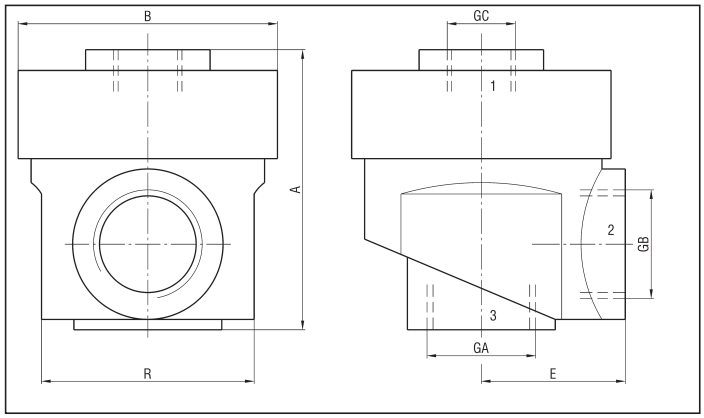
TECHNICAL DATA

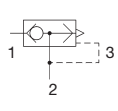
Maximum pressure	12 bar
Working temperature	0 ÷ +80°C (-20 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Port size	G 1/4 - G 1/2 - G 3/4

MATERIALS

Body	Aluminium alloy
Seals	NBR rubber
Bottom	Aluminium alloy

DIMENSIONS AND WEIGHTS D3/



Symbol	A	B	E	R	Flow rate from 1 to 2 at 6 bar ΔP=1 bar (Nl/min)	Flow rate from 2 to 3 at 6 bar free exhaust (Nl/min)	Pmin *(bar)*	Weight *(g)*	GA	GB	GC	TYPE
	38	35	19,5	27	520	2300	0,2	70	G 1/4	G 1/4	G 1/8	D3/4
	43	35	19,5	27	610	2300	0,2	75	G 1/4	G 1/4	G 1/4	D3/4B
	54	50	27,5	41	1520	4300	0,2	135	G 1/2	G 1/2	G 1/4	D3/2
	58	50	27,5	41	2220	4300	0,2	140	G 1/2	G 1/2	G 1/2	D3/2B
	82	82	44	70	4400	6000	0,2	510	G 3/4	G 3/4	G 1/2	D3/15

Complementary valves: check and slide valves, distribution frames

CHECK VALVES SERIES U

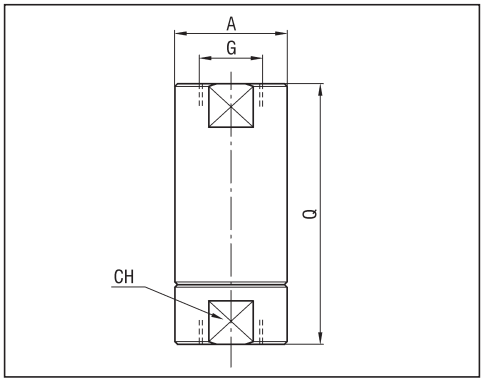
TECHNICAL DATA

Maximum pressure	12 bar
Working temperature	0 ÷ +80°C (-20 °C with dry air)
Fluid: Filtered, unlubricated or continuous lubricated compressed air	
Port size	G 1/8 - G 1/4 - G 1/2 - G 1

MATERIALS

Body	Anodized aluminium
Piston	Brass
Seals	NBR rubber
Spring	Stainless steel

DIMENSIONS AND WEIGHTS U



Symbol	CH	A	Q	Flow rate at 6 bar ΔP=1 bar (Nl/min)	Pmin *(bar)*	Weight *(g)*	G	TYPE
	13	15	34	70	0,2	25	G 1/8	U8
	19	21	48	700	0,7	75	G 1/4	U4
	19	21	48	725	0,2	75	G 1/4	U4/SM
	27	30	66	2750	0,2	170	G 1/2	U2
	50	50	110	5100	0,2	1000	G 1	U1
	19	21	48	800	0,2	75	G 1/4	U4/SM2

SLIDE VALVES SERIES VC

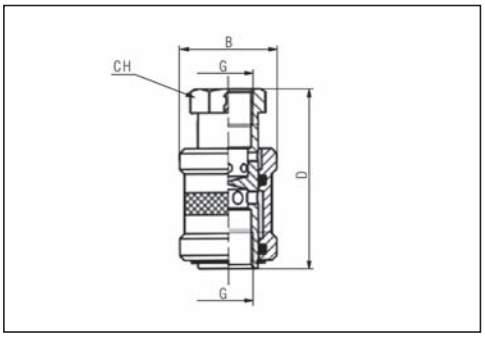
TECHNICAL DATA

Operating pressure	1 ÷ 10 bar
Working temperature	1 ÷ +60°C
Fluid: Filtered, unlubricated or continuous lubricated compressed air	
Port size	G 1/8 - G 1/4 - G 3/8 - G 1/2

MATERIALS

Body	Nickel-plated brass
Slide	Anodized aluminium
Seals	NBR rubber

DIMENSIONS AND WEIGHTS VC



CH	B	Flow rate at 6 bar ΔP=1 bar (Nl/min)	D	Weight *(g)*	G	TYPE
14	25	700	48	54	G 1/8	VC-01
17	30	1500	58	102	G 1/4	VC-02
22	35	2200	68	153	G 3/8	VC-03
27	40	3400	80	204	G 1/2	VC-04

DISTRIBUTION FRAMES SERIES RX

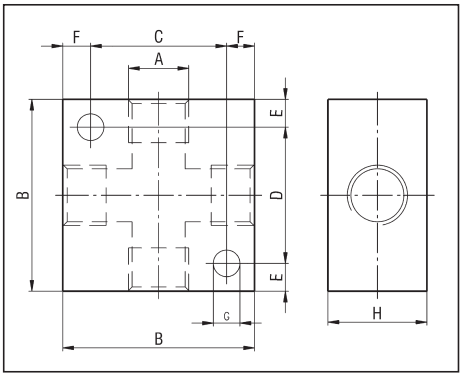
TECHNICAL DATA

Maximum pressure	12 bar
Working temperature	0 ÷ +80°C (-20 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Port size	G 1/8 - G 1/4 - G 3/8 - G 1/2

MATERIALS

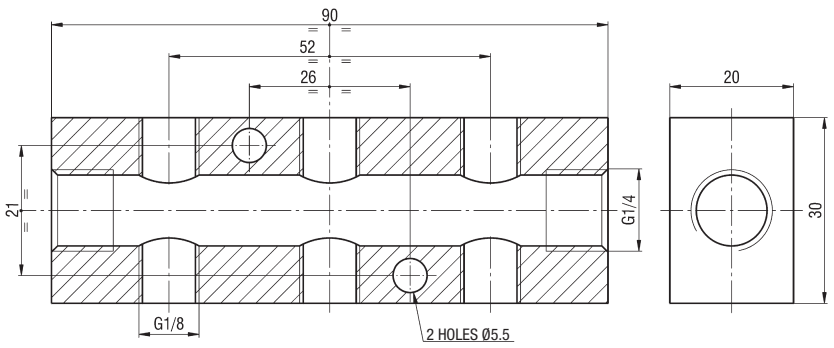
Body	Anodized aluminium alloy

DIMENSIONS AND WEIGHTS RX



B	C	D	E	F	G	H	A	Weight *(g)*	TYPE
31	23	22	4,5	4	4,3	16	G 1/8	35	RX8
40	30	27	6,5	5	5,3	20	G 1/4	70	RX4
50	38	39	5,5	6	6,3	25	G 3/8	130	RX3
50	38	39	5,5	6	6,3	25	G 1/2	115	RX2

DIMENSIONS AND WEIGHT RX8/6



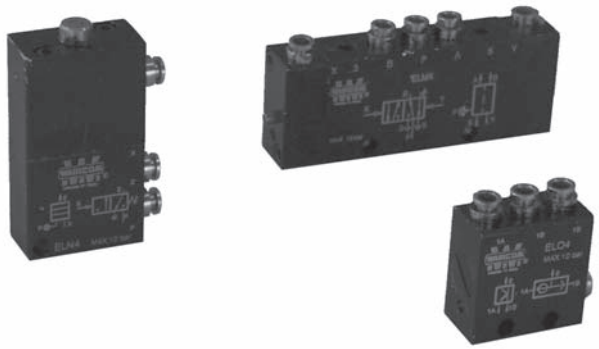
WEIGHT 110 g

series EL

Complementary valves: pneumatic logic elements

DESCRIPTION

Pneumatic logic elements series "EL" are produced in the following No.5 basic functions: OR, AND, YES, NOT and MEMORY, with push-in fittings for pipe Ø 4 mm, and the pressure indicator is on body valve as standard. These elements can be mounted both separately (line mounted thanks to the No.2 holes on body valve) than on manifold bracket. The pneumatic logic element NOT is a threshold component and the pressure triggering value is 0,6 bar (at 6 bar).



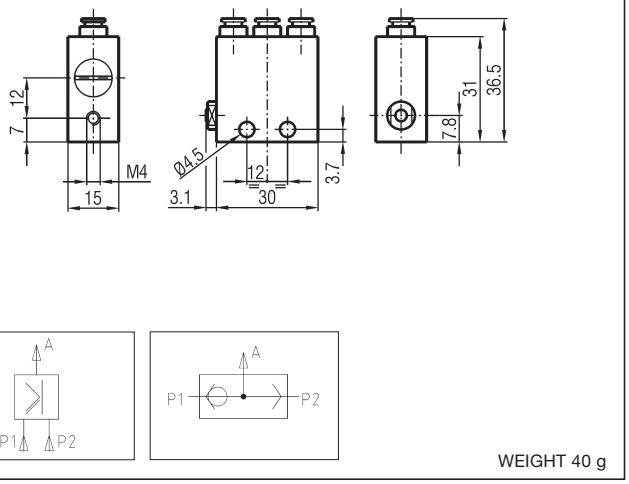
TECHNICAL DATA

Operating pressure	1,5 ÷10 bar (OR, AND, YES, NOT0, MEMORY)
Working temperature	0 ÷ +60 °C (-20 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Port size	Push-in fittings for pipe Ø 4 mm
Rated flow rate	90 Nl/min

MATERIALS

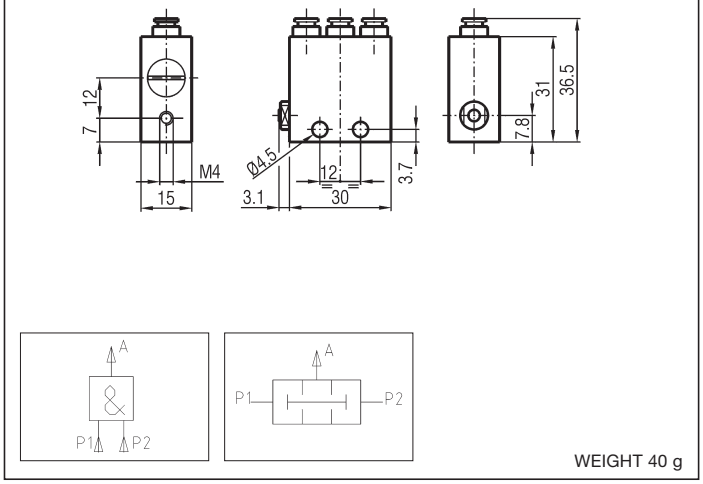
Body	Anodized aluminium alloy
Bushing and guide	Nickel - plated brass
Springs	Stainless steel
Seals	NBR rubber
Spool	Anodized aluminium alloy
Connections	Nickel - plated brass, plastic material

LOGIC ELEMENT - ELO4 (OR - logical sum)



WEIGHT 40 g

LOGIC ELEMENT - ELA4 (AND - logical multiplication)

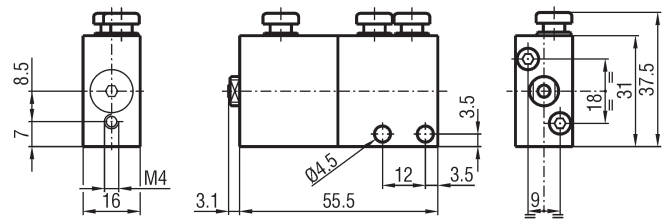


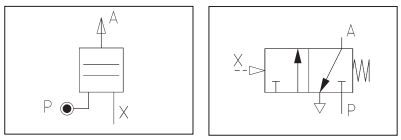
WEIGHT 40 g

Complementary valves: pneumatic logic elements

series EL

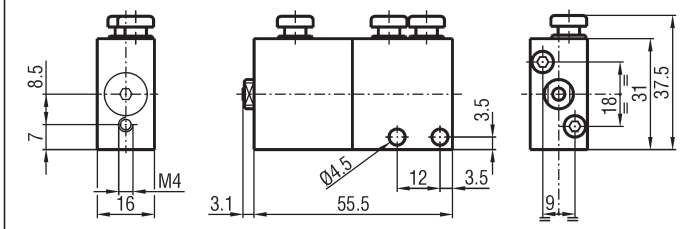
LOGIC ELEMENT - ELY4 (YES - affirmation)

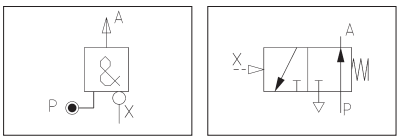




WEIGHT 82 g

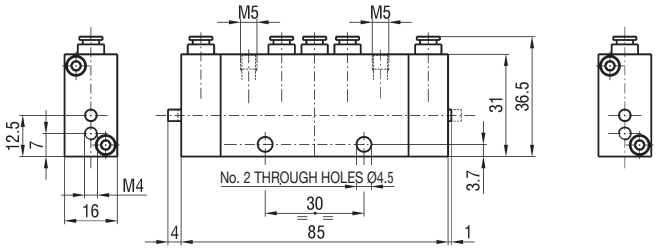
LOGIC ELEMENT - ELN4 (NOT - negation)

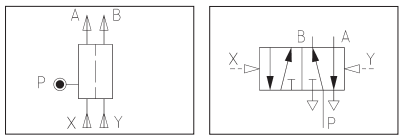




WEIGHT 82 g

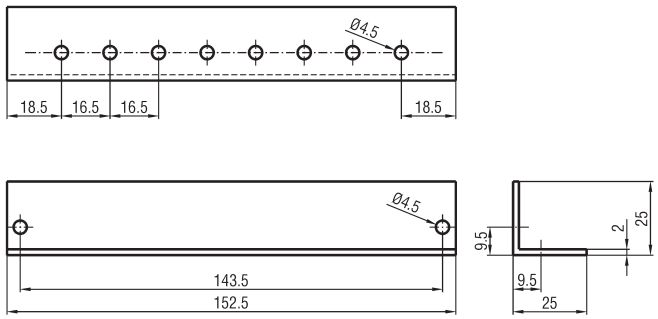
LOGIC ELEMENT - ELM4 (memory)





WEIGHT 110 g

BRACKET - ELSQ



WEIGHT 30 g

series UR

Complementary valves: flow regulators G 1/8 - G 1/4 - G 1/2

DESCRIPTION

Flow regulators series "UR" are produced in three different versions, unidirectional (type "URG") - bi-directional (type "URF"), to have a precision in-line regulation; unidirectional (type “URE”), when it’s necessary a standard in-line regulation with reduced dimensions, and in the silenced exhaust version (type “URS”). In-line precision flow regulators type “URG”-”URF” are available in different adjustment scale in the size G 1/8 (see the flow charts).

IN-LINE PRECISION FLOW REGULATORS TYPE URG - URF

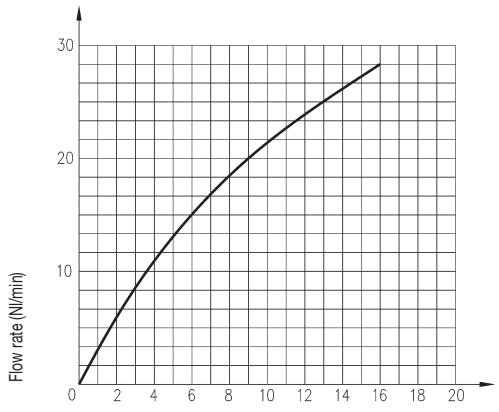
TECHNICAL DATA

Maximum pressure	12 bar
Working temperature	0 ÷ +80° C (-20 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Port size	G 1/8 - G 1/4 - G 1/2

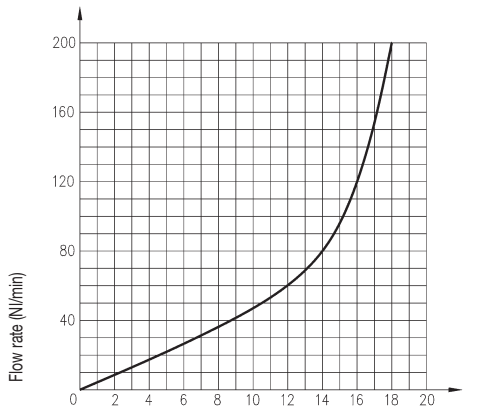
MATERIALS

Body	Anodized aluminium alloy
Seals	NBR rubber
Regulation needle	Aluminium (stainless steel for “URG” - “URF 8/1”)
Needle guide	Brass
Nuts	Brass

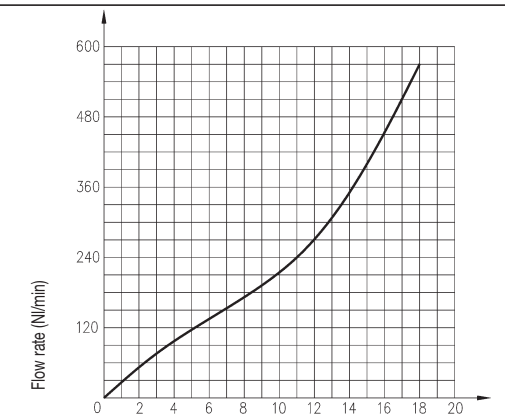
FLOW CHART AT 6 BAR - UR 8/1



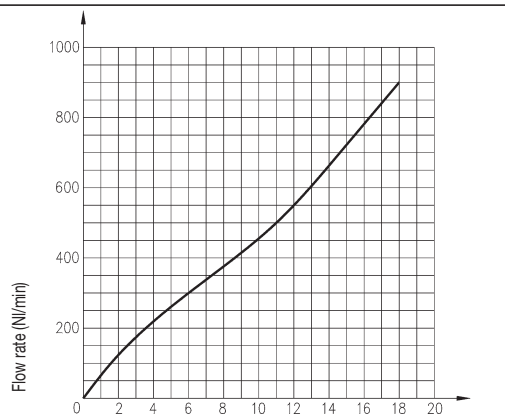
FLOW CHART AT 6 BAR - UR 8/2



FLOW CHART AT 6 BAR - UR 8/5



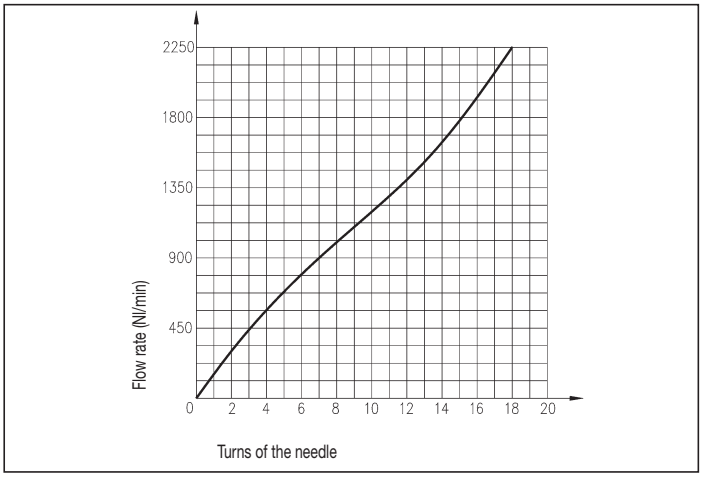
FLOW CHART AT 6 BAR - UR 4/10



Complementary valves: flow regulators G 1/8 - G 1/4 - G 1/2

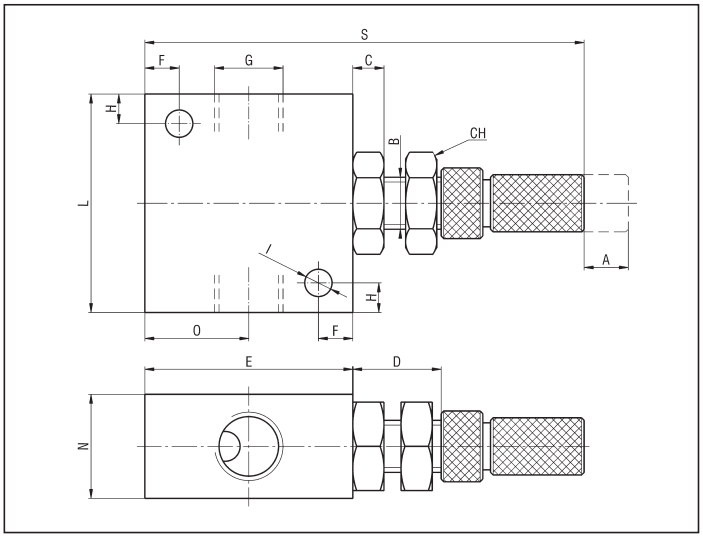
series UR

FLOW CHART AT 6 BAR - UR 2/25



Symbol	Nominal diameter *(mm)*	Port size	TYPE
	0,9	G 1/8	URG8/1
	2	G 1/8	URG8/2
	5	G 1/8	URG8/5
	7,2	G 1/4	URG4/10
	12	G 1/2	URG2/25
	0,9	G 1/8	URF8/1
	2	G 1/8	URF8/2
	5	G 1/8	URF8/5
	7,2	G 1/4	URF4/10
	12	G 1/2	URF2/25

DIMENSIONS AND WEIGHTS URG - URF



A	B	C	CH	D	E	F	H
6	M12x0,75	4	14	12,5	31	4,5	5,5
8,5	M15x0,75	5,5	17	17	40	6,5	6
13	M25x1,5	7	30	22	65	8,5	12,5
I	**L**	**N**	**O**	**S**	**Weight *(g)***	**G**	
4,3	34	16	15,5	65	60	G 1/8	
5,25	42	20	20	84,5	120	G 1/4	
6,25	69	35	32,5	127	540	G 1/2	

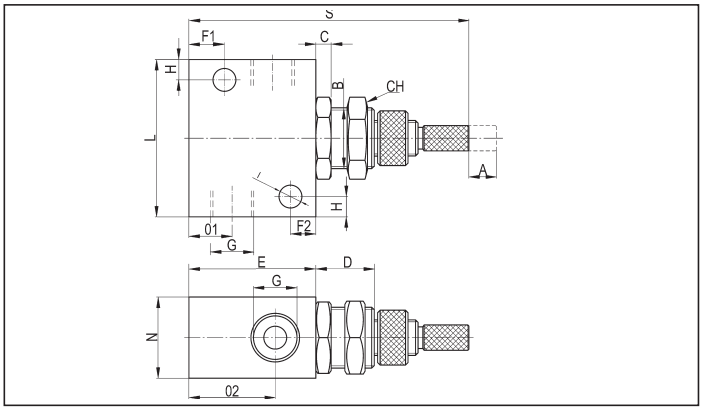
IN LINE STANDARD FLOW REGULATORS TYPE URE

Symbol	A	B	C	CH	D	E	F1	F2	H
	10	M12x0.75	3	14	11	25	7	5	4
	6,8	M12x0.75	3.5	15	11	35	*	5	5

I	L	N	O1	O2	S	Weight *(g)*	G	TYPE
4,5	31	16	8,5	17	55	55	G 1/8	URE8
4,3	40	26	14,5	13,5	58,7	101	G 1/2	URE2

* THE No. 2 FIXING HOLES FOR THESE SIZES ARE ALIGNED (SEE DIMENSION “F2”)

DIMENSIONS AND WEIGHTS URE



SILENCED EXHAUST FLOW REGULATORS TYPE URS

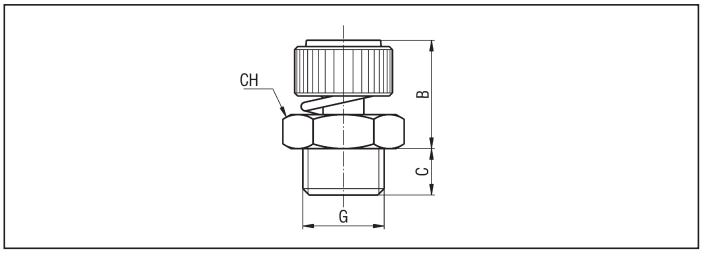
TECHNICAL DATA

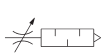
Maximum pressure	12 bar
Working temperature	0 ÷ +80 °C (-20 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Port size	G 1/8 - G 1/4 - G 3/8 - G 1/2

MATERIALS

Body	Brass
Silencer	Sintered bronze

DIMENSIONS AND WEIGHTS - URS



Symbol	B	C	CH	Weight *(g)*	G	TYPE
	15,5	6	12	15	G 1/8	URS8/3
	17,5	8	16	25	G 1/4	URS4/5
	20	9	20	40	G 3/8	URS3/7
	22,5	10,5	26	70	G 1/2	URS2/9

series WB

Complementary valves: block valves G 1/8 - G 1/4 - G 1/2

DESCRIPTION

Block valves series “WB” are produced in the 2/2 - G 1/8, G 1/4 and G 1/2 monostable pneumatic functions in both the uni- and bi-directional versions. The working of the block valve consists in avoiding unexpected depressurisation of the cylinder’s chamber due to lack of compressed air at the piloting port. For a correct functioning of the block valves we suggest to mount them directly on the cylinder.

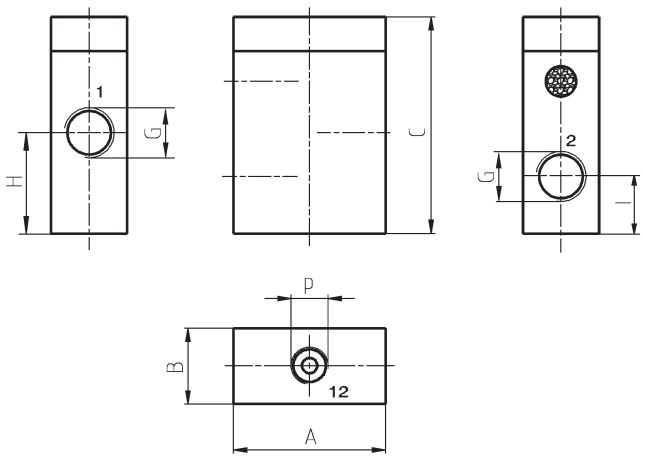
TECHNICAL DATA

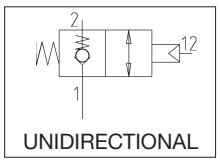
Operating pressure	0 ÷ 10 bar
Minimum piloting pressure (at 10 bar)	G 1/8 = 2,5 bar G 1/4 = 4 bar G 1/2 = 5 bar
Working temperature	0 ÷ +70°C (with dry air -10°C)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Port size	G 1/8 - G 1/4 - G 1/2
Pneumating piloting port size	G 1/8
Nominal diameter	G 1/8 = 7 mm G 1/4 = 7 mm G 1/2 = 12 mm
Flow rate at 6 bar (with ΔP = 1 bar)	G 1/8 = 700 Nl/min G 1/4 = 700 Nl/min G 1/2 = 1900 Nl/min

MATERIALS

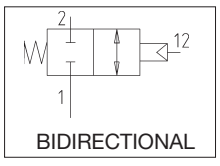
Control rod	Anodized aluminium alloy
Body	Anodized aluminium alloy
Spring	Stainless steel
End plug	Nick-plated brass
Seals	NBR rubber
Washer	Brass

WB8U - WB8B - WB4U - WB4B - WB2U - WB2B



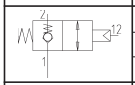
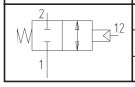


UNIDIRECTIONAL



BIDIRECTIONAL

DESCRIPTION OF THE CONNECTION
1 = INPUT
2 = CYLINDER
12 = PILOTING

Symbol	A	B	C	H	I	P	Weight (g)	G	TYPE
	31	16	47	21,5	11,5	G 1/8	61	G 1/8	WB8U
	40	20	57	26,5	15		120	G 1/4	WB4U
	50	25	69	34,5	18		220	G 1/2	WB2U
	31	16	47	21,5	11,5		61	G 1/8	WB8B
	40	20	57	26,5	15		120	G 1/4	WB4B
	50	25	69	34,5	18		220	G 1/2	WB2B

Complementary valves: amplifier valves

series XVF

DESCRIPTION

The type “XVF4” identifies a 3/2 N.C. amplifier valve that changes low pressure signals into pneumatic signals (1 ÷ 8 bar).
Valve type “XVF5” is instead a 3/2 N.O. amplifier valve that changes negative pneumatic signals into pneumatic signals (1 ÷ 7 bar).
Both of them are suitable to pilot directly the valves series “UDS” and “UK” with the same mounting than solenoid valves series “UL”.
For single mounting there is the sub-base type “XVB” (see on page 2.8) while for manifold mounting there are the bases type “ULP” (see on page 2.7).

3

TECHNICAL DATA

Operating pressure	XVF4: 1 ÷ 8 bar XVF5: 1 ÷ 7 bar
Working temperature	0 ÷ +60 °C (-10 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Piloting pressure	XVF4: 500 mbar XVF5: -500 mbar
Maximum frequency	50 Hz
Flow rate	500 Nl/min at 6 bar
Controlled leakage consumption	1,4 Nl/min at 7 bar
Piloting hole	M5

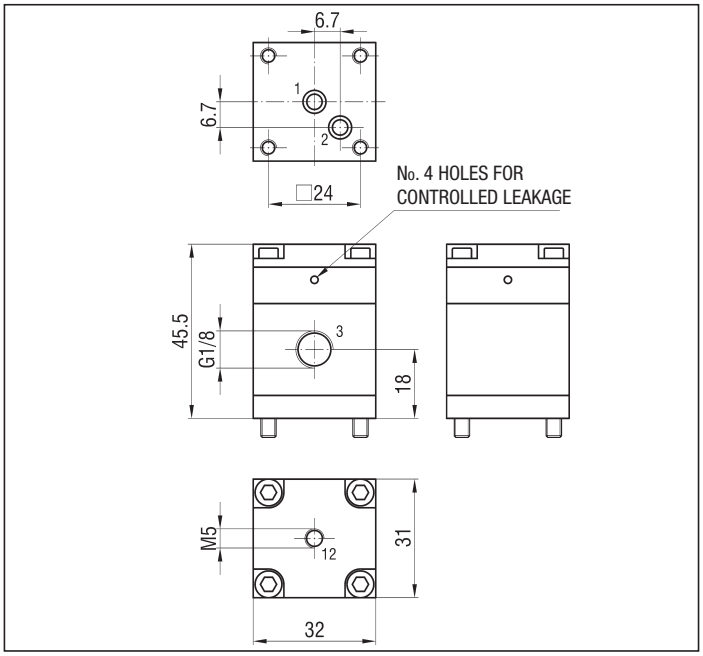
MATERIALS

Control rod	Aluminium
Body	Anodized aluminium alloy
Springs	Phosphor bronze
Seals	NBR rubber
Washer	Aluminium
Fixing screws	White galvanized steel

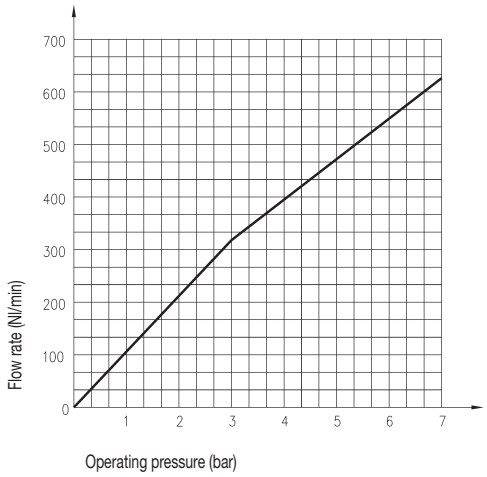
SPARE PARTS

SEALS KIT	
XVF	XVF/SG/4-5

DIMENSIONS XVF



FLOW CHART XVF



3 PORT

Symbol	Function	Controls		Response times at 6 bar (ms)		Flow rate at 6 bar ΔP=1 bar (Nl/min)	Weight (g)	TYPE
		Actuation	Return	Actuation	Return			
	3/2 N.C.	Pneumatic	Mechanical spring	26,64	38,42	500	10,5	XVF4
	3/2 N.O.	Vacuum	Mechanical spring	21,14	32,66	500	10,5	XVF5

Index chapter 4

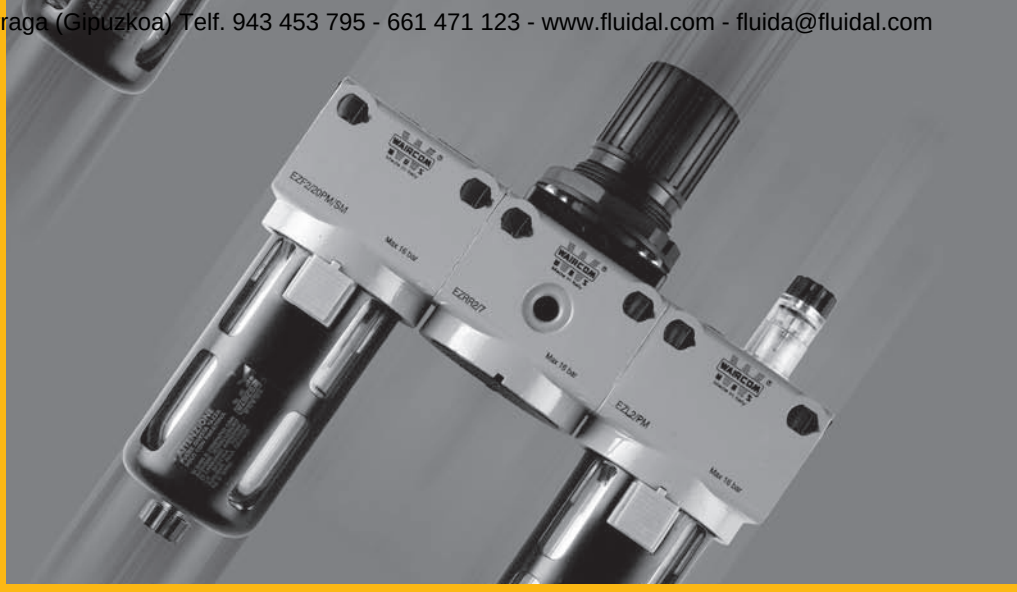
AIR TREATMENT

Series UZ

Series EZ

Series MA

Series PR



Waircom air treatment: overview

Before using the air as fluid for the majority of the components mentioned in the previous chapters, this must be properly treated; for this reason Waircom offers these two series of f-r-l (filters, regulators and lubricators) with a range of sizes that goes from G 1/8” to G 1”.

Besides these leading articles, the f-r-l can be assembled with soft start and shut-off valves. Even the f-r-l units have their own accessories (pressure gauges and switches) that fulfil Waircom offer.

Air treatment: filter UZF G 1/8 - G 1/4

series UZ

DESCRIPTION

Filters series "UZF" are produced with connections G 1/8 and G 1/4; they are available with various degrees of filtration and with manual or semi-automatic condensate drainage system. The techno-polymer bowls can carry a metallic protection or being entirely metallic (without visualization of level).

TECHNICAL DATA

Maximum pressure	16 bar
Working temperature	0 ÷ +50 °C (–10 °C with dry air)
Fluid	Compressed air
Port size	G 1/8 - G 1/4
Void fraction	20 µm standard, 5 µm and 40 µm on request
Condensate drainage system	Manual or semi-automatic
Max. condensate capacity	9 cm3 (do not exceed the level gauge)
Type of mounting	Modular, in-line and wall-mounting
Wall clamping screws	M4x50

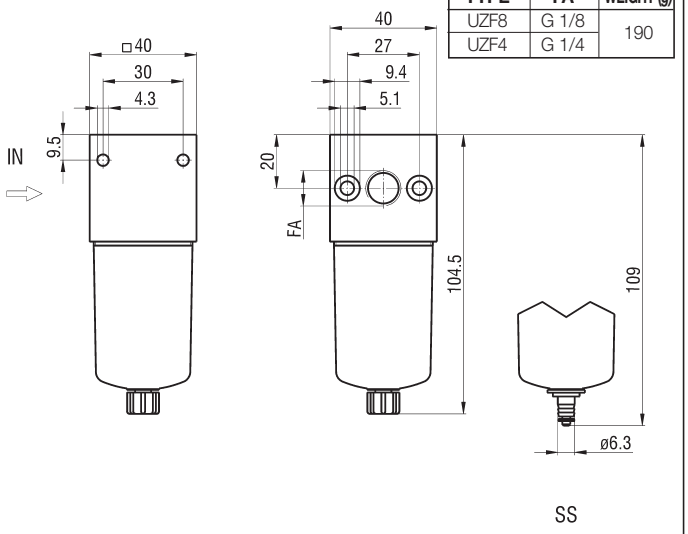
MATERIALS

Body	Aluminium alloy
Bowl	Transparent techno-polymer with metallic protection or entirely metallic bowl (without visualization of level) on request.
Filtering element	Sintered polyethylene
Seals	NBR rubber
Baffle	Acetal resin

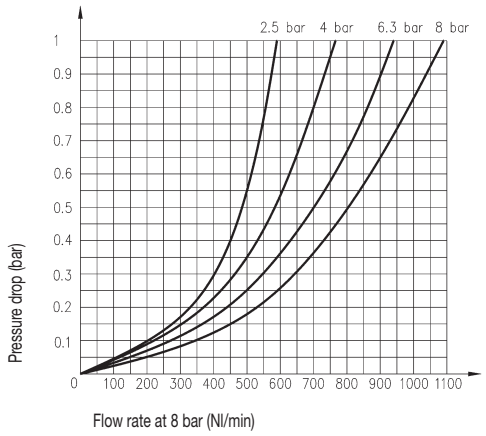
4

DIMENSIONS AND WEIGHT UZF

TYPE	FA	WEIGHT (g)
UZF8	G 1/8	190
UZF4	G 1/4	



FLOW CHART - UZF



ORDER KEY

UZF [ ] [ ] [ ] [ ]

- Series
- Size
- Degree of filtration
- Bowl
- Condensate drainage

SIZE

8	G 1/8	4	G 1/4

DEGREE OF FILTRATION

/5	5 µm	/20	20 µm
/40	40 µm		

BOWL

	Transparent	PM	Metallic protection
TM	Metallic		

CONDENSATE DRAINAGE SYSTEM

	Manual	/SS	Semi-automatic

SPARE PARTS

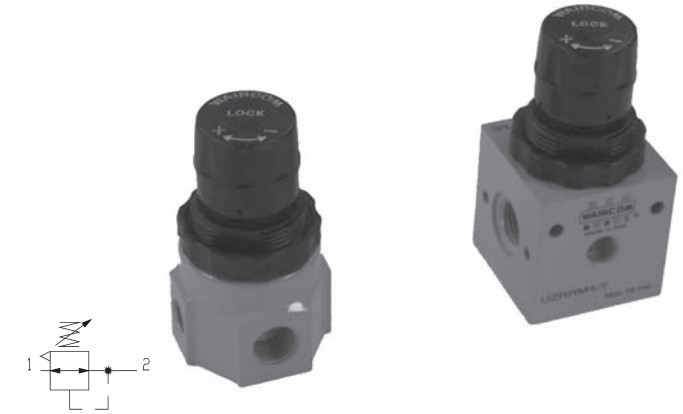
Metallic protection	UZ/PM
Metallic bowl with manual drain	UZ/TM/R
Metallic bowl with semi-automatic drain	UZ/TM/R/SS
Techno-polymer bowl with manual drain	UZF/SG/3
Techno-polymer bowl with semi-automatic drain	UZF/SG/3/SS
Filter cartridge 5 µm	UZF/SG/1
Filter cartridge 20 µm	UZF/SG/2
Filter cartridge 40 µm	UZF/SG/4

series UZ

Air treatment: pressure reducer UZRR G 1/8 - G 1/4

DESCRIPTION

Reducers series "UZRR" are produced in two different models: type UZRRH, fit for in-line or panel mounting and type UZRRM, fit for panel mounting or modular assembly (with filter and lubricator).
Both the two models are available with different scales of regulation and with connections G 1/8 and G 1/4.



TECHNICAL DATA

Maximum pressure	16 bar
Working temperature	0 ÷ +50 °C (–10 °C with dry air)
Fluid	Filtered, lubricated and unlubricated compressed air
Port size	G 1/8 - G 1/4
Pressure gauge port size	G 1/8
Adjusting range (bar)	0,2 ÷ 2 - 0,4 ÷ 4 - 0,8 ÷ 9 - 1,5 ÷ 12
Type of mounting	Modular, in-line, wall and panel mounting
Wall clamping screws	M4x50

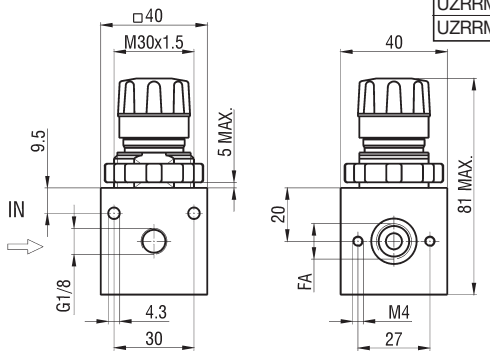
MATERIALS

Body	Aluminium alloy
Bowl	Transparent techno-polymer with metallic protection or entirely metallic bowl (without visualization of level) on request
Filtering element	Sintered porous bronze
Seals	NBR rubber
Baffle	Acetal resin

4

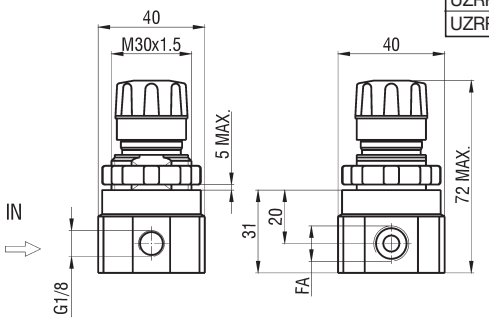
DIMENSIONS AND WEIGHT UZRRM

TYPE	FA	WEIGHT (g)
UZRRM8	G 1/8	195
UZRRM4	G 1/4	

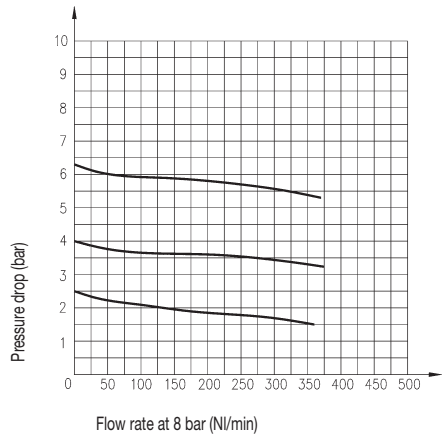


DIMENSIONS AND WEIGHT UZRRH

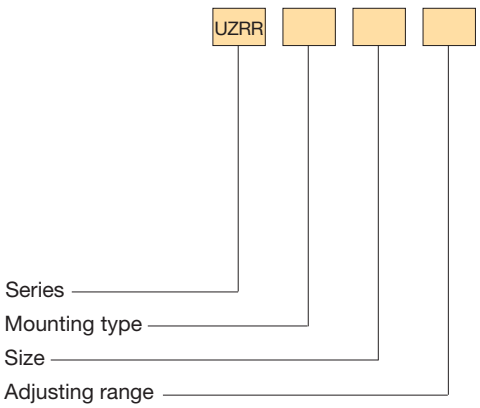
TYPE	FA	WEIGHT (g)
UZRRH8	G 1/8	120
UZRRH4	G 1/4	



FLOW CHART - UZRR



ORDER KEY



MOUNTING TAPE

H	For panel mounting	M	Modular

SIZE

8	G 1/8	4	G 1/4

ADJUSTING RAGE

/3	0,2 ÷ 2 bar	/5	0,4 ÷ 4 bar
/7	0,8 ÷ 9 bar	/12	1,5 ÷ 12 bar

P.S.: Reducers can be supplied without the relieving seal on request; the series becomes **UZR**...

SPARE PARTS

Relieving kit adjustment	**UZRR/SG/6**
Non-relieving kit adjustment	**UZR/SG/5**

Air treatment: filter reducer UZRRM /F G 1/8 - G 1/4

series UZ

DESCRIPTION

Filter reducer series "UZRRM /F", produced with connections G 1/8 and G 1/4, combine the characteristics of the filters and of the pressure reducers series "UZ", thus optimising the overall dimensions.

TECHNICAL DATA

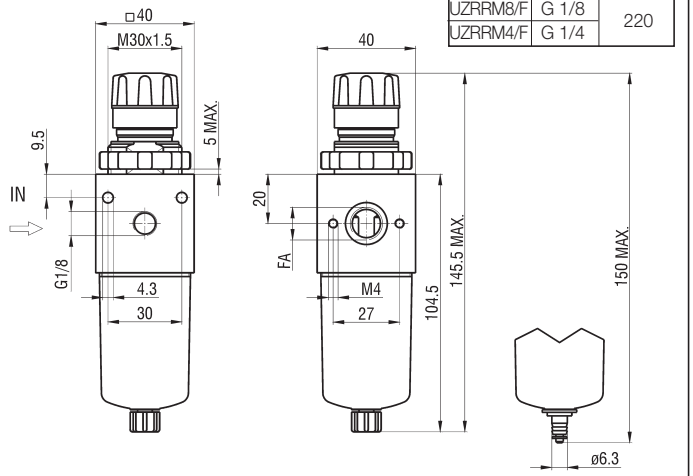
Maximum pressure	16 bar
Working temperature	0 ÷ +50 °C (–10 °C with dry air)
Fluid	Compressed air
Port size	G 1/8 - G 1/4
Pressure gauge port size	G 1/8
Void fraction	20 µm standard, 5 µm and 40 µm on request
Condensate drainage system	Manual or semi-automatic
Max. condensate capacity	9 cm³ (do not exceed the level gauge)
Adjusting range (bar)	0,2 ÷ 2 - 0,4 ÷ 4 - 0,8 ÷ 9 - 1,5 ÷ 12
Type of mounting	Modular, in-line, wall and panel mounting
Wall clamping screws	M4x50

MATERIALS

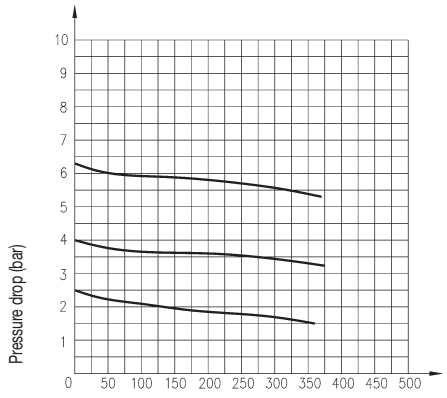
Body	Aluminium alloy
Bowl	Transparent techno-polymer with metallic protection or entirely metallic bowl (without visualization of level) on request
Filtering element	Sintered polyethylene
Seals	NBR rubber
Baffle	Acetal resin
Closing plug	Brass, NBR rubber
Spring	Stainless steel
Knob	Acetal resin
Adjusting screw	Brass
Diaphragm	Brass, NBR rubber

DIMENSIONS AND WEIGHT UZRRM /F

TYPE	FA	WEIGHT (g)
UZRRM8/F	G 1/8	220
UZRRM4/F	G 1/4	



FLOW CHART - UZRRM /F



SPARE PARTS

See series **"UZF"** (on page 4.3) and **"UZRR"** (on page 4.4)

ORDER KEY

UZRRM _ _ _ _ _ _

- Series
- Size
- Adjusting range
- Degree of filtration
- Bowl
- Condensate drainage system

SIZE			
8	G 1/8	4	G 1/4
ADJUSTING RAGE			
/3	0,2 ÷ 2 bar	/5	0,4 ÷ 4 bar
/7	0,8 ÷ 9 bar	/12	1,5 ÷ 12 bar
DEGREE OF FILTRATION			
F5	5 µm	F20	20 µm
F40	40 µm		
BOWL			
	Trasparent	PM	Metallic protection
TM	Metallic		
CONDENSATE DRAINAGE SYSTEM			
	Manual	/SS	Semi-automatic

P.S.: Filters reducers can be supplied without the relieving seal on request; the series becomes **UZRM**...

series UZ

Air treatment: lubricator UZL G 1/8 - G 1/4

DESCRIPTION

Lubricators series "UZL" are produced with connections G 1/8 and G 1/4; the techno-polymer bowls can carry a metallic protection or being entirely metallic (without visualization of level). For a correct lubrication it is advisable to set the drip rate in order to have a drop of oil (WAIRSOL class ISO22) every 300 - 500 Nl/min.

TECHNICAL DATA

Maximum pressure	16 bar
Working temperature	0 ÷ +50 °C (–10 °C with dry air)
Fluid	Filtered compressed air
Port size	G 1/8 - G 1/4
Bowl capacity	20 cm3 (do not exceed the level gauge)
Type of mounting	Modular, in-line and wall-mounting
Wall clamping screws	M4x50
Minimum striking flow rate	20 Nl/min

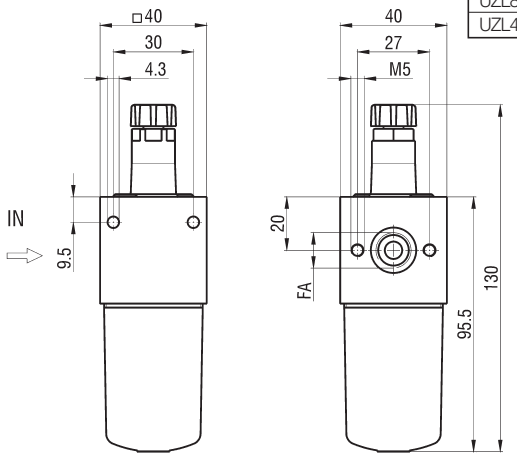
4

MATERIALS

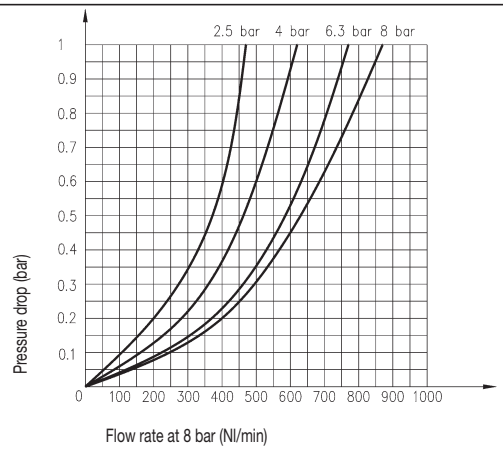
Body	Aluminium alloy
Bowl	Transparent techno-polymer with metallic protection or entirely metallic bowl (without visualization of level) on request
Seals	NBR rubber
Conduits	Acetal resin

DIMENSIONS AND WEIGHT UZL

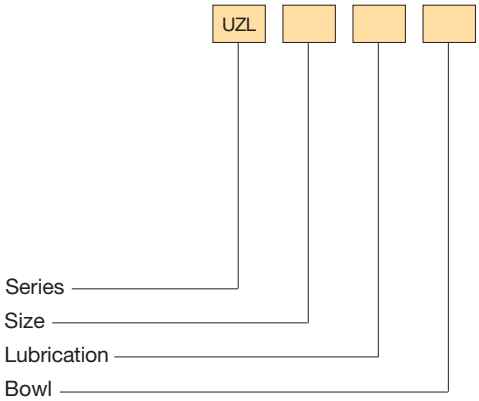
TYPE	FA	WEIGHT (g)
UZL8	G 1/8	175
UZL4	G 1/4	



FLOW CHART - UZL



ORDER KEY



SIZE

8	G 1/8	4	G 1/4

LUBRICATION

	Oil mist	M	Micro-oil mist

BOWL

	Transparent	PM	Metallic protection
TM	Metallic		

SPARE PARTS

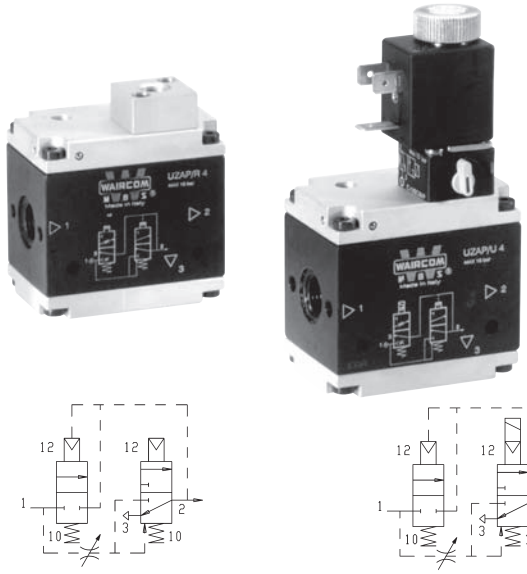
Metallic protection	UZ/PM
Metallic bowl	UZL/TM
Techno-polymer bowl	UZL/SG/3
Clear flow indicator	UZL/SG/4

Air treatment: soft-start valve UZAP G 1/4

series UZ

DESCRIPTION

SOFT-START VALVE: soft-start valves series "UZAP" are produced with connection G 1/4 in the pneumatic and solenoid actuated versions. The working of the soft-start valve consists in feeding gradually air into the circuit with adjustable flow. When the pressure in the circuit reaches the 50 ÷ 60% of the upstream set pressure, the valve switches to full capacity, supplying the circuit with the maximum flow rate.
AUTOMATIC SOFT-START VALVE: this valve, produced with connection G 1/4 in the 2/2 pneumatic version, even if cannot be modular assembled with the F-R-L of series “UZ”*, yet assures the same functionality of the soft-start valve above mentioned, and with the peculiarity of being “automatic”, not needing any kind of external pilot.



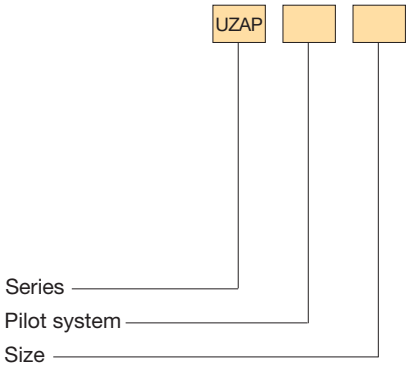
TECHNICAL DATA

Maximum pressure	10 bar
Working temperature	0 ÷ +50 °C (–10 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Port size	G 1/4
Piloting port size	G 1/8
Flow rate at 6 bar ΔP=1 bar	500 Nl/min (750 Nl/min for type UZAP/A4)
Max. flow rate of the adjusting screw ot the filling time	300 Nl/min
Type of mounting	Modular*, in-line and wall-mounting
Wall clamping screws	M4x50
Piloting solenoid valve	C/USCSVP - see chapter Direct acting solenoid valves on page 2.11
Coil	USB - see chapter Coils on page 2.14
Electric connector	USR 102/N9 - see chapter Connectors on page 2.15

MATERIALS

Body	Anodized aluminium alloy
Springs	Stainless steel
Pistons	Anodized aluminium alloy
Seals	NBR rubber

ORDER KEY



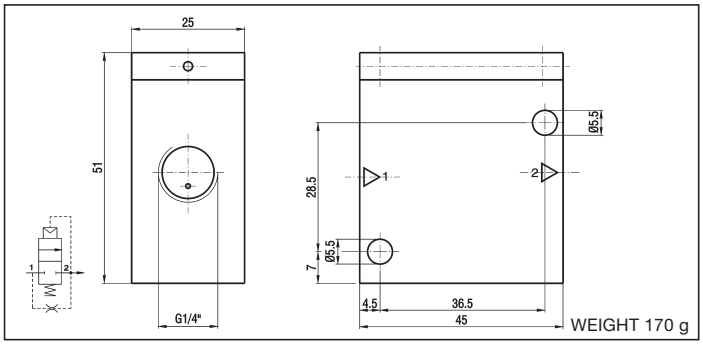
PILOT SYSTEM

/R	Pneumatic	/U	Solenoid
/A	Automatic		

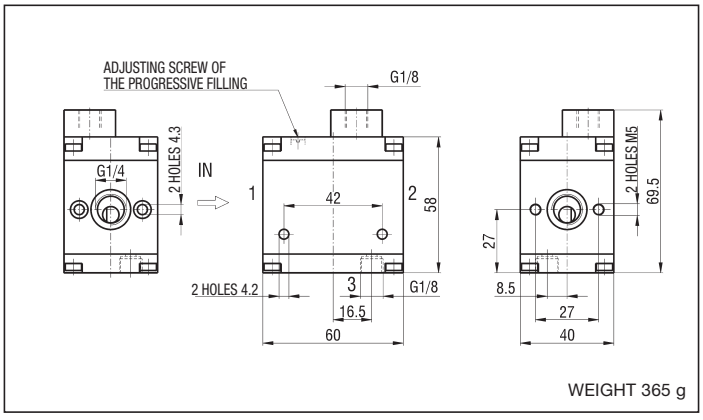
SIZE

4	G 1/4

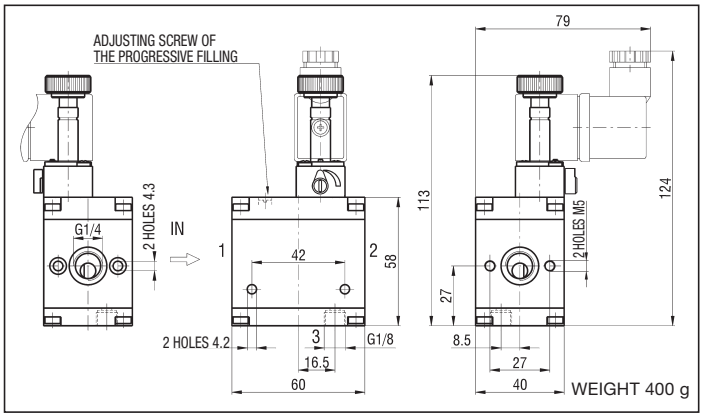
DIMENSIONS AND WEIGHT UZAP/A4



DIMENSIONS AND WEIGHT UZAP/R4



DIMENSIONS AND WEIGHT UZAP/U4

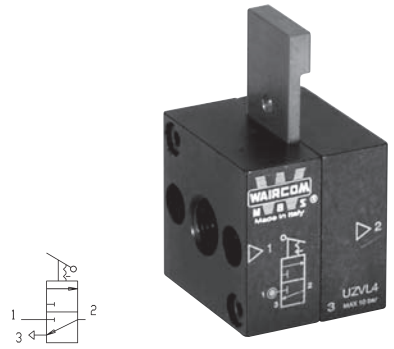


series UZ

Air treatment: shut - off valve UZVL G 1/4 and accessories

DESCRIPTION

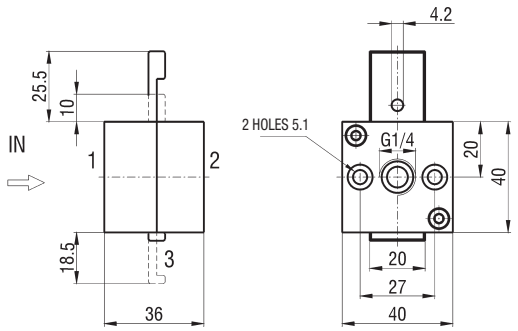
Shut - off valves series "UZVL" are produced with connection G 1/4 and they are fit to be locked in the exhaust position by means of a standard padlock.



TECHNICAL DATA

Maximum pressure	16 bar
Working temperature	0 ÷ +50 °C (–10 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Port size	G 1/4
Flow rate at 6 bar ΔP=1 bar	1300 Nl/min
Type of mounting	Modular and in-line

DIMENSIONS AND WEIGHT UZVL/4



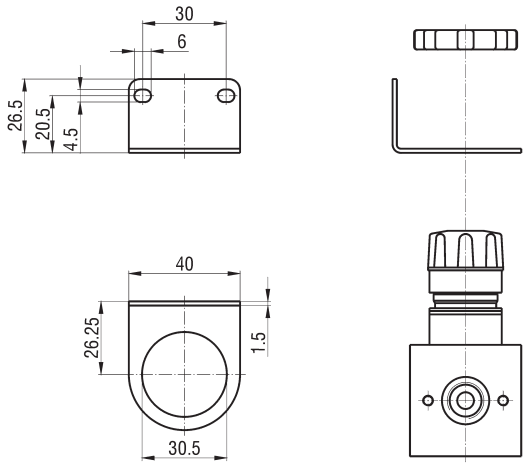
WEIGHT 150 g

MATERIALS

Body	Anodized aluminium alloy
Seals	NBR rubber
Slider	Anodized aluminium alloy

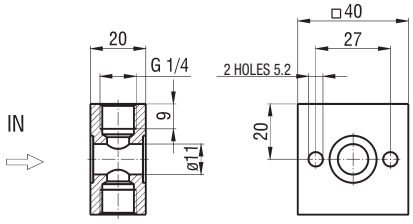
ACCESSORIES

MOUNTING BRACKET UZRHS



WEIGHT 20 g

INTERMEDIATE AIR INTAKE UZPR4 (screws included)



WEIGHT 90 g

ASSEMBLY SCREWS

Assembly screws F+R+L	UZ/SVG
Assembly screws FR+L	UZ/SVG/1
Assembly screws F+L	UZ/SVG/2
Assembly screws FR+L+AP - R+L+AP	UZAP/SVG
Assembly screws FR+AP - R+AP	UZAP/SVG/1
Assembly screws VL+F+R	UZVL/SVG
Assembly screws VL+FR - VL+R	UZVL/SVG/1

WALL CLAMPING SCREWS

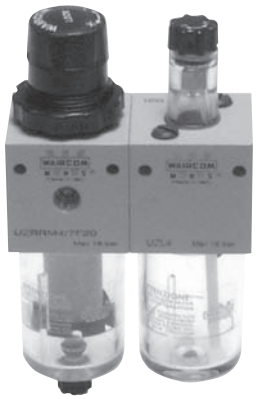
Clamping screws F-FR-R-L-AP	UZ/SVG/P

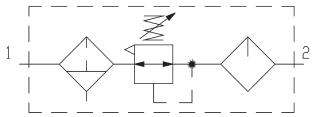
Air treatment: filter reducer + lubricator G 1/8 - G 1/4

series UZ

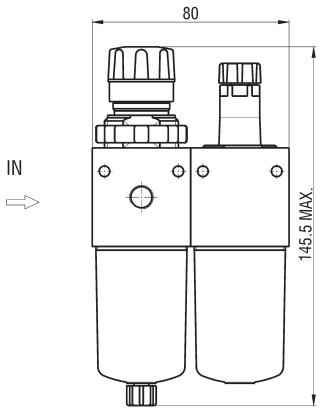
TECHNICAL DATA

Maximum pressure	16 bar
Working temperature	0 ÷ +50 °C (–10 °C with dry air)
Fluid	Compressed air
Port size	G 1/8 - G 1/4
Pressure gauge port size	G 1/8
Flow rate at 6 bar ΔP=1 bar	260 Nl/min
Wall clamping screws	M4x50





DIMENSIONS AND WEIGHT FR+L



WEIGHT 415 g

ORDER KEY

UZRRM [ ] [ ] [ ] [ ] [ ] [ ]

- Series
- Size
- Adjusting range
- Degree of filtration
- Lubrication
- Bowl
- Condensate drainage system

SIZE			
8	G 1/8	4	G 1/4
ADJUSTING RANGE			
/3	0,2 ÷ 2 bar	/5	0,4 ÷ 4 bar
/7	0,8 ÷ 9 bar	/12	1,5 ÷ 12 bar
DEGREE OF FILTRATION			
F5	5 µm	F20	20 µm
F40	40 µm		
LUBRICATION			
L	Oil mist (standard)	LM	Micro-oil mist
BOWL			
	Transparent	/PM	Metallic protection
/TM	Metallic		
CONDENSATE DRAINAGE SYSTEM			
	Manual	/SS	Semi-automatic

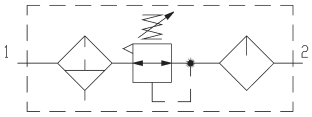
P.S.: Filters reducers + lubricators can be supplied without the relieving seal on request; the series becomes **UZRM**...

series UZ

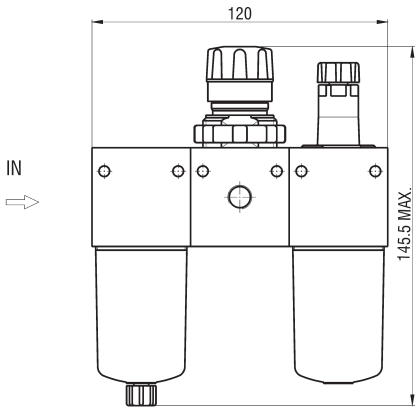
Air treatment: filter + reducer + lubricator G 1/8 - G 1/4

TECHNICAL DATA

Maximum pressure	16 bar
Working temperature	0 ÷ +50 °C (–10 °C with dry air)
Fluid	Compressed air
Port size	G 1/8 - G 1/4
Pressure gauge port size	G 1/8
Flow rate at 6 bar ΔP=1 bar	220 Nl/min
Wall clamping screws	M4x50



DIMENSIONS AND WEIGHT F+R+L



WEIGHT 610 g

ORDER KEY

UZF [ ] [ ] [ ] [ ] [ ] [ ] [ ]

- Series
- Size
- Adjusting range
- Degree of filtration
- Lubrication
- Bowl
- Condensate drainage system

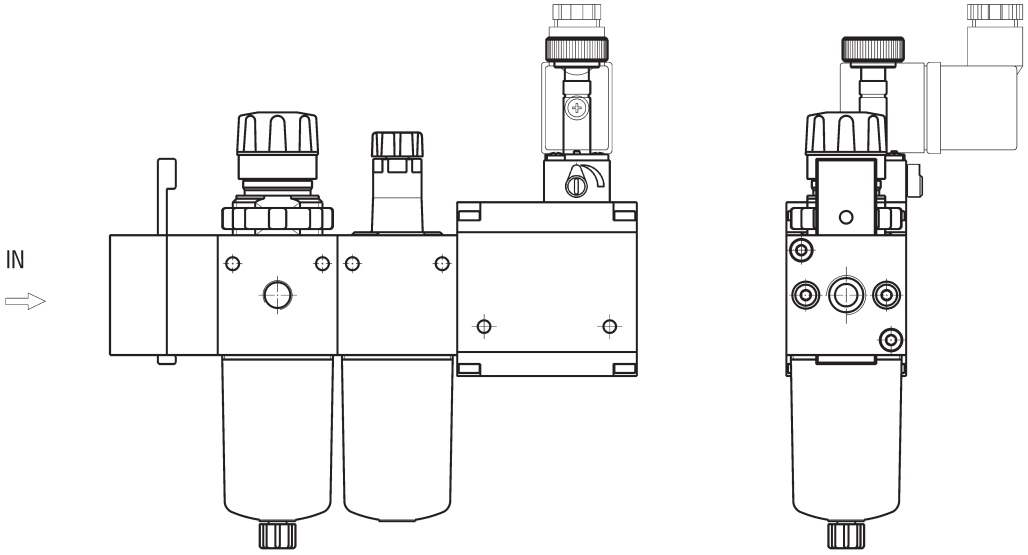
SIZE			
8	G 1/8	4	G 1/4
DEGREE OF FILTRATION			
/5	5 µm	/20	20 µm
/40	40 µm		
ADJUSTING RANGE			
RR3	0,2 ÷ 2 bar	RR5	0,4 ÷ 4 bar
RR7	0,8 ÷ 9 bar	RR12	1,5 ÷ 12 bar
LUBRICATION			
L	Oil mist (standard)	LM	Micro-oil mist
BOWL			
	Trasparente	/PM	Metallic protection
/TM	Metallica		
CONDENSATE DRAINAGE SYSTEM			
	Manual	/SS	Semi-automatic

P.S.: Filters + reducers + lubricators can be supplied without the relieving seal on request; the adjusting range becomes “R” (rather than “RR”)

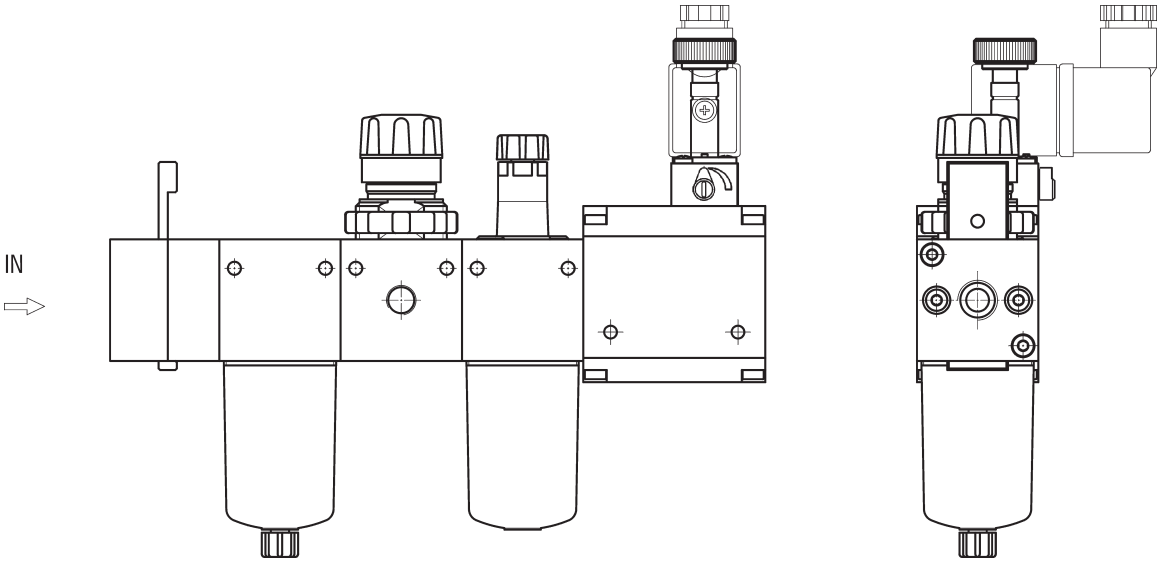
Air treatment: example of assembly

series UZ

SHUT-OFF VALVE + FILTER REDUCER + LUBRICATOR + SOFT-START VALVE



SHUT-OFF VALVE + FILTER + REDUCER + LUBRICATOR + SOFT-START VALVE



4

series EZ

Air treatment: filter EZF G 3/8 - G 1/2 - G 1

DESCRIPTION

Filters series "EZF" are produced with connections G 3/8, G 1/2 and G 1; they are available with various degrees of filtration and with manual, semi-automatic or automatic condensate drainage system (except the size G 3/8). The techno-polymer bowls have a metallic protection as standard for the sizes G 1/2 and G 1, and made of glass stiffened polyamide on request for the size G 3/8.

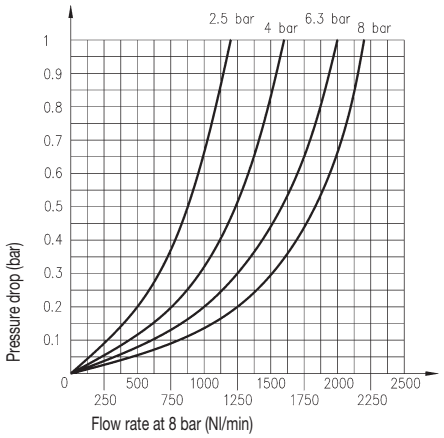
TECHNICAL DATA

Maximum pressure	16 bar
Working temperature	0 ÷ +50 °C (–10 °C with dry air)
Fluid	Compressed air
Port size	G 3/8 - G 1/2 - G 1
Void fraction	G 3/8 - G 1/2: 20 µm standard; 5 µm or 40 µm on request G 1: 40 µm standard
Condensate drainage system	G 3/8: Manual or semi-automatic G 1/2 - G 1: Manual, semi-automatic or automatic
Max. condensate capacity	G 3/8 = 23 cm^3 G 1/2 = 58 cm^3 G 1 = 105 cm^3 (do not exceed the level gauge)
Type of mounting	Modular, in-line and wall-mounting
Wall clamping screws	G 3/8: M4x60 G 1/2: M5x70 G 1: M6x90

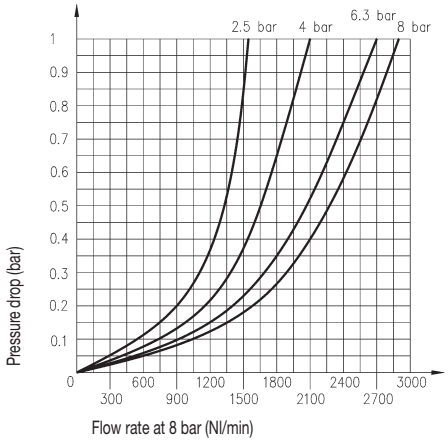
MATERIALS

Body	Aluminium alloy
Bowl	G 3/8: Transparent techno-polymer (protection made of glass stiffened polyamide on request) G 1/2 - G 1: Transparent techno-polymer with metallic protection as standard
Filtering element	G 3/8 - G 1/2: Sintered polyethylene G 1: Sintered porus bronze
Seals	NBR rubber
Baffle	Acetal resin

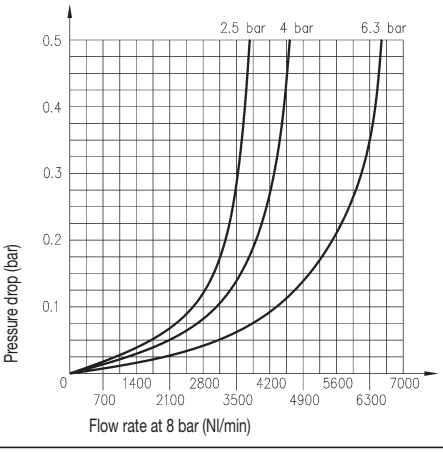
FLOW CHART - EZF G 3/8



FLOW CHART - EZF G 1/2



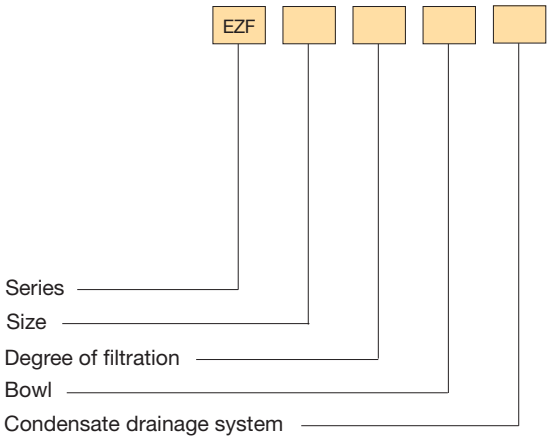
FLOW CHART - EZF G 1



EZF G 3/8 - G 1/2 - G 1

series EZ

ORDER KEY



SIZE			
3	G 3/8	2	G 1/2
1	G 1		
DEGREE OF FILTRATION			
/5	5 µm*	/20	20 µm
/40	40 µm		
BOWL			
	Transparent	PM	Protection**
CONDENSATE DRAINAGE SYSTEM			
/SM	Manual	/SS	Semi-automatic
/SA	Automatic***		

* Available only for sizes 3 and 2
** Metallic as standard for sizes 2 and 1, made of glass stiffened polyamide on request for size 3
*** Available only for sizes 2 and 1

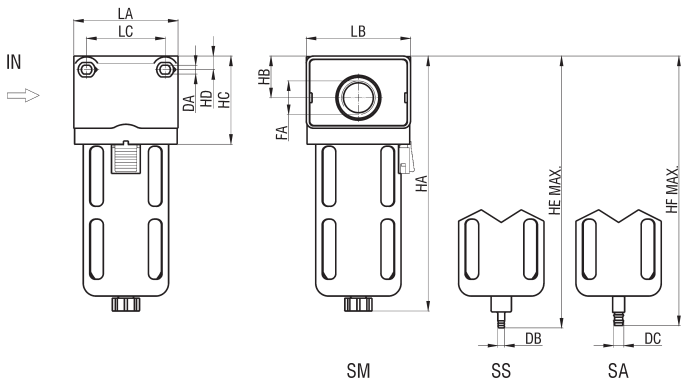
4

SPARE PARTS

DESCRIPTION	SIZE		
	3	2	1
Bowl protection	EZ3/PM	-	EZ1/PM
Techno-polymer bowl with manual drainage system*	EZT/F3/SM	EZT/F2/PM/SM	EZT/F1/SM
Techno-polymer bowl with semi-automatic drainage system*	EZT/F3/SS	EZT/F2/PM/SS	EZT/F1/SS
Techno-polymer bowl with automatic drainage system*	-	EZT/F2/PM/SA	EZT/F1/SA
Filter cartridge 5 µm	EZ3/5	EZ2/5	-
Filter cartridge 20 µm	EZ3/20	EZ2/20	EZ1/20
Filter cartridge 40 µm	EZ3/40	EZ2/40	EZ1/40

* The bowls size 2 are supplied with metallic protection as standard

DIMENSIONS AND WEIGHTS EZF



CONDENSATE DRAINAGE SYSTEM: MANUAL - SEMI-AUTOMATIC - AUTOMATIC

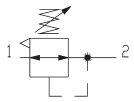
SIZE	DA	DB	DC	FA	HA	HB	HC	HD	HE	HF	LA	LB	LC	WEIGHT (g)
3	4,5	G 1/8	-	G 3/8	142	21	52	6	146	-	55	50	40	390
2	5,5	Ø 4,3	Ø 6,5	G 1/2	159	26	55	8,5	170	168	65	65	49	415
1	6,6	G 1/8	Ø 6,5	G 1	218	31	76	9	222	213	85	82	60	1815

series EZ

Air treatment: pressure reducer EZRR G 3/8 - G 1/2 - G 1

DESCRIPTION

Pressure reducers series "EZRR" are produced with connections G 3/8, G 1/2 and G 1; they are available with different scales of regulation and can be supplied without the relieving seal on request.



TECHNICAL DATA

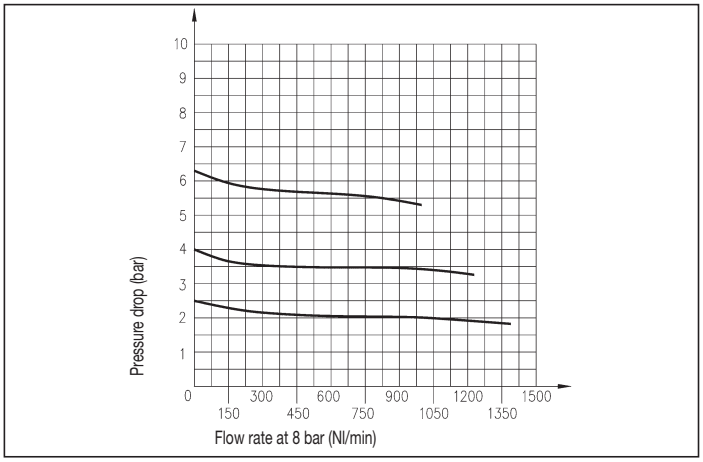
Maximum pressure	16 bar
Working temperature	0 ÷ +50 °C (–10 °C with dry air)
Fluid	Filtered, lubricated and unlubricated compressed air
Port size	G 3/8 - G 1/2 - G1
Pressure gauge port size	G 1/8
Adjusting range (bar)	0,2 ÷ 2 - 0,4 ÷ 4 - 0,8 ÷ 8
Type of mounting	Modular, in-line, wall and panel mounting
Wall clamping screws	G 3/8: M4x60 G 1/2: M5x70 G 1: M6x90

MATERIALS

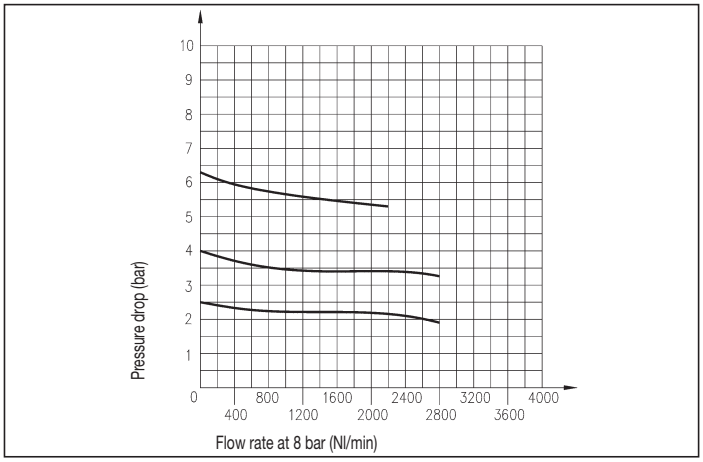
Body	Aluminium alloy
Closing plug	Brass, NBR rubber
Spring	Stainless steel
Knob	Acetal resin
Adjusting screw	Brass
Diaphragm	Brass, friction

4

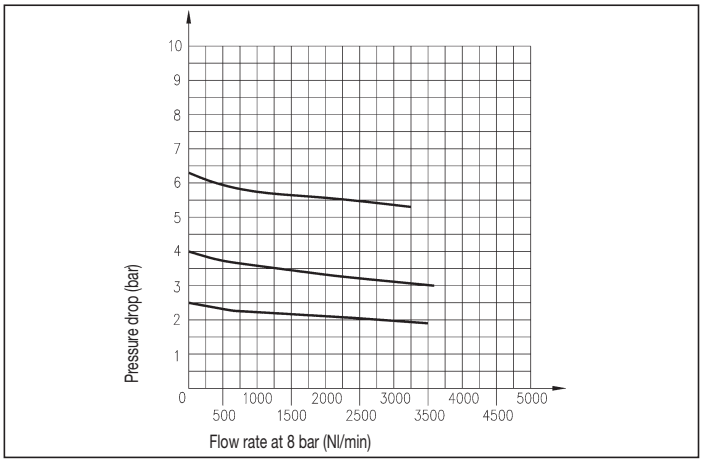
FLOW CHART - EZRR G 3/8



FLOW CHART - EZRR G 1/2



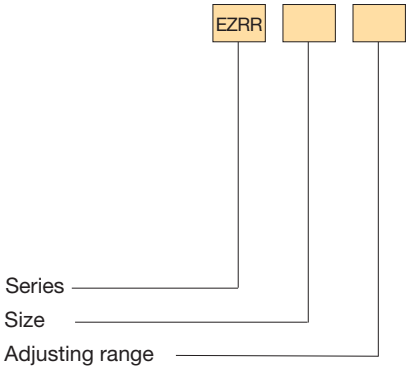
FLOW CHART - EZRR G 1



EZRR G 3/8 - G 1/2 - G 1

series EZ

ORDER KEY



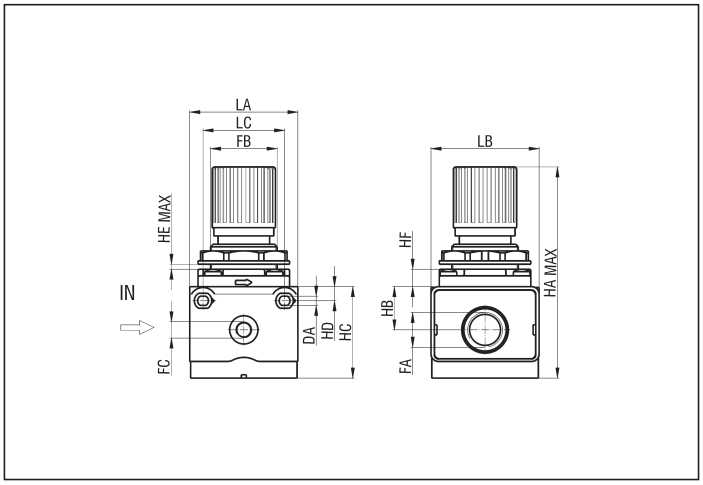
SIZE			
3	G 3/8	2	G 1/2
1	G 1		
ADJUSTING RANGE			
/3	0,2 ÷ 2 bar	/5	0,4 ÷ 4 bar
/7	0,8 ÷ 8 bar		

P.S.: Reducers can be supplied without the relieving seal on request; the series becomes **"EZR..."**

SPARE PARTS

Relieving kit adjustment size 3	EZRR3/SG/6
Relieving kit adjustment size 2	EZRR2/SG/6
Relieving kit adjustment size 1	EZRR1/SG/6

DIMENSIONS AND WEIGHTS EZRR



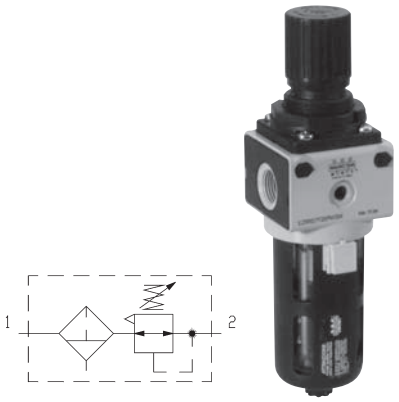
SIZE	DA	FA	FB	FC	HA	HB	HC	HD	HE	HF	LA	LB	LC	WEIGHT *(g)*
3	4,5	G 3/8	M30x1,5	G 1/8	99	21	48	6	4	6	55	50	40	450
2	5,5	G 1/2	M40x1,5	G 1/8	127	26	55	8,5	7	10,5	65	65	49	465
1	6,6	G 1	-	G 1/8	194,5	31	76	9	-	14	85	82	60	2385

series EZ

Air treatment: filter reducer EZRR /F G 3/8 - G 1/2 - G 1

DESCRIPTION

Filters reducers series "EZRR/F", produced with connections G 3/8, G 1/2 and G 1, combine the characteristics of the filters and of the pressure reducers series "EZ", thus optimizing the overall dimensions.



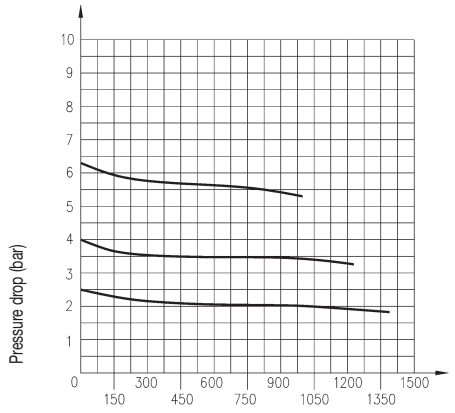
TECHNICAL DATA

Maximum pressure	16 bar
Working temperature	0 ÷ +50 °C (–10 °C with dry air)
Fluid	Compressed air
Port size	G 3/8 - G 1/2 - G 1
Pressure gauge port size	G 1/8
Void fraction	G 3/8 - G 1/2: 20 µm standard, 5 µm and 40 µm on request G 1: 40 µm standard
Condensate drainage system	G 3/8: Manual or semi-automatic G 1/2 - G 1: Manual, semi-automatic or automatic
Max. condensate capacity	G 3/8 = 23 cm^3 G 1/2 = 58 cm^3 G 1 = 105 cm^3 (do not exceed the level gauge)
Adjusting range (bar)	0,2 ÷ 2 - 0,4 ÷ 4 - 0,8 ÷ 8
Type of mounting	Modular, in-line, wall and panel mounting
Wall clamping screws	G 3/8: M4x60 G 1/2: M5x70 G 1: M6x90

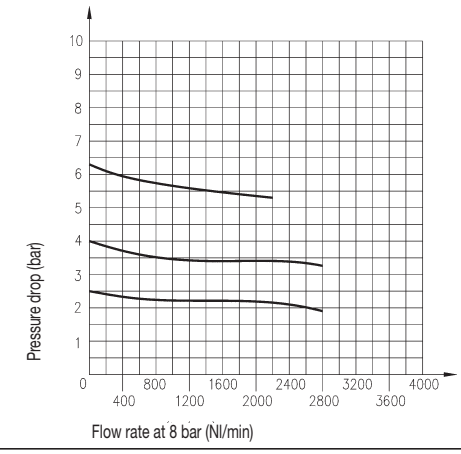
MATERIALS

Body	Aluminium alloy
Bowl	G 3/8: Transparent techno-polymer (protection made of glass stiffened polyamide on request) G 1/2 - G 1: Transparent techno-polymer with metallic protection as standard
Filtering element	G 3/8 - G 1/2: Sintered polyethylene G 1: Sintered porus bronze
Seals	NBR rubber
Baffle	Acetal resin
Closing plug	Brass, NBR rubber
Spring	Stainless steel
Knob	Acetal resin
Adjusting screw	Brass
Diaphragm	Brass, friction

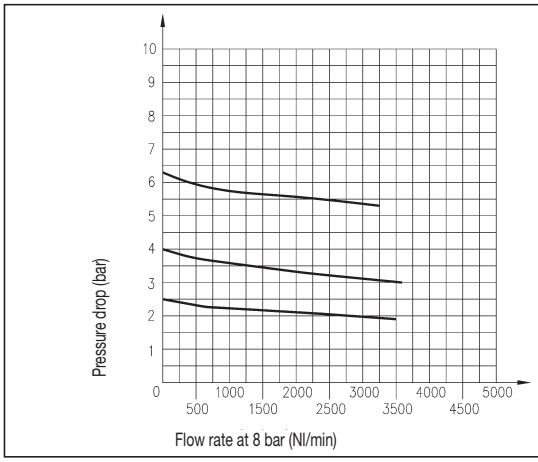
FLOW CHART - EZRR /F G 3/8



FLOW CHART - EZRR /F G 1/2



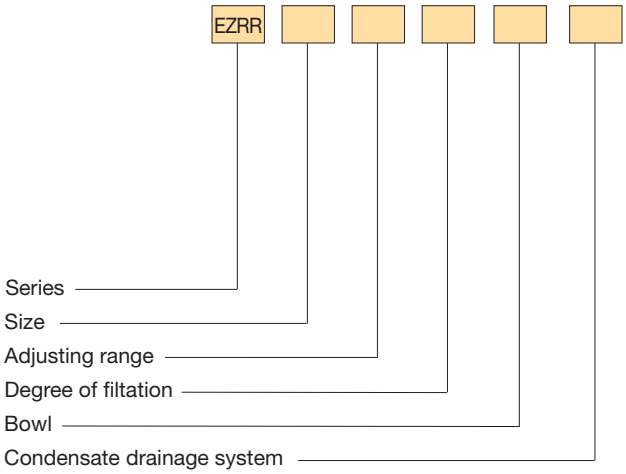
FLOW CHART - EZRR /F G 1



EZRR G 3/8 - G 1/2 - G 1

series EZ

ORDER KEY



SIZE			
3	G 3/8	2	G 1/2
1	G 1		
ADJUSTING RANGE			
/3	0,2 ÷ 2 bar	/5	0,4 ÷ 4 bar
/7	0,8 ÷ 8 bar		
DEGREE OF FILTRATION			
F5	5 µm*	F20	20 µm
F40	40 µm		
BOWL			
	Trasparent	PM	Protection**
CONDENSATE DRAINAGE SYSTEM			
/SM	Manuale	/SS	Semi-automatic
/SA	Automatic***		

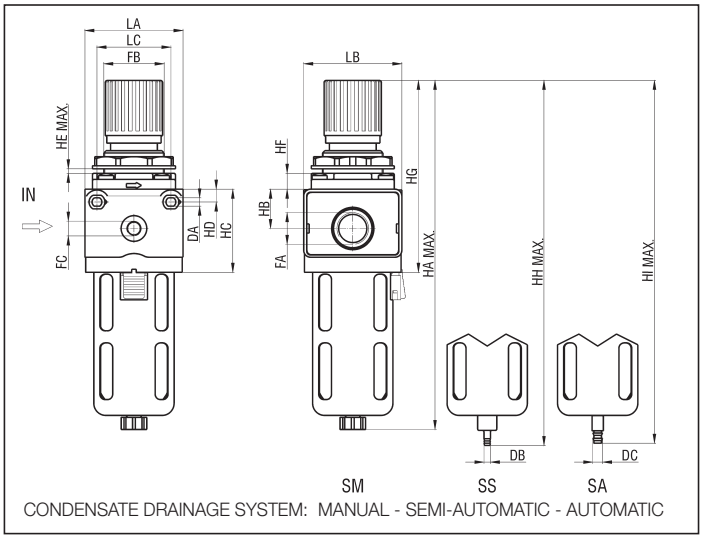
4

* Available only for sizes 3 and 2
** Metallic as standard for sizes 2 and 1, made of glass stiffened polyamide on request for size 3
*** Available only for sizes 2 and 1
P.S.: Filters reducers can be supplied without the relieving seal on request; the series becomes **"EZR..."**

SPARE PARTS

See series **"EZF"** (on page 4.13) and **"EZRR"** (on page 4.15)

DIMENSIONS AND WEIGHTS EZRR /F



CONDENSATE DRAINAGE SYSTEM: MANUAL - SEMI-AUTOMATIC - AUTOMATIC

SIZE	DA	DB	DC	FA	FB	FC	HA	HB	HC	HD
3	4,5	G 1/8	-	G 3/8	M30x1,5	G 1/8	193	21	52	6
2	5,5	Ø 4,3	Ø 6,5	G 1/2	M40x1,5	G 1/8	231	26	55	8,5
1	6,6	G 1/8	Ø 6,5	G 1	-	G 1/8	337	31	76	9

SIZE	HE	HF	HG	HH	HI	LA	LB	LC	WEIGHT *(g)*
3	4	6	99	197	-	55	50	40	550
2	7	10,5	127	242	240	65	65	42	610
1	-	14	194,5	341	332	85	82	60	2790

series EZ

Air treatment: lubricator EZL G 3/8 - G 1/2 - G 1

DESCRIPTION

Lubricators series "EZL" are produced with connections G 3/8, G 1/2 and G 1; the techno-polymer bowls have a metallic protection as standard for the sizes G 1/2 and G 1, and made of glass stiffened polyamide on request for the size G 3/8.
For a correct lubrication it is advisable to set the drip rate in order to have a drop (WAIRSOL class ISO22) every 300 - 500 Nl/min. (oil mist lubrication).

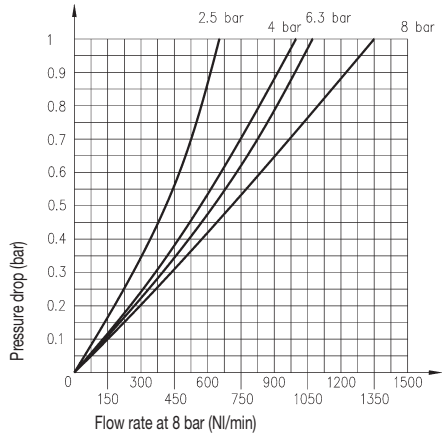
TECHNICAL DATA

Maximum pressure	16 bar
Working temperature	0 ÷ +50 °C (–10 °C with dry air)
Fluid	Filtered compressed air
Port size	G 3/8 - G 1/2 - G 1
Bowl capacity	G 3/8 = 32 cm³ G 1/2 = 76 cm³ G 1 = 160 cm³ (do not exceed the level gauge)
Type of mounting	Modular, in-line and wall-mounting
Wall clamping screws	G 3/8: M4x60 G 1/2: M5x70 G 1: M6x90
Minimum striking flow rate	G 3/8 = 25 Nl/min G 1/2 = 25 Nl/min G 1 = 50 Nl/min

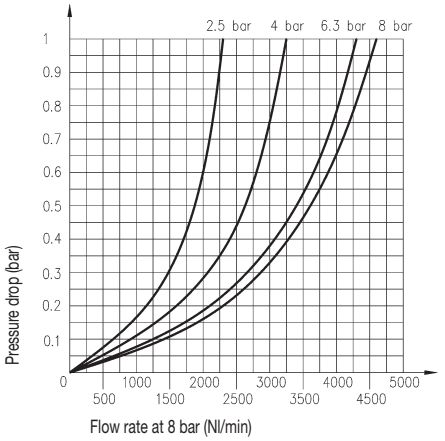
MATERIALS

Body	Aluminium alloy
Bowl	G 3/8: Transparent techno-polymer (protection made of glass stiffened polyamide on request) G 1/2 - G 1: Transparent techno-polymer with metallic protection as standard
Seals	NBR rubber
Conduits	Acetal resin

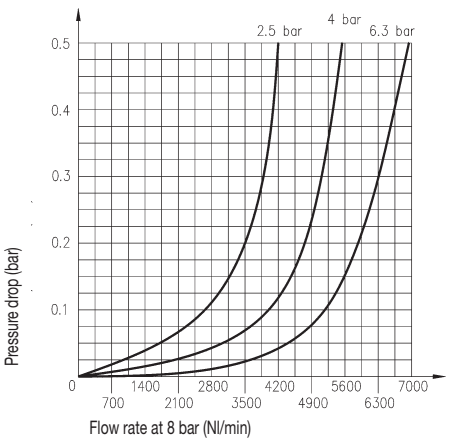
FLOW CHART - EZL G 3/8



FLOW CHART - EZL G 1/2



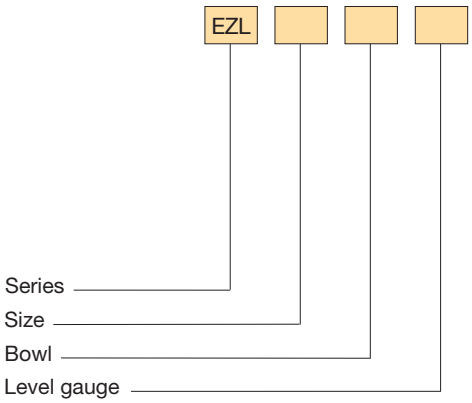
FLOW CHART - EZL G 1



EZL G 3/8 - G 1/2 - G 1

series EZ

ORDER KEY



SIZE

3	G 3/8	2	G 1/2
1	G 1		

BOWL

	Transparent	PM	Protection*

LEVEL GAUGE

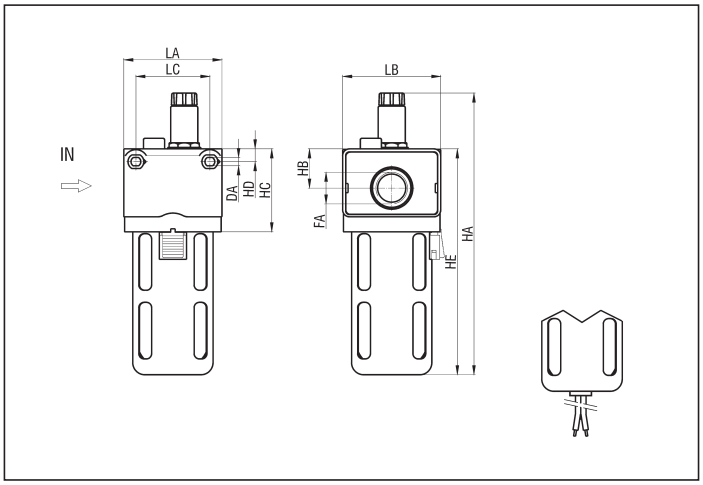
/CA	Open electric contact when oil is present with 2 wires cable 0,5 m length
/CC	Closed electric contact when oil is present with 2 wires cable 0,5 m length

* Metallic as standard for sizes 2 and 1, made of glass stiffened polyamide on request for size 3

P.S.: Level gauge, in both the open and closed electric contact, is fed with a voltage range from 6 V to 50 V

4

DIMENSIONS AND WEIGHTS EZL



SIZE	DA	FA	HA	HB	HC	HD	HE	LA	LB	LC	WEIGHT (g)
3	4,5	G 3/8	157,5	21	52	6	121	55	50	40	370
2	5,5	G 1/2	186,7	26	55	8,5	149,7	65	65	49	400
1	6,6	G 1	243,5	31	76	9	201	85	82	60	1780

SPARE PARTS

Lubricator bowl size 3	EZT/L3
Lubricator bowl size 2*	EZT/L2/PM
Lubricator bowl size 1	EZT/L1
Lubricator bowl for level gauge size 3	EZT/L3/SLC
Lubricator bowl for level gauge size 2*	EZT/L2/PM/SLC
Lubricator bowl for level gauge size 1	EZT/L1/SLC
Protection made of glass stiffened nylon size 3	EZ3/PM
Metallic protection size 1	EZ1/PM
Lubricator clear cover size 3	EZL3/C
Lubricator clear cover size 2	EZL2/C
Lubricator clear cover size 1	EZL1/C
Level gauge with open electric contact size 3	EZT/L3/SLA
Level gauge with open electric contact size 2*	EZT/L2/PM/SLA
Level gauge with open electric contact size 1	EZT/L1/SLA

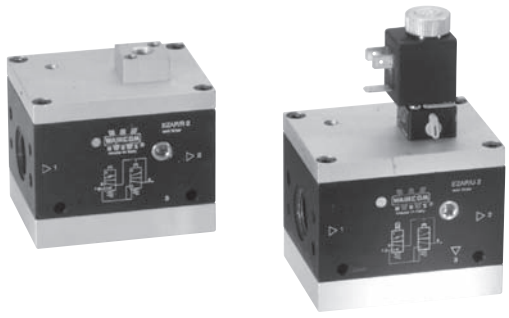
* Bowls size 2 are supplied with the metallic protection as standard

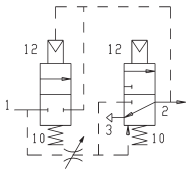
series EZ

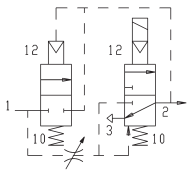
Air treatment: soft-start valve EZAP G 3/8 - G 1/2 - G 1

DESCRIPTION

Soft - start valves series "EZAP" are produced with connections G 3/8, G 1/2 and G 1 in the pneumatic and solenoid actuated versions.
The working of the soft-start valves consists in feeding gradually air into the circuit with adjustable flow. When the pressure in the circuit reaches the 50 ÷ 60% of the upstream set pressure, the valve switches to full capacity, supplying the circuit with the maximum flow rate.







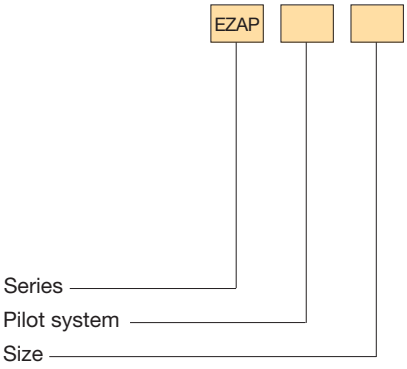
TECHNICAL DATA

Maximum pressure	10 bar
Working temperature	0 ÷ +50 °C (–10°C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Port size	G 3/8 - G 1/2 - G 1
Flow rate at 6 bar ΔP=1 bar	G 3/8 = 1000 Nl/min G 1/2 = 1650 Nl/min G 1 = 4000 Nl/min
Max. flow rate of the adjusting screw of the filling time	G 3/8 = 400 Nl/min G 1/2 = 500 Nl/min G 1 = 500 Nl/min
Type of mounting	Modular, in-line and wall-mounting
Wall clamping screws	G 3/8: M4x60 G 1/2: M5x70 G 1: M6x90
Piloting solenoid valve	C/USCSVP - see chapter Direct acting solenoid valves on page 2.11
Coil	USB - see chapter Coils on page 2.14
Electric connector	USR 102/N9 - see chapter Connectors on page 2.15

MATERIALS

Body	Aluminium alloy
Springs	Stainless steel
Pistons	Aluminium alloy
Seals	NBR rubber

ORDER KEY



PILOT SYSTEM

/R	Pneumatic	/U	Solenoid

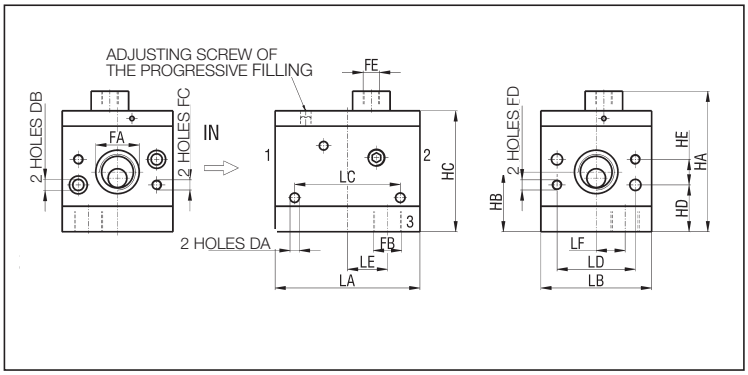
SIZE

3	G 3/8	2	G 1/2
1	G 1		

EZAP G 3/8 - G 1/2 - G 1

series EZ

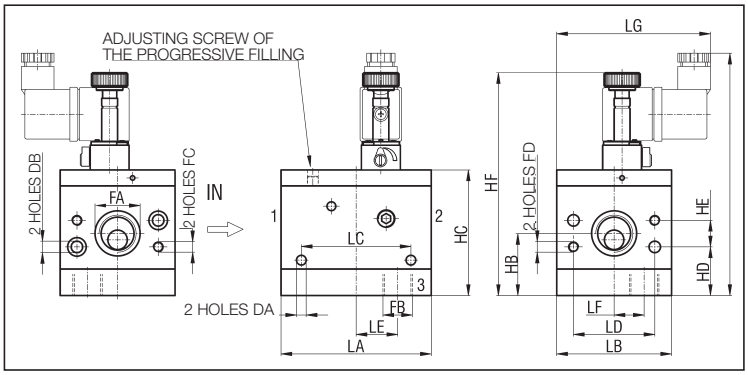
DIMENSIONS AND WEIGHTS EZAP /R



SIZE	DA	DB	FA	FB	FC	FD	FE	HA	HB	HC
3	4,5	5,1	G 3/8	G 1/8	-	M6	G 1/8	68	28,8	56,5
2	5,5	6,5	G 1/2	G 3/8	M6	M6	G 1/8	82,5	35	71

SIZE	HD	HE	LA	LB	LC	LD	LE	LF	WEIGHT (g)
3	28,8	-	70	50	51,5	35	20	12	505
2	27,5	15	85	65	62	46	23,5	17	985

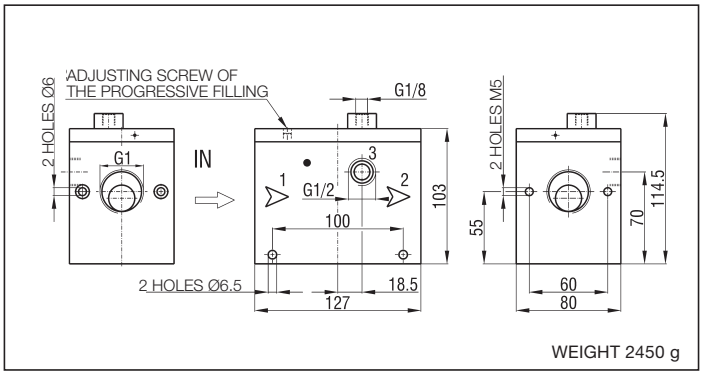
DIMENSIONS AND WEIGHTS EZAP /U



SIZE	DA	DB	FA	FB	FC	FD	HA	HB	HC	HD
3	4,5	5,1	G 3/8	G 1/8	-	M6	122,5	28,8	56,5	28,8
2	5,5	6,5	G 1/2	G 3/8	M6	M6	137	35	71	27,5

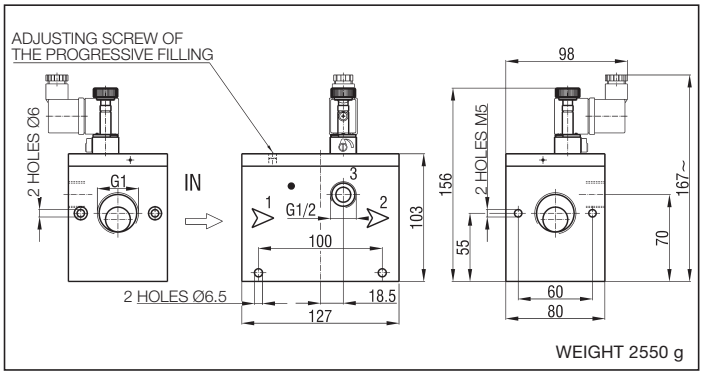
SIZE	HE	HF	LA	LB	LC	LD	LE	LF	LG	WEIGHT (g)
3	-	115,5	70	50	51,5	35	20	12	79,5	540
2	15	126	85	65	62	46	23,5	17	87	1020

DIMENSIONS AND WEIGHTS EZAP /R1



WEIGHT 2450 g

DIMENSIONS AND WEIGHTS EZAP /U1



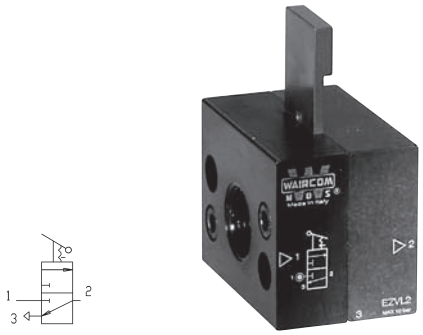
WEIGHT 2550 g

series EZ

Air treatment: shut-off valve EZVL G 3/8 - G 1/2 - G 1 and accessories

DESCRIPTION

Shut-off valves series "EZVL" are produced with connections G 3/8, G 1/2 and G 1 and they are fit to be locked in the exhaust position by means of a standard padlock.



TECHNICAL DATA

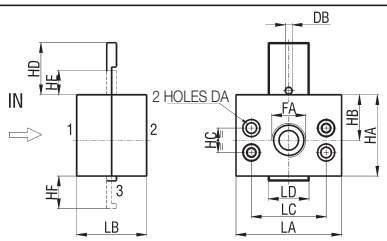
Maximum pressure	16 bar
Working temperature	0 ÷ +50 °C (–10 °C with dry air)
Fluid	Filtered, lubricated and unlubricated compressed air
Port size	G 3/8 - G 1/2 - G 1
Flow rate at 6 bar ΔP=1 bar	G 3/8 = 2400 Nl/min G 1/2 = 3150 Nl/min G 1/2 = 4250 Nl/min
Type of mounting	Modular and in-line

MATERIALS

Body	Anodized aluminium alloy
Seals	NBR rubber
Slider	Anodized aluminium alloy

4

DIMENSIONS AND WEIGHTS EZVL

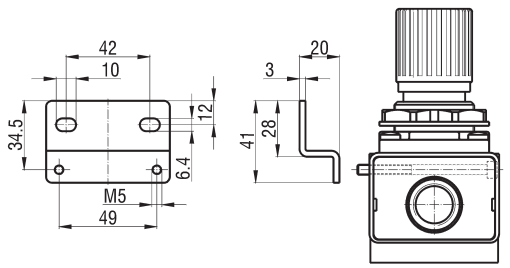


TYPE	DA	DB	FA	HA	HB	HC	HD	HE	HF	LA	LB	LC	LD	WEIGHT (g)
EZVL/3	5,5	4,2	G 3/8	50	25	-	36	15	21	50	39	35	25	260
EZVL/2	6,5	4,2	G 1/2	50	28	15	32	15	20	65	43	46	25	370
EZVL/1	6,1	4,2	G 1	60	30	-	34	15	22	80	60	60	25	700

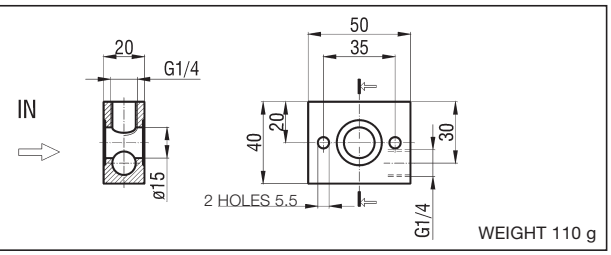
ACCESSORIES

MOUNTING BRACKET G 3/8 - UZRHS (see drawing on page 4.8)

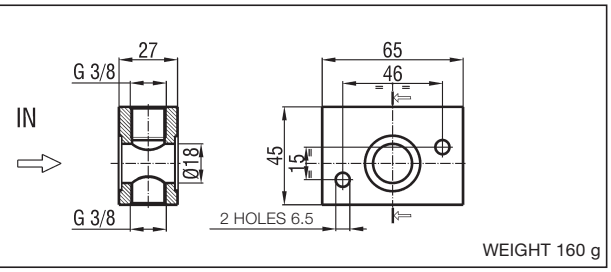
MOUNTING BRACKET G 1/2 - EZS2/3



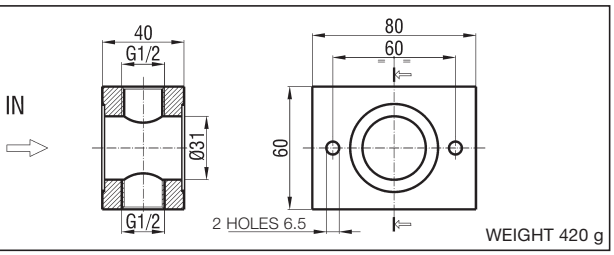
INTERMEDIATE AIR INTAKE G 3/8 - EZPA3/3 (screws included)



INTERMEDIATE AIR INTAKE G 1/2 - EZPA2/3 (screws included)



INTERMEDIATE AIR INTAKE G 1 - EZPA1/3 (screws included)



ASSEMBLY SCREWS

DESCRIPTION	SIZE		
	3	2	1
Assembly screws F+R+L	EZ3/SVG	EZ2/SVG	EZ1/SVG
Assembly screws FR+L	EZ3/SVG/1	EZ2/SVG/1	EZ1/SVG/1
Assembly screws F+L	EZ3/SVG/2		EZ1/SVG/2
Assembly screws FR+L+AP - R+L+AP	EZAP3/SVG	EZAP2/SVG	EZAP1/SVG
Assembly screws FR+AP - R+AP	EZAP3/SVG/1	EZAP2/SVG/1	EZAP1/SVG/1
Assembly screws VL+F+R	EZVL3/SVG	EZVL2/SVG	EZVL1/SVG
Assembly screws VL+FR - VL+R	EZVL3/SVG/1	EZVL2/SVG/1	EZVL1/SVG/1

WALL CLAMPING SCREWS

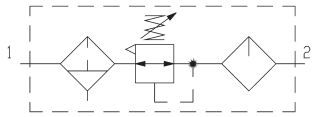
DESCRIPTION	SIZE		
	3	2	1
Clamping screws F-FR-R-L-AP	EZ/SVG/P3	EZ/SVG/P2	EZ/SVG/P1

Air treatment: filter reducer + lubricator G 3/8 - G 1/2 - G 1

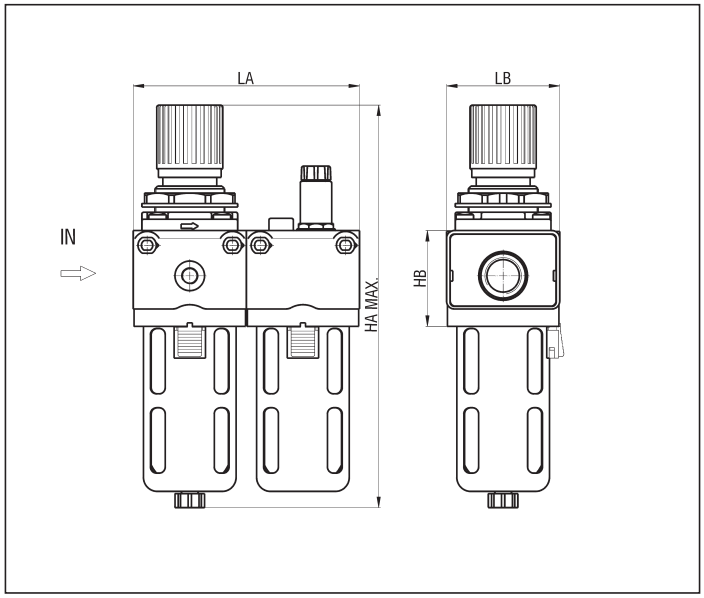
series EZ

TECHNICAL DATA

Maximum pressure	16 bar
Working temperature	0 ÷ +50 °C (–10 °C with dry air)
Fluid	Compressed air
Port size	G 3/8 - G 1/2 - G 1
Pressure gauge port size	G 1/8
Flow rate at 6 bar ΔP = 1 bar	G 3/8 = 680 Nl/min G 1/2 = 1200 Nl/min G 1/2 = 2300 Nl/min
Wall clamping screws	G 3/8: M4x60 G 1/2: M5x70 G 1: M6x90 1



DIMENSIONS AND WEIGHTS FR+L



SIZE	HA	HB	LA	LB	WEIGHT (g)
3	193	52	107	50	940
2	231	55	130	65	1065
1	337	76	167	82	4695

ORDER KEY

EZRR [ ] [ ] [ ] [ ] [ ] [ ]

- Series
- Size
- Adjusting range
- Degree of filtration
- Lubrication
- Bowl
- Condensate drainage system

SIZE			
3	G 3/8	2	G 1/2
1	G 1		
ADJUSTING RANGE			
/3	0,2 ÷ 2 bar	/5	0,4 ÷ 4 bar
/7	0,8 ÷ 8 bar		
DEGREE OF FILTRATION			
F5	5 µm*	F20	20 µm
F40	40 µm		
LUBRICATION			
L	Oil mist (standard)	LCA	Oil mist, N.O. electric contact
LCC	Oil mist, N.C. electric contact		
BOWL			
	Transparent	/PM	Protection**
CONDENSATE DRAINAGE SYSTEM			
/SM	Manual	/SS	Semi-automatic
/SA	Automatic***		

* Available only for sizes 3 and 2
** Metallic as standard for sizes 2 and 1, made of glass stiffened polyamide on request for size 3
*** Available only for sizes 2 and 1
P.S.: Filters reducers + lubricators can be supplied without the relieving seal on request; the series becomes **"EZR..."**

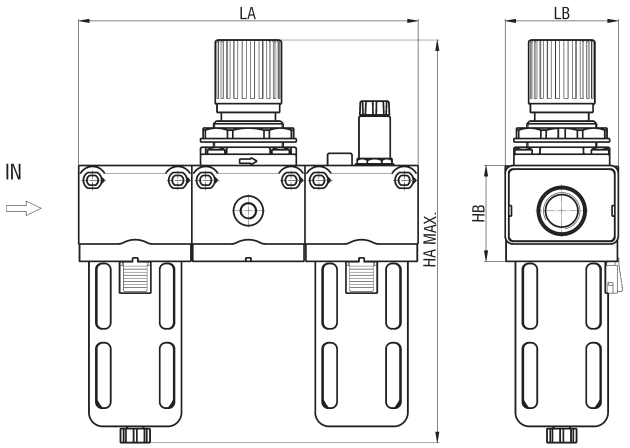
series EZ

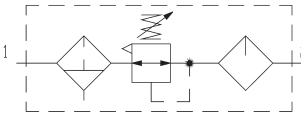
Air treatment: filter + reducer + lubricator G 3/8 - G 1/2 - G 1

TECHNICAL DATA

Maximum pressure	16 bar
Working temperature	0 ÷ +50 °C (–10 °C with dry air)
Fluid	Compressed air
Port size	G 3/8 - G 1/2 - G 1
Pressure gauge port size	G 1/8
Flow rate at 6 bar ΔP = 1 bar	G 3/8 = 680 Nl/min G 1/2 = 1200 Nl/min G 1 = 2300 Nl/min
Wall clamping screws	G 3/8: M4x60 G 1/2: M5x70 G 1: M6x90

DIMENSIONS AND WEIGHTS F+R+L





SIZE	HA	HB	LA	LB	WEIGHT (g)
3	193	52	159	50	1260
2	231	55	195	65	1345
1	337	76	249	82	6080

ORDER KEY

EZF [ ] [ ] [ ] [ ] [ ] [ ]

- Series
- Size
- Degree of filtration
- Adjusting range
- Lubrication
- Bowl
- Condensate drainage system

SIZE

3	G 3/8	2	G 1/2
1	G 1		

DEGREE OF FILTRATION

/5	5 µm*	/20	20 µm
/40	40 µm		

ADJUSTING RANGE

RR3	0,2 ÷ 2 bar	RR5	0,4 ÷ 4 bar
RR7	0,8 ÷ 8 bar		

LUBRICATION

L	Oil mist (standard)	LCA	Oil mist, N.O. electric contact
LCC	Oil mist, N.C. electric contact		

BOWL

	Transparent	/PM	Protection**

CONDENSATE DRAINAGE SYSTEM

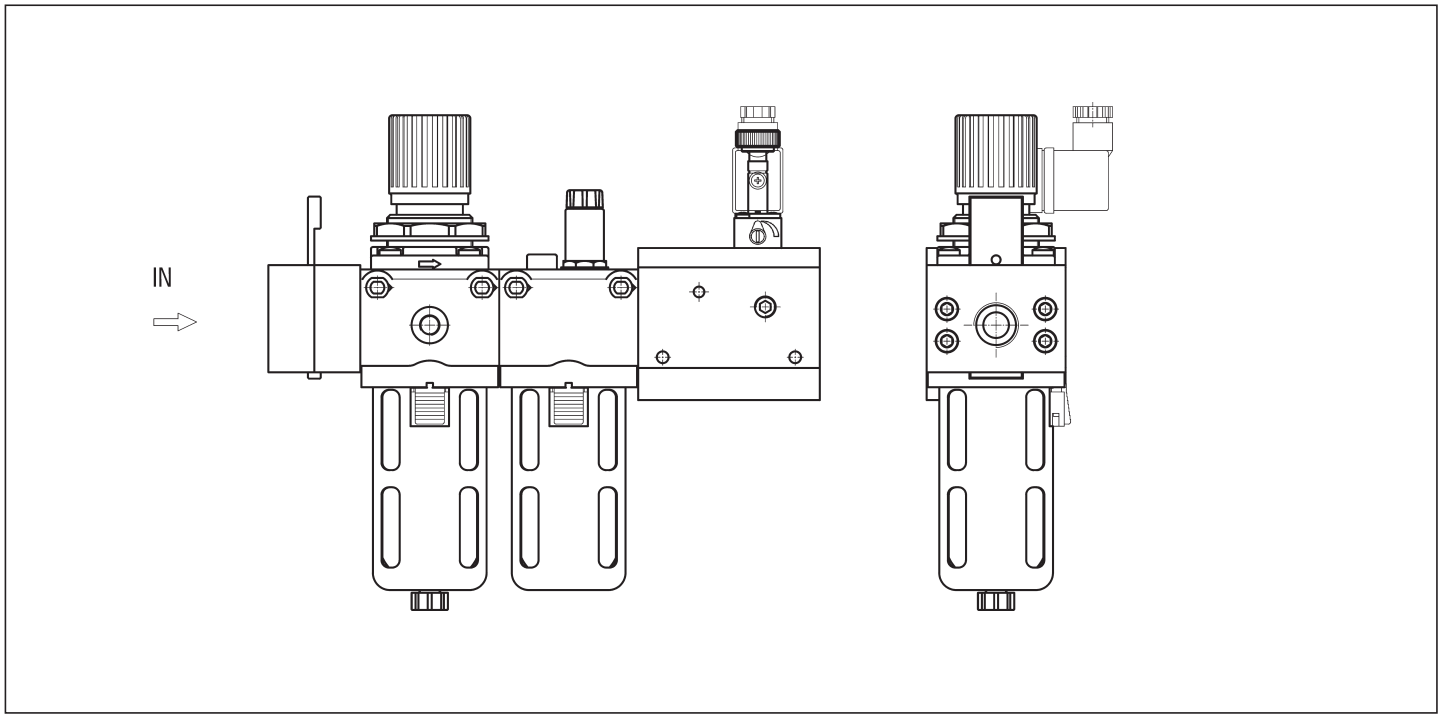
/SM	Manual	/SS	Semi-automatic
/SA	Automatic***		

* Available only for sizes 3 and 2
** Metallic as standard for sizes 2 and 1, made of glass stiffened polyamide on request for size 3
*** Available only for sizes 2 and 1
P.S.: Filters + reducers + lubricators can be supplied without the relieving seal on request; the adjusting range becomes “R” (rather than “RR”)

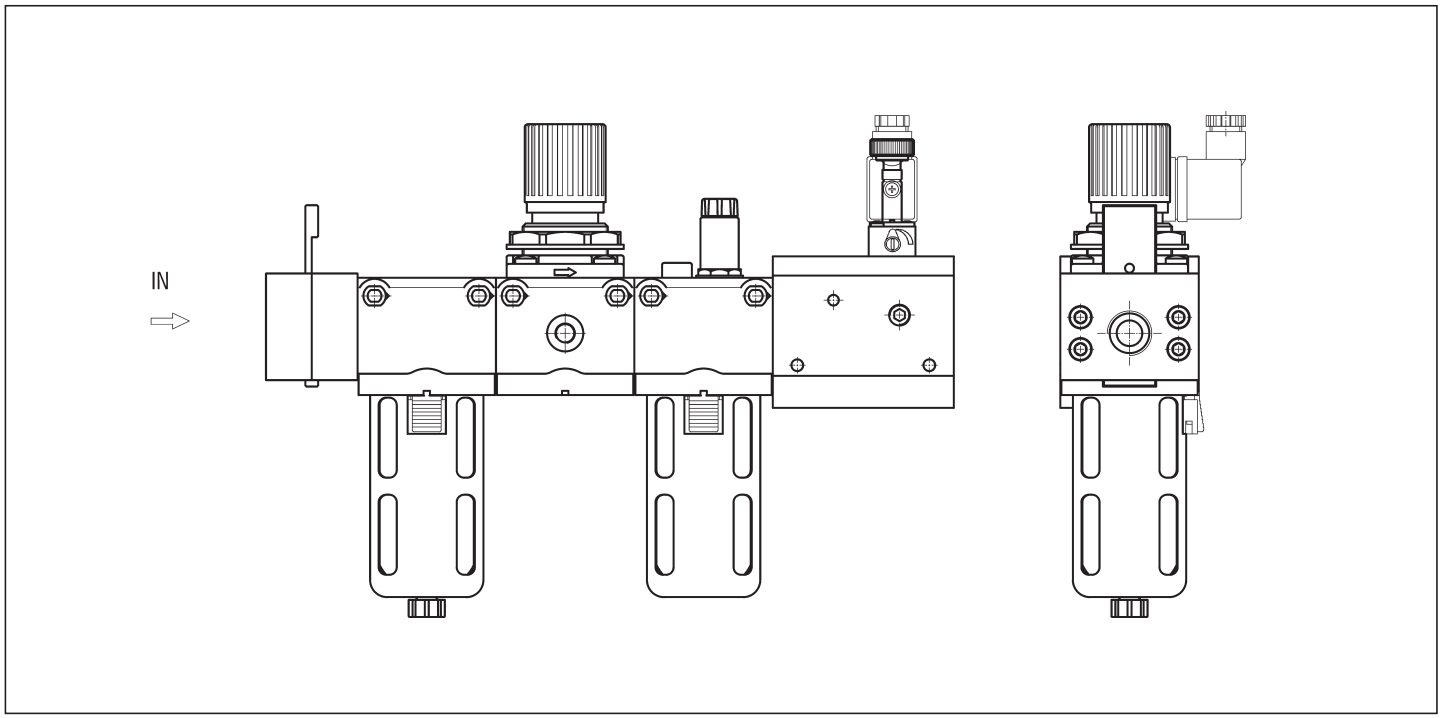
Air treatment: example of assembly

series EZ

SHUT-OFF VALVE + FILTER REDUCER + LUBRICATOR + SOFT-START VALVE



SHUT-OFF VALVE + FILTER + REDUCER + LUBRICATOR + SOFT-START VALVE



series MA

Air treatment accessories: pressure gauges Ø 40 - 50 - 63 - 100

DESCRIPTION

Pressure gauges allow sensing the pressure in the pneumatic circuits. They are suitable to be applied directly on the pressure regulator or for panel mounting and they are avalailable in the versions: axial (MA), radial (MR), with flange (MF) and with bracket (MP), in the bore 40 - 50 - 63 - 100.

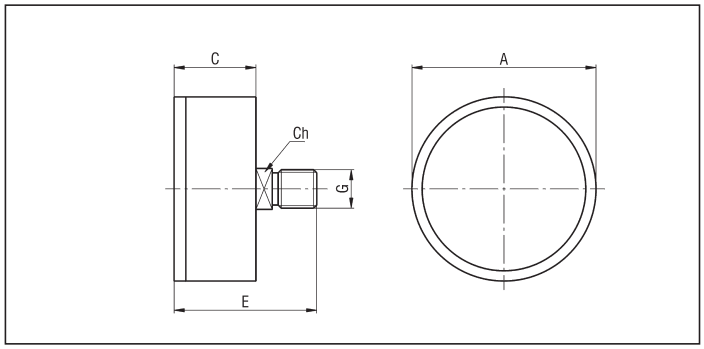
TECHNICAL DATA

Operating pressure	0 ÷ 1 bar - 0 ÷ 4 bar - 0 ÷ 6 bar - 0 ÷ 12 bar
Working temperature	0 ÷ +70 °C (-20 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Accuracy	Cl. 1.6 (DIN 16005 EN 837-1)
Dial	Ø 40 - 50 - 63 - 100
Port size	G 1/8 - G 1/4
Fixing	Type MA - Direct axial mounting Type MR - Direct radial mounting Type MF - Panel mounting with flange Type MP - Panel mounting with bracket

MATERIALS

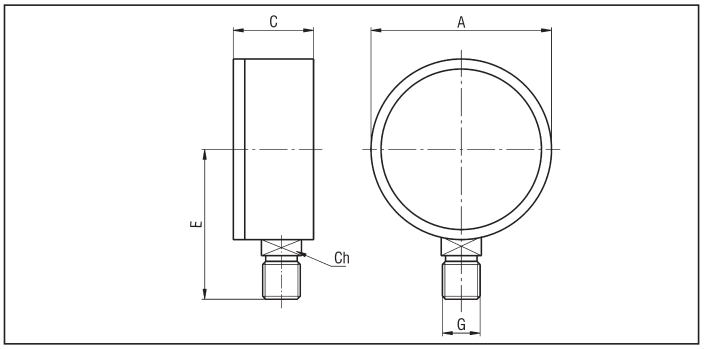
Case	Type MA - Black ABS Type MR - Black ABS Type MF - Black painted steel Type MP - Galvanized steel
Gauge crystal	Kostil
Port	Brass
Spring	Copper
Movement	Brass
Dial	White ABS

AXIAL GAUGES TYPE MA



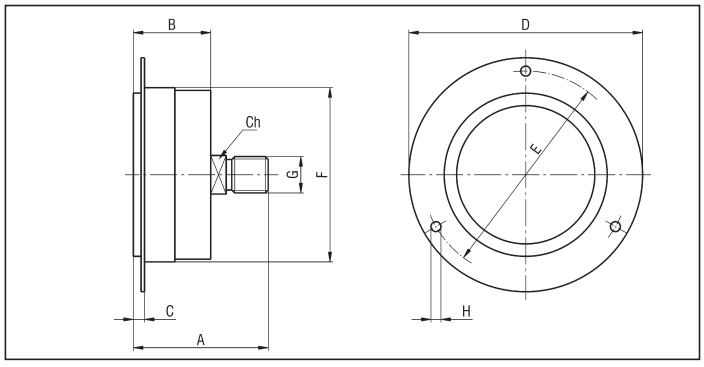
G	A	C	Ch	E	TYPE				WEIGHT
					0 ÷ 1 bar	0 ÷ 4 bar	0 ÷ 6 bar	0 ÷ 12 bar	(g)
G 1/8	40	24	12	40	MA 4/1	MA 4/4	MA 4/6	MA 4/12	48
G 1/8	52	28	14	52	MA 5/1	MA 5/4	MA 5/6	MA 5/12	75
G 1/4	63	29,5	14	54	MA 6/1	MA 6/4	MA 6/6	MA 6/12	90
G 3/8	100	36	17	65	-	-	-	MA 10/12	230

RADIAL GAUGES TYPE MR



G	A	C	Ch	E	TYPE				WEIGHT
					0 ÷ 1 bar	0 ÷ 4 bar	0 ÷ 6 bar	0 ÷ 12 bar	(g)
G 1/8	40	24	12	37	MR 4/1	MR 4/4	MR 4/6	MR 4/12	42
G 1/8	51	28	14	48	MR 5/1	MR 5/4	MR 5/6	MR 5/12	68
G 1/4	63	29,5	14	54	MR 6/1	MR 6/4	MR 6/6	MR 6/12	84
G 3/8	100	36	17	78	-	-	-	MR 10/12	230

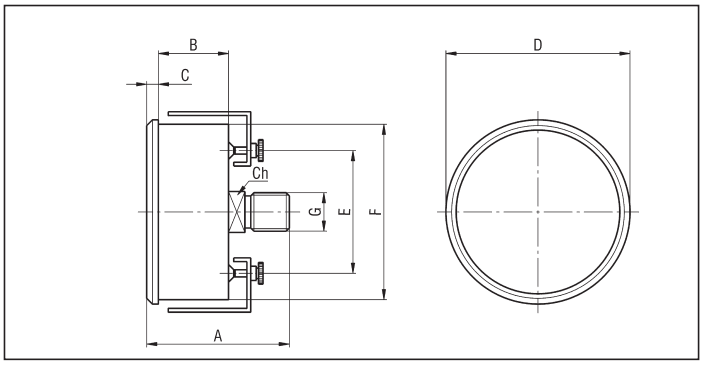
AXIAL GAUGES WITH FLANGE TYPE MF



G	A	B	C	Ch	D	E	F	H
G 1/8	40,5	25,5	4	11	61	51	40,5	3,6
G 1/8	45	29	4	14	74,5	60	52,5	3,6
G 1/4	46,5	30	5,5	14	84,7	75	63,7	3,6
G 3/8	61	30	5	17	132	118	100,5	6

G	D	TYPE				WEIGHT
		0 ÷ 1 bar	0 ÷ 4 bar	0 ÷ 6 bar	0 ÷ 12 bar	(g)
G 1/8	61	MF 4/1	MF 4/4	MF 4/6	MF 4/12	82
G 1/8	74,5	MF 5/1	MF 5/4	MF 5/6	MF 5/12	120
G 1/4	84,7	MF 6/1	MF 6/4	MF 6/6	MF 6/12	150
G 3/8	132	-	-	-	MF 10/12	250

AXIAL GAUGES WITH BRACKET TYPE MP



G	A	B	C	Ch	D	E	F
G 1/8	43	21	5	12	43	28	39
G 1/8	46	23	6	14	55,5	35	49
G 1/4	48	23	6	14	63,8	43	59

G	D	TYPE				WEIGHT
		0 ÷ 1 bar	0 ÷ 4 bar	0 ÷ 6 bar	0 ÷ 12 bar	(g)
G 1/8	43	MP 4/1	MP 4/4	MP 4/6	MP 4/12	82
G 1/8	55,5	MP 5/1	MP 5/4	MP 5/6	MP 5/12	120
G 1/4	63,8	MP 6/1	MP 6/4	MP 6/6	MP 6/12	150

Air treatment accessories: pressure switches

series PR

DIGITAL/ANALOG PRESSURE SWITCH SERIES PRDA

This series of switches has been expressly designed for the pressure detection of a wide range of fluids with elevate accuracy and resolution. This series has both digital and/or analog outputs and an integrated display with a frontal interface including three buttons to programme different functions (all described in the documentation that goes with the item) among which:
- setting the unit of measurement of the pressure;
- managing the outputs No.1 and No.2, depending on the set pressures.

This pressure switch, thanks to the very compact dimensions and to the 3 1/2 digit led display, is a very versatile item and suitable for the majority of the applications with not corrosive and incombustible gases, and with air. It is supplied completed with front protection cover and panel mounting system type SFPR.

4

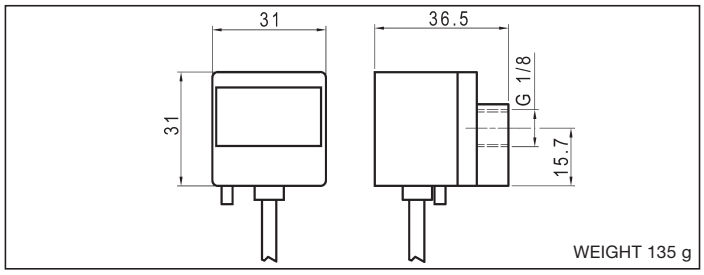
TECHNICAL DATA

Working temperature	0 ÷ +50 °C
Operating/setting pressure	-1 ÷ 10 bar (0 ÷ 10 bar recommended)
Power supply voltage	12 ÷ 24 V DC, ripple (P-P) 10% or less
Fluid	air; not corrosive and incombustible gases
Max. load current	80 mA
Average current consumption	55 mA
Protection class	IP 50
Response time	< 2.5 ms
Display accuracy	< ± 2% F.S. ± 1 digit with ambient temperature of 25 ± 3 °C
Analog output	1 ÷ 5 V < ± 2.5%
Linearity analog output	± 1% F.S.
Display resolution	3 1/2 digit 7 segments LED (sampling frequency: 5 Hz)
Switch output	PNP; (NPN on request)
Unit of measurement	kPa, MPa, Bar, Psi
Hysteresis	Manually adjustable between the 1 to 10% of the rated pressure, or automatically arranged approximately to the 3% F.S.

MATERIALS

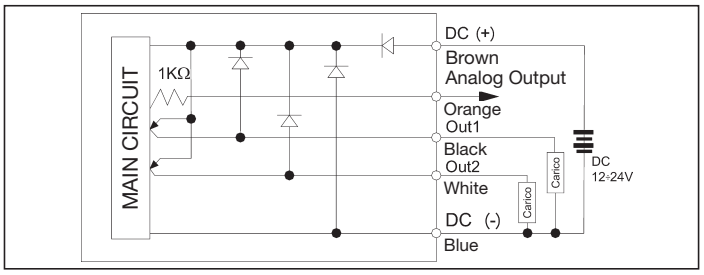
Parts in contact with measured fluid	Carbon steel
Lead wire	5-conductors oil-proof cable
Electric connections	Brown: DC + Blue: DC - Black: OUT 1 White: OUT 2 Orange: Analog output

DIMENSIONS AND WEIGHT PRDA

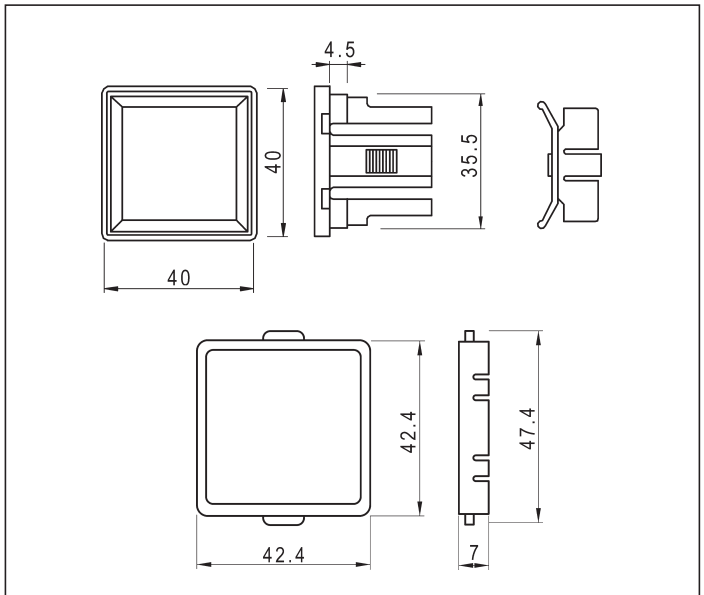


WEIGHT 135 g

INTERNAL CIRCUIT AND WIRING PNP

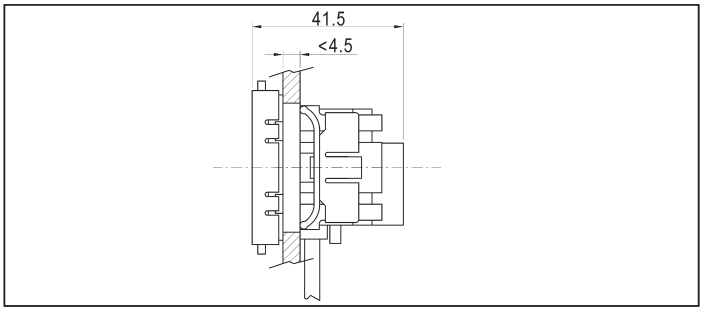


PROTECTION COVER AND PANEL MOUNTING SYSTEM SFPR*

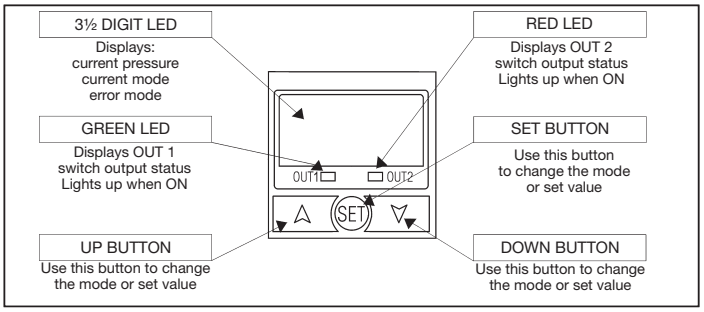


* SUPPLIED AS STANDARD WITH PRESSURE SWITCHES SERIES PRDA

TOTAL DIMENSIONS WITH SFPR



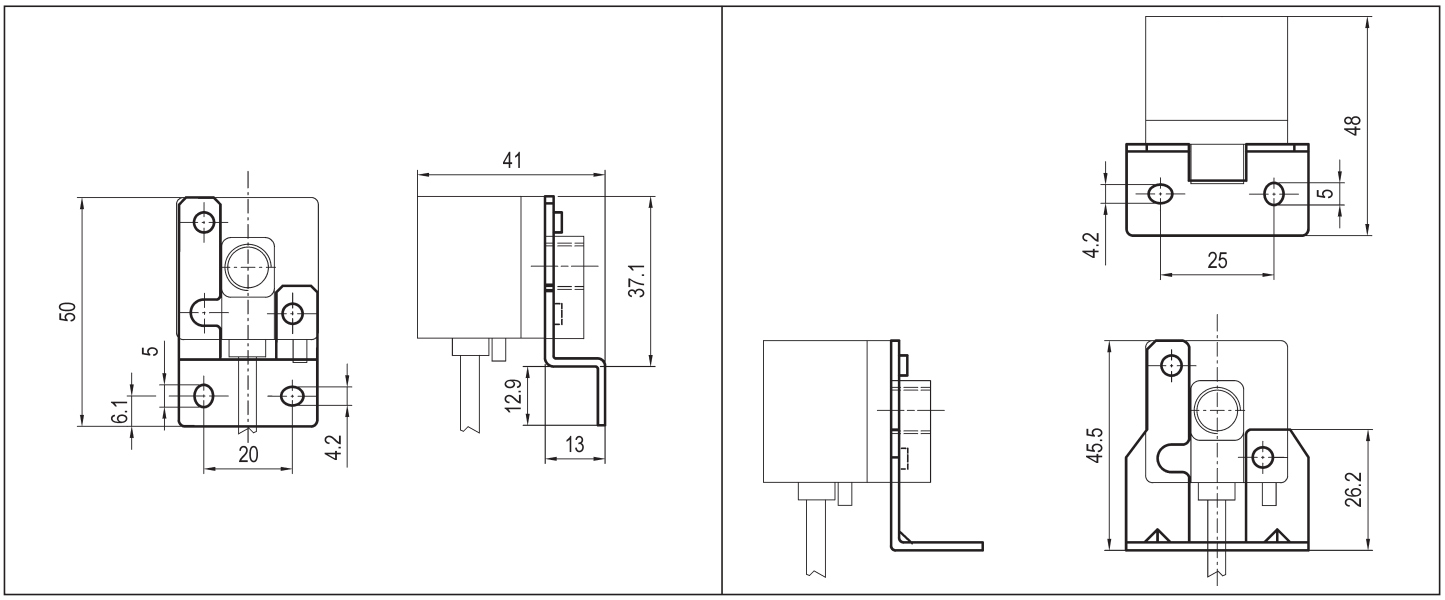
FRONTAL INTERFACE PRDA



series PR

Air treatment accessories: pressure switches

FIXING BRACKETS STPR (pair)



DIAPHRAGM PRESSURE SWITCH SERIES PRC-PRA

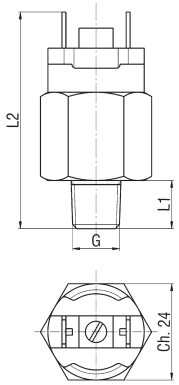
TECHNICAL DATA

Max. switched voltage	48 V AC - DC
Max. switched current	0,5 A
Max. fluid temperature	80 ÷ 120 °C
Adjusting range	1 ÷ 10 bar
Static overpressure	80 bar
Tolerance at 20°C	0,5
Max. number of insertions	200 per minute

MATERIALS

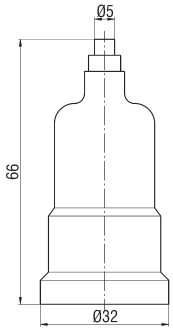
Body	Brass
Diaphragm	FPM (Viton®)
Fixed contact	Silver
Moving contact	Phosphorous bronze with silver contact

PRC - PRA



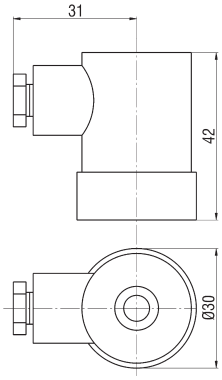
WEIGHT 70 g

CONNECTOR (protection class IP54) - CN/PR54

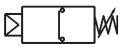


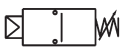
WEIGHT 15 g

CONNECTOR (protection class IP65) - CN/PR65



WEIGHT 15 g

Symbol N.C.	Size	L1	L2	TYPE
	G 1/8	10	51	PRC8
	G 1/4	12	53	PRC4

Symbol N.O.	Size	L1	L2	TYPE
	G 1/8	10	51	PRA8
	G 1/4	12	53	PRA4

Air treatment accessories: pressure switches

series PR

CONTACTS EXCHANGE PRESSURE SWITCH SERIES PRCA

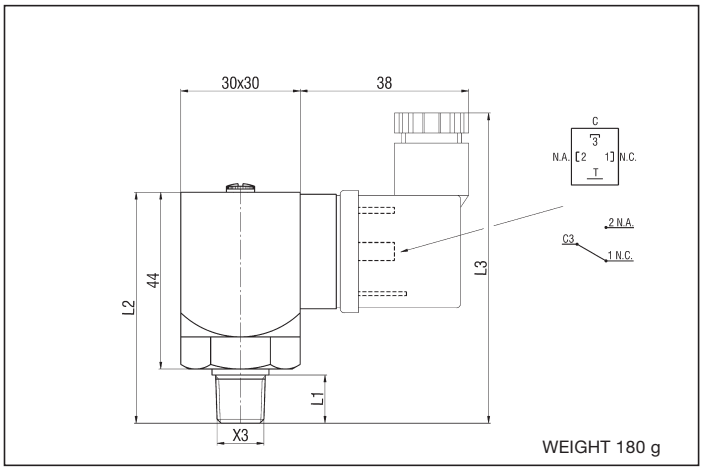
TECHNICAL DATA

Max. switched voltage	250 V AC - DC
Max. switched current	5 A
Max. fluid temperature	100 °C
Protection class	IP 65
Adjusting range	0,5 ÷ 10 bar
Static overpressure	150 bar
Tolerance at 20°C	0,2
Differential	15 - 30% of setting value
Max. number of insertion	200 per minute
Connector (included)	ULR4P

MATERIALS

Body	Passivated steel
Electric box	Anodized aluminium alloy
Diaphragm	FPM (Viton®)

PRCA



Symbol N.C. / N.O.	Size	L1	L2	L3	TYPE*
	G 1/8	10	56	74	PRCA8
	G 1/4	12	53	76	PRCA4

* These switches can rotate of 360°

4