UNIVER®

Electropilots
Standardized valves
Spool valves
Poppet valves
COMPACT valves
Accessories





VALVES

- Cylinders
- High-Tech
- **Valves**
- Air treatment
- Accessories

0 Introduction

1 Electropilots





2 Standardized valves




3 Spool valves





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4 Poppet valves

5 COMPACT valves

6 Accessories

>

UNIVER Headquarter

UNIVER started its activity in the '70s in the field of industrial automation with the production of the first series of pneumatic valves and poppet valves for vacuum.

In the following decades the range of technologically advanced and original pneumatic components has allowed a continuous growth and development of the company, till it has become one of the major Italian companies in the production of industrial Automation equipment.

In the year 2000, after years of experience in the supply of pneumatic components to the Automotive market, the Automotive Division was created and since then it has developed solutions for the automotive industry.
The electronic division, as a support of the Pneumatic Automation and Automotive divisions, is specialized in the study, design and manufacturing of the electric and electronic devices integrated in the Univer products.

The engineering of the products and of the processes, the production, the tests and customer service are attended to thanks to a severe quality standard. Since 1991 UNIVER is UNI EN ISO 90001 certified.

The organization of the sales network is coordinated by the Headquarters of UNIVER S.p.A. in Milan.
In Italy the commercial company UNIVER Service S.r.l. guarantees a quick and efficient service with the aid of operational offices and distributors in the whole country. The UNIVER Group has many direct companies and an active distribution network which covers the most important industrialized areas.

Pneumatic Automation_

Cylinders
High Tech
Valves
Air treatment
Accessories

Automotive_

Power clamps
Gripper units
Power clamps conforming to NAAMS and CNOMO standards
Retractable locating pin units
Pin units
Rotating units

UNIVER GROUP

ITALIA - Headquarter: UNIVER S.p.A.
UNIVER SERVICE S.r.l.

AUSTRALIA - UNIVER Pty Ltd
BRASILE - UNIVER do Brasil S/A
FINLANDIA - UNIVER OY
FRANCIA - UNIVER FRANCE S.a.s.
GERMANIA - UNIVER G.m.b.H.
SPAGNA - UNIVER S.L. System Supplier Pneumatic
SVEZIA - UNIVER SWEDEN AB
SVIZZERA - UNIVER AG
REGNO UNITO - UNIVER Manufacturing Company Ltd.

CAD ENAS

UNIVER offers the possibility to download free of charge **2D** and **3D models** of the whole Pneumatic Automation and Automotive series

1970

1971 Foundation of UNIVER company
1973 Poppet valves for compressed air and vacuum


First valve series

1980

1980 Valves according to ISO 5599 (Industry Award)
1982 UNIVERSAL series valves
1986 Cylinders and mounting elements according to ISO 6431
(first cylinders on the market with extruded aluminium profile)
1988 Cylinders with antirotation piston and octagonal tube
Electrically actuated microvalves
Rodless cylinders (patented)
1989 Rotating cylinders (patented)
Short-stroke cylinders


ISO 6431 cylinders series K


Valves series AE


Rodless cylinder series S1

1990

1991 10 mm nanovalve
G6 - G7 - G8 series valves
1992 Slide units in extruded aluminium profile
1993 Cybrain programmable actuators (patented)
1997 Telescopic cylinders (patented)
1998 Locking units (patented)
1999 Compact cylinders with adjustable cushioning standard (patented)


Slide units series J


10 mm nanovalve series B


Telescopic cylinders series RT

2000

2000 Combobox valves
2001 Pneumatic power clamps and retractable locating pin units (patented)
2002 Oval cylinders
2003 Electric cylinders (patented)
Electric power pivots (patented)
Electric power clamps and retractable locating pin units
2004 Valves according to ISO 15407/VDMA 24563
Serial communication control blocks
Pneumatic grippers (patented)
2005 Pneumatic power pivots (patented)
2006 10 mm nanovalve 2nd generation
2007 COMPACT 10/15 mm valves
2008 TC serial communication control system
2009 JL Guided compact cylinders


COMPACT valves series P10/P15


Pneumatic/electric clamping units


Nanovalves series B10


Serial interface series TC


Guided cylinders series JL

2010

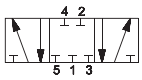
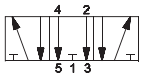
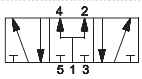
2000 Cylinders according to ISO 15552 KL series
2001 Compact cylinders Ø 80 – 100 according to ISO 21287
Series HZE Air treatment system


Cylinder ISO series KL


Compact cylinders ISO series RM - RS


Air treatment series HZE

>Pneumatic symbols

Ways/Pos.	Function	Symbol
2/2	normally closed	
2/2	normally open	
3/2	normally closed	
3/2	normally open	
5/2	separated exhausts	
5/3	closed centres	
5/3	open centres	
5/3	pressurized centres	

>Comparative table for port abbreviaton

Ports	ISO 5599	Abbreviation
Supply port	1	P
Port for line of work	2	B
Exhaust	3	S
Port for line of work	4	A
Exhaust	5	R
Pilot side that overrides the output signal	(10)	(Z)
Pilot side	12	Y
Pilot side	14	Z

CONTROLS

☐ Manual

- push-pull
- push-pull 2 position
- button
- lever
- lever 2 position
- lever 3 position
- foot valves
- bistable foot valves
- foot valves with security on control
- servoassisted foot valves
- servoassisted bistable foot valves
- servoassisted foot valves with security on control

☐ Mechanical

- push
- sensitive ball-push
- roller lever
- uni-directional roller lever

☐ Pneumatic

- pneumatic
- pneumatic amplified
- 5/3 pneumatic

☐ Electric

- electric
- electric amplified
- electric with manual
- electric external supply port
- 5/3 electric

RETURN

☐ Mechanical

- mechanical spring

☐ Pneumatic

- pneumatic
- pneumatic amplified
- pneumatic spring
- pneumomechanical spring

☐ Electrical

- elettric
- elettric amplified
- elettric with manual
- electric external supply port
- 5/3 electric

>SI units - (multiples and sub-multiples)

Quantity	Symbol	Name	Derivation	Conversions
Length	**m**	Meter		1 km = 10^3 m
	km	Kilometer		
Area	**m^2**	Square meter		
	cm^2	Square centimeter		1 cm^2 = 10^{-4} m^2
Volume	**m^3**	Cubic meter		1 cm^2 = 10^{-4} m^2
	dm^3	Cubic decimeter		1 dm^3 = 10^{-3} m^3
Time	**s**	Second		
	min	Minute		1 min. = 60 s
	h	Hour		1 h = 3600 s
Speed	**m/s**	Meter/second		
	m/min	Meter/minute		1m/min. = 0,0166 m/s
	km/h	Kilometer/hour		1km/h = 0,277 m/s
Acceleration	**m/s^2**	Meter/square second		
Flow rate	**m^3/s**	Cubic meter/second		
	dm^3/min	Cubic decimetres/minute		1 dm^3/min. = litri/min. = 1,6.10^{-5} m^3/s
	m^3/h	Cubic meter/hour		1 m^3/h = 2,7.10^{-4} m^3/s
Weight	**kg**	Kilogram		
	q	Quintal		1q = 10^2 kg
	t	Ton		1t = 10^3 kg
Force	**N**	Newton	1 kg·m/s^2	1N = 0,102 Kp
	kp	Kilopound		1kp = 9,806 N
Pressure	**Pa**	Pascal	1 N/m^2	
	bar	Bar		1 bar = 10^5 Pa
	kg/cm^2	Kilogram/square centimeter		1 kg/cm^2 = 98066,5 Pa
	at	Tecnical atmosphere		1 at = 98066.5 Pa
Temperature	**°K(t)**	Kelvin		
	°C(t)	Celsius		°C = °K - 273,15
Work-energy	**J**	Joule	1 Nm	
	kgm	Kilogram-meter		1 kgm = 9.806 Joule
	Wh	Watt-hour		1 Wh = 3600 Joule
	kwh	Kilowatt-hour		1 kwh = 3600· 10^3 Joule
Power	**W**	Watt	1 J/s	1 kw = 10^3 W
	kgm/s	Kilogram-meter/second		1 kgm/s = 9,806 W
	HP	Horsepower		1 HP = 745,7 W
	CV	Horsepower		1 CV = 735,5 W
Frequency	**Hz**	Hertz	1/s	
Electric current	**A**	Ampere		
	mA	Milliampere		1 mA = 10^{-3}A
Electric tension	**V**	Volt	1 W/A	
Electric power	**W**	Watt	1 J/s	
	V . A	Volt-Ampere	1 V·A	
Electric resistance	**Ω**	Ohm	1 V/A	

>Protection degrees for coil with connector

By protection degree we mean the intrinsic ability of live electrical equipment to protect and to protect itself against casual contacts and penetration of solid perticles 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 particles; the second, **0** to **8**, the protection against water.

Protection degree against casual contacts and penetration of particles

	Protection/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 surface 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 medium-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 or moving parts inside the equipment. Protection against the penetration of solid paticles 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 than 1 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 degree against water

	Protection/Denomination	Explanation
0	No protection	No special protection
1	Protection against water drops falling perpendicularly	Water drops that fall perpendicularly must cause no 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 cause no harmful effect
3	Protection against water dripping	Water that falls at a slanted angle of up to 60° to the perpendicular direction must cause no harmful effect
4	Protection against water sprays	Water sprayed against the equipment from any direction must cause no harmful effect
5	Protection against water jets	A water jet directed against the equipment from any direction must cause no harmful effect
6	Protection against immersion	The water penetrating into the equipment due to a temporary flood, for example during rough sea conditions, must cause no 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 pressures
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 pressures and for an undetermined period of time

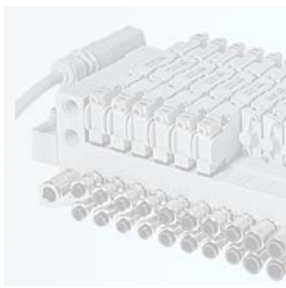
>Product table

SERIES	FLOW RATE (Nl/min)	THREADS/SUB BASES	FUNCTIONS					CONTROL				RETURN						PAGE
			2/2	3/2	5/2	5/3	3/2 + 3/2	MECHANICAL	MANUAL	PNEUMATIC	ELECTRIC	MECHANICAL	MANUAL	MECHANICAL SPRING	PNEUMOMECHANICAL SPRING	PNEUMATIC	ELECTRIC	
A 15 mm	26÷38	ISO 15218	■	■							■			■				
AA 22 mm	30÷60	sub-base	■	■							■			■				
	28÷60	G 1/8	■	■							■			■				
	30÷60	M5	■	■							■			■				
	33÷45	CNOMO	■	■							■			■				
AB 30 mm	92÷150	sub-base	■	■							■			■				
	100÷155	G 1/8	■	■							■			■				
	95÷650	G 1/4	■	■							■			■				
	92÷110	CNOMO	■	■							■			■				
B 10 mm	9÷12	sub-base		■							■			■				
B10 10 mm	30	ISO 15218		■							■			■				
BE **BE12**	1480	ISO 1			■	■				■	■			■	■	■	■	
	2300	ISO 2			■	■				■	■			■	■	■	■	
	4200	ISO 3			■	■				■	■			■	■	■	■	
	6600	ISO 4			■	■				■	■			■	■	■	■	
AE	1480	ISO 1			■					■	■				■	■	■	
	2300	ISO 2			■					■	■				■	■	■	
BD	1700	ISO 01-26mm			■	■	■			■	■			■	■	■	■	
	800	ISO 02-18mm			■	■	■			■	■			■	■	■	■	
AC-N	1200	NAMUR interface			■					■	■				■	■	■	
CL-CM	890	G 1/8		■	■	■		■	■	■	■	■	■	■	■	■	■	
		G 1/4		■	■	■		■	■	■	■	■	■	■	■	■	■	
E15	150	M5			■			■	■			■	■	■				
G6	770	G 1/8			■	■	■			■	■			■	■	■	■	
GL6	740	sub-base			■	■	■			■	■			■	■	■	■	
G7	860	G 1/8			■	■				■	■			■	■	■	■	
PS	200	tube Ø4			■	■	■			■	■			■	■	■	■	
	510	tube Ø6			■	■	■			■	■			■	■	■	■	
	830	tube Ø8			■	■	■			■	■			■	■	■	■	
AC	1080	G 1/8			■			■		■	■	■			■	■	■	
	1600	G 1/4			■			■		■	■	■			■	■	■	
	4600	G 1/2			■			■		■	■	■			■	■	■	
CH	600	G 1/8	■	■				■	■					■				
AF	580	G 1/8		■						■	■				■			
	1100	G 1/4		■						■	■				■			
	1500	G 3/8		■						■	■				■			
	5400	G 1/2		■						■	■				■			
	6500	G 3/4		■						■	■				■			
	13500	G 1	■	■						■	■				■			
	35000	G 1 1/2		■						■	■				■			
AG	759,5*	G 1/8		■						■	■			■		V		
	759,5*	G 1/4	■	■						■	■			■		V		
	759,5*	G 3/8		■						■	■			■		V		
	759,5*	G 1/2	■	■						■	■			■		V		
	759,5*	G 3/4		■						■	■			■		V		
	759,5*	G 1		■						■	■			■		V		
	759,5*	G 1 1/2		■						■	■			■		V		
AI	110	sub-base	■	■				■	■					■				
AI-JET	98	M5 tube Ø4	■	■				■	■					■				
AM **FOOT VALVES**	98	G 1/8	■	■	■				■				■	■				
	800	G 1/4	■	■	■				■				■	■				
P10	310	M5			■	■	■			■	■			■	■	■	■	
	310	M7			■	■	■			■	■			■	■	■	■	
	310	sub-base			■	■	■			■	■			■	■	■	■	
P15	800	G 1/8			■	■	■			■	■			■	■	■	■	
	800	sub-base			■	■	■			■	■			■	■	■	■	

* For AG valves the value refers to vacuum version (mm Hg) V = return by vacuum







ELECTROPILOTS

1 Electropilots

B

10 mm nanovalves

- Flow rate 12 Nl/min
- Interface with conveyed discharge or discharge in the air
- Versions 3/2 normally open (NO) and normally closed (NC)
- Interchangeable coil (U04) - rotation by 180°
- Molex-type electrical connector or louse wires

TECHNICAL CHARACTERISTICS

Ambient temperature	-5 ÷ +50 °C
Fluid temperature	max +50 °C
Fluid	10 µm filtered air, lubricated or not
Commutation system	poppet valve
Ways/Positions	**3/2 NC, 3/2 NO**
Pressure	max 8 bar
Control	electric
Return	mechanical spring
Connections	on sub-base
Nominal Ø	0,5÷0,6 mm
Nominal flow rate	9÷12 Nl/min
Max frequency	2300 ÷ 3000 cycles/min

CONSTRUCTIVE CHARACTERISTICS

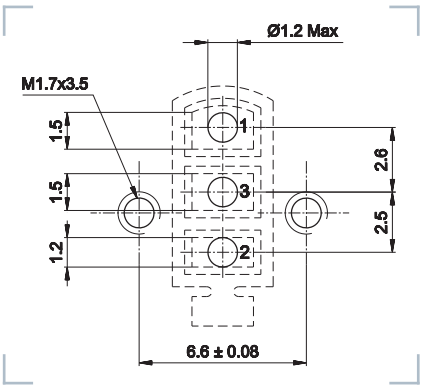
Valve body	thermoplastic
Seals	nitrile rubber
Components	stainless steel - treated brass

ELECTRIC CHARACTERISTICS

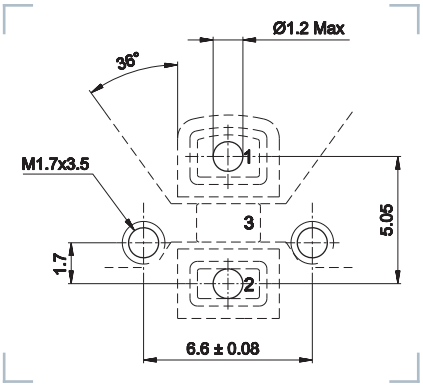
Coil	U04 DE series
Power consumption	1,2 W (1,35 W with LED)
Electrical connection	Molex-type bipolar connector or loose wires
Voltage	12 V DC - 24 V DC
Manual override	with button with tool

Substructure

Conveyed discharge



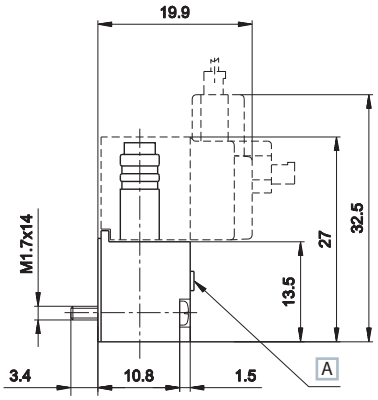
Discharge in the air

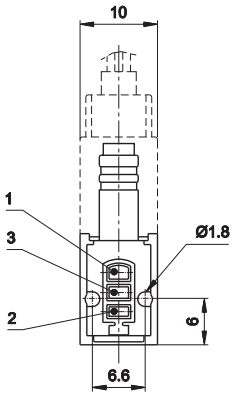


NC
1 = Supply port
2 = Use
3 = Exhaust

NO
1 = Exhaust
2 = Use
3 = Supply port

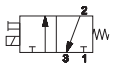
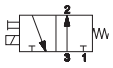
Valves with conveyed discharge



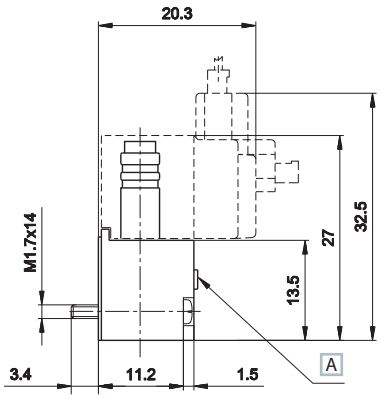


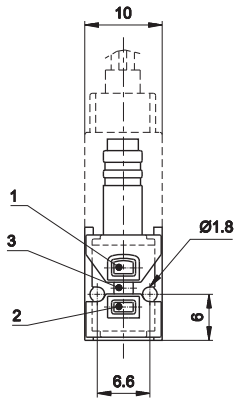
1 = Supply port
2 = Use
3 = Exhaust

A Manual override

	Symbol	Nominal Ø	Flow rate Nl/min.	Pressure bar	Times (ms) En.	Times (ms) De-en.	Weight (b) Kg	Part no.
3/2 NC		0,5	1→2 = 9 2→3 = 12	1,5÷8(a)	9	10	0,007 (0,012)	**B-101N**
3/2 NO		0,5	3→2 = 9 2→1 = 10	0÷8	18	8	0,007 (0,012)	**B-121N**

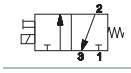
Valves with discharge in the air





1 = Supply port
2 = Use
3 = Exhaust

A Manual override

	Symbol	Nominal Ø	Flow rate Nl/min.	Pressure bar	Times (ms) En.	Times (ms) De-en.	Weight (b) Kg	Part no.
3/2 NC		0,6	1→2 = 12 2→3 = 15	1,5÷8(a)	9,5	9	0,007 (0,012)	**B-102N**

>> Coils

U04 with integrated upward 90° connector

U04 with in-line connector

U04 with loose wires (300 mm lenght)

U04 with in-line connector with protecting cover for complete tightness

(a) = upon request: 0 bar operation
(b) = the value in brackets indicates the mass with coil (0,015 Kg with 300 mm loose wires)

For technical features of coils and connector, see section **"Accessories>Coils"**
Nanovalves are supplied without coil and connector, to be ordered separately.

B10

10 mm nanovalves ISO 15218

- Low input standard: 0,3 W
- High flow-rate: 30 Nl/min
- Quick response time: 3 ms
- ISO 15218 interface
- 3/2 NC version
- Led standard

Upon request:
- Bistable version
- 0,1 W version
- 50 Nl/min flow rate version

TECHNICAL CHARACTERISTICS

Ambient temperature	-5 ÷ +50 °C
Fluid temperature	max +50 °C
Fluid	10 µm filtered air, lubricated or not
Ways/Positions	**3/2 NC** (monostable) **3/2 NC-NO** (bistable)
Pressure	max 8 bar
Control	electric
Return	mechanical spring
Operating frequency	5 Hz
Assembly	no. 2 screws M1,6
Connections	ISO 15218 interface
Nominal Ø (mm)	1,3 mm
Nominal flow rate (Nl/min)	30 (1→2) 32 (2→3)

CONSTRUCTIVE CHARACTERISTICS

Valve body	self-extinguishing technopolymer
Seals	NBR
Components	stainless steel - brass

ELECTRIC CHARACTERISTICS

Voltage	24 VDC (12V DC upon request)
Voltage tolerance	±10%
Power consumption	0,3W (pick-up 5,5 W - 25 ms)
Electrical connection	connector D535 U40 (IP65)
	welded pin (IP00)
LED	yellow (standard)
Manual override	monostable button

CODIFICATION KEY

B	1	0	4	0	1	L	2	4	D
1			2	3	4	5	6		

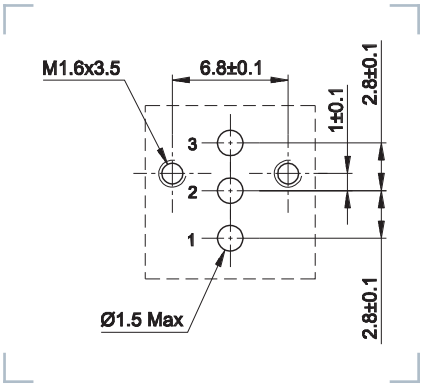
1 Series	2 Model	3 Type
B10 = 10 mm nanovalves ISO 15218	**4** = monostable **5** = bistable (upon request)	**0** = 3/2 NC Ø1,3 mm

4 Function	5 Variant	6 Voltage
1 = with manual, 90° connector **2** = without manual, 90° connector **3** = with manual, PIN on interface side **4** = without manual, PIN on interface side	**L** = protected PIN (a) **P** = unprotected PIN (suitable for electronic board mounting)	**24D** = 24 V DC **12D** = 12 V DC (upon request)

(a) = version for connector

Fixing screws included. Tightening torque max 0,15 Nm.

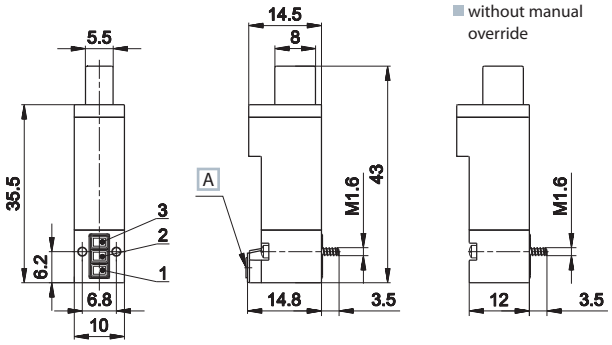
Substructure (ISO 15218)



1 = Supply port
2 = Use
3 = Exhaust

90° Connector

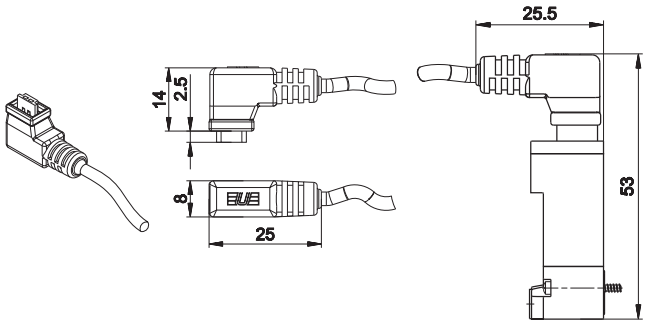
Symbol	Pressure	Ø	Times (ms)		Weight	Part no.
	bar	mm	En.	De-en.	Kg	
3/2 NC	0÷7	1,3	3	3,5	0,0108	B10-401L24D (a)
3/2 NC	0÷7	1,3	3	3,5	0,0107	B10-402L24D (b)



A Manual override

1 = Supply port
2 = Use
3 = Exhaust

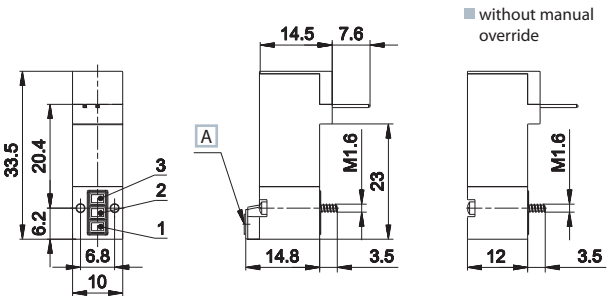
D-535U40300/500



single connector with 3-5 m wire
weight Kg: 0,05 **D-535U40300 wire L = 300 mm**
0,07 **D-535U40500 wire L = 500 mm**

In-line PIN

Symbol	Pressure	Ø	Times (ms)		Weight	Part no.
	bar	mm	En.	De-en.	Kg	
3/2 NC	0÷7	1,3	3	3,5	0,0104	B10-403P24D (a)
3/2 NC	0÷7	1,3	3	3,5	0,0103	B10-404P24D (b)



A Manual override

1 = Supply port
2 = Use
3 = Exhaust

In-line PIN bistable (magnetic memory)

In this version the opening is carried out by a 25 ms impulse, while the closing is carried out by a similar impulse with inverted polarity.

For any further information please get in touch with our Sales Office.

(a) = with manual override (b) = without manual override

A

15 mm Microvalves

- Flow rate max 38 Nl/min
- ISO 15218 interface
- 2/2-3/2 versions - normally open (NO) and normally closed (NC)
- Interchangeable coil - 90° orientation
- Single and multiple sub-bases - single and multipolar electric connection

TECHNICAL CHARACTERISTICS

Ambient temperature	-5 ÷ +50 °C	
Fluid temperature	max +50 °C	
Fluid	10 µm filtered air, lubricated or not	
Commutation system	poppet	
Ways/Positions	**2/2 NC, 3/2 NC, 2/2 NO, 3/2 NO**	
Pressure	max 9 bar	
Control	electric	
Return	mechanical spring	
Connections	ISO 15218 interface	
Nominal Ø	1,2	1,5
Nominal flow rate	26	38
Max frequency	2700 cycles/min	

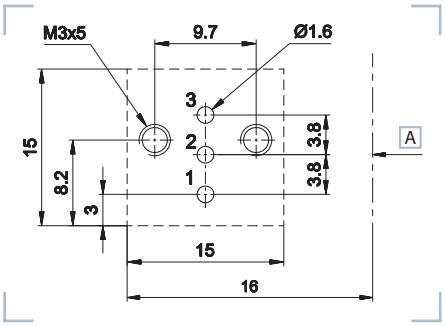
CONSTRUCTIVE CHARACTERISTICS

Valve body	technopolymer (aluminium external cover)
Seals	nitrile rubber
Components	stainless steel, brass

ELECTRIC CHARACTERISTICS

Coil	U05 DD series
Power consumption	24 V AC - 48 V AC - 110 V AC - 230 V AC
Electrical connection	15 mm connector - Molex-type bipolar connector or loose wires
Voltage	12 V DC - 24 V DC
Manual override	with button with tool
	(upon request other manual overrides, see page **1**_5)
Protection degree with connector	IP65

ISO 15218 Substructure



A Pitch

3/2 NC

1 = Supply port
2 = Use
3 = Exhaust

3/2 NO

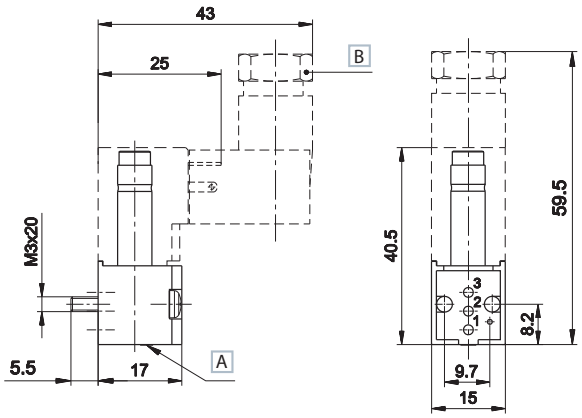
1 = Exhaust
2 = Use
3 = Supply port

2/2 NO

1 = Exhaust
3 = Supply port

Drilling jig to assemble the valve on a smooth surface with a sealing plate in between. Part no. A-299-11.

15 mm Microvalves



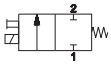
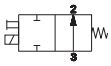
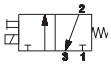
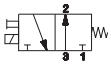
A Manual override
B Possible rotation by 180°

3/2 NC
1 = Supply port
2 = Use
3 = Exhaust

3/2 NO
1 = Exhaust
2 = Use
3 = Supply port

2/2 NO
1 = Exhaust
3 = Supply port

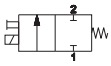
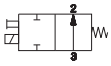
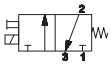
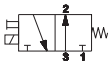
Microvalves Ø 1,2 for direct current coils 2 W

	Symbol	Pressure bar	Ø mm	Flow rate Nl/min.	Current	Times (ms) En.	Times (ms) De-en.	Weight (b) Kg	Part no.
2/2 NC		0÷9	1,2	26	DC	11	11	0,018 (0,037)	**A-141N**
2/2 NO		0÷9	1,2	26	DC	11	11	0,018 (0,037)	**A-161N**
3/2 NC		0÷9	1,2	26	DC	11	11	0,018 (0,037)	**A-101N**
3/2 NO		0÷9	1,2	26	DC	11	11	0,018 (0,037)	**A-121N**

Suggested coils	
DD-051 24 V DC - 2 W	Coil with Faston
DD-051L030 24 V DC - 2 W	Coil with flying cables

Upon request 12 V DC

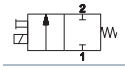
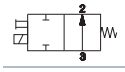
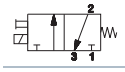
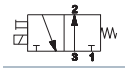
Microvalves Ø 1,5 for direct current coils 2,5 W

	Symbol	Pressure bar	Ø mm	Flow rate Nl/min.	Current	Times (ms) En.	Times (ms) De-en.	Weight (b) Kg	Part no.
2/2 NC		0÷8	1,5	38	DC	11	11	0,018 (0,037)	**A-142N**
2/2 NO		0÷8	1,5	38	DC	11	11	0,018 (0,037)	**A-162N**
3/2 NC		0÷8	1,5	38	DC	11	11	0,018 (0,037)	**A-102N**
3/2 NO		0÷8	1,5	38	DC	11	11	0,018 (0,037)	**A-122N**

Suggested coils	
DD-052 24 V DC - 2,5 W	Coil with Faston
DD-052L030 24 V DC - 2,5 W	Coil with flying cables

Upon request 12 V DC

Microvalves Ø 1,2 for direct or alternate current

	Symbol	Pressure bar	Ø mm	Flow rate Nl/min.	Current	Times (ms) En.	Times (ms) De-en.	Weight (b) Kg	Part no.
2/2 NC		0÷9	1,2	26	DC/AC	11	11	0,018 (0,037)	**A-151N**
2/2 NO		0÷9	1,2	26	DC/AC	11	11	0,018 (0,037)	**A-171N**
3/2 NC		0÷9	1,2	26	DC/AC	11	11	0,018 (0,037)	**A-111N**
3/2 NO		0÷9	1,2	26	DC/AC	11	11	0,018 (0,037)	**A-131N**

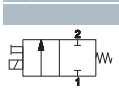
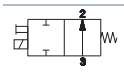
Suggested coils	
DD-040 24 V AC - 50/60 Hz -2 VA **DD-050** 48 V AC - 50/60 Hz - 2 VA **DD-051** 24 V DC - 2 W **DD-070** 230 V AC - 50/60 Hz - 2 VA	Coil with Faston
DD-051L030 24 V DC - 2 W	Coil with flying cables

Upon request 12 V DC

(b) = the weight in brackets refers to coil with faston

For technical data of coils see **"Accessories>Coils"**
Pilots are supplied without coil, connector and sealing plate

Microvalves Ø 1,5 for direct or alternate current

	Symbol	Pressure bar	Ø mm	Flow rate Nl/min.	Current	Times (ms) En.	Times (ms) De-en.	Weight (b) Kg	Part no.
2/2 NC		0÷9	1,5	38	DC/AC	11	11	0,018 (0,037)	**A-152N**
3/2 NC		0÷9	1,5	38	DC/AC	11	11	0,018 (0,037)	**A-112N**

Suggested coils	
DD-011 24 V AC - 50/60 Hz **DD-013** 220 V AC - 50/60 Hz - 3,5 VA **DD-040** 24 V AC - 50/60 Hz - 3,5 VA **DD-052** 24 V DC - 2,5 W **DD-060** 48 VAC - 50/60 Hz - 3,5 VA	Coil with Faston
DD-052L030 24 V DC - 2,5 W	Coil with flying cables

Upon request 12 V DC

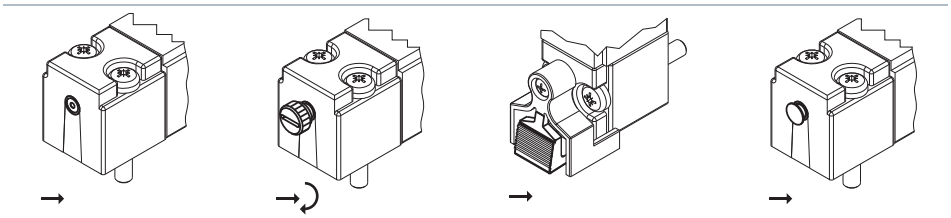
>> Coils

U5 flying cables
weight: 0,019 Kg
DD-051L030
DD-052L030

U05 15 mm
weight: 0,019 Kg
DD-011 **DD-051**
DD-013 **DD-052**
DD-040 **DD-060**
DD-041 **DD-070**
DD-050

Standard manual override

Operation	Notes	Symbol
1 = with button with tool, 1 position (standard)	metallic	→
2 = with button, 1-2 positions (upon request)	technopolymer red colour	⊖
3 = with front button, 1 position (upon request)	technopolymer red colour	→
4 = with button, 1 position (upon request)	metallic	→



1 **2** **3** **4**

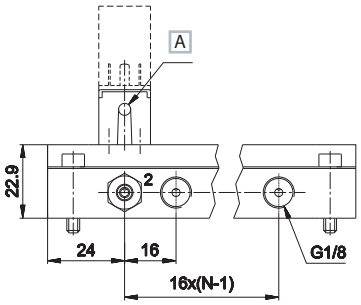
(b) = the weight in brackets refers to coil with faston

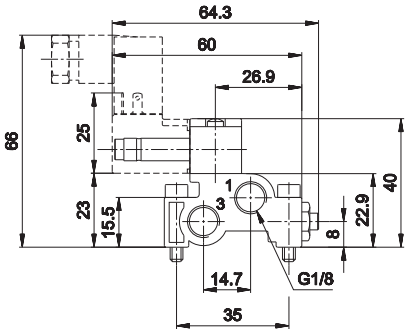
For technical data of coils see **"Accessories>Coils"**
Pilots are supplied without coil, connector and sealing plate

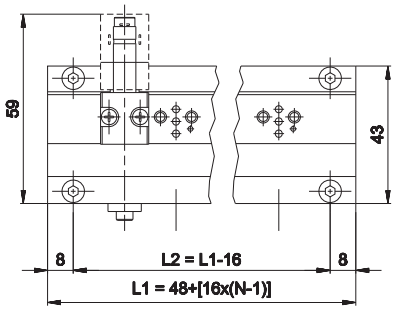
Sub-base for external electric connection

Sub-base in extruded anodized aluminium with conveyed supplies and exhausts for assembling NC or NO valves.
If NC and NO valves are assembled on just one base, it is necessary to insert the inverter part A-350 for NO valves.

A - 326A - _ _ [(b)] G1/8 threaded connections (standard)
A - 326B - _ _ [(b)] M5 threaded connections (upon request)
A - 326C - _ _ [(b)] push-in connections tube 3 (upon request)
A - 326D - _ _ [(b)] push-in connections tube 4 (upon request)







A Manual override

N = Number of valve positions
(b) = Number of positions

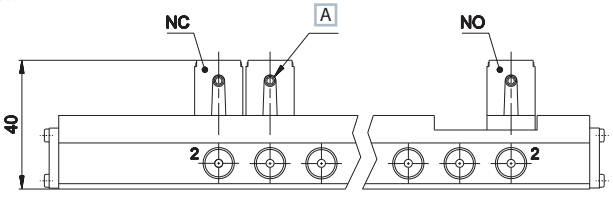
3/2 NC
1 = Supply port
2 = Use
3 = Exhaust

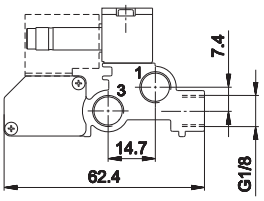
3/2 NO
1 = Exhaust
2 = Use
3 = Supply port

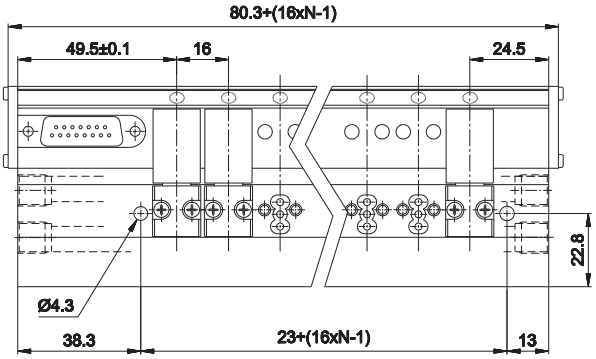
2/2 NO
1 = Exhaust
3 = Supply port

Sub-base for integrated electric connection

Sub-base with sub-D connector in extruded anodized aluminium up to max. 13 stations with connector 15 pin (upon request up to 23 with connector 25 pin) and G1/8 threaded standard connections, with conveyed supplies and exhausts for assembling NC or NO valves with integrated coil connection and optical indication of the valve activation.
If both, NO and NC valves, are assembled on just one sub-base, NC valves are always mounted on the connector side and afterwards the NO valves. The invert (part no. A-350) is inserted for NO valves.







A Manual override

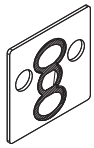
N = Number of valve positions

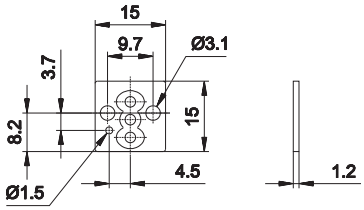
3/2 NC
1 = Supply port
2 = Use
3 = Exhaust

3/2 NO
1 = Exhaust
2 = Use
3 = Supply port

2/2 NO
1 = Exhaust
3 = Supply port

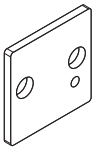
A-299-11

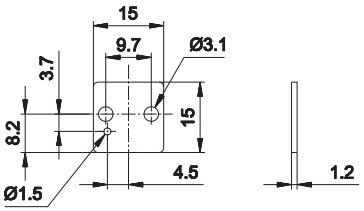




Sealing plate
It blocks the seal in place when the valve is mounted on a smooth surface without a seal housing
material: aluminium
weight: 0,003 Kg

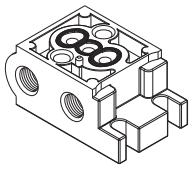
A-301

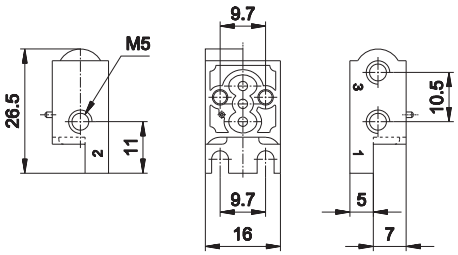




Blank plate
Unused valve stations must be closed with the blanking plate
material: aluminium
weight: 0,002 Kg

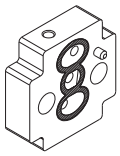
A-305

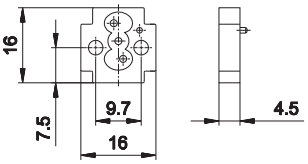




Single base
material: zamak
connection: M5
weight: 0,012 Kg

A-350





Inverter
NO and NC valves can be mounted on a single block inserting this device between the NO valve and the sub-base.
If all are NO valves, just invert air supply, without using the inverter.
material: plastic
weight: 0,002 Kg

AA

Miniature electropilots U1

Direct intervention electropilots with poppet valve system and cushioned bottom seals
- Assembly on sub-base
- Threaded connections on the body
- CNOMO interface
- Orientable coil (360°) separated from mechanical part
- Versions: 2/2 3/2 NC - NO
- Original Univer SPEED modular sub-bases

TECHNICAL CHARACTERISTICS

Ambient temperature	-10 ÷ +50 °C			
Fluid temperature	max +95 °C			
Fluid	10 µm filtered air, lubricated or not, neutral gases (upon request other fluids can be used)			
Commutation system	direct intervention poppet valve system with cushioned seals			
Ways/Positions	**2/2 NC, 3/2 NC, 3/2 NO**[(a)]			
Pressure	**2/2, 3/2 NC** = 0 ÷ 10			
	3/2 NO = 3 ÷ 10			
Control	electric			
Return	mechanical spring			
Connections	on sub-base or with threaded connections on the body			
	sub-base	**G 1/8**	**M5**	**CNOMO**
Nominal Ø (mm)	1,2 ÷ 1,5	1 ÷ 1,5	1 ÷ 1,5	1,2 ÷ 1,5
Nominal flow rate (Nl/min)	30 ÷ 60	28 ÷ 60	30 ÷ 60	33 ÷ 45

CONSTRUCTIVE CHARACTERISTICS

Materials	see features below

ELECTRIC CHARACTERISTICS

Series	U1	U3
Coil	DA	DC
Power consumption	3,5 W (DC) - 5 VA (AC)	2,5 W (DC) - 3,3 VA (AC)
Connector	AM 5110	AM 5111
Voltage	12 V DC - 24 V DC - 24 V AC - 110 V AC - 230 V AC	
Protection degree	IP65	

For other electric features see section **"Accessories>Coils"**

(a) = Mechanical part designed to keep the air supply always from the body
(Useful in case of assembly of more NC-NO pilots in series to have a unique supply port)

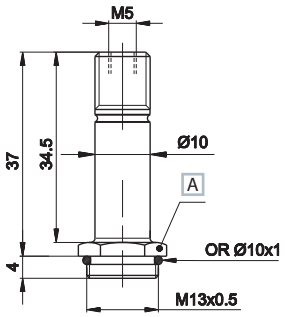
U1 Sleeves - with moving core

Material:	
sleeve	treated brass
cores and spring	stainless steel
seals	nitrile rubber

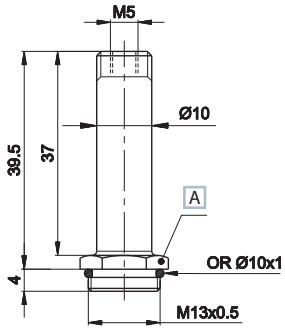
	Exhaust Ø	Pressure	Weight	Part no.
	mm	bar	Kg	
3/2 NO	1,2	3÷10	0,030	**AA-0150**
3/2 NC	1,5	0÷10	0,030	**AA-0157**
2/2 NC	-	0÷10	0,030	**AA-0170**

Upon request viton seals and stainless steel sleeves (only NC versions)

■ NC

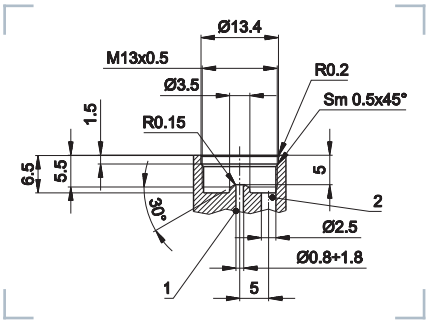


■ NO



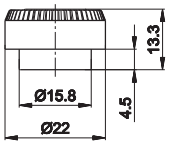
A Wrench 14

■ Detail of machining



1 = Supply port
2 = Use

Locking rings for coils on sleeves



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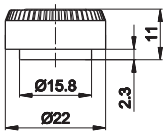

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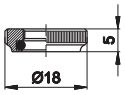


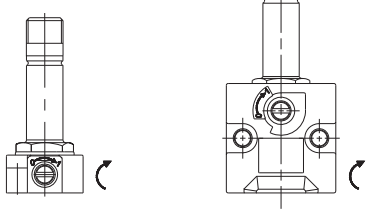
3

Version	Suitable for sleeves	Material	Coil	Part no.
1 = radial exhausts	3/2 NO	technopolymer	U1	**AM-5213A**
2 = radial exhausts	3/2 NC	technopolymer	U1	**AM-5211A**
3 = open exhausts	2/2 NC	brass	U1	**AM-5211B**

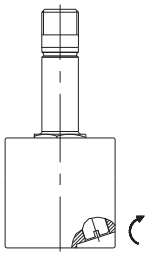
In order to convey exhausts, use version 3

Standard manual overrides

Functionig	Suitable for sleeves	Symbol/Part no.
1 = with 2 position screw	all NC U1 electropilots that can use manual override	⊖
2 = with impulse 1-2 position screw	only CNOMO NC U1 electropilots	⊖
3 = with button with tool	only CNOMO NC U1 electropilots	→
4 = with button, 1 position	U1 3/2 NO electropilots	**AM-5201** (a)



1



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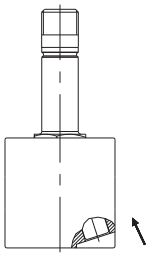

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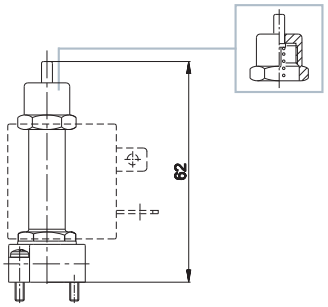


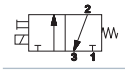
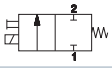
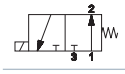
4

(a) = Mounted on the 3/2 NO sleeve

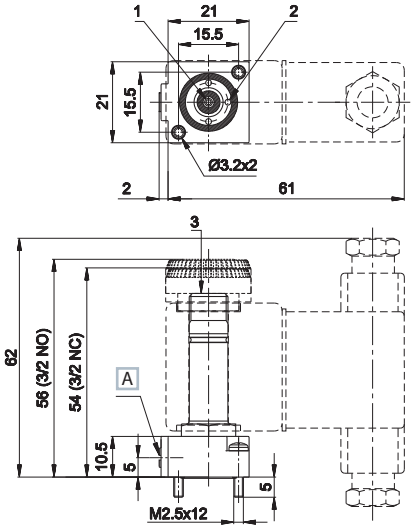
⊖ = with 2 position screw
→ = with button with tool

U1 **2/2 - 3/2** Electropilot for assembling on sub-base

Material:	
valve body	technopolymer
sleeve	treated brass
core and spring	stainless steel
seals	nitrile rubber
Weight (Kg):	0,036

	Symbol	Ø (d) mm	Flow rate (Nl/min) 1→2	2→3	Times (ms) En.	De-en.	Manual override	Part no.
3/2 NC		1,5	60	80	12	12	⊖	AA-0184
2/2 NC		1,3	50	-	16	-	⊖	AA-0186
3/2 NO (b)		1,2	30	70	11	10	(c)	AA-0188

Use SPEED subbase to build Manifolds, see following pages.
Available upon request: brass valve body (without manual override), zamak valve body, stainless steel sleeve, other inner diameters.

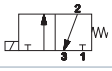
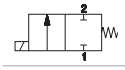
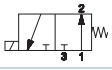


A Manual override

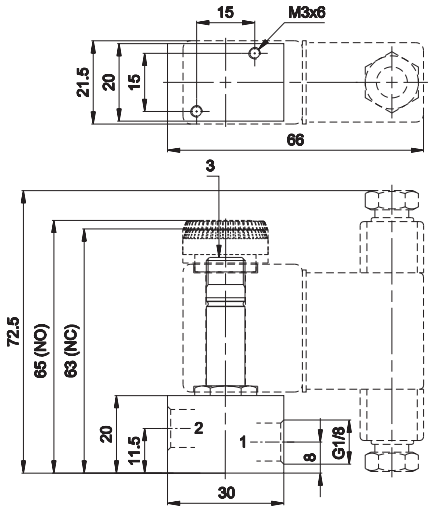
1 = Supply port
2 = Use
3 = Exhaust

U1 **2/2 - 3/2** G1/8 Electropilot

Material:	
valve body	brass
sleeve	treated brass
core and spring	stainless steel
seals	nitrile rubber
Weight (Kg):	0,105

	Symbol	Ø (d) mm	Flow rate (Nl/min) 1→2	2→3	Times (ms) En.	De-en.	Manual override	Part no.
3/2 NC		1,5	60	85	12	12	-	AA-0211
2/2 NC		1,3	60	-	16	-	-	AA-0219
3/2 NO (b)		1	28	75	11	9	(c)	AA-0213

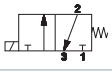
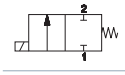
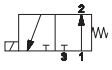
Electropilot to be used done.
Brass body suitable for use with non-aggressive luiquids. No manual override.
Available upon request: stainless steel sleeve - other inner diameters.



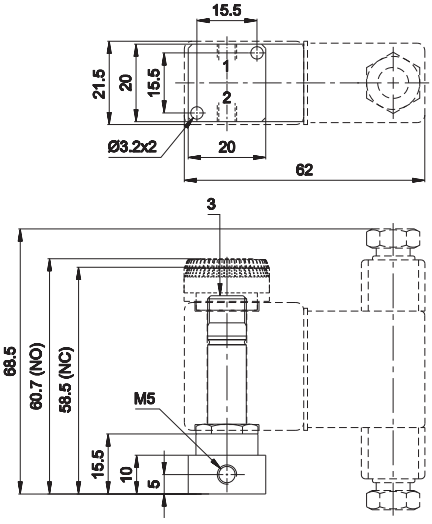
1 = Supply port
2 = Use
3 = Exhaust

U1 **2/2 - 3/2** M5 Electropilot

Material:	
valve body	brass
sleeve	treated brass
core and spring	stainless steel
seals	nitrile rubber
Weight (Kg):	0,065

	Symbol	Ø (d) mm	Flow rate (Nl/min) 1→2	2→3	Times (ms) En.	De-en.	Manual override	Part no.
3/2 NC		1,5	60	80	12	12	-	AA-0231
2/2 NC		1,3	50	-	16	-	-	AA-0239
3/2 NO (b)		1	30	70	11	10	(c)	AA-0233

Electropilot to be used done.
Brass body suitable for use with non-aggressive luiquids. No manual override.
Available upon request: stainless steel sleeve - other inner diameters.



1 = Supply port
2 = Use
3 = Exhaust

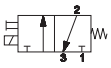
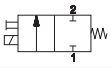
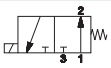
(b) = close the exhaust of the 3/2 NO electropilot to get the 2/2 NO one
(c) = manual override on AM-5201 ring nut
⊖ = with 2 position screw
(d) = the Ø shown on the 3/2 valves refers to the exhhaust

Electropiltots are supplied without coil, connector and locking ring

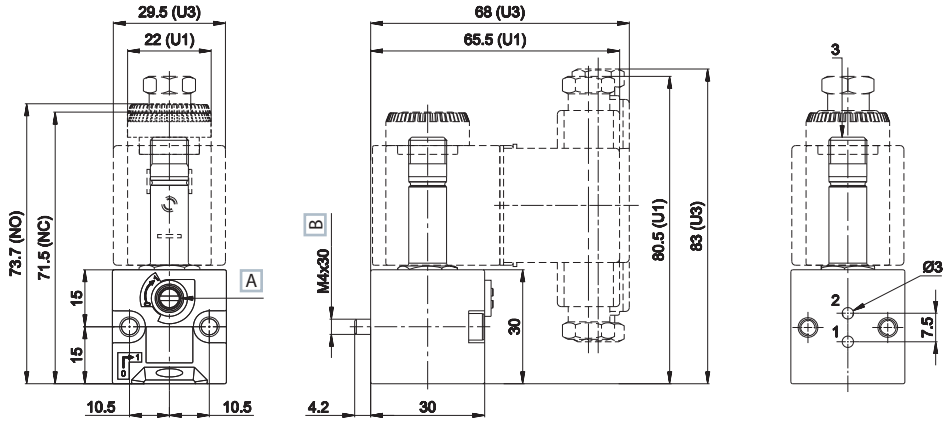
U1 CNOMO **2/2 - 3/2** Electropilot for mounting on sub-bases SPEED U2

Material:	
valve body	technopolymer
sleeve	treated brass
core and spring	stainless steel
seals	nitrile rubber

Weight (Kg):	0,155

	Symbol	Ø (d) mm	Flow rate (Nl/min) 1→2	2→3	Times (ms) En.	De-en.	Manual override	Part no.
3/2 NC		1,5	45	77	12	12	⊖	**AA-0400**
		1,5	45	77	12	12	→	**AA-0400U**
2/2 NC		1,3	42	-	-	-	⊖	**AA-0402**
3/2 NO (b)		1,2	33	77	11	10	(c)	**AA-0404**

Sub-base: SPEED U2. Available upon request: brass valve body (without manual override). Zamak valve body. Stainless steel sleeve - other inner diameters.



A Manual override
B ISO 4762

1 = Supply port
2 = Use
3 = Exhaust

Modular sub-base "SPEED" series U1/U2 **G1/8**

Electropilot	Connections	Material	Weight Kg	Part no.
U1 for base	G 1/8	zamak	0,037	**AA-0450**
U2 for base	G 1/8	zamak	0,075	**AB-0900**

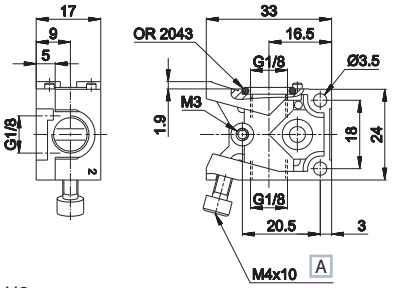
Advantages
The original UNIVER "Speed" series was designed to solve some operational problems

- Possibility of defining the number of sub-bases at the moment of use
- Possibility of freely increasing or reducing the number of elements
- Quick assembly with special screw (built-in) standard supplied
- Reduction of stock holding
- Easy technical intervention

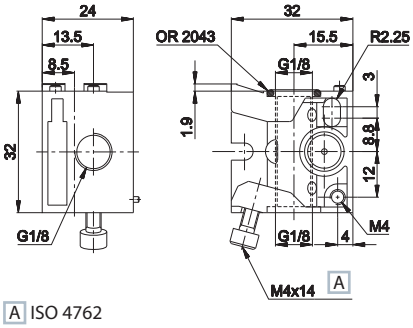
Air supply is rotated by 90° in comparison with side consumption
Standard (built-in) screw and O-Ring

When assembling the manifold, put the bases on a flat surface and tighten the screw until the manifold is perfecty aligned.

U1



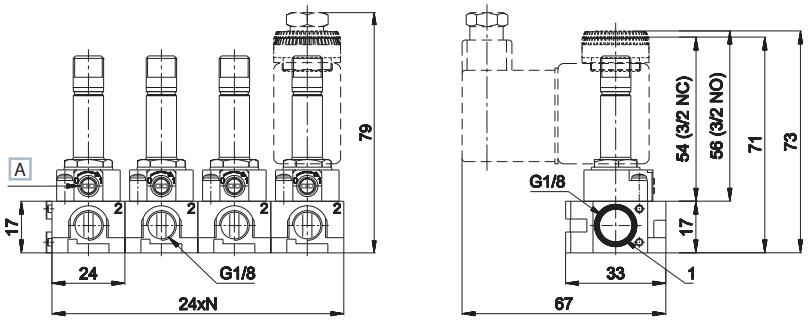
U2



A ISO 4762

(b) = close the exhaust of the 3/2 NO electropilot to get the 2/2 NO one
(c) = manual override on ring nut AM-5201
⊖ = with 2 position screw
→ = with button with tool
(d) = the Ø shown on the 3/2 valves refers to the exhhaust
Electropiltots are supplied without coil, connector and locking ring

U1 **G1/8** sub-base

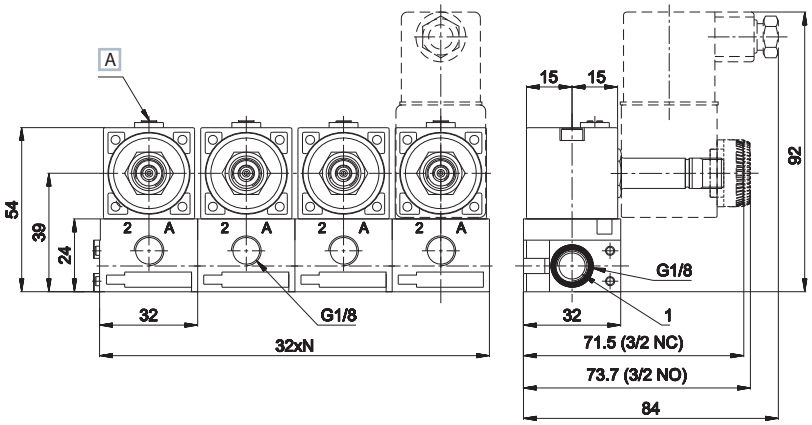


A Manual override

1 = Supply port
2 = Use

N = Number of valve positions

U2 **G1/8 CNOMO** sub-base



A Manual override

1 = Supply port
2 - A = Use

N = Number of valve positions

AB

Miniature electropilots U2

Direct intervention electropilots with poppet valve system and bottom cushioned seals
- Assembly on sub-base
- Threaded connections on the body
- CNOMO interface
- Orientable coil (360°) separated from mechanical part
- Versions: 2/2 3/2 - NC NO
- Original Univer SPEED modular sub-base

TECHNICAL CHARACTERISTICS

Ambient temperature	-10 ÷ +50 °C			
Fluid temperature	max +95 °C			
Fluid	filtered air 10 µm, lubricated or not (upon request other fluids can be used)			
Commutation system	direct intervention poppet valve system with cushioned seals			
Ways/Positions	**2/2 NC, 3/2 NC, 3/2 NO**[(a)]			
Pressure	**2/2, 3/2 NC** = 0 ÷ 10			
	3/2 NO = 3 ÷ 10			
Control	electric			
Return	mechanical spring			
Connections	on sub-base or with threaded connections on the body			
	sub-base	**G 1/8**	**M5**	**CNOMO**
Nominal Ø (mm)	2,1 ÷ 2,4	2,1 ÷ 2,4	1,6 ÷ 6	2,1 ÷ 2,4
Nominal flow rate (Nl/min)	92 ÷ 150	100 ÷ 155	95 ÷ 650	92 ÷ 110

CONSTRUCTIVE CHARACTERISTICS

Materials	see features below

ELECTRIC CHARACTERISTICS

Series	U2
Coil	DB
Power consumption	11W (DC) - 10 VA (AC)
Connector	AM 5111
Voltage	12 V DC - 24 V DC - 24 V AC - 110 V AC - 230 V AC

For other electric features see section **"Accessories>Coils"**

(a) = Mechanical part designed to keep the air supply always from the body
(Useful in case of assembly of more NC-NO pilots in series to have a unique supply port)

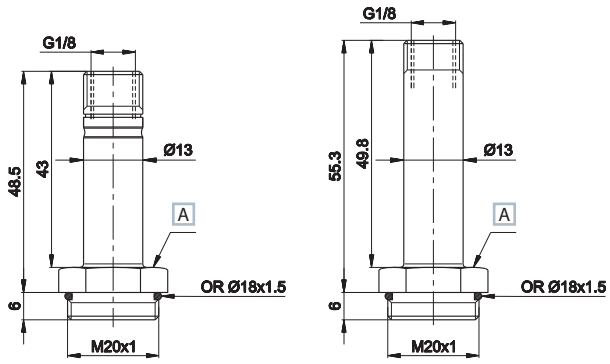
U2 Sleeves - with moving core

Material:	
sleeve	treated brass
cores and springs	stainless steel
seals	nitrile rubber

	Exhaust Ø	Pressure	Weight	Part no.
	mm	bar	Kg	
3/2 NO	2,4	3÷10	0,060	**AB-0600**
3/2 NC	2,4	0÷10	0,060	**AB-0613**
2/2 NC (a)	-	0÷10	0,060	**AB-0640**
2/2 NC	-	0÷10	0,070	**AB-0643**

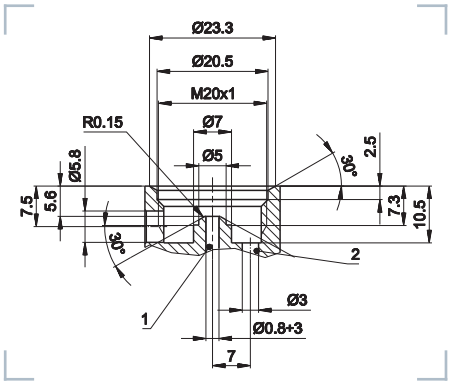
Upon request viton seals and stainless steel sleeves (only NC options)

■ NC ■ NO



A Wrench 22

■ Detail of machining

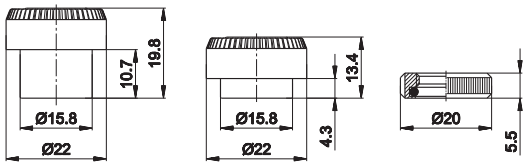


1 = Supply port
2 = Use

Locking rings for coils on sleeves

Version	Suitable for sleeves	Material	Coil	Part no.
1 = radial exhausts	3/2 NC	technopolymer	U2	**AM-5212A**
2 = radial exhausts	3/2 NO	technopolymer	U2	**AM-5214A**
3 = open exhausts	2/2 NC	brass	U2	**AM-5212B**

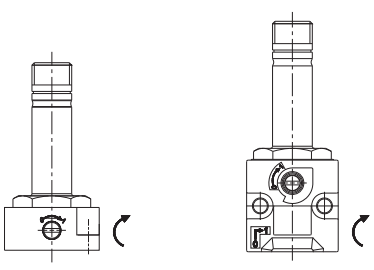
In order to convey exhausts, use version 3



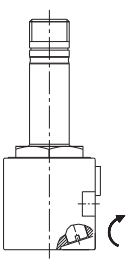
1 2 3

Standard manual overrides with electropilots

Functionig	Suitable for sleeves	Symbol/Part no.
1 = with 2 position screw	all NC U2 electropilots that can use manual override	⊖
2 = with impulse 1-2 position screw	only CNOMO NC U2 electropilots	⊖
3 = with button with tool	only CNOMO NC U2 electropilots	→
4 = with button, 1 position	U2 NO 3/2 electropilots	**AM-5203**(b)



1



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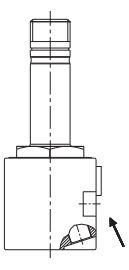
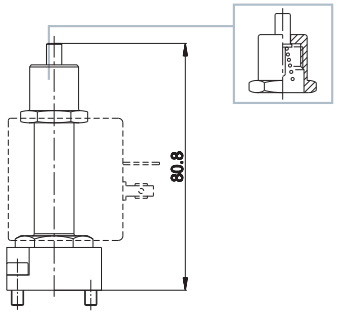


3



4

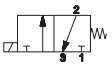
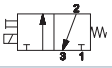
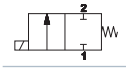
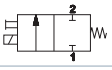
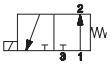
(a) = Suitable for sub-bases with diameter from 3 ÷ 6

(b) = Mounted on the 3/2 NO sleeve

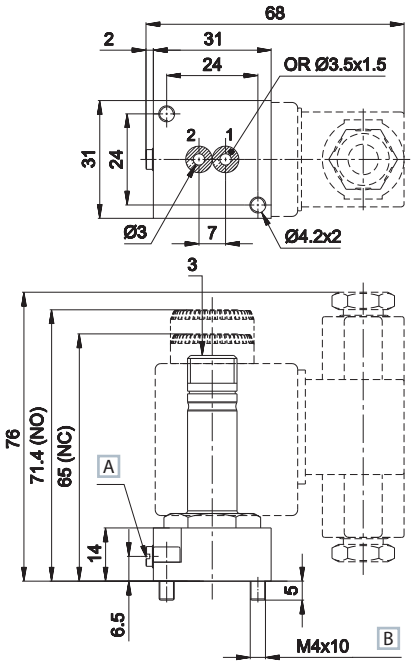
⊖ = with 2 position screw
→ = with button with tool

U2 **2/2 - 3/2** Electropilot for assembling on sub-base

Material:	
valve body	zamak
sleeve	treated brass
core and spring	stainless steel
seals	nitrile rubber
Weight (Kg):	0,125

	Symbol	Ø (d) mm	Flow rate (Nl/min) 1→2	2→3	Times (ms) En.	De-en.	Manual override	Part no.
3/2 NC		2,4	150	160	13	10	—	**AB-0681**
3/2 NC		2,4	150	160	13	10	⊖	**AB-0687**
2/2 NC		2,1	130	-	13	-	—	**AB-0722**
2/2 NC		2,1	130	-	13	-	⊖	**AB-0728**
3/2 NO (c)		2,4	92	148	14	10	(e)	**AB-0685**

Sub-base: SPEED U2. Available upon request: stainless steel sleeve - other inner diameters.

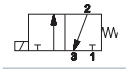
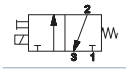
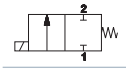
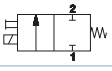
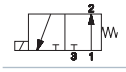


A Manual override
B ISO 4762

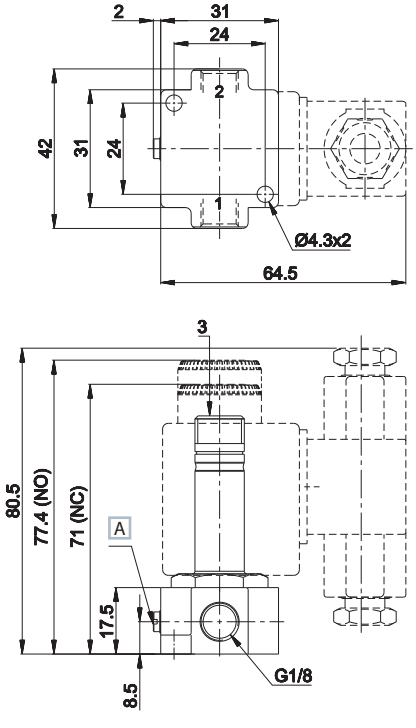
1 = Supply port
2 = Use
3 = Exhaust

U2 **2/2 - 3/2** G1/8 Electropilot

Material:	
valve body	zamak
sleeve	treated brass
core and spring	stainless steel
seals	nitrile rubber
Weight (Kg):	0,145

	Symbol	Ø (d) mm	Flow rate (Nl/min) 1→2	2→3	Times (ms) En.	De-en.	Manual override	Part no.
3/2 NC		2,4	155	210	13	10	—	**AB-0751**
3/2 NC		2,4	155	210	13	10	⊖	**AB-0757**
2/2 NC		2,1	155	-	12	-	—	**AB-0765**
2/2 NC		2,1	155	-	12	-	⊖	**AB-0771**
3/2 NO (c)		2,4	100	150	14	11	(e)	**AB-0755**

Available upon request: stainless steel sleeve - other inner diameters.



A Manual override

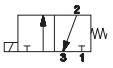
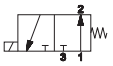
1 = Supply port
2 = Use
3 = Exhaust

(c) = close the exhaust of the 3/2 NO electropilot to get the 2/2 NO one. (d) = the Ø shown on the 3/2 valves refers to the exhhaust. ⊖ = with 2 position screw.
(e) = manual override on AM-5203 ring nut

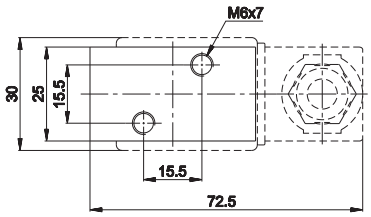
Electropiltots are supplied without coil, connector and locking ring

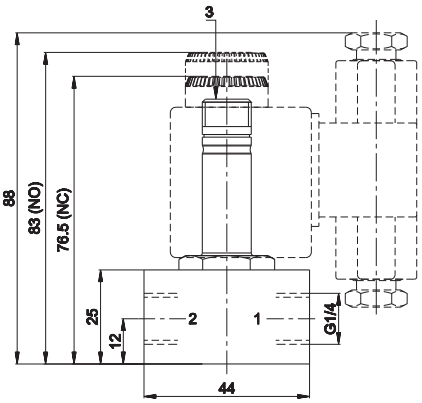
U2 **3/2** G1/4 Electropilot

Material:	
valve body	brass\
sleeve	treated brass
core and spring	stainless steel
seals	nitrile rubber
Weight (Kg):	0,225

	Symbol	Ø (d) mm	Flow rate (Nl/min) 1→2	2→3	Times (ms) Ecc.	Dis.	Manual override	Part no.
3/2 NC		2,1	200	210	13	11	—	**AB-0822**
3/2 NO (c)		2,1	95	160	12	10	(e)	**AB-0819**

Suitable for use with non-aggressive liquids. Upon request: stainless steel body and sleeve.

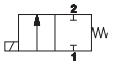




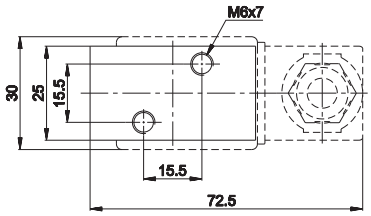
1 = Supply port
2 = Use
3 = Exhaust

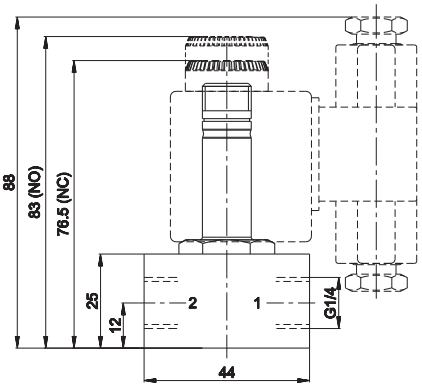
U2 **2/2** G1/4 Electropilot

Material:	
valve body	brass
sleeve	treated brass
core and spring	stainless steel
seals	nitrile rubber
Weight (Kg):	0,220

	Symbol	Ø (d) mm	Flow rate (Nl/min)	Pressure bar	Times (ms) En.	De-en	Part no.
2/2 NC		1,6	108	0÷30	6	-	**AB-0824**
		2	165	0÷20	9	-	**AB-0825**
		2,4	210	0÷15	11	-	**AB-0826**
		3	280	0÷10	12	-	**AB-0827**
		3,5	350	0÷9	-	10	**AB-0828**
		4	450	0÷8	-	13	**AB-0829**
		4,5	500	0÷7	-	13	**AB-0830**
		5	550	0÷6,5	-	16	**AB-0831**
		5,5	600	0÷6	-	21	**AB-0832**
		6	650	0÷5	-	29	**AB-0833**

Suitable for use with non-aggressive liquids.





1 = Supply port
2 = Use

Coil U2 - 17 VA	Voltage	
	24V AC - 50/60 Hz	**DB-0607**
	110V AC - 50/60 Hz	**DB-0608**
	220V AC - 50/60 Hz	**DB-0610**

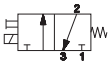
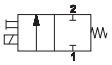
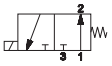
(c) = close the exhaust of the 3/2 NO electropilot to get the 2/2 NO one. (d) = the Ø shown on the 3/2 valves refers to the exhhaust. ⊖ = with 2 position screw.
(e) = manual override on AM-5203 ring nut

Electropiltots are supplied without coil, connector and locking ring

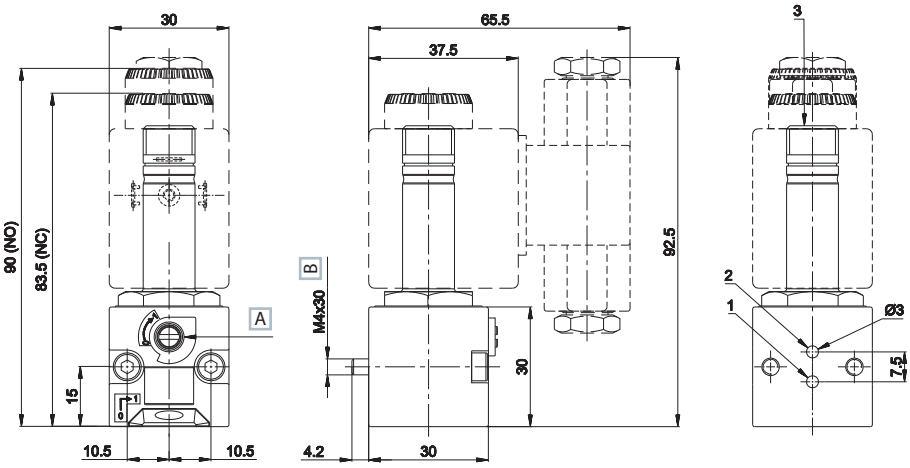
U2 CNOMO **2/2 - 3/2** Electropilot for mounting on sub-bases SPEED U2

Material:	
valve body	technopolymer
sleeve	treated brass
core and spring	stainless steel
seals	nitrile rubber

Weight (Kg):	0,155

	Symbol	Ø (d)	Flow rate (Nl/min)		Times (ms)		Manual	Part no.
		mm	1→2	2→3	En.	De-en.	override	
3/2 NC		2,4	110	170	13	12	⊖	**AB-0885**
2/2 NC		2,1	115	-	12	-	⊖	**AB-0886**
3/2 NO (c)		2,4	92	148	13	10	(e)	**AB-0888**

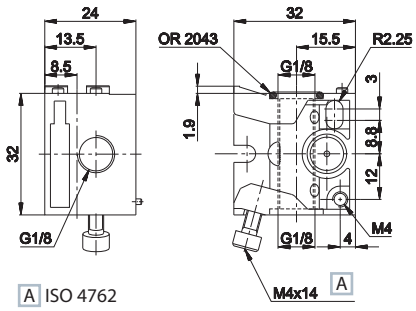
Sub-base: SPEED U2. Available upon request: brass valve body (without manual override). Zamak valve body. Stainless steel sleeve - other inner diameters.



A Override manual
B ISO 4762

1 = Supply port
2 = Use
3 = Exhausts

Modular sub-base SPEED series U2 G1/8



A ISO 4762

Electropilot	Connections	Material	Weight	Part no.
			kg	
U2 for base	G 1/8	zamak	0,075	**AB-0900**

Advantages
The original UNIVER "Speed" series was realized to solve some operational problems

- Possibility of defining the number of sube-bases at the moment of use
- Possibility of freely increasing or reducing the number of elements
- Quick assembly with special screw (built-in) standard supplied
- Reduction of stock holding
- Easy technical intervention

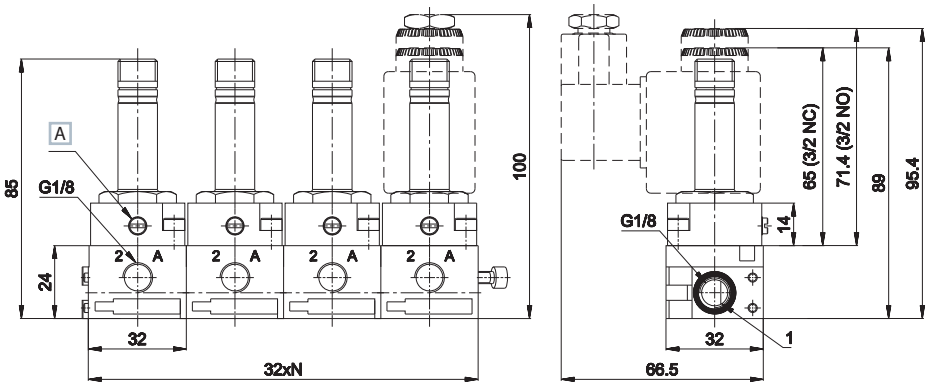
Air supply is rotated by 90° in comparison with side consumption
Standard (built-in) screw and O-Ring

When assembling the manifold, put the bases on a flat surface and tighten the screw until the manifold is perfecty aligned.

(c) = close the exhaust of the 3/2 NO electropilot to get the 2/2 NO one (d) = the Ø shown on the 3/2 valves refers to the exhhaust ⊖ = with 2 position screw
(e) = manual override on ring nut AM-5203

Electropiltots are supplied without coil, connector and locking ring

U2 **G1/8** Sub-base

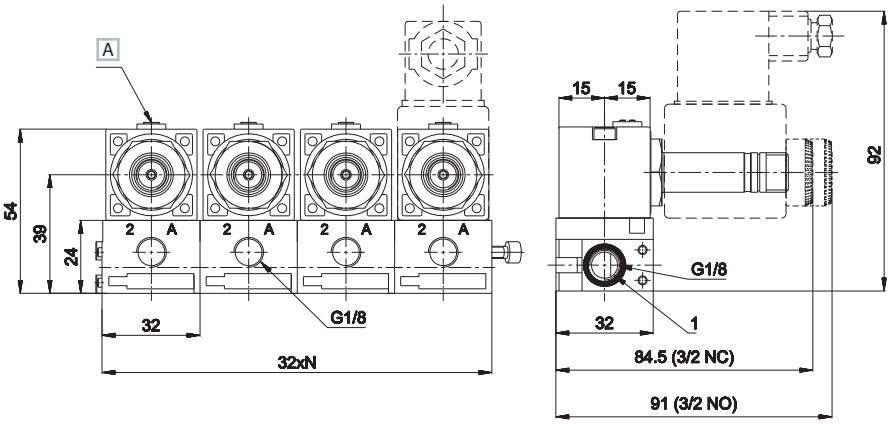


A Manual override

1 = Supply port
2 - A = Use

N = Number of valve position

U2 **G1/8 CNOMO** Sub-base



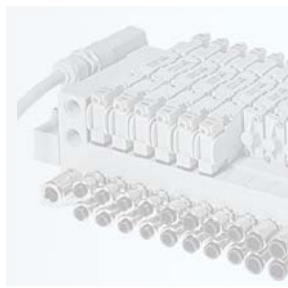
A Manual override

1 = Supply port
2 - A = Use

N = Number of valve position







STANDARDIZED VALVES

2 Standardized valves

BE/BE12

ISO 5599/1 Valves

- Compliance with ISO 5599/1 international standards
- Full range: 1 - 2 - 3 - 4 size
- Two different internal commutation system: mixed and spool, appreciated for decades thanks to their maximum reliability
- High capacity
- Short internal stroke
- No lubrication
- Electric connection M12 for 1 - 2 - 3 size
- Modular base
- Possibility of mounting different sizes on the same sub-base

TECHNICAL CHARACTERISTICS

Ambient temperature				-10 ÷ +50 °C
Fluid temperature				max +50 °C
Fluid				**mixed system:** not dehumidified filtered air 50 µm
				spool system: filtered air 50 µm, dehumidified or not
Commutation system				mixed system, spool system
Ways/Positions				**5/2, 5/3**
Pressure				10 bar max
Control				indirect electro - pneumatic, pneumatic
Return				**mixed system:** pneumomechanical spring
				spool system: mechanical spring
Connections				ISO 5599/1 interface
	size 1	**size 2**	**size 3**	**size 4**
Nominal Ø (mm)	8	10	15	19
Nominal flow rate (Nl/min)	1480	2300	4200	6600

CONSTRUCTIVE CHARACTERISTICS

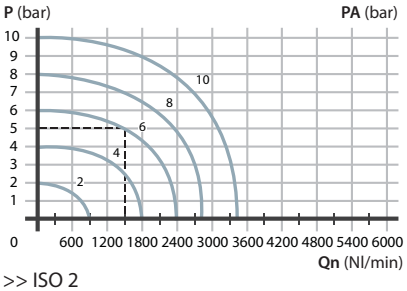
Valve body	acetalic resin
Cover	zamak - aluminium
Seals	**mixed system:** nitrile rubber and polyurethane
	spool system: nitrile rubber
Sub-base	zamak - aluminium
Actuators	technopolymer
Spool	aluminium

ELECTRIC CHARACTERISTICS

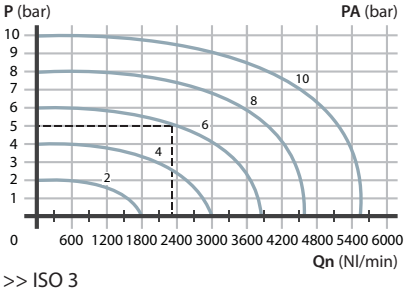
Electropilot	AA CNOMO (U1) series
Coil	U3 DC series
Power consumption	2,5 W (DC) - 5 VA (AC)
Voltage	12 V DC - 24 V DC - 24 V AC - 110 V AC - 230 V AC
Connector	AM 5111
Manual override	with two position screw (standard)
	with button with tool (upon request)

Flow rate characteristics

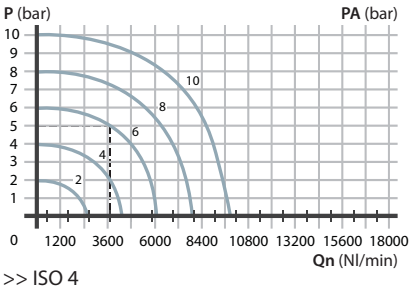
>> ISO 1



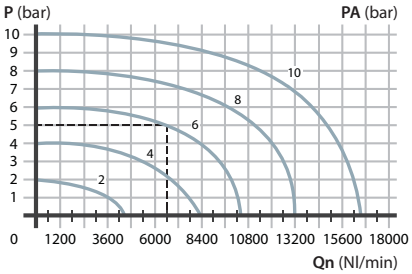
>> ISO 2



>> ISO 3



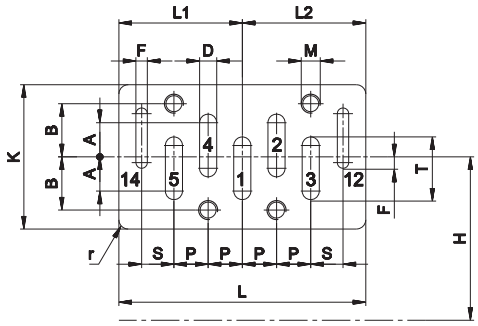
>> ISO 4



P = Working pressure
PA = Supply pressure
Qn = Nominal flow rate

ISO 5599/1 Standard

The ISO standard for pneumatic valves is accepted by industry and by the majority of major pneumatic valve manufactures throughout the world. The choice of valves according to ISO standard means to be at the technical forefront and to guarantee the user the interchangeability of both the valve body and the electromagnetic part

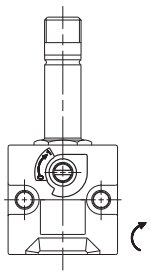


	A	B	D	F	H	K	L	L1	L2	M	P	r	S	T
ISO 1	9	14	4,5	3	43	38	65	32,5	32,5	M5	9	2,5	8,5	16,5
ISO 2	10	19	7	3	56	50	81	40,5	40,5	M6	12	3	10	22
ISO 3	11,5	24	10	4	71	64	106	53	53	M8	16	4	13	29
ISO 4	14,5	29	13	4	82	74	142	77,5	64,5	M8	20	4	15,5	36,5

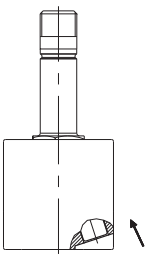
Standard manual overrides

Functioning	Suitable for valve	Symbol/Part no.
1 = with 2 position screw	BE	⊖
2 = with button with tool	BE	→
3 = with embedded button, 1 position	BE12	→

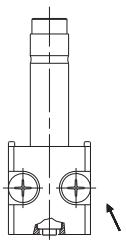
Special versions available (upon request): with 1 - 2 position button, with 1 position frontal button, with 1 position button



1

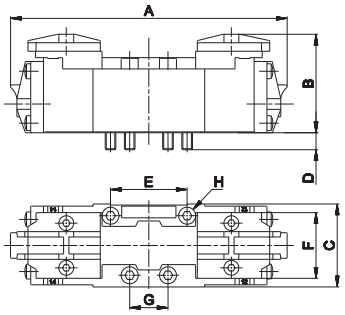


2

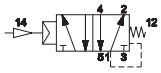
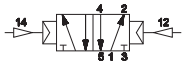
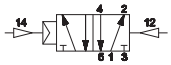
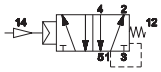
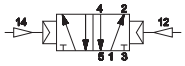
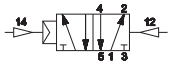


3

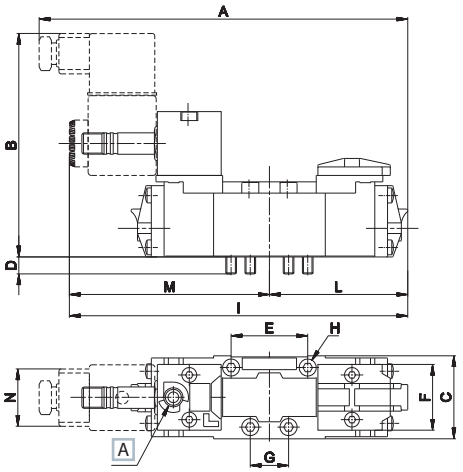
Single/double **pneumatic** impulse



	ISO 1	ISO 2	ISO 3	ISO 4
A	128	145	191	222
B	47	47	63	63
C	39	52	64	74
D	5	5	10	10
E	36	48	64	80
F	28	38	48	58
G	18	24	32	40
H	M5x38	M6x35	M8x50	M8x50

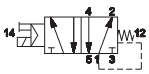
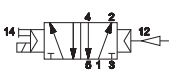
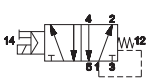
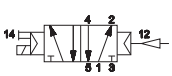
	Symbol	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Size	Weight Kg	Part no.
	MIXED SYSTEM								
5/2		pneumatic amplified	pneumomechanical spring	2÷10	9	18	1	0,30	**BE-3100**
				2,3÷10	11	14	2	0,40	**BE-4100**
				2,5÷10	19	49	3	0,65	**BE-5100**
				3÷10	23	46	4	0,87	**BE-6100**
5/2		pneumatic amplified	pneumatic amplified	1÷10	5	5	1	0,30	**BE-3150**
				1÷10	6	6	2	0,40	**BE-4150**
				1÷10	10	10	3	0,65	**BE-5150**
				1,3÷10	12	12	4	0,87	**BE-6150**
5/2		pneumatic amplified	pneumatic not amplified	2÷10	5	16	1	0,30	**BE-3170**
				2÷10	6	13	2	0,40	**BE-4170**
				2,2÷10	10	35	3	0,65	**BE-5170**
				2,2÷10	12	32	4	0,87	**BE-6170**
	SPOOL SYSTEM								
5/2		pneumatic amplified	pneumomechanical spring	1,8÷10	11	22	1	0,30	**BE-3800**
				2÷10	13	19	2	0,40	**BE-4800**
				2,2÷10	21	52	3	0,65	**BE-5800**
				2,8÷10	24	29	4	0,87	**BE-6800**
5/2		pneumatic amplified	pneumatic amplified	0,8÷10	6	6	1	0,30	**BE-3850**
				1÷10	7	7	2	0,40	**BE-4850**
				1÷10	12	12	3	0,65	**BE-5850**
				1÷10	14	14	4	0,87	**BE-6850**
5/2		pneumatic amplified	pneumatic not amplified	1,5÷10	6	15	1	0,30	**BE-3870**
				1,8÷10	7	14	2	0,40	**BE-4870**
				2÷10	12	38	3	0,65	**BE-5870**
				2÷10	14	31	4	0,87	**BE-6870**

Single **electric** impulse



	ISO 1	ISO 2	ISO 3	ISO 4
A	169,5	195,5	219	253
B	105	105	118	118
C	39	52	64	74
D	5	5	10	10
E	36	48	64	80
F	28	38	48	58
G	18	24	32	40
H	M5x38	M6x35	M8x50	M8x50
I	159,5	176	208,5	235
L	64	72,5	95,5	111
M	95,5	103,5	113	124
N	30	30	30	30

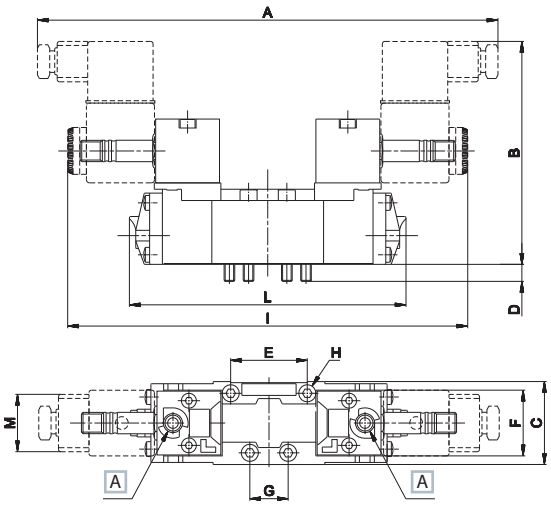
A Manual override

	Symbol	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Size	Weight Kg	Part no.
	MIXED SYSTEM								
5/2		electric amplified	pneumomechanical spring	2÷10	20	32	1	0,45	**BE-3000**
				2,3÷10	24	25	2	0,55	**BE-4000**
				2,5÷10	32	71	3	0,90	**BE-5000**
				3÷10	38	62	4	1,12	**BE-6000**
5/2		electric amplified	pneumatic amplified	1÷10	16	6	1	0,45	**BE-3060**
				1÷10	17	7	2	0,80	**BE-4060**
				1÷10	23	15	3	1,30	**BE-5060**
				1,3÷10	25	16	4	1,37	**BE-6060**
	SPOOL SYSTEM								
5/2		electric amplified	pneumomechanical spring	2÷10	21	35	1	0,45	**BE-3700**
				2,2÷10	24	30	2	0,55	**BE-4700**
				2,3÷10	33	74	3	0,90	**BE-5700**
				2,8÷10	39	68	4	1,12	**BE-6700**
5/2		electric amplified	pneumatic amplified	1÷10	17	8	1	0,45	**BE-3760**
				1÷10	18	9	2	0,80	**BE-4760**
				1÷10	26	17	3	1,30	**BE-5760**
				1,3÷10	27	18	4	1,37	**BE-6760**

For manual version with button, add "U" to the end of the part number

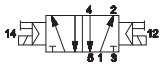
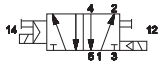
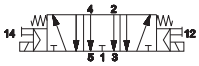
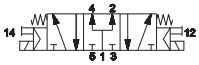
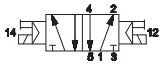
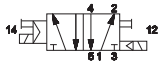
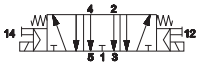
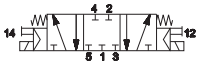
Electrovalves are supplied without coil, connector and locking ring

Double **electric** impulse



	ISO 1	ISO 2	ISO 3	ISO 4
A	211	226	247	268
B	105	105	118	118
C	39	52	64	74
D	5	5	10	10
E	36	48	64	80
F	28	38	48	58
G	18	24	32	40
H	M5x38	M6x35	M8x50	M8x50
I	191	207	226	248
L	128	145	191	222
M	30	30	30	30

A Manual override

	Symbol	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Size	Weight Kg	Part no.
	MIXED SYSTEM								
5/2		electric amplified	electric amplified	1÷10	16	16	1	0,55	**BE-3020**
				1÷10	17	17	2	0,80	**BE-4020**
				1÷10	23	23	3	1,20	**BE-5020**
				1,3÷10	25	25	4	1,37	**BE-6020**
5/2		electric amplified	electric non amplified	2÷10	16	34	1	0,55	**BE-3030**
				2÷10	17	29	2	0,80	**BE-4030**
				2,2÷10	23	54	3	1,20	**BE-5030**
				2,2÷10	25	45	4	1,37	**BE-6030**
5/3 o.c.		electric amplified	electric amplified	3÷10	50	26	1	0,55	**BE-3200**
				3÷10	54	24	2	0,80	**BE-4200**
				3÷10	108	36	3	1,20	**BE-5200**
				3÷10	115	115	4	1,37	**BE-6200**
5/3 p.c.		electric amplified	electric amplified	2÷10	50	26	1	0,50	**BE-3205**
				2,3÷10	54	24	2	0,80	**BE-4205**
				2,5÷10	108	36	3	1,20	**BE-5205**
				3÷10	115	115	4	1,37	**BE-6205**
	SPOOL SYSTEM								
5/2		electric amplified	electric amplified	1÷10	17	17	1	0,55	**BE-3720**
				1÷10	18	18	2	0,80	**BE-4720**
				1÷10	26	26	3	1,20	**BE-5720**
				1÷10	27	27	4	1,37	**BE-6720**
5/2		electric amplified	electric non amplified	1,8÷10	17	28	1	0,55	**BE-3730**
				1,8÷10	18	25	2	0,80	**BE-4730**
				2÷10	26	46	3	1,20	**BE-5730**
				2÷10	27	42	4	1,37	**BE-6730**
5/3 o.c.		electric amplified	electric amplified	2,3÷10	17	25	1	0,55	**BE-3900**
				2,5÷10	18	27	2	0,80	**BE-4900**
				2,5÷10	26	50	3	1,20	**BE-5900**
				2,5÷10	30	47	4	1,37	**BE-6900**
5/3 c.c.		electric amplified	electric amplified	2,3÷10	17	25	1	0,55	**BE-3940**
				2,5÷10	18	27	2	0,80	**BE-4940**
				2,5÷10	26	50	3	1,20	**BE-5940**
				2,5÷10	30	47	4	1,37	**BE-6940**

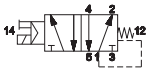
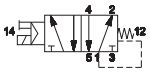
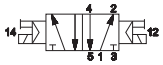
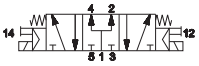
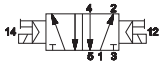
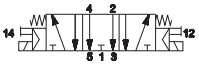
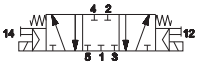
o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

For manual version with button, add "U" to the end of the part number

Electrovalves are supplied without coil, connector and locking ring

The use of pneumatic component in the automotive field, coupled with electric components, led to the development of a traditional ISO valve with electric connector M12 placed in central position, for both valves with single as well as double electric contol.

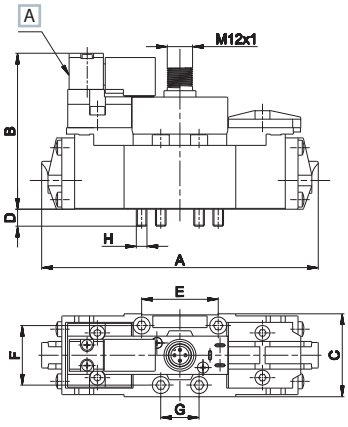
Single/double **electric** impulse

	Symbol	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Size	Weight Kg	Part no.
	SINGLE IMPULSE - MIXED SYSTEM								
5/2		electric amplified	pneumomechanical spring	2÷9	18	29	1	0,45	**BE12-3000**
				2,3÷9	23	24	2	0,55	**BE12-4000**
				2,5÷9	35	78	3	0,90	**BE12-5000**
	SINGLE IMPULSE - SPOOL SYSTEM								
5/2		electric amplified	pneumomechanical spring	2÷9	19	32	1	0,45	**BE12-3700**
				2,2÷9	23	28	2	0,55	**BE12-4700**
				2,3÷9	36	82	3	0,90	**BE12-5700**
	DOUBLE IMPULSE - MIXED SYSTEM								
5/2		electric amplified	electric amplified	1÷9	14	14	1	0,55	**BE12-3020**
				1÷9	16	16	2	0,80	**BE12-4020**
				1÷9	25	25	3	1,20	**BE12-5020**
5/3 p.c.		electric amplified	electric amplified	2÷9	45	23	1	0,50	**BE12-3205**
				2,3÷9	51	23	2	0,80	**BE12-4205**
				2,5÷9	119	40	3	1,20	**BE12-5205**
	DOUBLE IMPULSE - SPOOL SYSTEM								
5/2		electric amplified	electric amplified	1÷9	15	15	1	0,55	**BE12-3720**
				1÷9	17	17	2	0,80	**BE12-4720**
				1÷9	29	29	3	1,20	**BE12-5720**
5/3 o.c.		electric amplified	electric amplified	2,3÷9	15	22	1	0,55	**BE12-3900**
				2,5÷9	17	26	2	0,80	**BE12-4900**
				2,5÷9	29	55	3	1,20	**BE12-5900**
5/3 c.c.		electric amplified	electric amplified	2,3÷9	15	22	1	0,55	**BE12-3940**
				2,5÷9	17	26	2	0,80	**BE12-4940**
				2,5÷9	29	55	3	1,20	**BE12-5940**

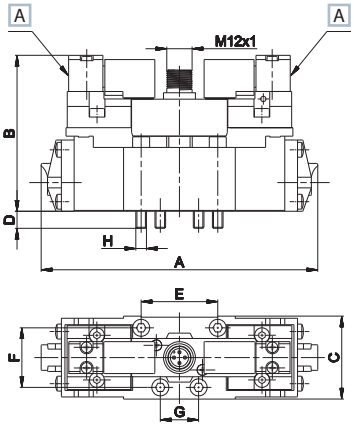
c.a. = centri aperti **c.c.** = centri chiusi **c.p.** = centri in pressione

Valves are supplied with 24 V DC coil

Single electric impulse



Double electric impulse



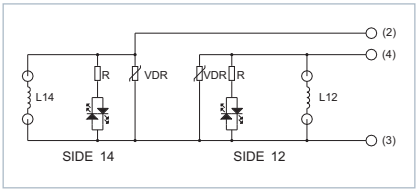
	ISO 1	ISO 2	ISO 3
A	128	145	191
B	73	73	90
C	39	52	64
D	5	5	10
E	36	48	64
F	28	38	48
G	18	24	32
H	M5x38	M6x35	M8x50

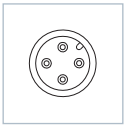
A Manual override

ELECTRIC FEATURES

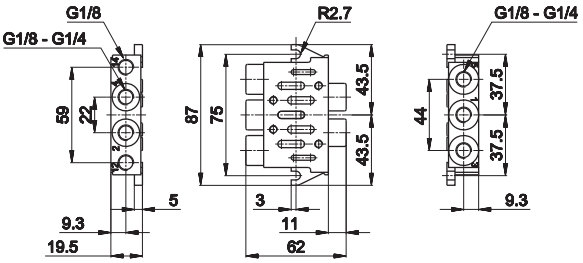
- Central electric connector M12x1
- IP 65 protection degree
- 24 V DC voltage
- 2,5 W nominal power
- DD-052** series coil (without faston)
- ED 100%
- LED indicator

Available upon request other voltages
max 48 V DC





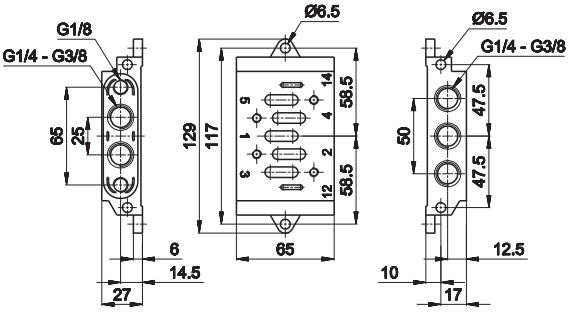
ISO 1 - Single sub-base, side connections



Notes	Connection	Material	Weight	Part no.
			Kg	
in line connections	G1/8	zamak	0,250	**BF-1060**
in line connections	G1/4	zamak	0,230	**BF-1061**

1 = Supply port 3 - 5 = Exhaust
2 - 4 = Use 12 - 14 = Pilots

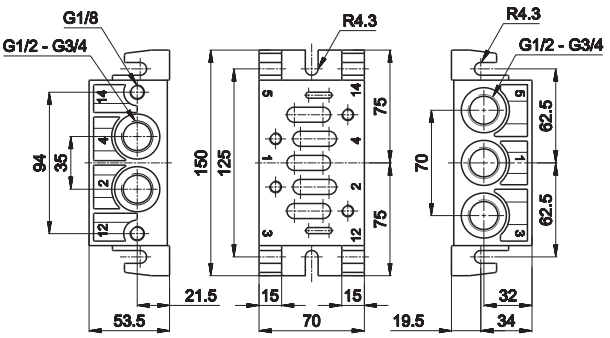
ISO 2 - Single sub-base, side connections



Notes	Connection	Material	Weight	Part no.
			Kg	
in line connections	G1/4	zamak	0,640	**BF-1150**
in line connections	G3/8	zamak	0,650	**BF-1151**

1 = Supply port 3 - 5 = Exhaust
2 - 4 = Use 12 - 14 = Pilots

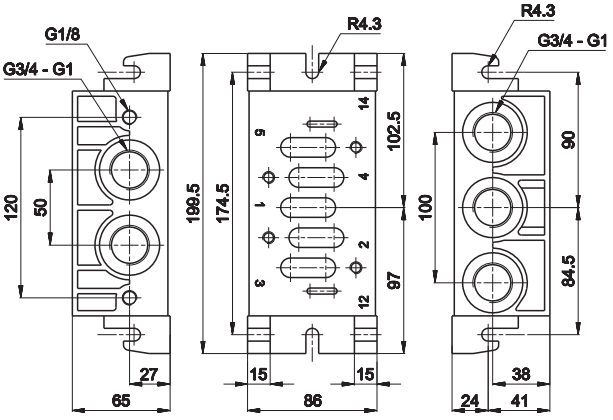
ISO 3 - Single sub-base, side connections



Notes	Connection	Material	Weight	Part no.
			Kg	
in line connections	G1/2	aluminium	0,740	**BF-3060**
in line connections	G3/4	aluminium	0,740	**BF-3061**

1 = Supply port 3 - 5 = Exhaust
2 - 4 = Use 12 - 14 = Pilots

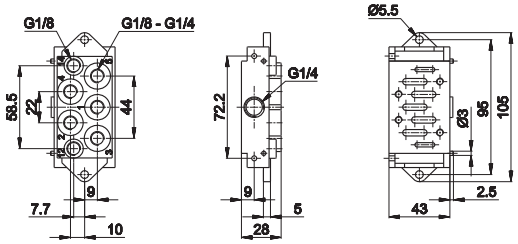
ISO 4 - Single sub-base, side connections



Notes	Connection	Material	Weight	Part no.
			Kg	
in line connections	G3/4	aluminium	1,280	**BF-4060**
dorsal and side connections	G1	aluminium	1,280	**BF-4061**

1 = Supply port 3 - 5 = Exhaust
2 - 4 = Use 12 - 14 = Pilots

ISO 1 - Single modular or Manifold sub-base, dorsal connections, separate exhausts

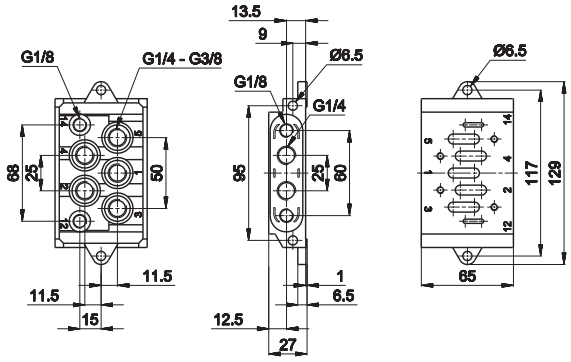


Notes	Connection	Material	Weight	Part no.
			Kg	
dorsal connections	G1/8	zamak	0,350	**BF-1062**
dorsal connections	G1/4	zamak	0,330	**BF-1063**

Single assembly: close side ports (G1/8 - G1/4)
Manifold assembly with common inlet: close dorsal connections n.1
With incorporated screws and seal

1 = Supply port 3 - 5 = Exhaust
2 - 4 = Use 12 - 14 = Pilots

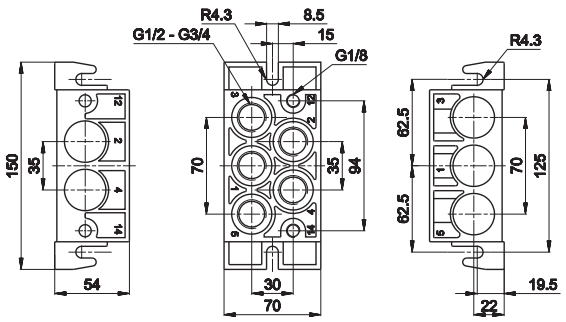
ISO 2 - Single sub-base, dorsal connections



Notes	Connection	Material	Weight	Part no.
			Kg	
dorsal connections	G1/4	zamak	0,640	**BF-1152**
dorsal connections	G3/8	zamak	0,650	**BF-1153**

1 = Supply port 3 - 5 = Exhaust
2 - 4 = Use 12 - 14 = Pilots

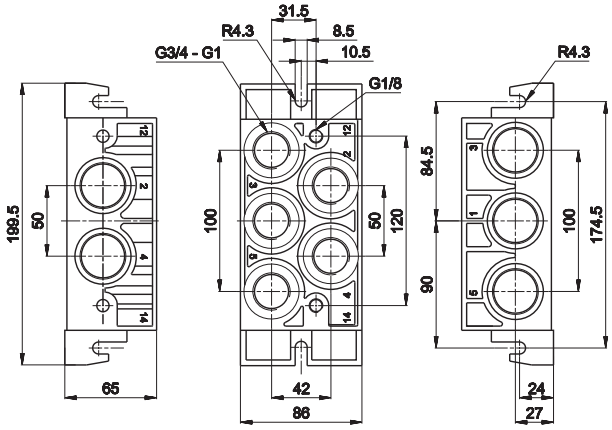
ISO 3 - Single sub-base, dorsal connections



Notes	Connection	Material	Weight	Part no.
			Kg	
dorsal connections	G3/4	aluminium	0,720	**BF-3063**

1 = Supply port 3 - 5 = Exhaust
2 - 4 = Use 12 - 14 = Pilots

ISO 4 - Single sub-base, dorsal connections



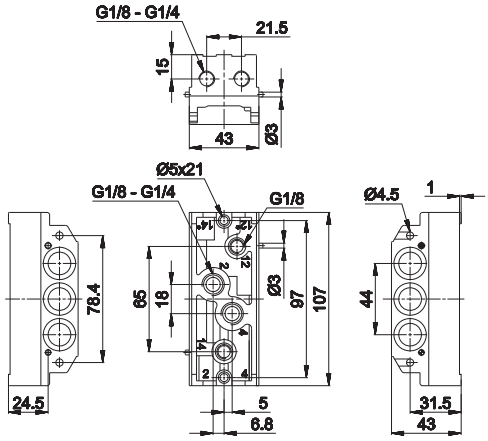
Notes	Connection	Material	Weight	Part no.
			Kg	
dorsal connections	G3/4	aluminium	1,240	**BF-4062**
dorsal connections	G1	aluminium	1,240	**BF-4063**

1 = Supply port 3 - 5 = Exhaust
2 - 4 = Use 12 - 14 = Pilots

ISO 1 - Manifold universal system sub-base, dorsal and side connections, conveyed exhausts

Notes	Connection	Material	Weight	Part no.
			Kg	
dorsal and side connections	G1/8	aluminium	0,280	**BF-1071**
dorsal and side connections	G1/4	aluminium	0,275	**BF-1072**
side pneumatic impulses	G1/8	aluminium	0,300	**BF-1071S**
side pneumatic impulses	G1/4	aluminium	0,295	**BF-1072S**

Dorsal and side connections possible. Close unused ports with caps.
With incorporated screws, seals and caps included



1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
12 - 14 = Pilots
12* - 14* = Side pilots

ISO 1 - Manifold universal system inlet plate

A On top connections
B In line connections
C Dorsal connetions

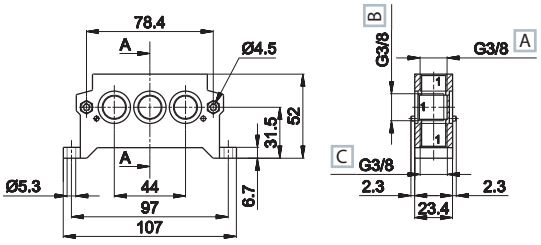
Notes	Connection	Material	Weight	Part no.
			Kg	
in line connections	G3/8	zamak	0,355	**BF-1064**
on top connections	G3/8	zamak	0,355	**BF-1065**
dorsal connections	G3/8	zamak	0,355	**BF-1066**

D Only in line connections

Notes	Connection	Material	Weight	Part no.
			Kg	
only in line connections	G3/8	aluminium	0,120	**BF-1068**

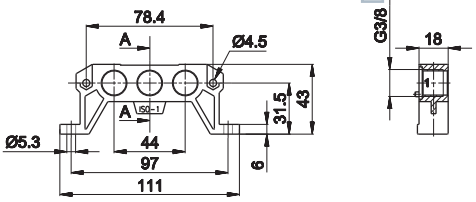
When battery exceeds 4 units, the mounting of 2 plates is recommended
Mixed version available upon request
With incorporated screws and seal

Section A-A



1 = Supply port
3 - 5 = Exhaust

Section A-A

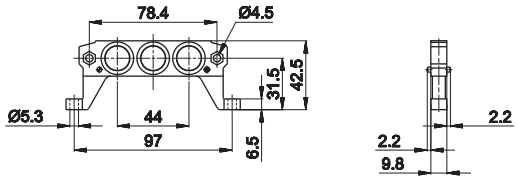


1 = Supply port
3 - 5 = Exhaust

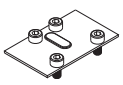
ISO 1 - Manifold universal system diaphragm

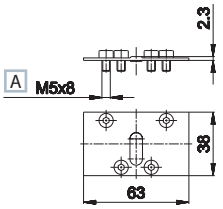
Notes	Connection	Material	Weight	Part no.
			Kg	
-	-	zamak	0,090	**BF-1070**

The diaphragm is not only the end plate of the manifold but it is also coupled with the exhaust regulator to separate two sub-bases and regulate the valves independently. In this case break the central blind hole.
To get two or more pressures, break the two side blind holes.



BF-1085

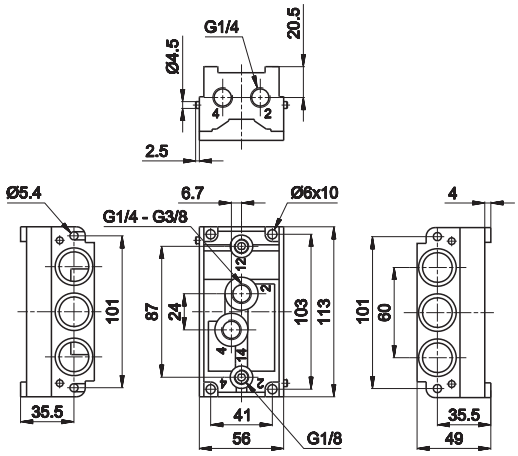




A ISO 4762

ISO 1 - Closing plate for sub-base 1
material: steel
weight: 0,030 Kg (for all sub-base versions)

ISO 2 - Manifold universal system sub-base, dorsal and side connections, conveyed exhausts

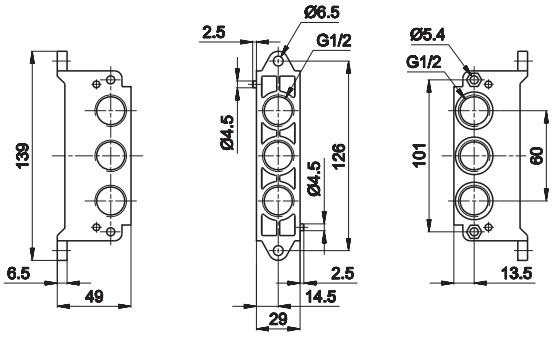


Notes	Connection	Material	Weight	Part no.
			Kg	
dorsal and side connections	G1/4	zamak	0,800	**BF-1160**
dorsal and side connections	G3/8	zamak	0,800	**BF-1161**

Dorsal and side connections possible. Close unused ports with caps.
With incorporated screw, seals and caps included

1 = Supply port 3 - 5 = Exhaust
2 - 4 = Use 12 - 14 = Pilots

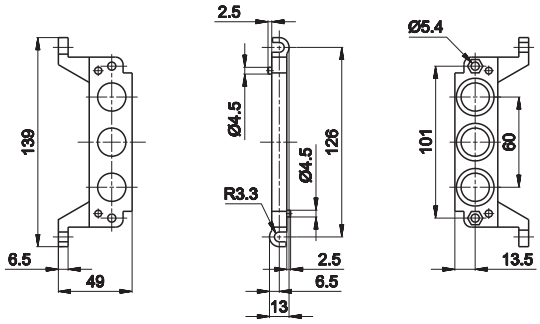
ISO 2 - Manifold Universal system inlet plate



Notes	Connection	Material	Weight	Part no.
			Kg	
in line connections	G1/2	zamak	0,460	**BF-1154**
dorsal connections	G1/2	zamak	0,460	**BF-1155**

When battery exceeds 4 units, the mounting of 2 plates is recommended
Mixed version available upon request
With incorporated screw and seals

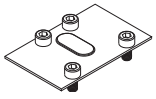
ISO 2 - Manifold universal system diaphragm

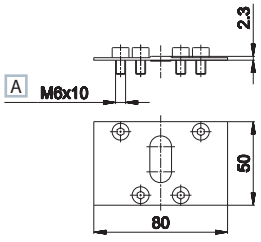


Notes	Connection	Material	Weight	Part no.
			Kg	
-	-	zamak	0,160	**BF-1162**

The diaphragm is not only the end plate of the manifold but it is also coupled with the exhaust regulator to separate two sub-bases and regulate the valves independently. In this case breakthe central blind hole.
To get two or more pressures, break the two side blind holes.

BF-1175

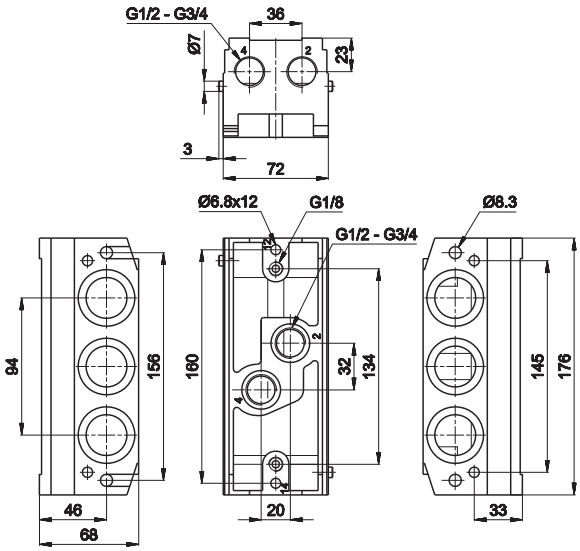




A ISO 4762

ISO 2 - Closing plate for sub-base 2
material: steel
weight: 0,050 Kg (for all sub-base versions)

ISO 3 - Manifold universal system sub-base, dorsal and side connections, conveyed exhausts

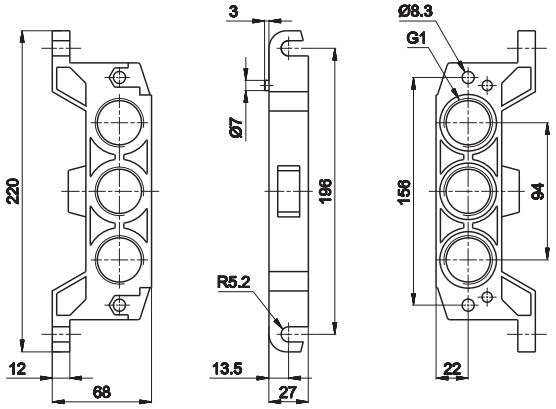


Notes	Connection	Material	Weight	Part no.
			Kg	
dorsal and side connections	G1/2	aluminium	1,100	**BF-3071**
dorsal and side connections	G3/4	aluminium	1,100	**BF-3072**

Dorsal and side connections possible. Close unused ports with caps.
With incorporated screws, seals and caps included

1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
12 - 14 = Pilots

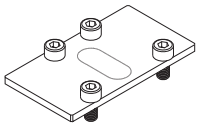
ISO 3 - Manifold Universal system inlet plate

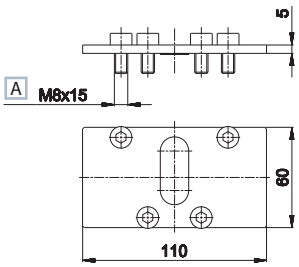


Notes	Connection	Material	Weight	Part no.
			Kg	
in line connections	G1	aluminium	0,440	**BF-3064**

When battery exceeds 4 units, the mounting of 2 plates is recommended
Mixed version available upon request
With incorporated screws and seals

BF-3175





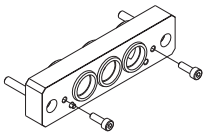
ISO 3 - Closing plate for sub-base 3
material: steel
weight: 0,080 Kg (for all sub-base versions)

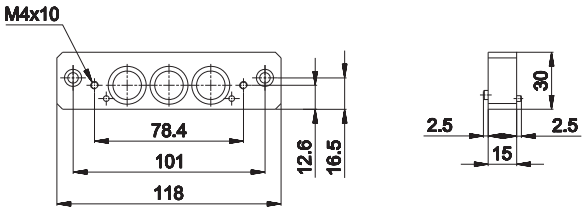
BF-3082

A ISO 4762

ISO 3 - Universal system Cap
material: steel
weight: 0,020 Kg
To be used to reach two pressures

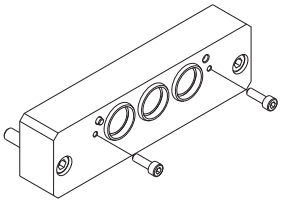
BF-1190

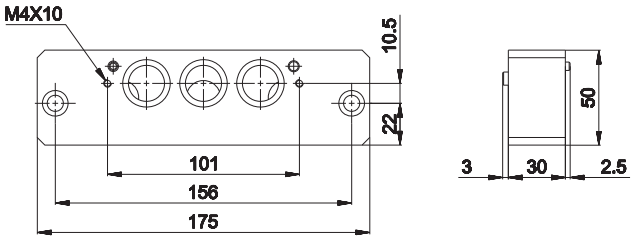




ISO - Connecting interface for universal sub-bases size 1 and 2
material: steel
weight: 0,110 Kg
It allows the use of size 1 and 2 valves in one manifold with conveyed pressure and exhausts. (Upon request: pressure and/or exhausts separated)

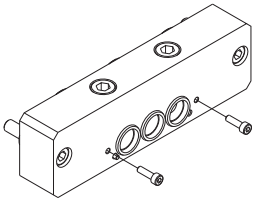
BF-3190

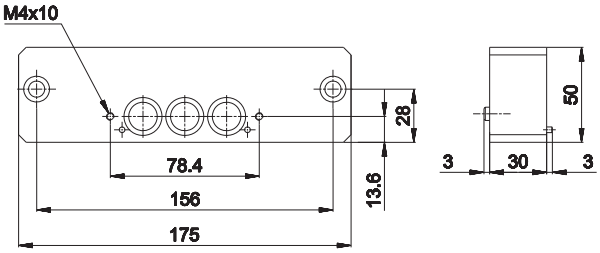




ISO - Connecting interface for universal sub-bases size 2 and 3
material: steel
weight: 0,570 Kg
It allows the use of size 2 and 3 valves in one manifold with conveyed pressure and exhausts. (Upon request: pressure and/or exhausts separated)

BF-3191





ISO - Connecting interface for universal sub-bases size 1 and 3
material: steel
weight: 0,570 Kg
It allows the use of size 1 and 3 valves in one manifold with conveyed pressure and exhausts. (Upon request: pressure and/or exhausts separated)

AE

Light series valves for ISO 5599/1 sub-base mounting

Light series: technopolymer valve body with metall cover
Interchangeability: ISO 5599/1 sub-base mounting (size 1 and 2)
Reliability: the mixed internal system (poppet-spool) has been used and appreciated for decades
Performance: high flow rate (size 1 = 1480 Nl/min - size 2 = 2300 Nl/min), fast commutation, functioning without lubrication

TECHNICAL CHARACTERISTICS

Ambient temperature	-10 ÷ +50 °C	
Fluid temperature	+50 °C Max	
Fluid	filtered air 50 µm, lubricated or not	
Commutation system	mixed system	
Ways/Positions	**5/2**	
Pressure	max 10 bar	
Control	indirect electro - pneumatic and pneumatic	
Return	pneumomechanical spring	
Connections	ISO 5599/1 interface (BF series sub-base)	
	size 1	**size 2**
Nominal Ø (mm)	8	10
Nominal flow rate (Nl/min)	1480	2300

CONSTRUCTIVE FEATURES

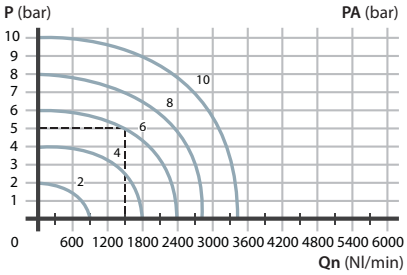
Valve body	acetalic resin
Seals	nitrilic rubber - polyurethane
Spool	alluminium
Cover	zamak

ELECTRIC FEATURES

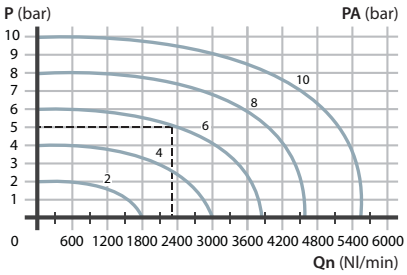
Electropilot	U1 - AA series
Coil	DA series
Power consumption	3,5 W (DC) - 5 VA (AC)
Voltage	12 V DC - 24 V DC - 24 V AC - 110 V AC - 230 V AC
Connector	AM-5110
Manual override	2 position screw

Flow rate characteristics

>> ISO 1

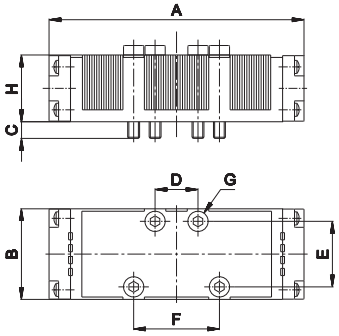


>> ISO 2

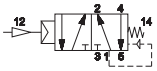
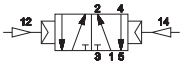


P = Working pressure
PA = Supply pressure
Qn = Nominal flow rate

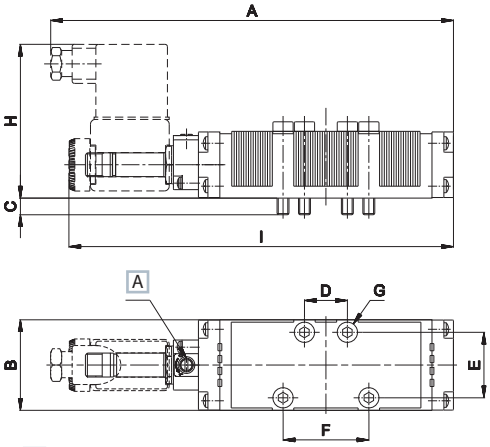
Single/double **pneumatic** impulse



	A	B	C	D	E	F	G	H
U1	108	38	7	18	28	36	M5x35	28
U2	120	50	7	24	38	48	M6x35	28

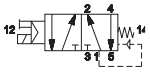
	Symbol	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Size	Weight Kg	Part no.
5/2		pneumatic amplified	pneumomechanical spring	2÷10 2,3÷10	5 8	10 10	1 2	0,17 0,80	**AE-1009** **AE-1120**
5/2		pneumatic amplified	pneumatic amplified	1÷10 1÷10	3 3	3 3	1 2	0,17 0,21	**AE-1010** **AE-1121**

Single **electric** impulse

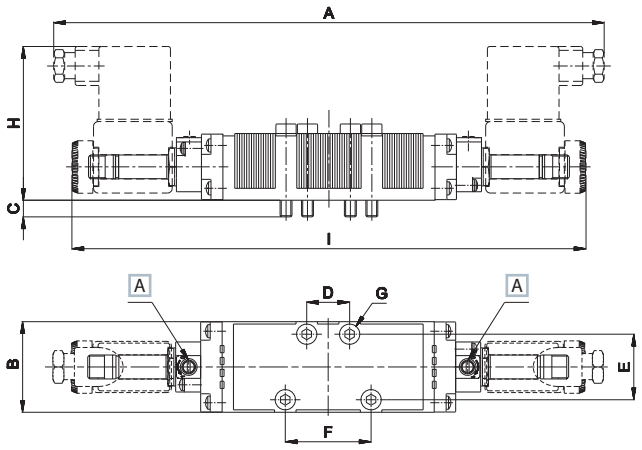


A Manual override

	A	B	C	D	E	F	G	H	I
U1	171	38	7	18	28	36	M5x35	64	161
U2	183	50	7	24	38	48	M6x35	64	173

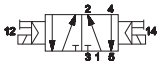
	Symbol	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Size	Weight Kg	Part no.
5/2		electric amplified	pneumomechanical spring	2÷10 2,3÷10	18 22	24 18	1 2	0,25 0,29	**AE-1000** **AE-1100**

Double **electric** impulse



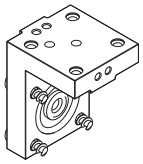
A Manual override

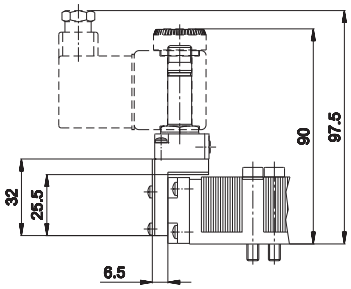
	A	B	C	D	E	F	G	H	I
U1	234	38	7	18	28	36	M5x35	64	208
U2	246	50	7	24	38	48	M6x35	64	220

	Symbol	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Size	Weight Kg	Part no.
5/2		electric amplified	electric amplified	1÷10 1÷10	16 24	16 24	1 2	0,33 0,35	**AE-1003** **AE-1103**

Electrovalves are supplied without coil, connector and locking ring

AM-5151





"H" option solenoid square
weight: 0,035 Kg

>> ISO 1 - ISO 2 sub-base

ISO 1 - single sub-base, side connections
BF-1060
G1/8 in-line connections
BF-1061
G1/4 in-line connections

ISO 1 - single modular or Manifold subbase, dorsal connections with separate exhausts
BF-1062
G1/8 dorsal connections
BF-1063
G1/4 dorsal connections

ISO 1 - Manifold universal system sub-base, dorsal and side connections conveyed exhausts
BF-1071
G1/8 dorsal and side connections
BF-1071S
G1/8 side pneumatic impulse
BF-1072
G1/4 dorsal and side connections
BF-1072S
G1/4 side pneumatic impulse

ISO 1 - Manifold universal system inlet plate
G3/8 in-line connections
BF-1065
G3/2 on top connections
BF-1066
G3/2 dorsal connections
BF-1068
G3/2 only in-line connections

ISO 1 - Manifold universal system diaphragm
BF-1070

ISO 2 - single sub-base, side connections
BF-1150
G1/4 in-line connections
BF-1151
G3/8 in-line connections

ISO 2 - single sub-base, dorsal connections
BF-1152
G1/4 dorsal connections
BF-1153
G3/8 dorsal connections

ISO 2 - Manifold universal system sub-base, dorsal and side connections conveyed exhausts
BF-1160
G1/4 dorsal and side connections
BF-1161
G3/8 dorsal and side connections

ISO 2 - Manifold universal system inlet plate
BF-1154
G1/2 in-line connections
BF-1155
G1/2 dorsal connections

ISO 2 - Manifold universal system diaphragm
BF-1162

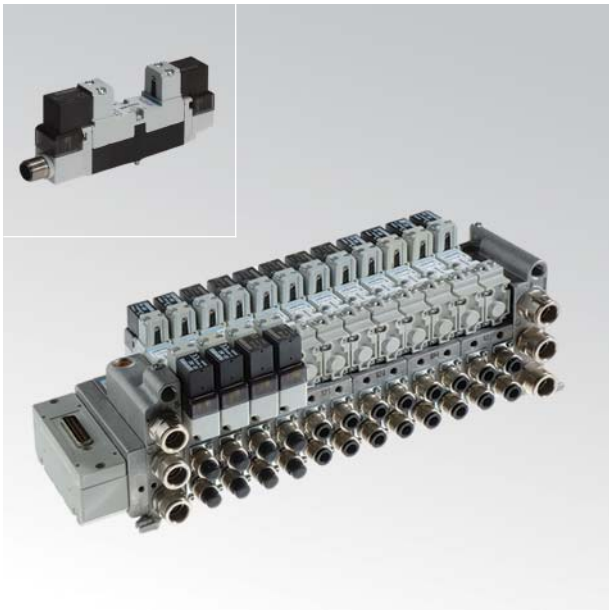
For sub-base dimensions refer to section **"Standardized valves>BE/BE12"**

BD

ISO 15407-1/2 (VDMA 24563)
ISO 02 (18 mm) - ISO 01 (26 mm) Valves

BDE = solenoid valves ISO 15407/2 with integrated electric connection including 24 V DC coils and connector
BDB = solenoid valves ISO 15407/1 with external electric connection with M12 connector including 24 V DC coils and connector
BDA = valves and solenoid valves ISO 15407/1 (without coils and connectors to be ordered separately)

- TC - TX Serial communication system available for BDE series
- Modular sub-base ISO-VDMA
- Sub-base with increased capacity



TECHNICAL CHARACTERISTICS

Ambient temperature	-20 ÷ +50 °C
Fluid temperature	max +50 °C
Fluid	50 µm filtered and not dehumidified air, lubricated or not
Commutation system	spool
Ways/Positions	**3/2+3/2, 5/2, 5/3**
Pressure	**electric control** = 9 bar max
	pneumatic control = 10 bar max
Control	indirect electro - pneumatic, pneumatic
Return	mechanical spring, pneumomechanical spring
Nominal Ø (mm)	**18 mm** = 6 , **26 mm** = 8

Nominal flow rate (Nl/min) for valves and solenoid valves side18 mm

Sub-base in die-cast aluminium according to standard

	VDMA-ISO			Oversize		
Fittings:	**Ø4**	**Ø6**	**Ø8**	**Ø4**	**Ø6**	**Ø8**
5/2	200	440	620	200	480	800
5/3	200	440	580	200	460	720
3/2+3/2	200	440	600	200	460	720

Nominal flow rate (Nl/min) for valves and solenoid valves side 26 (b)

Sub-base in die-cast aluminium according to standard

	VDMA-ISO				Oversize			
Fittings:	**Ø6**	**Ø8**	**Ø10**	**Ø12**(c)	**Ø6**	**Ø8**	**Ø10**	**Ø12**(c)
5/2	500	950	1200	1250	500	1050	1500	1700
5/3	500	900	1100	1150	500	1050	1300	1400
3/2+3/2	500	950	1150	1250	500	1050	1450	1650

(a) = manifold sub-base 2 valve places and end plates with side connections in aluminium and fixing plate for fittings standard supplied with sub-base.
(b) = manifold sub-base 1 valve place and end plates with side connections in aluminium and fixing plate for fittings standard supplied with sub-base.
(c) = the external Ø of the G 3/8 fitting for tube Ø12 mm must not exceed 20 mm

CONSTRUCTIVE CHARACTERISTICS

Body valve	acetalic resin
Cover	zamak
Seals	nitrile rubber
Sub-base	die-cast alluminium
Actuators	technopolymer
Spool	aluminium

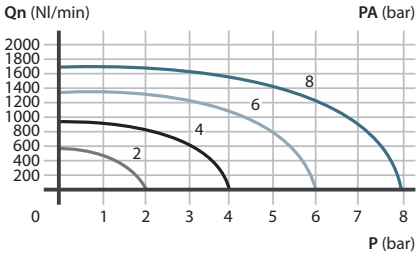
ELECTRIC CHARACTERISTICS

Electropilot	DD series (U05)
Voltage	24 V DC (± 10%), 12 V DC upon request
Power consumption	2 W
Protection degree	IP65
Manual override	with button with tool 1 position

Flow rate characteristics

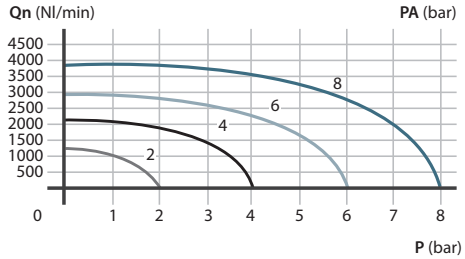
>> Valves and solenoid valves side **18 mm**

5/2 Oversize sub-base for Ø8 mm tube



>> Valves and solenoid valves side **26 mm**

5/2 Increased sub-base for Ø12 mm tube

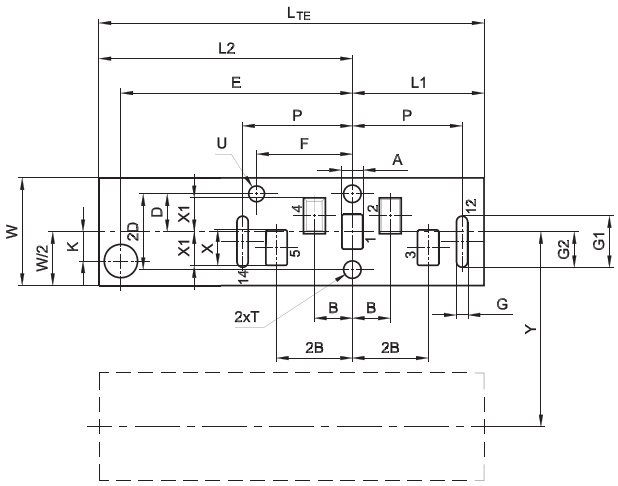


P = Working pressure
PA = Supply pressure
Qn = Nominal flow rate

ISO 15407 specifications

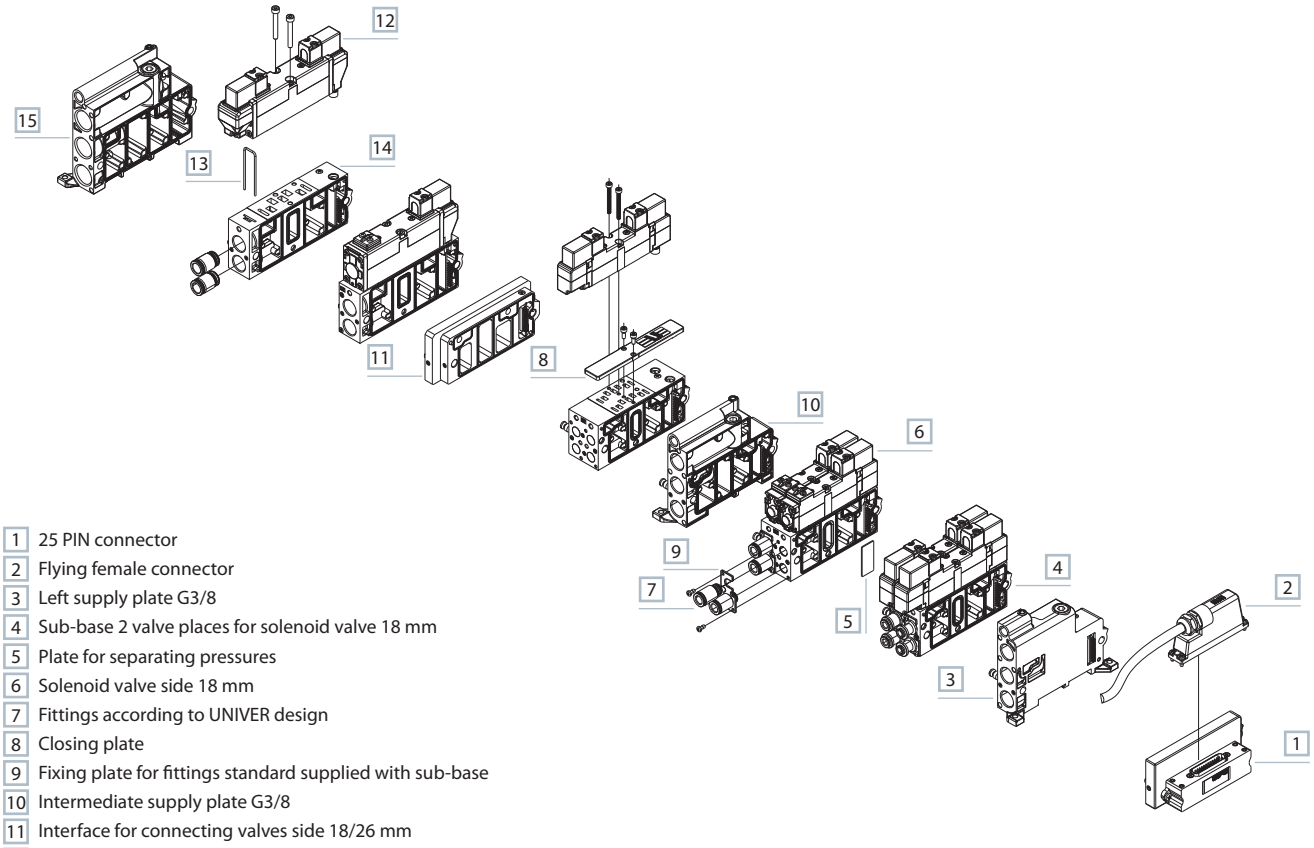
They establish the dimensions of the bearing surface and the minimum distance between two valve places, guaranteeing the interchangeability and possibility to include any valve providing it complies with above specifications.

>> Dimensioning of the bearing surface according to ISO 15407-1/2 specification with integrated electric connector



Y = Min. distance between two interface axes of the same dimension mounting on the same manifolds
U = Position bore, depth **V**

	A	B	D	E	F	G	G1	G2	K	L1 min.	L2 min.	LTE min.	P	T	U	V	W min.	X	X1	Y
18 mm	3,5	7	6,25	50	17	2	8	6	3,35	25	55,5	80,5	20	M3	3,2	4	18	6,5	5,25	19
26 mm	5,5	9,5	9,5	58	24	3	13	9	7,35	33	63,5	96,5	27,5	M4	3,2	4	26	9	8,5	27



1. 25 PIN connector
2. Flying female connector
3. Left supply plate G3/8
4. Sub-base 2 valve places for solenoid valve 18 mm
5. Plate for separating pressures
6. Solenoid valve side 18 mm
7. Fittings according to UNIVER design
8. Closing plate
9. Fixing plate for fittings standard supplied with sub-base
10. Intermediate supply plate G3/8
11. Interface for connecting valves side 18/26 mm
12. Solenoid valve side 26 mm
13. Clamping fork for fittings
14. Sub-base 1 valve place for solenoid valve 26 mm
15. Right supply plate G1/2

Codification key

B	D	_	3	3	4	4	2	4	D
1			2	3	4	5	6		7

1 Series

BDE = solenoid valves with integrated electric connection 24 V DC (including coil and connector)
BDB = solenoid valves with integrated electric connection 24 V DC, with M12 connector (including coil and connector)

2 Size

3 = side 18 mm
4 = side 26 mm

3 Type

2 = 5/2
3 = 5/3 c.c.
4 = 5/3 o.c.
5 = 5/3 p.c.
6 = 3/2+3/2 NC-NC
7 = 3/2+3/2 NC-NO
8 = 3/2+3/2 NO-NO

4 Control 14

4 = electric amplified

5 Return 12

0 = pneumomechanical spring
1 = mechanical spring
4 = electric amplified
7 = electric not amplified

6 Coil voltage

24 = 24 V DC (standard)
12 = 12 V DC (upon request)

7 Options

D = externally servoassisted electropilot

B	D	A	3	3	4	4	D
1			2	3	4	5	6

1 Series

BDA = valves and solenoid valves (without coil and connectors to be ordered separately)

2 Size

3 = side 18 mm
4 = side 26 mm

3 Type

2 = 5/2
3 = 5/3 c.c.
4 = 5/3 o.c.
5 = 5/3 p.c.
6 = 3/2+3/2 NC-NC
7 = 3/2+3/2 NC-NO
8 = 3/2+3/2 NO-NO

4 Control 14

3 = pneumatic amplified
4 = electric amplified only DC
5 = electric amplified DC and AC

5 Return 12

0 = pneumomechanical spring
1 = mechanical spring
2 = pneumatic not amplified
3 = pneumatic amplified
4 = electric amplified only direct current
5 = electric amplified direct and alternating current
7 = electric non amplified only direct current
8 = electric non amplified direct and alternating current

6 Options

D = externally servoassisted electropilot

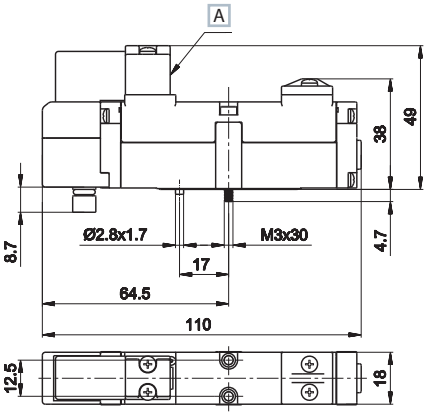
>> Coils U05 side15 mm

Part no.	Nominal voltage		Frequency	Power consumption			
				CCW		CA	VA
	DC v	AC v	HZ	rating	start	rating	start
DD-040	-	24	50/60	-	-	2,3	3,2
DD-042	12	-	-	2,5	2,5	-	-
DD-050	-	48	50/60	-	-	2,3	3,2
DD-051	24	-	-	2	2	-	-
DD-052	24	-	-	2,5	2,5	-	-
DD-060	-	110	50/60	-	-	3,5	3,2
DD-070	-	230	50/60	-	-	2,3	3,2

LED connector AM-5109/AM5105 24V DC 50/60 Hz
It can rotate by 180° on the coil - IP65 - cable connection PG9

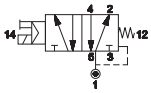
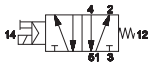
o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centre

Single **electric** impulse **18 mm**

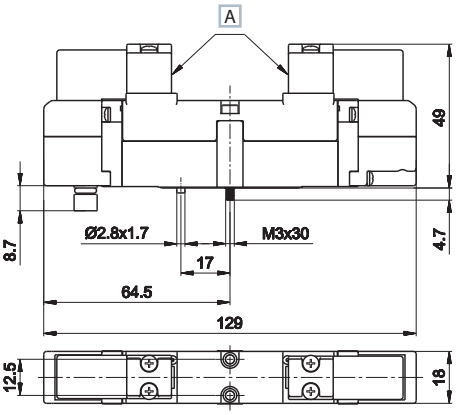


A Manual override

Weight (Kg): 0,112

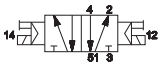
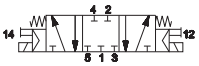
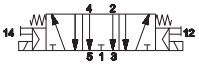
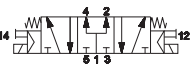
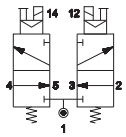
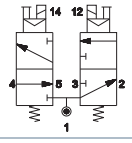
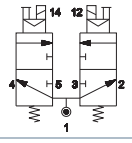
	Symbol	Control	Return	Pressure bar	Time (ms) En.	Time (ms) De-en.	Part no.
5/2		electric amplified	pneumo mechanical spring	1,8÷9	15	25	**BDE-324024**
5/2		electric amplified	mechanical spring	2,5÷9	14	37	**BDE-324124**

Double **electric** impulse **18 mm**



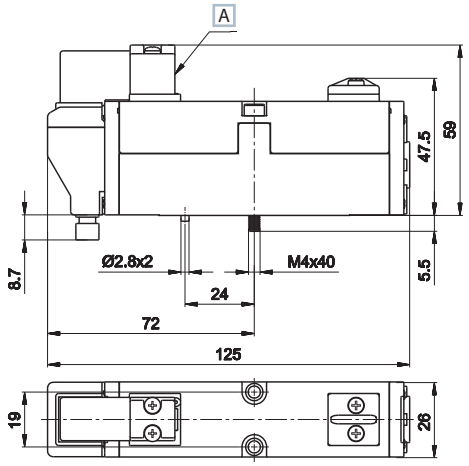
A Manual override

Weight (Kg): 0,131

	Symbol	Control	Return	Pressure bar	Time (ms) En.	Time (ms) De-en.	Part no.
5/2		electric amplified	electric amplified	0,8÷9	16	16	**BDE-324424**
5/3 c.c.		electric amplified	electric amplified	2,1÷9	14	31	**BDE-334424**
5/3 o.c.		electric amplified	electric amplified	2,1÷9	14	31	**BDE-344424**
5/3 p.c.		electric amplified	electric amplified	2,1÷9	31	14	**BDE-354424**
3/2 NC + 3/2 NC		electric amplified	electric amplified	1,8÷9	17	22	**BDE-364424**
3/2 NC + 3/2 NO		electric amplified	electric amplified	1,8÷9	17	22	**BDE-374424**
3/2 NO + 3/2 NO		electric amplified	electric amplified	1,8÷9	17	22	**BDE-384424**

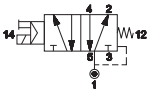
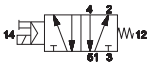
o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

Single **electric** impulse **26 mm**

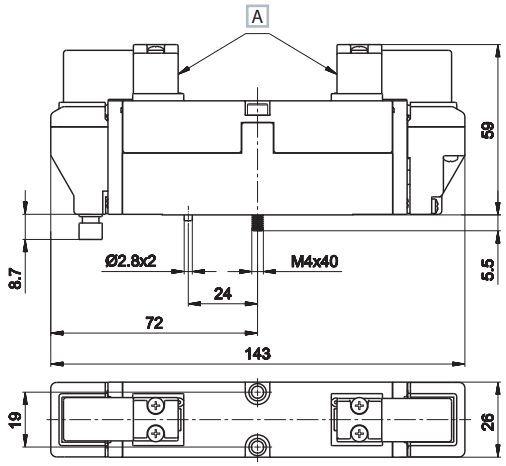


A Manual override

Weight (Kg): 0,205

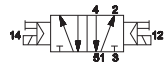
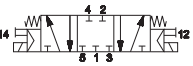
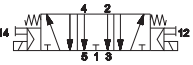
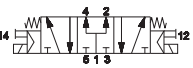
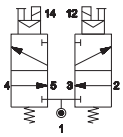
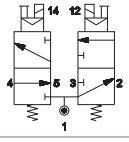
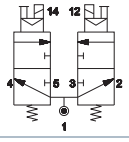
	Symbol	Control	Return	Pressure bar	Time (ms) En.	Time (ms) De-en.	Part no.
5/2		electric amplified	pneumo mechanical spring	1,8÷9	21	40	**BDE-424024**
5/2		electric amplified	mechanical spring	2,5÷9	20	50	**BDE-424124**

Double **electric** impulse **26 mm**



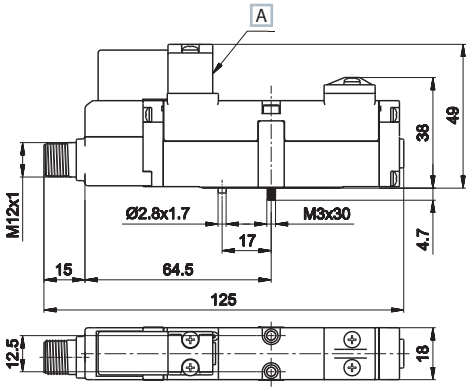
A Manual override

Weight (Kg): 0,232

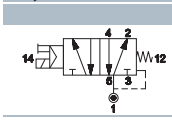
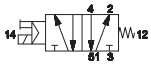
	Symbol	Control	Return	Pressure bar	Time (ms) En.	Time (ms) De-en.	Part no.
5/2		electric amplified	electric amplified	0,8÷9	17	17	**BDE-424424**
5/3 c.c.		electric amplified	electric amplified	2,1÷9	16	54	**BDE-434424**
5/3 o.c.		electric amplified	electric amplified	2,1÷9	16	54	**BDE-444424**
5/3 p.c.		electric amplified	electric amplified	2,1÷9	63	16	**BDE-454424**
3/2 NC + 3/2 NC		electric amplified	electric amplified	1,8÷9	20	27	**BDE-464424**
3/2 NC + 3/2 NO		electric amplified	electric amplified	1,8÷9	20	27	**BDE-474424**
3/2 NO + 3/2 NO		electric amplified	electric amplified	1,8÷9	20	27	**BDE-484424**

o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

Single **electric** impulse**18 mm**

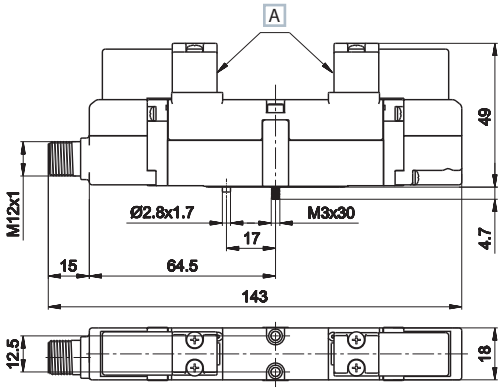


Weight (Kg): 0,117

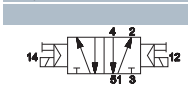
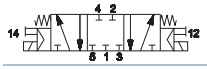
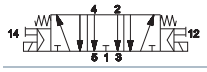
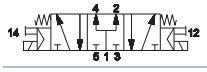
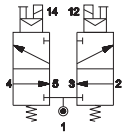
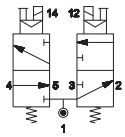
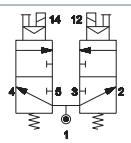
	Symbol	Control	Return	Pressure bar	Time (ms) En.	Time (ms) De-en.	Part no.
5/2		electric amplified	pneumo mechanical spring	1,8÷9	15	25	**BDB-324024**
5/2		electric amplified	mechanical spring	2,5÷9	14	37	**BDB-324124**

A Manual override

Double **electric** impulse**18 mm**



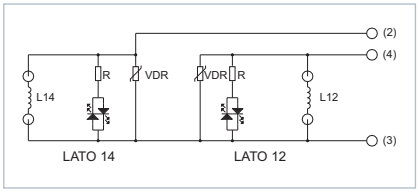
Weight (Kg): 0,136

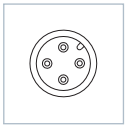
	Symbol	Control	Return	Pressure bar	Time (ms) En.	Time (ms) De-en.	Part no.
5/2		electric amplified	electric amplified	0,8÷9	16	16	**BDB-324424**
5/3 c.c.		electric amplified	electric amplified	2,1÷9	14	31	**BDB-334424**
5/3 o.c.		electric amplified	electric amplified	2,1÷9	14	31	**BDB-344424**
5/3 p.c.		electric amplified	electric amplified	2,1÷9	31	14	**BDB-354424**
3/2 NC + 3/2 NC		electric amplified	electric amplified	1,8÷9	17	22	**BDB-364424**
3/2 NC + 3/2 NO		electric amplified	electric amplified	1,8÷9	17	22	**BDB-374424**
3/2 NO + 3/2 NO		electric amplified	electric amplified	1,8÷9	17	22	**BDB-384424**

o.c. = open centres **c.c.** = closed centres **p.c.** = pressurize centres

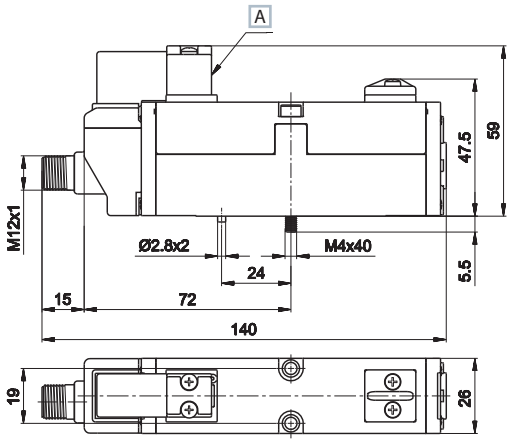
A Manual override

ELECTRIC FEATURES
Central electric connector M12x1
IP 65 protection degree
24 V DC voltage
2,5 W nominal power
DD-052** series coil (without faston)
ED 100%
LED indicator
Available upon request other voltages
max 48V DC

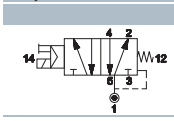
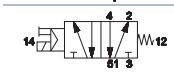




Single **electric** impulse **26 mm**

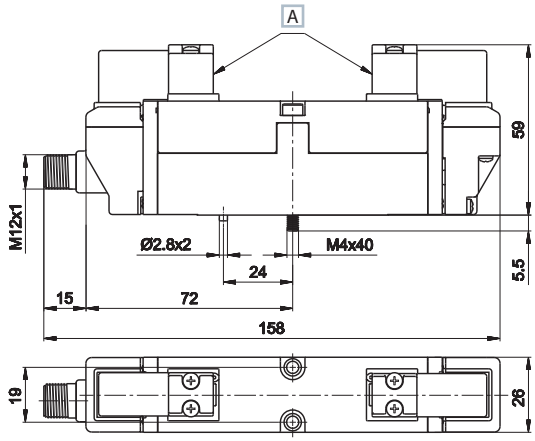


Weight (Kg): 0,205

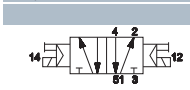
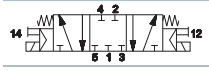
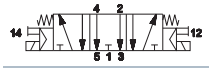
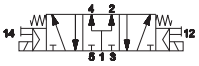
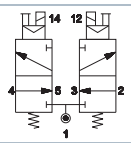
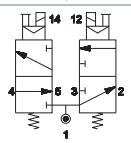
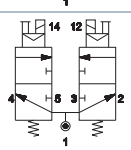
	Symbol	Control	Return	Pressure bar	Time (ms) En.	Time (ms) De-en.	Part no.
5/2		electric amplified	molla pneumo mechanical	1,8÷9	21	40	**BDB-424024**
5/2		electric amplified	molla mechanical	2,5÷9	20	50	**BDB-424124**

A Manual override

Double **electric** impulse **26 mm**



Weight (Kg): 0,236

	Symbol	Control	Return	Pressure bar	Time (ms) En.	Time (ms) De-en.	Part no.
5/2		electric amplified	electric amplified	2,5÷9	17	17	**BDB-424424**
5/3 c.c.		electric amplified	electric amplified	2,1÷9	16	54	**BDB-434424**
5/3 o.c.		electric amplified	electric amplified	2,1÷9	16	54	**BDB-444424**
5/3 p.c.		electric amplified	electric amplified	2,1÷9	63	16	**BDB-454424**
3/2 NC + 3/2 NC		electric amplified	electric amplified	1,8÷9	20	27	**BDB-464424**
3/2 NC + 3/2 NO		electric amplified	electric amplified	1,8÷9	20	27	**BDB-474424**
3/2 NO + 3/2 NO		electric amplified	electric amplified	1,8÷9	20	27	**BDB-484424**

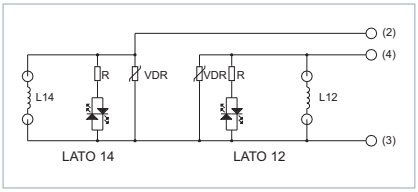
o.c. = open centres **c.c.** = closed centres **p.c.** = pressurize centres

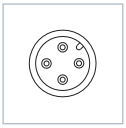
A Manual override

ELECTRIC FEATURES

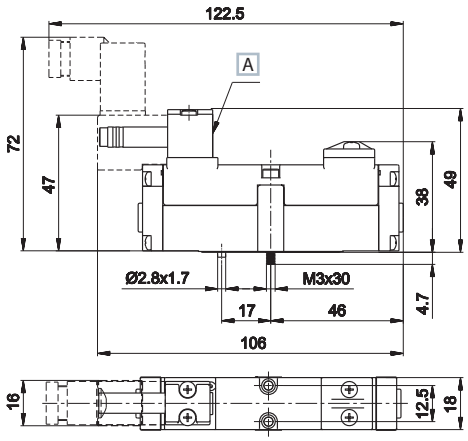
- Central electric connector M12x1
- IP 65 protection degree
- 24 V DC voltage
- 2,5 W nominal power
- DD-052** series coil (without faston)
- ED 100%
- LED indicator

Available upon request other voltages max 48V DC



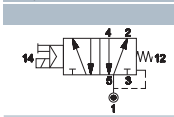
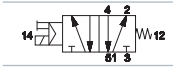


Single **electric** impulse**18 mm**

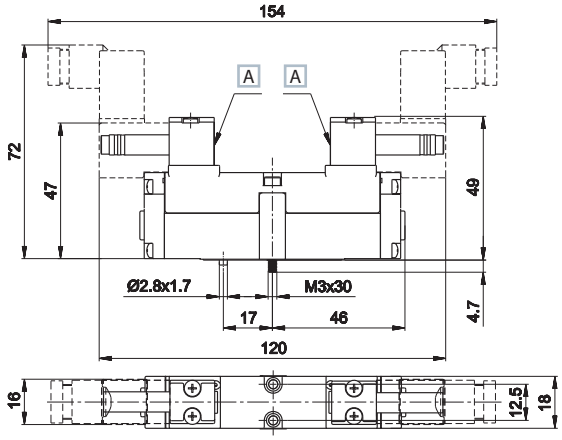


A Manual override

Weight (Kg): 0,107

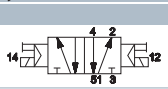
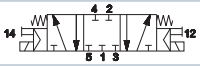
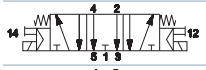
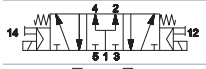
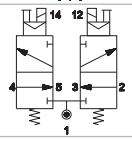
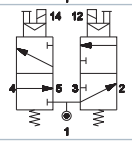
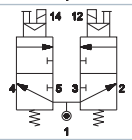
	Symbol	Control	Return	Pressure	Time (ms)		Part no.
				bar	En.	De-en.	
5/2		electric amplified	pneumo mechanical spring	1,8÷9	15	25	**BDA-3240**
5/2		electric amplified	mechanical spring	2,5÷9	14	37	**BDA-3241**

Double **electric** impulse**18 mm**



A Manual override

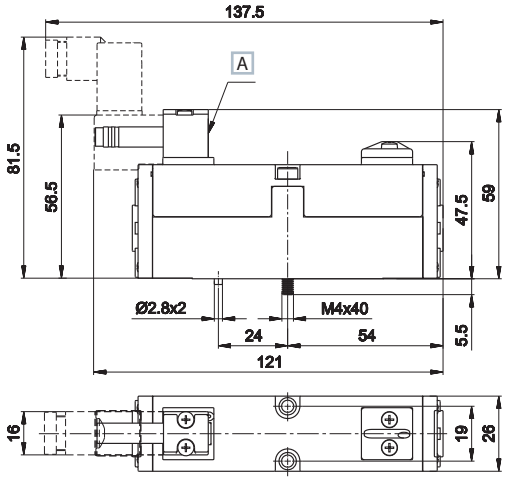
Weight (Kg): 0,123

	Symbol	Control	Return	Pressure	Time (ms)		Part no.
				bar	En.	De-en.	
5/2		electric amplified	electric amplified	0,8÷9	16	16	**BDA-3244**
5/3 c.c.		electric amplified	electric amplified	2,1÷9	14	31	**BDA-3344**
5/3 o.c.		electric amplified	electric amplified	2,1÷9	14	31	**BDA-3444**
5/3 p.c.		electric amplified	electric amplified	2,1÷9	31	14	**BDA-3544**
3/2 NC + 3/2 NC		electric amplified	electric amplified	1,8÷9	17	22	**BDA-3644**
3/2 NC + 3/2 NO		electric amplified	electric amplified	1,8÷9	17	22	**BDA-3744**
3/2 NO + 3/2 NO		electric amplified	electric amplified	1,8÷9	17	22	**BDA-3844**

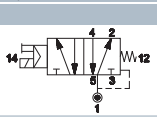
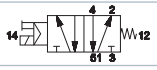
o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

BDA solenoid valves are supplied without coils and connectors

Single **electric** impulse **26 mm**

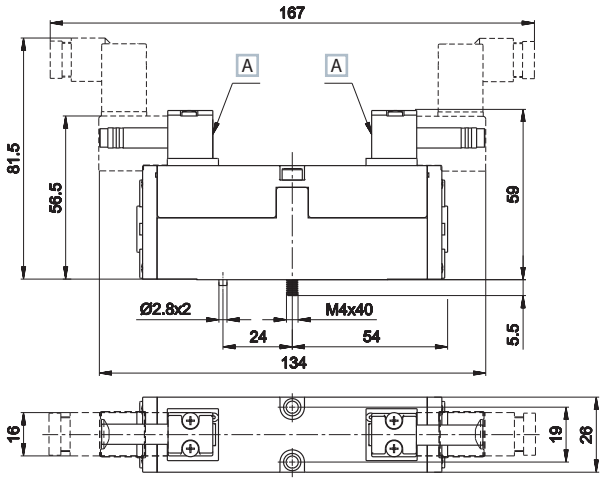


Weight (Kg): 0,197

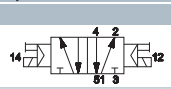
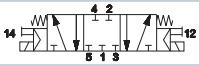
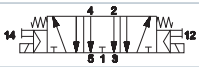
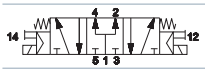
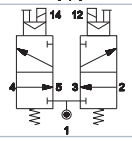
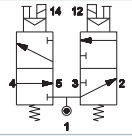
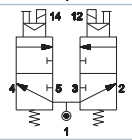
	Symbol	Control	Return	Pressure	Time (ms)		Part no.
				bar	En.	De-en.	
5/2		electric amplified	pneumo mechanical spring	1,8÷9	21	40	**BDA-4240**
5/2		electric amplified	mechanical spring	2,5÷9	20	50	**BDA-4241**

A Manual override

Double **electric** impulse **26 mm**



Weight (Kg): 0,218

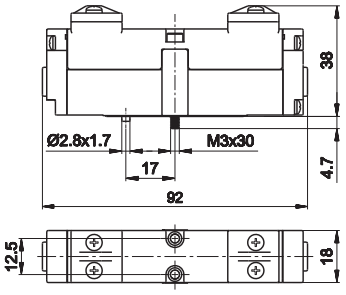
	Symbol	Control	Return	Pressure	Time (ms)		Part no.
				bar	En.	De-en.	
5/2		electric amplified	electric amplified	1,2÷9	17	17	**BDA-4244**
5/3 c.c.		electric amplified	electric amplified	2,1÷9	16	54	**BDA-4344**
5/3 o.c.		electric amplified	electric amplified	2,1÷9	16	54	**BDA-4444**
5/3 p.c.		electric amplified	electric amplified	2,1÷9	63	16	**BDA-4544**
3/2 NC + 3/2 NC		electric amplified	electric amplified	1,8÷9	20	27	**BDA-4644**
3/2 NC + 3/2 NO		electric amplified	electric amplified	1,8÷9	20	27	**BDA-4744**
3/2 NO + 3/2 NO		electric amplified	electric amplified	1,8÷9	20	27	**BDA-4844**

A Manual override

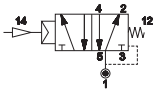
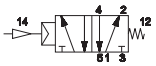
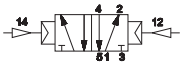
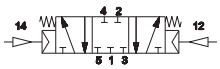
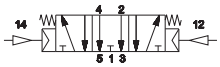
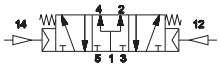
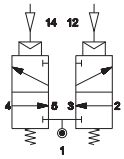
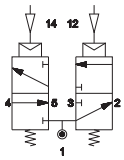
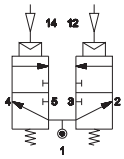
o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

BDA solenoid valves are supplied without coils and connectors

Single/double **pneumatic** impulse **18 mm**

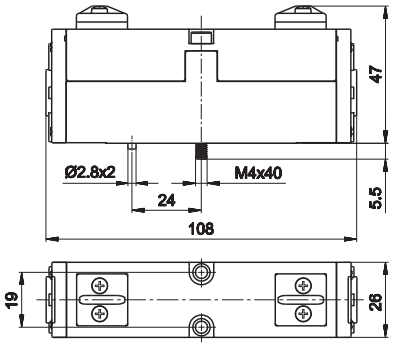


Weight (Kg): 0,092/0,098

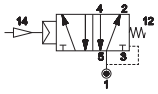
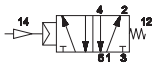
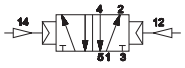
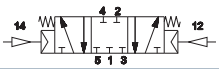
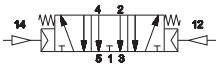
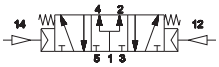
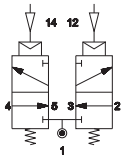
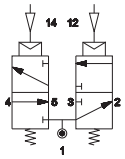
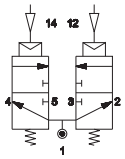
	Symbol	Control	Return	Pressure bar	Time (ms) En.	Time (ms) De-en.	Part no.
5/2		pneumatic amplified	pneumo mechanical spring	1,8÷10	13	30	**BDA-3230**
5/2		pneumatic amplified	mechanical spring	2,5÷10	11	35	**BDA-3231**
5/2		pneumatic amplified	pneumatic amplified	0,8÷10	8	8	**BDA-3233**
5/3 c.c.		pneumatic amplified	pneumatic amplified	2,1÷10	9	15	**BDA-3333**
5/3 o.c.		pneumatic amplified	pneumatic amplified	2,1÷10	9	15	**BDA-3433**
5/3 p.c.		pneumatic amplified	pneumatic amplified	2,1÷10	9	15	**BDA-3533**
3/2 NC + 3/2 NC		pneumatic amplified	pneumatic amplified	1,8÷10	5	14	**BDA-3633**
3/2 NC + 3/2 NO		pneumatic amplified	pneumatic amplified	1,8÷10	5	14	**BDA-3733**
3/2 NO + 3/2 NO		pneumatic amplified	pneumatic amplified	1,8÷10	5	14	**BDA-3833**

o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

Single/double **pneumatic** impulse **26 mm**

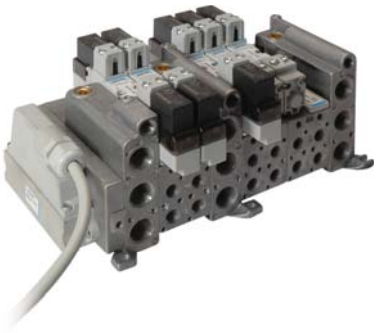


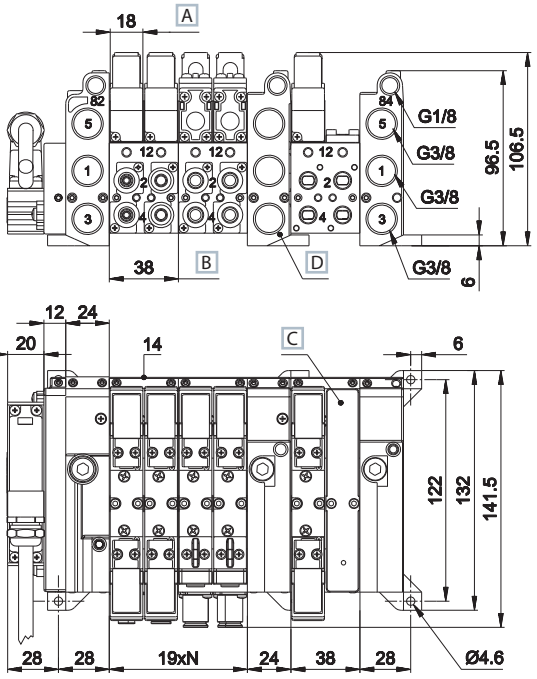
Weight (Kg): 0,185/0,204

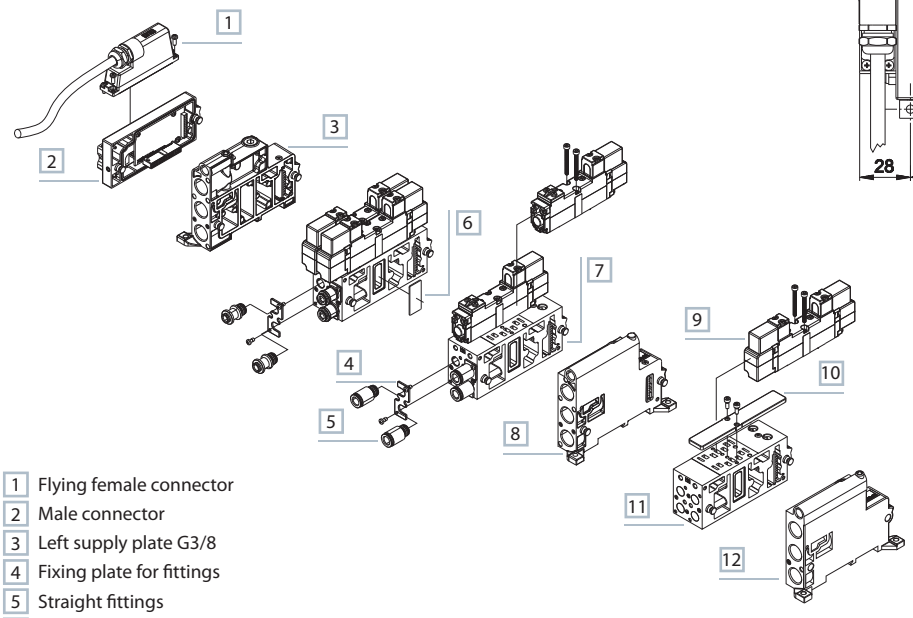
	Symbol	Control	Return	Pressure bar	Time (ms) En.	Time (ms) De-en.	Part no.
5/2		pneumatic amplified	pneumo mechanical spring	1,8÷10	15	33	**BDA-4230**
5/2		pneumatic amplified	mechanical spring	2,5÷10	13	38	**BDA-4231**
5/2		pneumatic amplified	pneumatic amplified	1,2÷10	10	10	**BDA-4233**
5/3 c.c.		pneumatic amplified	pneumatic amplified	1,2÷10	14	18	**BDA-4333**
5/3 o.c.		pneumatic amplified	pneumatic amplified	1,2÷10	14	18	**BDA-4433**
5/3 p.c.		pneumatic amplified	pneumatic amplified	1,2÷10	14	18	**BDA-4533**
3/2 NC + 3/2 NC		pneumatic amplified	pneumatic amplified	1,8÷10	8	14	**BDA-4633**
3/2 NC + 3/2 NO		pneumatic amplified	pneumatic amplified	1,8÷10	8	14	**BDA-4733**
3/2 NO + 3/2 NO		pneumatic amplified	pneumatic amplified	1,8÷10	8	14	**BDA-4833**

o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

Integrated electric connection side 18 mm





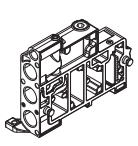
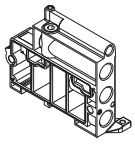
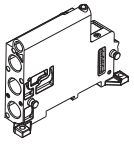
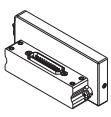
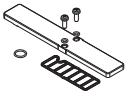
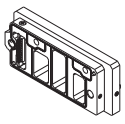


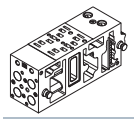
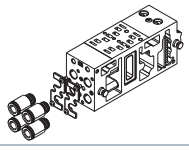
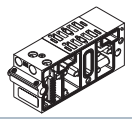
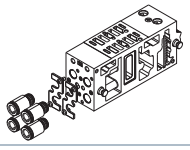
1 Flying female connector
2 Male connector
3 Left supply plate G3/8
4 Fixing plate for fittings
5 Straight fittings
6 Plate for separating pressures
7 Integrated electric connection
8 Intermediate supply plate G3/8
9 Solenoid vale side 18 mm
10 Closing plate
11 Sub-base 2 valve places
12 Right supply plate G3/8

A Valve thickness
B Sub-base 2 places valve
C Closing plate for unused valve place BDF-3185
D Intermediate supply plate

1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

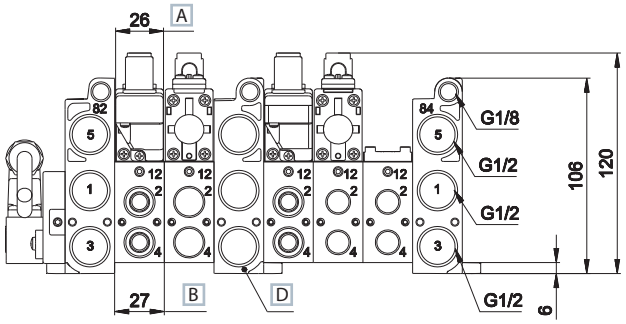
N = Number of valve places

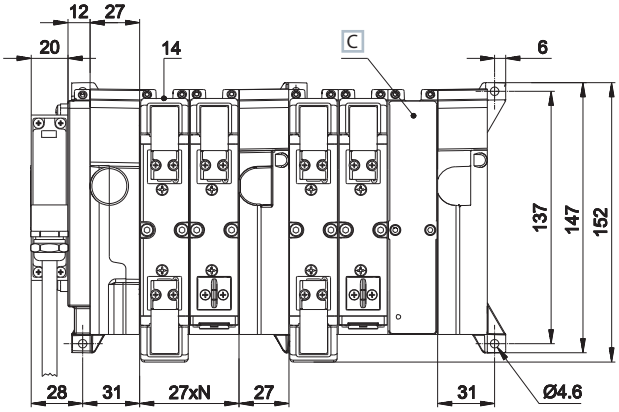
BDF-3100	BDF-3115	BDF-3120	BDF-3140TIM	BDF-3180	BDF-3185	BDF-3190
						
left supply plate G3/8 with integrated electric connection weight: 0,292 Kg	right supply plate G3/8 weight: 0,276 Kg	intermediate supply plate G3/8 with integrated electric connection weight: 0,29 Kg	multiway connection module, 25 poles male type D side 18 mm weight: 0,158 Kg	plate for separating supply pressures weight: 0,002 Kg	plate for closing unused valve place weight: 0,038 Kg	interface for connecting valves side 18-26 mm with integrated electric connection weight: 0,216 Kg

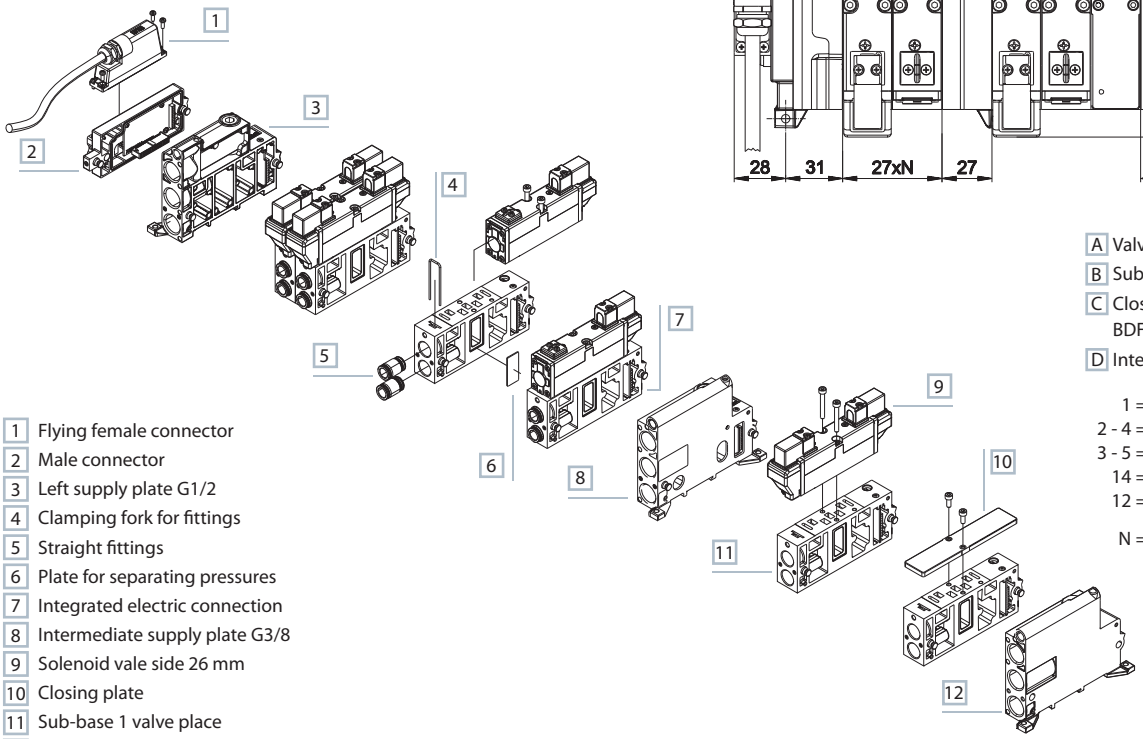
BDF-3210 (b)	BDF-3230 (a) - (b)	BDF-3310 (b)	BDF-3330 (a) - (b)	BDF-3400	GZR-100	GZR-V10004/06/08
						
sub base 2 places according to VDMA-ISO specifications flow rate 620 Nl/min G1/8 connections weight: 0,324 Kg	sub base 2 places according to VDMA-ISO specifications flow rate 620 Nl/min for fittings Ø 4-6-8 mm weight: 0,334 Kg	sub base 2 places with increased capacity 800 Nl/min G1/8 connections weight: 0,322 Kg	sub base 2 places with increased capacity 800 Nl/min for fittings Ø 4-6-8 mm weight: 0,334 Kg	single sub-base 1 place with increased capacity G1/8 connections weight: 0,12 Kg	screw plug weight: 0,01 Kg	fittings according to UNIVER design (package 50 pcs.) **GZR-V10004** Ø4 mm **GZR-V10006** Ø6 mm **GZR-V10008** Ø8 mm weight: 0,01 Kg each.

(a) = sub-base including fixing plates for fittings (fittings excluded) (b) = part no. codification: **0 = electric integrated**

Integrated electric connection side 26 mm





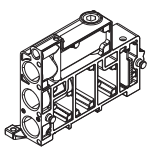
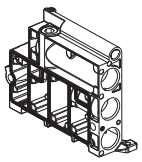
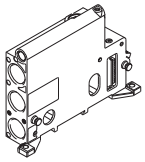
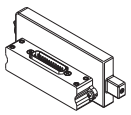
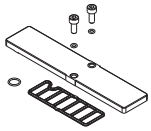


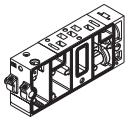
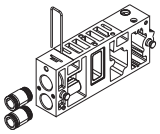
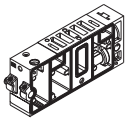
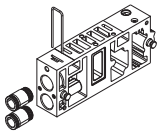
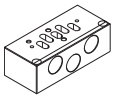
1 Flying female connector
2 Male connector
3 Left supply plate G1/2
4 Clamping fork for fittings
5 Straight fittings
6 Plate for separating pressures
7 Integrated electric connection
8 Intermediate supply plate G3/8
9 Solenoid vale side 26 mm
10 Closing plate
11 Sub-base 1 valve place
12 Right supply plate G1/2

A Valve thickness
B Sub-base1 place valve
C Closing plate for unused valve place BDF-4185
D Intermediate supply plate

1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

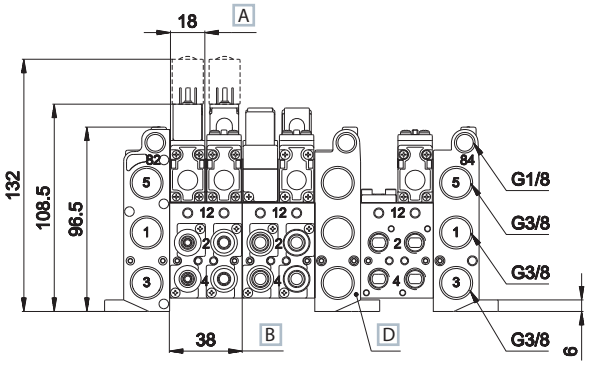
N = Number of valve place

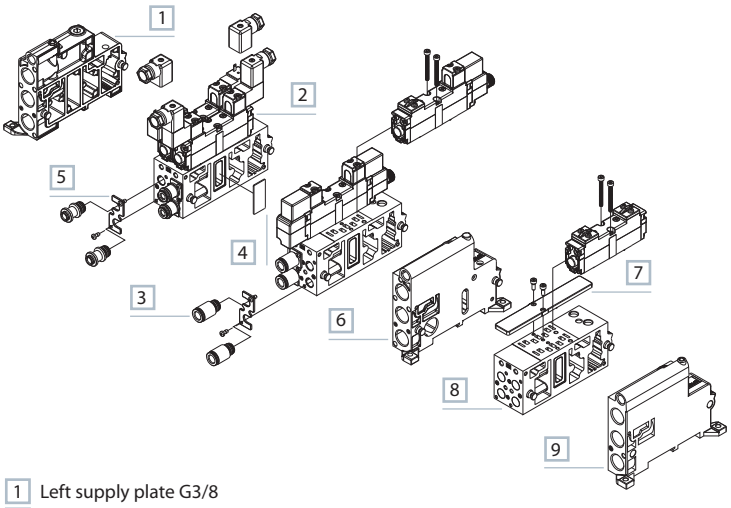
BDF-4100	BDF-4115	BDF-4120	BDF-4140TIM	BDF-4180	BDF-4185
					
left supply plate G1/2 with integrated electric connection weight: 0,396 Kg	right supply plate G1/2 weight: 0,418 Kg	intermediate supply plate G1/2 with integrated electric connection weight: 0,396 Kg	multiway connection module, 25 poles male type D side 26 mm weight: 0,158 Kg	plate for separating supply pressures weight: 0,002 Kg	plate for closing unused valve place weight: 0,08 Kg

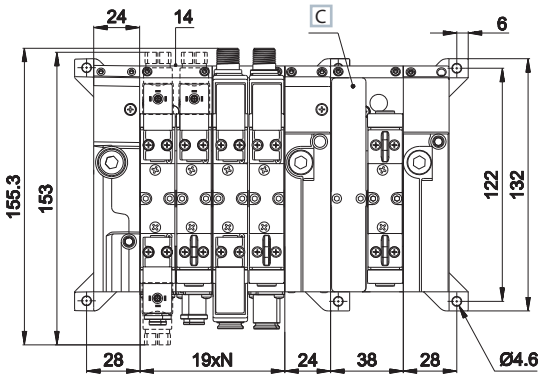
BDF-4210/20 (b)	BDF-4230 (a) - (b)	BDF-4310/20 (b)	BDF-4330/31/32 (a) - (b)	BDF-4400	GZR-VV1006/08/10
					
sub base 1 place according to VDMA-ISO specification flow rate 1250 Nl/min G1/4 connections **BDF-4210** weight: 0,254 Kg G3/8 connections **BDF-4220** weight: 0,246 Kg	sub base 1 place according to VDMA-ISO specification flow rate 1250 Nl/min for fittings Ø 6-8-10 mm **BDF-4230** weight: 0,23 Kg	sub base 1 place with increased capacity flow rate 1700 Nl/min G1/4 connections **BDF-4310** weight: 0,254 Kg G3/8 connections **BDF-4320** weight: 0,246 Kg	sub base 1 place with increased capacity flow rate 1700 Nl/min for fittings Ø 6-8-10 mm **BDF-4330** weight: 0,23 Kg	single sub-base 1 place with increased capacity G3/8 connections weight: 0,226 Kg	fittings according to UNIVER design (package 50 pcs.) **GZR-VV1006** Ø 6mm **GZR-VV1008** Ø 8mm **GZR-VV1010** Ø 10mm weight: 0,014 Kg each.

(a) = sub-base including fixing plates for fittings (fittings excluded) (b) = part no. codification: **0 = electric integrated**

Electric connection with external connector side 18 mm





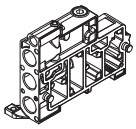
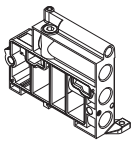
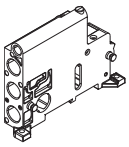
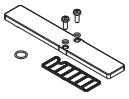
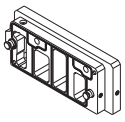
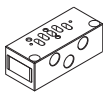


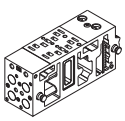
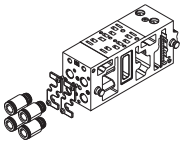
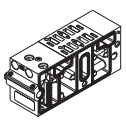
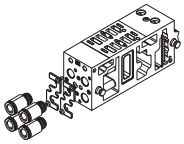
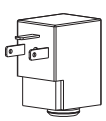
1 Left supply plate G3/8
2 Solenoid valve
3 Straight fittings
4 Plate for separating pressures
5 Fixing plate for fittings
6 Intermediate supply plate G3/8
7 Closing plate
8 Sub-base 2 valve places
9 Right supply plate G3/8

A Valve thickness
B Sub-base 2 places valve
C Closing plate for unused valve place BDF-3185
D Intermediate supply plate

1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

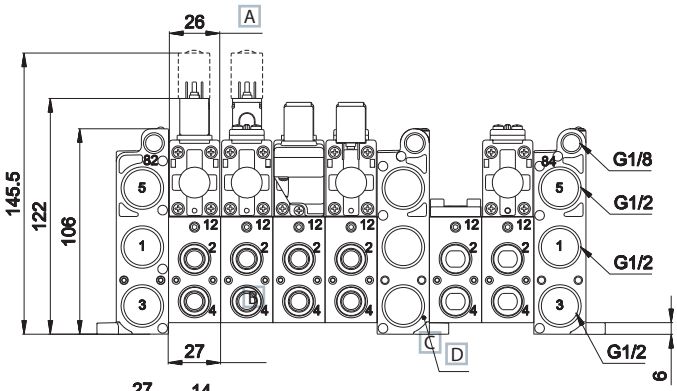
N = Number of valve places

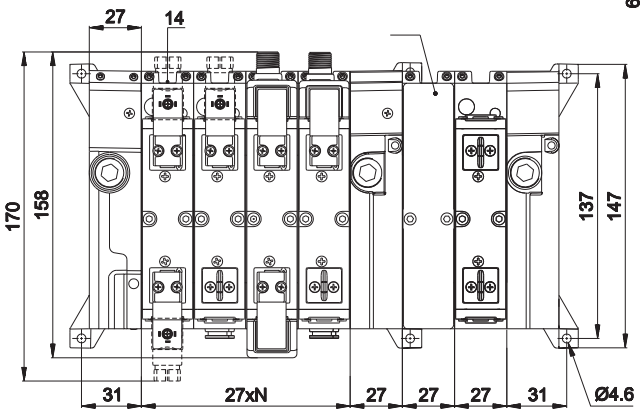
BDF-3110	BDF-3115	BDF-3125	BDF-3180	BDF-3185	BDF-3191	BDF-3400
						
left supply plate G3/8 weight: 0,288 Kg	right supply plate G3/8 weight: 0,276 Kg	intermediate supply plate G3/8 without integrated electric connection weight: 0,31 Kg	plate for separating pressures weight: 0,002 Kg	plate for closing unused valve place weight: 0,038 Kg	interface for connecting valves side 18-26 mm with integrated electric connection weight: 0,212 Kg	single sub-base 1 place with increased capacity G1/8 connections weight: 0,12 Kg

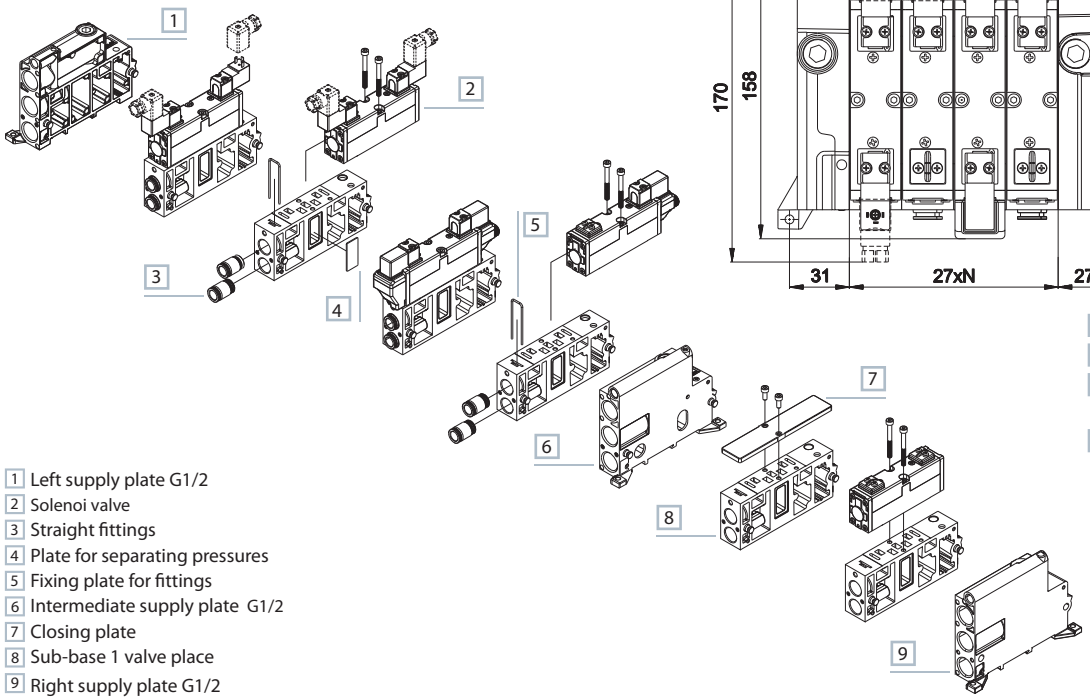
BDF-3210/1/2 (b)	BDF-3230/1/2 (a) - (b)	BDF-3310/1/2 (b)	BDF-3330/1/2 (a) - (b)	GZR-100	GZR-V10004/6/8	DD-051/..
						
sub base 2 places according to VDMA-ISO specifications flow rate 620 Nl/min G1/8 connections **BDF-3210** **BDF-3211** **BDF-3212** weight: 0,316 Kg	sub base 2 places according to VDMA-ISO specifications flow rate 620 Nl/min for fittings Ø 4-6-8 mm **BDF-3230** **BDF-3231** **BDF-3232** weight: 0,326 Kg	sub base 2 places with increased capacity 800 Nl/min attacchi G1/8 **BDF-3310** **BDF-3311** **BDF-3312** weight: 0,316 Kg	sub base 2 places with increased capacity flow rate 800 Nl/min for fittings Ø 4-6-8 mm **BDF-3330** **BDF-3331** **BDF-3332** weight: 0,326 Kg	screw plug weight: 0,01 Kg	fittings according to UNIVER design (package 50 pcs.) **GZR-V10004** Ø4 mm **GZR-V10006** Ø6 mm **GZR-V10008** Ø8 mm weight: 0,01 Kg cad.	U05 coil side15 mm (for technical features refer to section **"Accessories>Coils"**) weight: 0,019 Kg

(a) = sub-base including fixing plates for fittings (fittings excluded)
(b) = part no. codification: **0 = electric integrated** **1 = electric non integrated** **2 =only pneumatic**

Electric connection with external connector side 26 mm





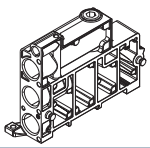
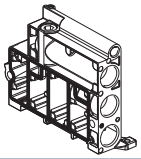
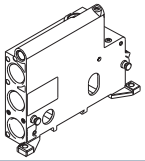
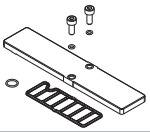
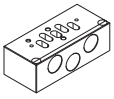


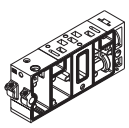
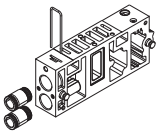
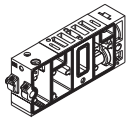
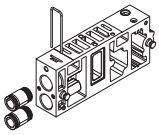
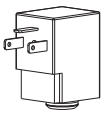
1 Left supply plate G1/2
2 Solenoi valve
3 Straight fittings
4 Plate for separating pressures
5 Fixing plate for fittings
6 Intermediate supply plate G1/2
7 Closing plate
8 Sub-base 1 valve place
9 Right supply plate G1/2

A Valve thickness
B Sub-base 1 places valve
C Closing plate for unused valve place BDF-4185
D Intermediate supply plate

1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

N = Number of valve places

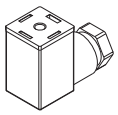
BDF-4110	BDF-4115	BDF-4125	BDF-4180	BDF-4185	BDF-4400
					
left supply plate G1/2 weight: 0,428 Kg	right supply plate G1/2 weight: 0,418 Kg	left supply plate G1/2 without integrated electric connection weight: 0,42 Kg	plate for separating supply pressures weight: 0,002 Kg	plate for closing unused valve place weight: 0,08 Kg	single sub-base 1 place with increased capacity G3/8 connections weight: 0,226 Kg

BDF-4210/.. (b)	BDF-4230/1/2 (a) - (b)	BDF-4311/.. (b)	BDF-4330/1/2 (a) - (b)	GZR-VV1006/8/10	DD-051/..
					
sub base 1 place according to VDMA-ISO specification flow rate 1250 Nl/min G1/4 connect. G3/8 connect. **BDF-4210** **BDF-4220** **BDF-4211** **BDF-4221** **BDF-4212** **BDF-4222**	sub base 1 place according to VDMA-ISO specification flow rate 1250 Nl/min for fittings Ø 6-8-10 mm **BDF-4230** **BDF-4231** **BDF-4232** weight: 0,22 Kg	sub base 1 place with increased capacity 1700 Nl/min G1/4 connect. G3/8 connect. **BDF-4310** **BDF-4320** **BDF-4311** **BDF-4321** **BDF-4312** **BDF-4322** weight: 0,244 Kg weight: 0,236 Kg	sub base 1 place with increased capacity 1700 Nl/min for fittings Ø 6-8-10 mm **BDF-4330** **BDF-4331** **BDF-4332** weight: 0,22 Kg	fittings according to UNIVER design (package 50 pcs.) **GZR-VV1006** Ø 6mm **GZR-VV1008** Ø 8mm **GZR-VV1010** Ø 10mm weight: 0,014 Kg cad.	U05 coil side 15 mm (for technical features refer to section **"Accessories>Coils"**) weight: 0,019 Kg

(a) = sub-base including fixing plates for fittings (fittings excluded)
(b) = part no. codification: **0 = electric integrated** **1 =electric non integrated** **2 = only pneumatic**

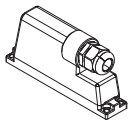
Electric connection

AM-5109



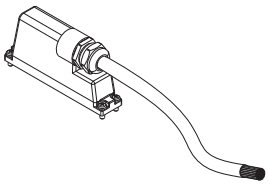
- 15 mm connector

TSCFN24S000



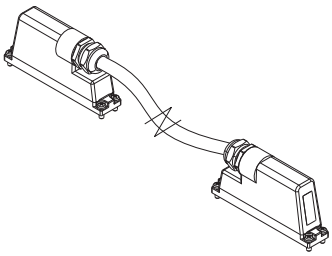
- famale connector
  25 poles type D-sub
  no cable
  M3 x 8 fixing screws

TSCFN24S0300
TSCFN24S0500
TSCFN24S1000



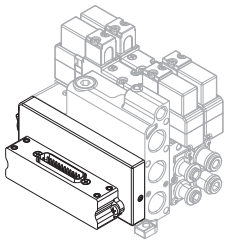
- famale connector
  25 poles type D-sub
  cable 3-5-10 m
  M3 x 8 fixing screws

TSCFN16D0300
TSCFN16D0500
TSCFN16D1000



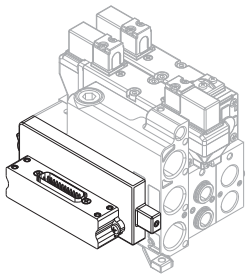
- male/famale flying connector
  sub D (upon request)
  prewired for 24 coils with
  cable Ø 8 mm (3-5-10 m lenght)
  suitable for mobile laying
  M3 x 8 fixing screws

BDF-3140 TIM



- multiway connection module
  25 poles male type D
  side 18 mm

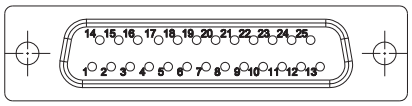
BDF-4140 TIM



- multiway connection module
  25 poles male type D
  side 26 mm

>>Colour identification according to standard **DIN 47100**

Female connector **D-SUB 25 poles**
for connection **12+12 coils**



PIN No.	Control side	Valve N°	Colour	Coil
1	14	1	white	1
2	12	1	brown	2
3	14	2	green	3
4	12	2	yellow	4
5	14	3	grey	5
6	12	3	pink	6
7	14	4	blue	7
8	12	4	red	8
9	14	5	black	9
10	12	5	violet	10
11	14	6	grey-pink	11
12	12	6	red-blue	12
13	14	7	white-green	13
14	12	7	green-brown	14
15	14	8	white-yellow	15
16	12	8	yellow-brown	16
17	14	9	white-grey	17
18	12	9	grey-brown	18
19	14	10	white-pink	19
20	12	10	pink-brown	20
21	14	11	white-blue	21
22	12	11	brown-blue	22
23	14	12	white-red	23
24	-	-	brown-red brown-black shield	common low
25	12	12	white-black	24

AC-N

NAMUR valve

- Mixed commutation system (spool-poppet)
- High flow rate
- Quick response time
- High cycle rates
- Control: pneumatic, electric
- Suitable for rotating pneumatic actuators used in industrial plants for the distribution of fluids
- NAMUR VDI/VDE 3845 interface

TECHNICAL FEATURES

Ambient temperature	-10 ÷ 45 °C
Fluid temperature	-10 ÷ 50 °C
Fluid	filtered air 50 µm, lubricated or not
Commutation system	poppet mixed system
Ways/Positions	**5/2**
Pressure	10 bar max
Control	pneumatic, electric
Return	pneumomechanical spring, pneumatic, electric
Connections	**1-3-5:** G1/4 **2-4:** NAMUR interface
Nominal Ø	8 mm
Nominal flow rate	1200 Nl/min

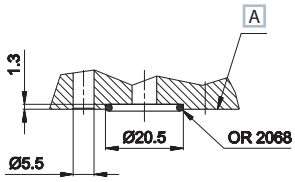
TECHNICAL FEATURES

Valve body	zamak
Seals	polyurethane - nitrile rubber
Actuators	technopolymer
Spool	aluminium

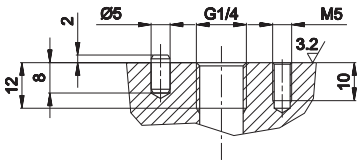
ELECTRIC FEATURES

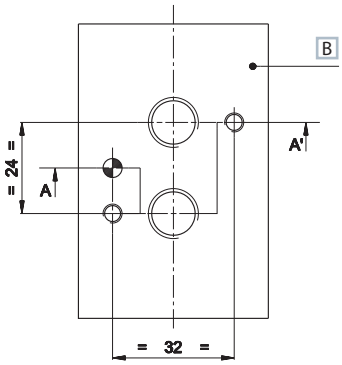
Electropilot	U1
Coil	DA
Power consumption	3,5 W (DC) - 5 VA (AC)
Connector	AM-5110
Voltage	12 V DC - 24 V DC - 24 V AC - 110 V AC - 230 V AC
Manual override	with 2 position screw

NAMUR interface



A-A' section



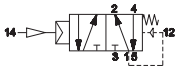


A Electrovalve surface
B Flange surface

Upon request:

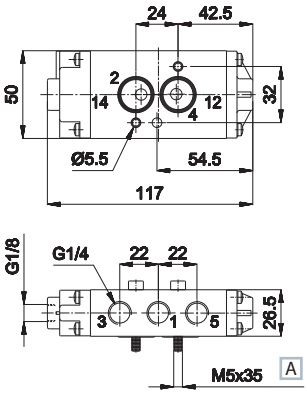
ATEX

Single **pneumatic** impulse



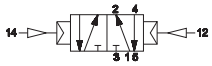
A ISO 4762

1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return



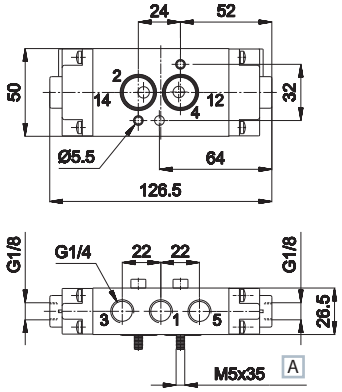
	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Weight Kg	Part no.
5/2	pneumatic amplified	pneumo mechanical spring	2,3÷10	10	10	0,564	**AC-N8100**

Double **pneumatic** impulse



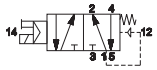
A ISO 4762

1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return



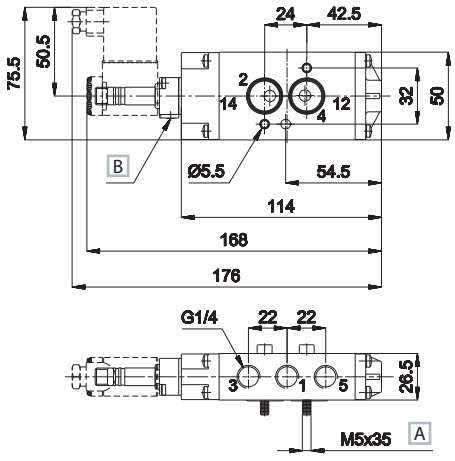
	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Weight Kg	Part no.
5/2	pneumatic amplified	pneumatic amplified	0,8÷10	6	6	0,564	**AC-N8120**

Single **electric** impulse



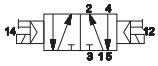
A ISO 4762
B Manual override

1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return



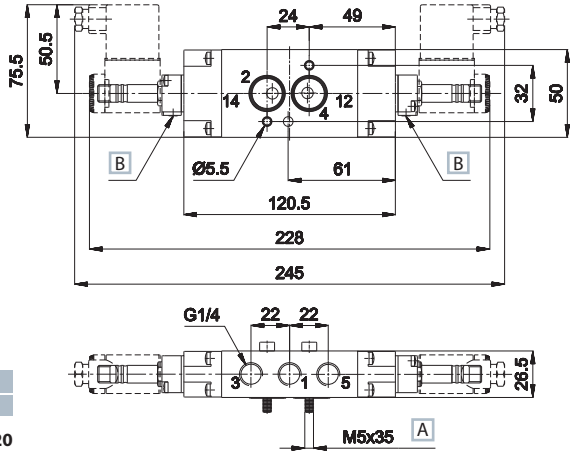
	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Weight Kg	Part no.
5/2	electric amplified	pneumo mechanical spring	2,3÷10	22	22	0,6	**AC-N8500**

Double **electric** impulse



A ISO 4762
B Manual override

1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return



	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Weight Kg	Part no.
5/2	electric amplified	electric amplified	0,8÷10	14	14	0,636	**AC-N8520**

Upon request 3/2 version
Electrovalves are supplied without coil, connector and locking ring





SPOOL VALVES

3 Spool valves

CL-CM

UNIVERSAL Distributors G1/8 - G1/4

- UNIVERSAL Modular System: possibility to create a lot of different valves with a short number of basis elements
- Control: manual, mechanical, pneumatic, electric
- Traditional UNIVER spool system: fluctuating seals of special compound to reduce frinction and prevent sticking
- High flow rate, high cycle life, suitable for vacuum application
- Modular sub-bases

TECHNICAL CHARACTERISTICS

Ambient temperature	-10 ÷ +45 °C	
Fluid temperature	max +50 °C	
Fluid	filtered air 50 µm not dehumidified, lubricated or not	
Commutation system	spool	
Ways/Positions	**3/2 NC, 3/2 NO, 3/2 NC-NO, 5/2, 5/3**	
Pressure	max 10 bar	
Control	indirect electro-pneumatic, pneumatic, manual, mechanical	
Return	pneumatic spring, mechanical spring	
Connections	**G1/8**	**G1/4**
Nominal Ø mm	6,5	8,5
Nominal flow rate (Nl/min)	890	1480

CONSTRUCTIVE CHARACTERISTICS

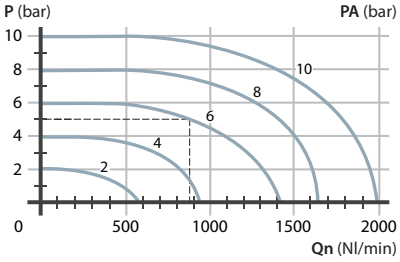
Valve body	**G1/8** = die-cast zamak
	G1/4 = aluminium
Seals	nitrile rubber
Actuators	technopolymer/aluminium
Spool	aluminium
Sub-base	zamak

ELECTRIC CHARACTERISTICS

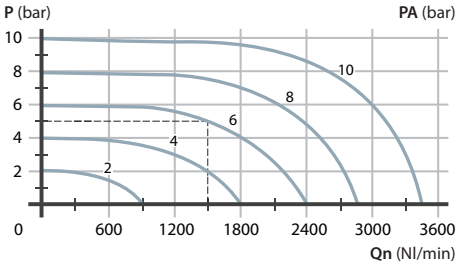
Electropilot	U1
Coil	DA
Power consumption	3,5 W (DC) - 5 VA (AC)
Connector	AM 5110
Voltage	12 V DC - 24 V DC - 24 V AC - 110 V AC - 230 V AC
Manual override	with 2 positions screw

Flow rate characteristics

>> G1/8

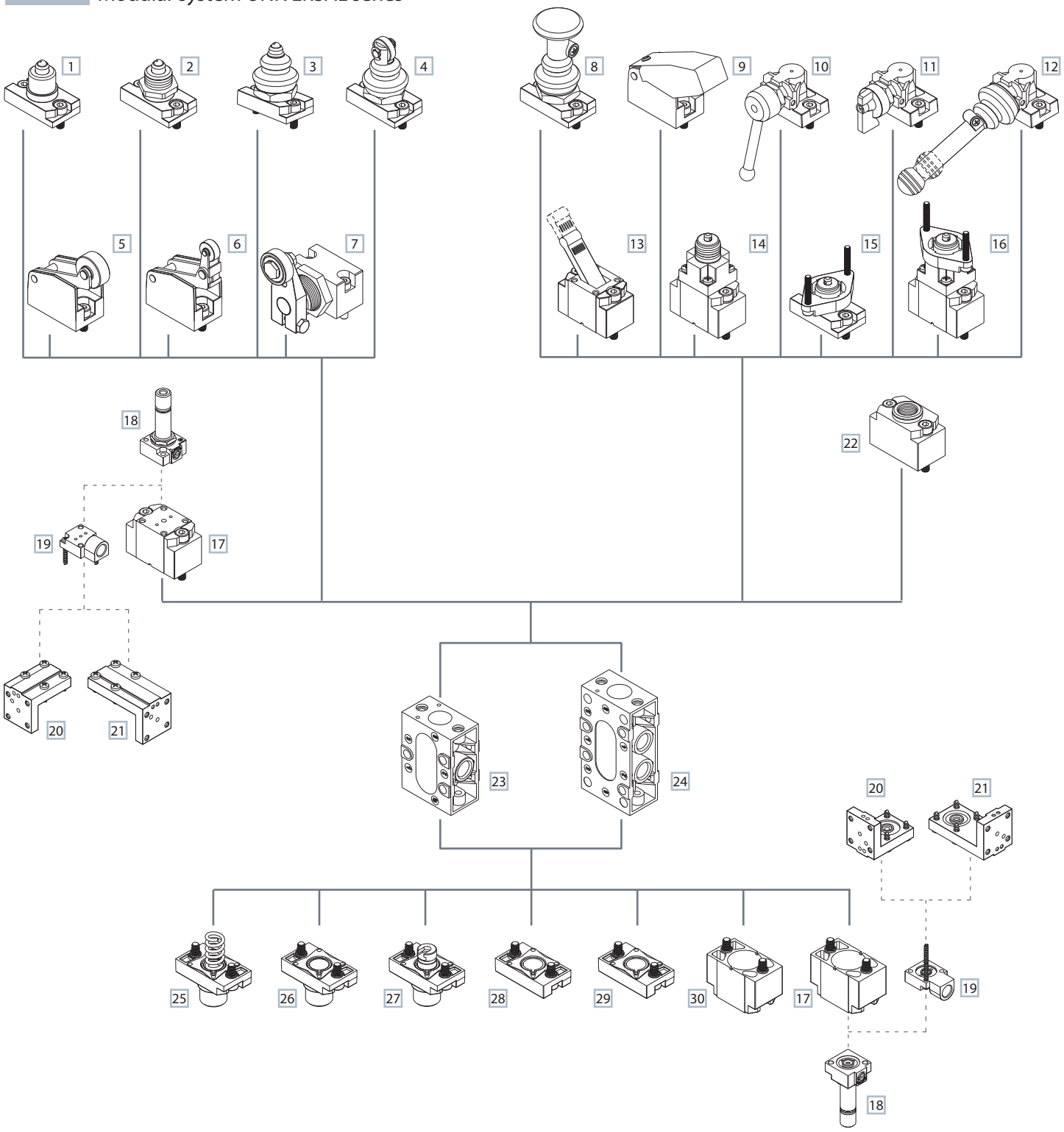


>> G1/4



P = Working pressure
PA = Supply pressure
Qn = Flow rate

Modular system UNIVERSAL series



MECHANICAL CONTROL
- 1 Ball-push
- 2 Ball-push for screw panel mounting
- 3 Ball-push with dust protection
- 4 Roller with dust protection
- 5 Roller lever
- 6 Uni-directional roller lever
- 7 Bidirectional side roller lever

MANUAL CONTROL
- 8 Push-pull
- 9 Push
- 10 Rotating lever
- 11 Selector
- 12 90° short/long lever
- 13 Short/long lever
- 14 Threaded indirect operation
- 15 Direction operation for panel mounting
- 16 Indirect control for panel mounting

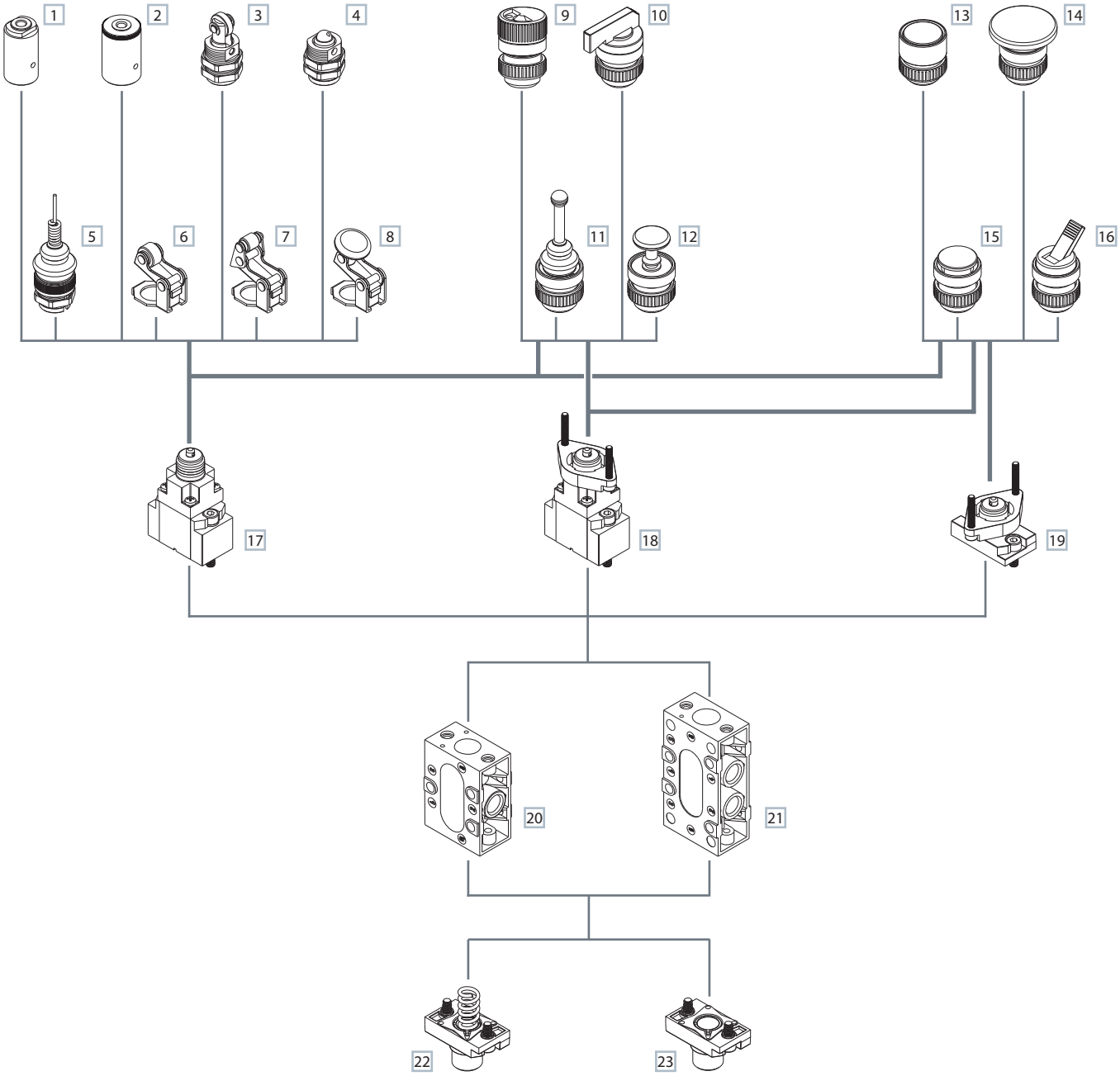
ELECTRIC CONTROL
- 17 Electric amplified
- 18 U1 electropilot
- 19 Plate for external servoassistance
- 20 "H" option angle plate
- 21 "P" option angle plate

PNEUMATIC CONTROL
- 22 Pneumatic amplified

BODY
- 23 3/2 body
- 24 5/2 body

RETURN
- 25 Mechanical spring
- 26 Pneumatic not amplified
- 27 2/3 positions plate
- 28 Bottom plate
- 29 Pneumatic spring
- 30 Pneumatic amplified

Modular system actuators/buttons



PNAUMATIC/MACHANICAL ACTUATORS

1 Pneumatic actuators
2 Pneumatic actuators amplified
3 Roller operator 1 posiotion
4 Ball operator 1 position
5 Operator with omni-directional antenna 1 position
6 Roller lever operator 1 position
7 Articulated roller lever operator 1 position
8 Key operator 1 position

MANUAL PUSH

9 Rotating selector
10 Rotating lever selector
11 Omni-directional lever
12 Push pull actuators
13 Recessed button
14 Head button
15 Button
16 Lever operator

OVERRIDE

17 Threaded indirect operation
18 Indirect operation for panel mounting
19 Direct operation for panel mounting

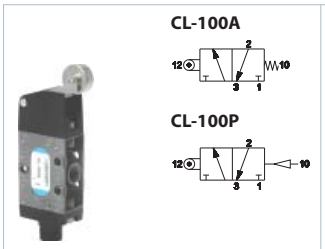
BODY

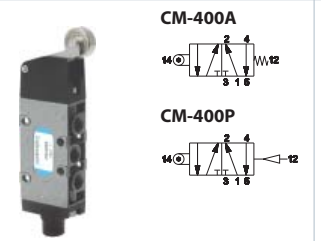
22 3/2 Body
24 5/2 Body

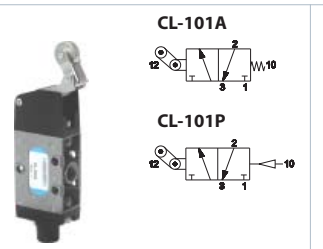
RETURN

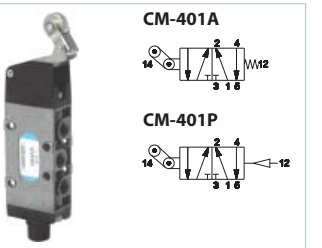
20 Mechanical spring
21 Pneumatic not amplified

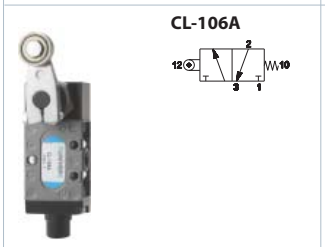
G1/8 Valves with direct mechanical operation

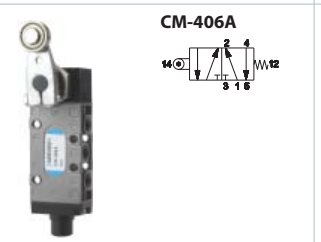


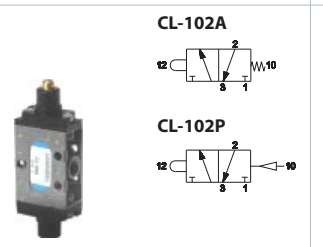


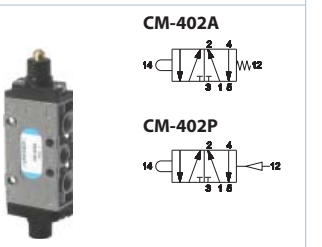


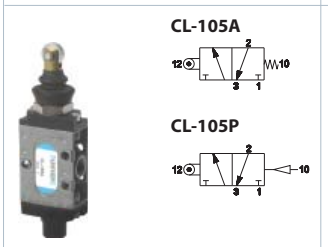


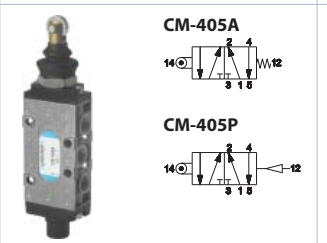


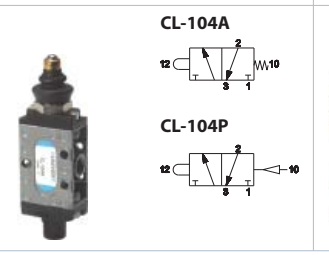


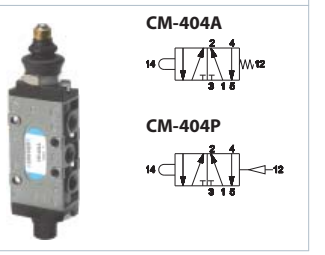


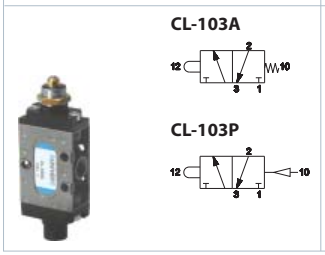


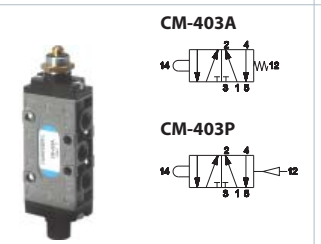












	Return	Flow rate (Nl/min)	Ø mm	Weight Kg	Force N	Part no.	Composition (a) Control	Body	Return	Tot L. mm
	ROLLER LEVER									
3/2 NC-NO	mechanical spring	890	6,5	0,21	23	**CL-100A**	A	1	H	112
	pneumatic not amplified	890	6,5	0,21	6	**CL-100P**	A	1	I	112
5/2	mechanical spring	890	6,5	0,25	23	**CM-400A**	A	2	H	129
	pneumatic not amplified	890	6,5	0,25	6	**CM-400P**	A	2	I	129
	UNI-DIRECTIONAL ROLLER LEVER									
3/2 NC-NO	mechanical spring	890	6,5	0,22	18	**CL-101A**	B	1	H	123
	pneumatic not amplified	890	6,5	0,22	6	**CL-101P**	B	1	I	123
5/2	mechanical spring	890	6,5	0,26	18	**CM-401A**	B	2	H	139,5
	pneumatic not amplified	890	6,5	0,26	6	**CM-401P**	B	2	I	139,5
	BIDIRECTIONAL SIDE ROLLER LEVER									
3/2 NC-NO	mechanical spring	890	6,5	0,30	25	**CL-106A**	C	1	H	118,5
5/2	mechanical spring	890	6,5	0,34	25	**CM-406A**	C	2	H	135
	BALL-PUSH									
3/2 NC-NO	mechanical spring	890	6,5	0,19	64	**CL-102A**	D	1	H	97,7
	pneumatic not amplified	890	6,5	0,19	25	**CL-102P**	D	1	I	97,7
5/2	mechanical spring	890	6,5	0,23	64	**CM-402A**	D	2	H	114,2
	pneumatic not amplified	890	6,5	0,23	25	**CM-402P**	D	2	I	114,2
	ROLLER WITH DUST PROTECTION									
3/2 NC-NO	mechanical spring	890	6,5	0,19	64	**CL-105A**	E	1	H	117
	pneumatic not amplified	890	6,5	0,18	25	**CL-105P**	E	1	I	117
5/2	mechanical spring	890	6,5	0,23	68	**CM-405A**	E	2	H	133,5
	pneumatic not amplified	890	6,5	0,22	26	**CM-405P**	E	2	I	133,5
	BALL-PUSH WITH DUST PROTECTION									
3/2 NC-NO	mechanical spring	890	6,5	0,19	64	**CL-104A**	F	1	H	110
	pneumatic not amplified	890	6,5	0,18	25	**CL-104P**	F	1	I	110
5/2	mechanical spring	890	6,5	0,23	68	**CM-404A**	F	2	H	126,5
	pneumatic not amplified	890	6,5	0,22	26	**CM-404P**	F	2	I	126,5
	BALL-PUSH FOR SCREW PANEL MOUNTING									
3/2 NC-NO	mechanical spring	890	6,5	0,19	64	**CL-103A**	G	1	H	97,7
	pneumatic not amplified	890	6,5	0,18	25	**CL-103P**	G	1	I	97,7
5/2	mechanical spring	890	6,5	0,23	68	**CM-403A**	G	2	H	114,2
	pneumatic not amplified	890	6,5	0,22	25	**CM-403P**	G	2	I	114,2

To get 3/2 NO version, supply the valve from port 3
Pressure 0 ÷10 bar for all part numbers

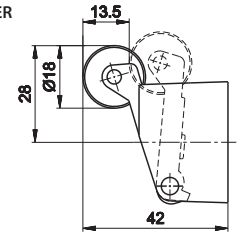
(a) = see page **3**_7

Composition

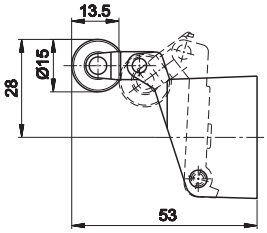
CONTROL	BODY	RETURN

CONTROL

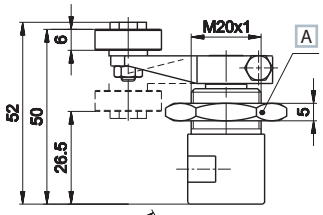
A G1/8 ROLLER LEVER

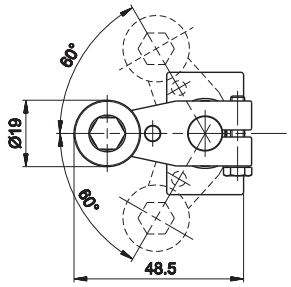


B G1/8 UNI-DIRECTIONAL ROLLER LEVER



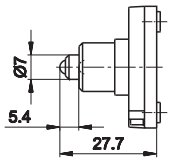
C -



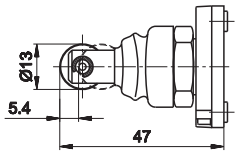


A Wrench 25

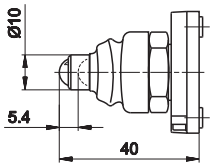
D G1/8 BALL-PUSH



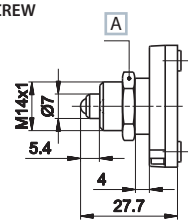
E G1/8 ROLLER WITH DUST PROTECTION



F G1/8 BALL-PUSH WITH DUST PROTECTION



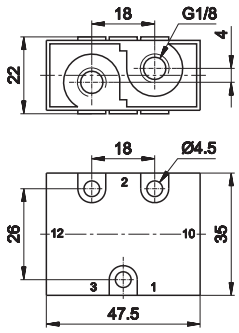
G G1/8 BALL-PUSH FOR SCREW PANEL MOUNTING



A Wrench18

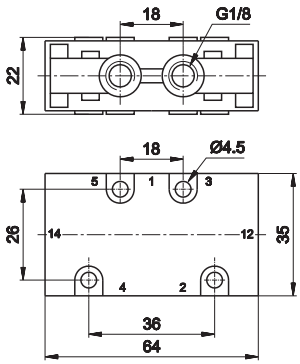
BODY

1 3/2 NC-NO G1/8



>> NC	>> NO
1 = Supply port	1 = Exhaust
2 = Use	2 = Use
3 = Exhaust	3 = Supply port
12 = Control	12 = Control
10 = Return	10 = Return

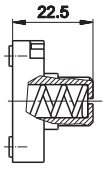
2 5/2 G1/8



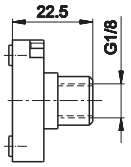
1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

RETURN

H G1/8 MECHANICAL SPRING

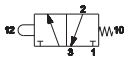


I G1/8 PNEUMATIC NOT AMPLIFIED

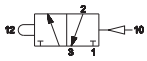


G1/4 Valves with direct mechanical operation

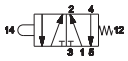
CL-9102A



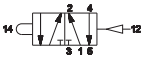
CL-9102P



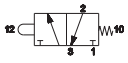
CL-9402A



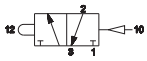
CL-9402P



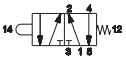
CL-9103A



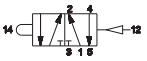
CL-9103P



CM-9403A



CM-9403P



	Return	Flow rate (Nl/min)	Ø mm	Weight Kg	Force N	Part no.	Composition (a) Control	Body	Return	Tot L. mm
	BALL-PUSH									
3/2 NC-NO	mechanical spring	1480	8,5	0,26	68	**CL-9102A**	D	1	H	117
	pneumatic not amplified	1480	8,5	0,26	26	**CL-9102P**	D	1	I	106
5/2	mechanical spring	1480	8,5	0,28	68	**CM-9402A**	D	2	H	134,5
	pneumatic not amplified	1480	8,5	0,28	26	**CM-9402P**	D	2	I	123,5
	BALL-PUSH FOR SCREW PANEL MOUNTING									
3/2 NC-NO	mechanical spring	1480	8,5	0,26	68	**CL-9103A**	G	1	H	117
	pneumatic not amplified	1480	8,5	0,24	26	**CL-9103P**	G	1	I	106
5/2	mechanical spring	1480	6,5	0,28	64	**CM-9403A**	G	2	H	134,5
	pneumatic not amplified	1480	6,5	0,26	26	**CM-9403P**	G	2	I	123,5

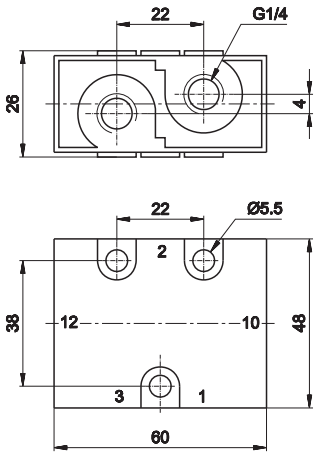
To get 3/2 NO version, supply the valve from port 3
Pressure 0 ÷10 bar for all part numbers

(a) = see page **3**_9

Composition

CONTROL	BODY	RETURN

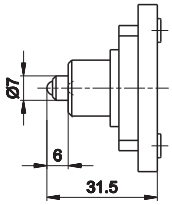
1 3/2 NC-NO G1/4



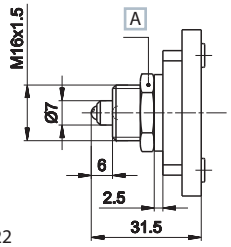
>> NC
1 = Supply port
2 = Use
3 = Exhaust
12 = Control
10 = Return

>> NO
1 = Exhaust
2 = Use
3 = Supply port
12 = Control
10 = Return

D G1/4 BALL-PUSH

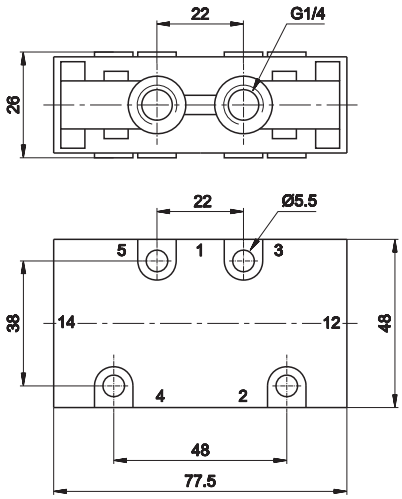


G G1/4 BALL-PUSH FOR SCREW PANEL MOUNTING



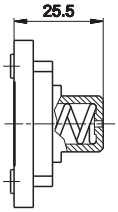
A Wrench 22

2 5/2 G1/4

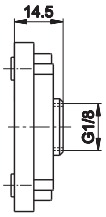


1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

H G1/4 MECHANICAL SPRING

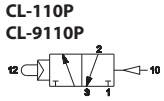


I G1/4 PNEUMATIC SPRING



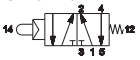
G1/8 - G1/4 Valves with direct mechanical operator for pneumatic and mechanical actuators

CL-110A
CL-9110A

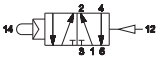


CL-110P
CL-9110P

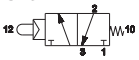
CM-410A
CM-9410A



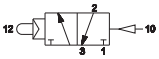
CM-410P
CM-9410P



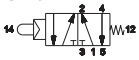
CL-111A
CL-9111A



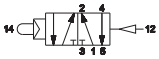
CL-111P
CL-9111B



CM-411A
CM-9411A

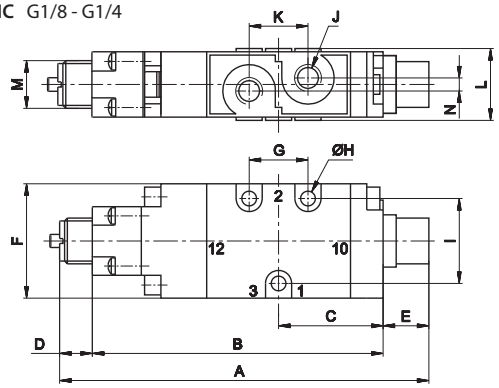


CM-411P
CM-9411P



	Thread	Return	Pressure bar	Flow rate (Nl/min)	Ø mm	Weight Kg	Force N	Part no.
	BALL-PUSH							
3/2 NC	G1/8	mechanical spring	2,5÷10	890	6,5	0,19	11	**CL-110A**
	G1/8	pneumatic not amplified	1÷10	890	6,5	0,18	11	**CL-110P**
	G1/4	mechanical spring	2÷10	1480	8,5	0,26	11	**CL-9110A**
	G1/4	pneumatic not amplified	1÷10	1480	8,5	0,24	11	**CL-9110P**
5/2	G1/8	mechanical spring	3÷10	890	6,5	0,23	11	**CM-410A**
	G1/8	pneumatic not amplified	1,2÷10	890	6,5	0,22	11	**CM-410P**
	G1/4	mechanical spring	2÷10	1480	8,5	0,28	11	**CM-9410A**
	G1/4	pneumatic not amplified	1,2÷10	1480	8,5	0,26	11	**CM-9410P**
	SENSITIVE BALL-PUSH							
3/2 NC	G1/8	mechanical spring	2,5÷10	890	6,5	0,19	3	**CL-111A**
	G1/8	pneumatic not amplified	1÷10	890	6,5	0,18	3	**CL-111P**
	G1/4	mechanical spring	2÷10	1480	8,5	0,26	3	**CL-9111A**
	G1/4	pneumatic not amplified	1÷10	1480	8,5	0,24	3	**CL-9111P**
5/2	G1/8	mechanical spring	3÷10	890	6,5	0,23	3	**CM-411A**
	G1/8	pneumatic not amplified	1,2÷10	890	6,5	0,22	3	**CM-411P**
	G1/4	mechanical spring	2÷10	1480	8,5	0,28	3	**CM-9411A**
	G1/4	pneumatic not amplified	1,2÷10	1480	8,5	0,26	3	**CM-9411P**

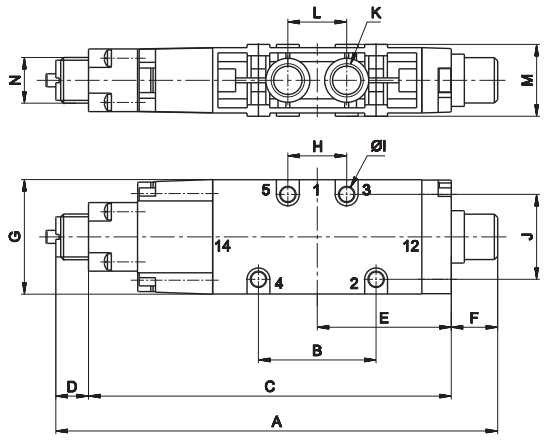
3/2 NC G1/8 - G1/4



1 = Supply port
2 = Use
3 = Exhaust
12 = Control
10 = Return

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
G1/8	116	92	32	10	14	35	22	4,5	26	G1/8	22	22	M14x1	4
G1/4	136,5	112	41	10	14,5	48	18	5,5	38	G1/4	18	26	M14x1	4

5/2 G1/8 - G1/4



1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
G1/8	135	36	111	10	41	14	35	18	4,5	26	G1/8	18	22	M14x1
G1/4	154	48	129,5	10	49,7	14,5	48	22	5,5	38	G1/4	22	26	M14x1

G1/8 - G1/4 Valves with direct mechanical operator for pneumatic and mechanical actuators

PNEUMATIC AND MECHANICAL ACTUATORS

	Pneumatic operator	AI-3550
	Amplified pneumatic operator	AI-3551
	Roller operator 1 position	AI-3560
	Ball-push operator 1 position	AI-3562
	Operator with omni-directional antenna 1 position	AI-3563
	Roller lever operator 1 position	AI-3570
	Articulated roller operator 1 position Complete actuation with stroke 2,5 mm, max stroke 4,7 mm	AI-3571
	Key operator 1 position	AI-3572

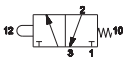
MANUAL ACTUATORS

	Recessed button	■BLACK AI-3511 ■RED AI-3512 ■GREEN AI-3513
	Head button	■RED AI-3514 ■BLACK AI-3516 ■RED AI-3514D ■BLACK AI-3516D
	Button	■GREEN AI-3515 ■RED AI-3517 ■BLACK AI-3519
	Accident prevention rotating selector	■BLACK AI-3520 ■BLACK AI-3521
	Rotating lever selector	■BLACK AI-3522 ■BLACK AI-3523
	Lever operator	■BLACK AI-3524
	Omni-directional operator	■BLACK AI-3525
	Push-pull operator	■BLACK AI-3526

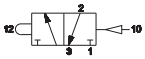
For actuators dimensions see section **"Accessories>Actuators"**

G1/8 Valves with direct operator for panel mounting actuators

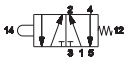
CL-112A



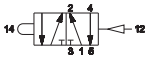
CL-112P



CM-412A



CM-412P

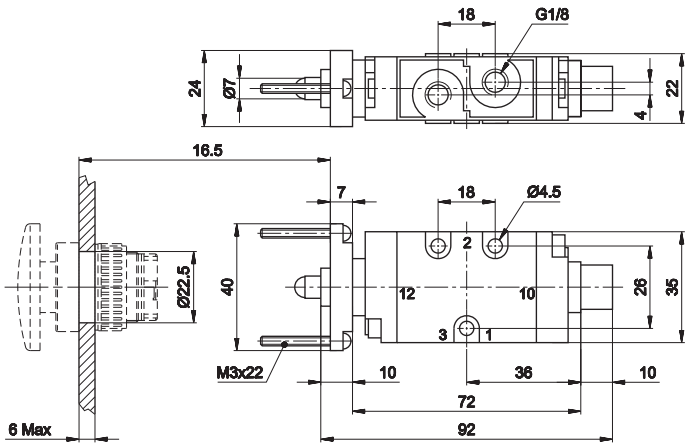


	Return	Pressure bar	Flow rate (Nl/min)	Ø mm	Weight Kg	Force N	Part no.
	BALL-PUSH						
3/2 NC-NO	mechanical spring	0÷10	890	6,5	0,19	64	**CL-112A**
	pneumatic not amplified	0÷10	890	6,5	0,18	25	**CL-112P**
5/2	mechanical spring	0÷10	890	6,5	0,23	64	**CM-412A**
	pneumatic not amplified	0÷10	890	6,5	0,22	25	**CM-412P**

To get 3/2 NO version supply the valve from port 3

	Recessed button	YELLOW RED GREEN	AI-3511Q AI-3512Q AI-3513Q
	Head button	RED BLACK	AI-3514Q AI-3516Q
	Button	GREEN RED BLACK	AI-3515Q AI-3517Q AI-3519Q
	Lever operator	BLACK	AI-3524Q

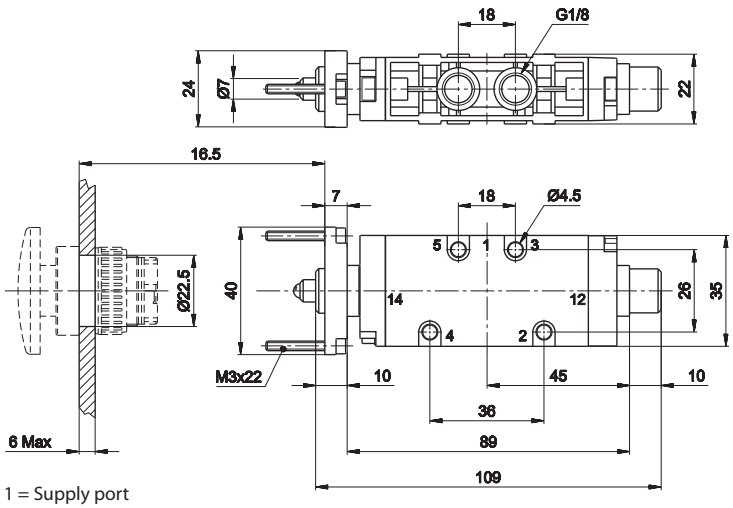
3/2 NC-NO G1/8



>> NC
1 = Supply port
2 = Use
3 = Exhaust
12 = Control
10 = Return

>> NO
1 = Exhaust
2 = Use
3 = Supply port
12 = Control
10 = Return

5/2 G1/8

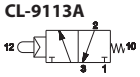


1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

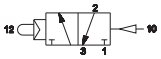
For actuator dimensions see section **"Accessories>Buttons"**

G1/8 - G1/4 Valves with indirect operator for panel mounting actuators

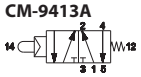
CL-113A
CL-9113A



CL-113P
CL-9113P



CM-413A
CM-9413A

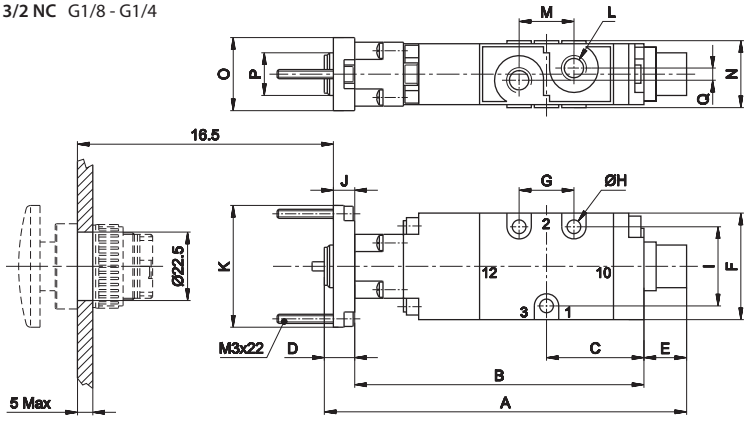


CM-413P
CM-9413P

	Thread	Return	Pressione bar	Flow rate (Nl/min)	Ø mm	Weight Kg	Force N	Part no.
	BALL-PUSH							
3/2 NC	G1/8	mechanical spring	2,5÷10	890	6,5	0,20	11	**CL-113A**
	G1/8	pneumatic non amplified	1÷10	890	6,5	0,19	11	**CL-113P**
	G1/4	mechanical spring	2÷10	1480	8,5	0,27	11	**CL-9113A**
	G1/4	pneumatic non amplified	1÷10	1480	8,5	0,26	11	**CL-9113P**
5/2	G1/8	mechanical spring	3÷10	890	6,5	0,24	11	**CM-413A**
	G1/8	pneumatic non amplified	1,2÷10	890	6,5	0,23	11	**CM-413P**
	G1/4	mechanical spring	2÷10	1480	6,5	0,29	11	**CM-9413A**
	G1/4	pneumatic non amplified	1,2÷10	1480	6,5	0,28	11	**CM-9413P**

	Recessed button	■BLACK ■RED ■GREEN	AI-3511Q AI-3512Q AI-3513Q
	Head button	■RED ■BLACK ■RED ■BLACK	AI-3514Q AI-3516Q AI-3514QD AI-3516QD
	Button	■GREEN ■RED ■BLACK	AI-3515Q AI-3517Q AI-3519Q
	Accident prevention rotating selector	■BLACK ■BLACK	AI-3520Q AI-3521Q
	Lever operator	■BLACK	AI-3524Q
	Rotating lever selector	■BLACK ■BLACK	AI-3523Q AI-3522Q
	Omni-directional lever	■BLACK	AI-3525Q
	Push-pull operator	■BLACK	AI-3526Q

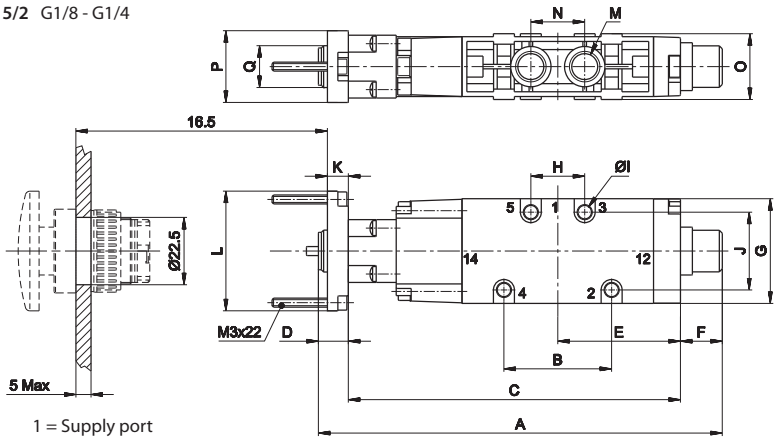
3/2 NC G1/8 - G1/4



1 = Supply port
2 = Use
3 = Exhaust
12 = Control
10 = Return

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
G1/8	116	92	32	10	14	35	18	4,5	26	7	40	G1/8	18	22	24	M14X1	4
G1/4	136,5	112	41	10	14,5	48	22	5,5	38	7	40	G1/4	22	26	24	M14X1	4

5/2 G1/8 - G1/4

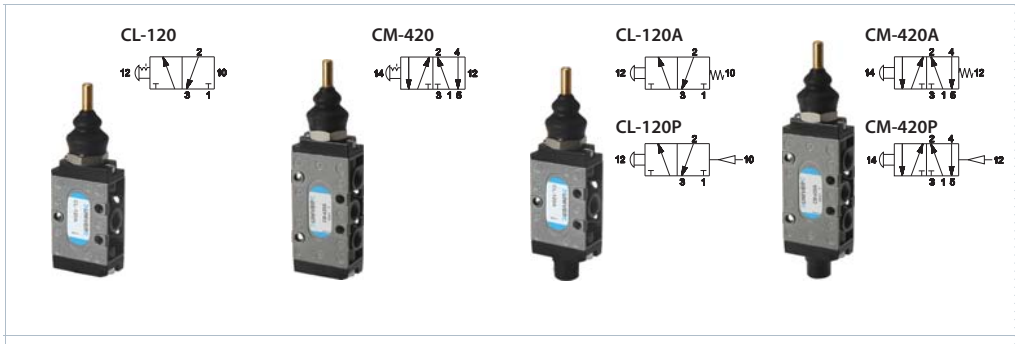


1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

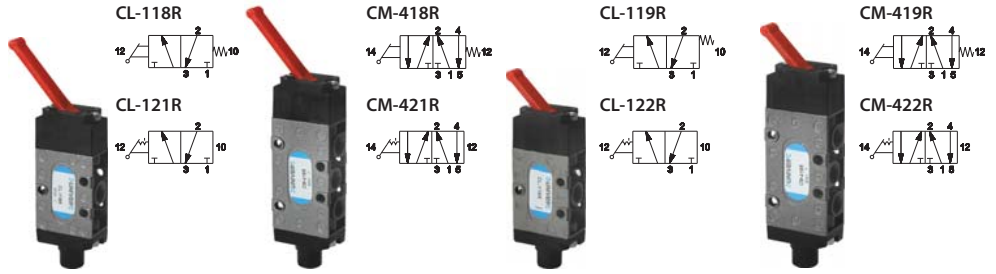
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
G1/8	135	36	111	10	41	14	35	18	4,5	22	7	40	G1/8	18	22	24	M14X1
G1/4	154	48	129,5	10	49,7	14,5	48	22	5,5	26	7	40	G1/4	22	26	24	M14X1

For actuator dimensions see section **"Accessories>Buttons"**

G1/8 Manually operated valves



YELLOW **CP-911G**
RED **CP-911R**
BLACK **CP-911N**
GREEN **CP-911V**

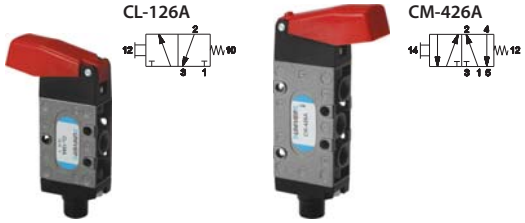


LONG LEVER

STANDARD	UPON REQUEST
RED	YELLOW
	BLACK

SHORT LEVER

STANDARD	UPON REQUEST
RED	YELLOW
	BLACK
	GREEN



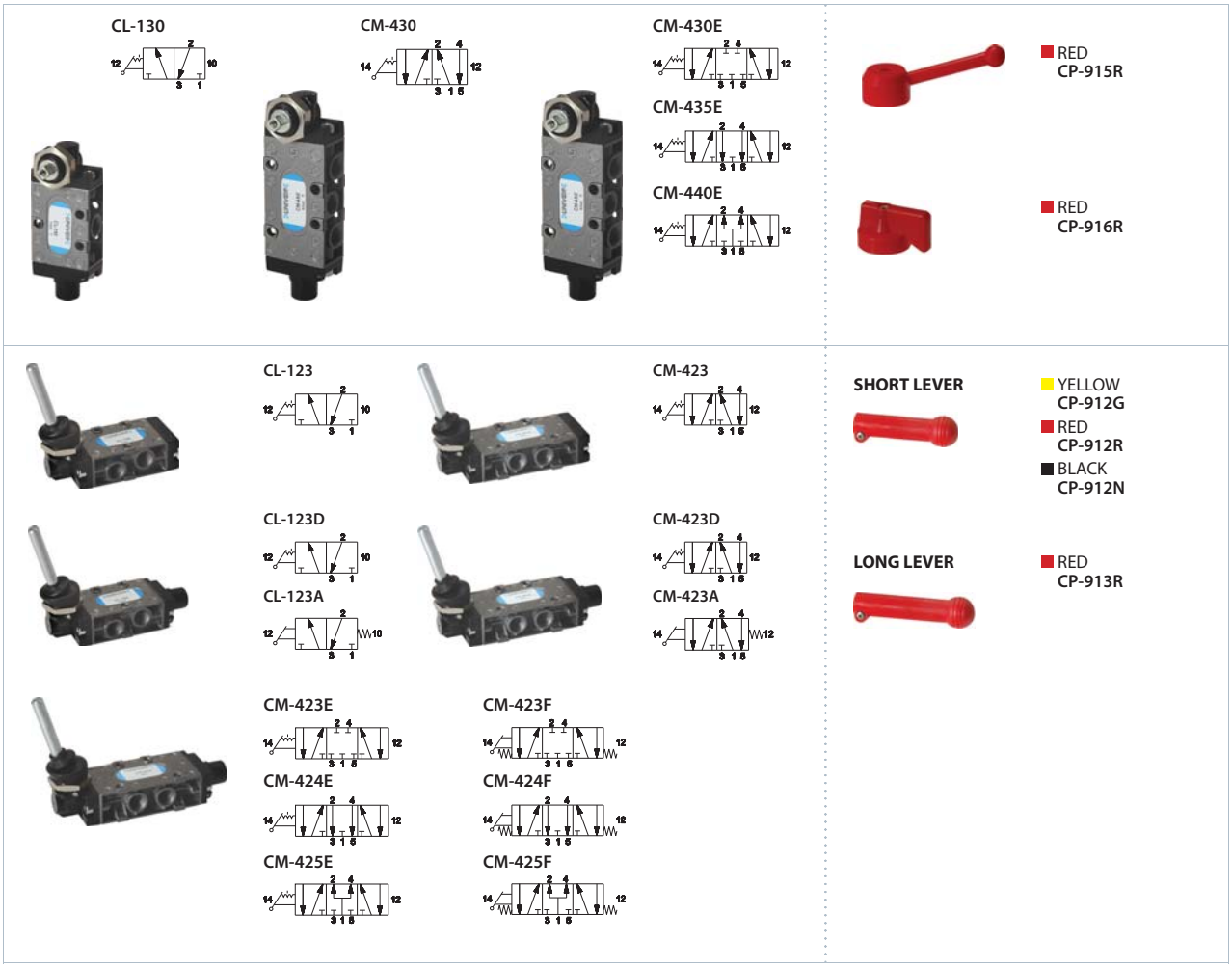
STANDARD LEVER
RED

Return	Flow rate (Nl/min)	Ø mm	Weight Kg	Force N	Part no.	Composition (a) Control	Body	Return	Tot L. mm
PUSH-PULL (b)									
3/2 NC-NO	push-pull	890	6,5	0,19	25	**CL-120**	A	1	H	108,5
5/2	push-pull	890	6,5	0,22	25	**CM-420**	A	2	H	125
3/2 NC-NO	mechanical spring	890	6,5	0,19	25	**CL-120A**	A	1	F	121
5/2	mechanical spring	890	6,5	0,22	25	**CM-420A**	A	2	F	137,5
3/2 NC-NO	pneumatic not amplified	890	6,5	0,18	25	**CL-120P**	A	1	I	121
5/2	pneumatic not amplified	890	6,5	0,21	25	**CM-420P**	A	2	I	137,5
BUTTON									
3/2 NC-NO	mechanical spring	890	6,5	0,20	15	**CL-126A**	B	1	F	100
5/2	mechanical spring	890	6,5	0,23	15	**CM-426A**	B	2	F	116,5
LONG LEVER (STANDARD RED COLOUR)									
3/2 NC-NO	mechanical spring	890	6,5	0,17	10	**CL-118R**	C	1	F	126
5/2	mechanical spring	890	6,5	0,21	10	**CM-418R**	C	2	F	142,5
3/2 NC-NO	lever	890	6,5	0,16	10	**CL-121R**	C	1	G	126
5/2	lever	890	6,5	0,20	10	**CM-421R**	C	2	G	142,5
SHORT LEVER (STANDARD RED COLOUR)									
3/2 NC-NO	mechanical spring	890	6,5	0,17	20	**CL-119R**	C	1	F	112
5/2	mechanical spring	890	6,5	0,21	20	**CM-419R**	C	2	F	128,5
3/2 NC-NO	lever	890	6,5	0,16	20	**CL-122R**	C	1	G	112
5/2	lever	890	6,5	0,20	20	**CM-422R**	C	2	G	128,5

To get 3/2 NO version, supply the valve from port 3
(b) = valves are supplied without operator Pressure 0 ÷10 bar for all part numbers

(a) = see pages **3**_18
Overall dimensions include operator

G1/8 Manually operated velves



Return	Flow rate (Nl/min)	Ø mm	Weight Kg	Force N	Part no.	Composition (a) Control	Body	Return	Tot L. mm
ROTATING LEVER (SELECTOR UPON REQUEST) (b)									
3/2 NC-NO	rotating lever	890	6,5	0,22	27	**CL-130**	D	1	G	97
5/2	rotating lever	890	6,5	0,25	27	**CM-430**	D	2	G	113,5
5/3 c.c.	rotating lever	890	6,5	0,25	27	**CM-430E**	D	2	G	113,5
5/3 o.c.	rotating lever	890	6,5	0,24	27	**CM-435E**	D	2	G	113,5
5/3 p.c.	rotating lever	890	6,5	0,24	27	**CM-440E**	D	2	G	113,5
90° LEVER - 3 POSITION (b)									
3/2 NC-NO	lever	890	6,5	0,17	2,5÷4	**CL-123**	E	1	H	79,5
5/2	lever	890	6,5	0,23	2,5÷4	**CM-423**	E	2	H	96
3/2 NC-NO	lever	890	6,5	0,17	3,5÷5	**CL-123D**	E	1	G	92
5/2	lever	890	6,5	0,23	3,5÷5	**CM-423D**	E	2	G	108,5
3/2 NC-NO	mechanical spring	890	6,5	0,18	9÷13	**CL-123A**	E	1	F	92
5/2	mechanical spring	890	6,5	0,23	9÷13	**CM-423A**	E	2	F	108,5
5/3 c.c.	lever	890	6,5	0,23	3,5÷5	**CM-423E**	E	2	G	108,5
	lever	890	6,5	0,23	6,5÷10	**CM-423F**	E	2	G	108,5
5/3 o.c.	lever	890	6,5	0,23	3,5÷3	**CM-424E**	E	2	G	108,5
	lever	890	6,5	0,23	6,5÷10	**CM-424F**	E	2	G	108,5
5/3 p.c.	lever	890	6,5	0,23	7,5÷5	**CM-425E**	E	2	G	108,5
	lever	890	6,5	0,23	6,5÷10	**CM-425F**	E	2	G	108,5

o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

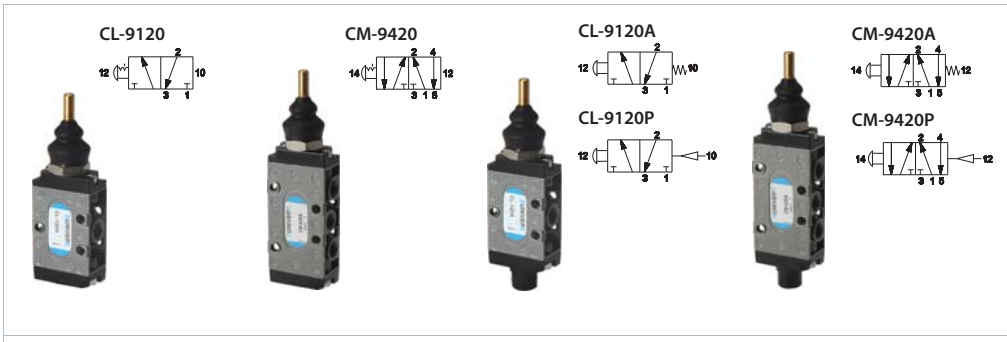
To get 3/2 NO version, supply the valve from port 3

(b) = valves are supplied without operator Pressure 0 ÷10 bar for all part numbers

(a) = see pages **3**_18

Overall dimensions include operator

G1/4 Manually operated velves



	Return	Flow rate (Nl/min)	Ø mm	Weight Kg	Force N	Part no.	Composition (a) Control	Body	Return	Tot L. mm
	PUSH-PULL(b)									
3/2 NC-NO	push-pull	1480	8,5	0,26	26	**CL-9120**	A	1	H	127
5/2	push-pull	1480	8,5	0,26	26	**CM-9420**	A	2	H	144,5
3/2 NC-NO	mechanical spring	1480	8,5	0,26	26	**CL-9120A**	A	1	F	138
5/2	mechanical spring	1480	8,5	0,26	26	**CM-9420A**	A	2	F	155,5
3/2 NC-NO	pneumatic not amplified	1480	8,5	0,24	26	**CL-9120P**	A	1	I	127
5/2	pneumatic not amplified	1480	8,5	0,24	26	**CM-9420P**	A	2	I	144,5
	LONG LEVER (standard red colour)									
3/2 NC-NO	mechanical spring	1480	8,5	0,23	11	**CL-9118R**	C	1	F	144
5/2	mechanical spring	1480	8,5	0,25	11	**CM-9418R**	C	2	F	161,5
3/2 NC-NO	lever	1480	8,5	0,22	11	**CL-9121R**	C	1	G	144
5/2	lever	1480	8,5	0,24	11	**CM-9421R**	C	2	G	161,5

To get 3/2 NO version, supply the valve from port 3
(b) = valves are supplied without operator Pressure 0 ÷10 bar for all part numbers

(a) = see pages **3**_18
Overall dimensions include operator

G1/4 Manually operated velves

	Return	Flow rate (Nl/min)	Ø mm	Weight Kg	Force N	Part no.	Composition (a) Control	Body	Return	Tot L. mm
	ROTATING LEVER (SELECTOR UPON REQUEST)									
3/2 NC-NO	rotating lever	1480	8,5	0,25	29	**CL-9130**	D	1	G	113
5/2	rotating lever	1490	8,5	0,27	29	**CM-9430**	D	2	G	130,5
5/3 c.c.	rotating lever	1480	8,5	0,27	29	**CM-9430E**	D	2	G	130,5
5/3 o.c.	rotating lever	1480	8,5	0,26	29	**CM-9435E**	D	2	G	130,5
5/3 p.c.	rotating lever	1480	8,5	0,26	29	**CM-9440E**	D	2	G	130,5
	90° LEVER - 3 POSITION (b)									
3/2 NC-NO	lever	1480	8,5	0,23	2,7÷4,5	**CL-9123**	E	1	H	99,5
5/2	lever	1480	8,5	0,28	2,7÷4,5	**CM-9423**	E	2	H	117,5
3/2 NC-NO	lever	1480	8,5	0,23	3,6÷5,2	**CL-9123D**	E	1	G	110,5
5/2	lever	1480	8,5	0,28	3,6÷5,2	**CM-9423D**	E	2	G	128
3/2 NC-NO	mechanical spring	1480	8,5	0,24	10÷14	**CL-9123A**	E	1	F	110,5
5/2	mechanical spring	1480	8,5	0,28	10÷14	**CM-9423A**	E	2	F	128
5/3 c.c.	lever	1480	8,5	0,28	3,6÷5,2	**CM-9423E**	E	2	G	128
	lever	1480	8,5	0,28	6,7÷11	**CM-9423F**	E	2	G	128
5/3 o.c.	lever	1480	8,5	0,28	3,6÷5,2	**CM-9424E**	E	2	G	128
	lever	1480	8,5	0,28	6,7÷11	**CM-9424F**	E	2	G	128
5/3 p.c.	lever	1480	8,5	0,28	3,6÷5,2	**CM-9425E**	E	2	G	128
	lever	1480	8,5	0,28	6,7÷11	**CM-9425F**	E	2	G	128

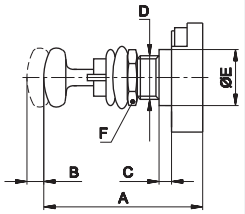
o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres
To get 3/2 NO version, supply the valve from port 3
(b) = valves are supplied without operator Pressure 0 ÷10 bar for all part numbers

(a) = see pages **3**_18
Overall dimensions include operator

Composition

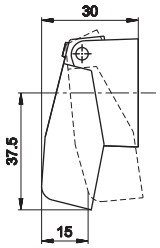
Control

A G1/8 - G1/4 PUSH-PULL

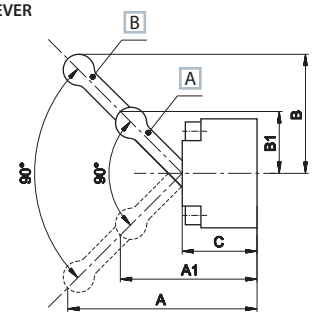


	A	B	C	D	E	F
G1/8	51	5,4	4	M14x1	16	18
G1/4	52,5	6	2,5	M16x1,5	22	22

B G1/8 BUTTON



C G1/8 - G1/4 LONG/SHORT LEVER

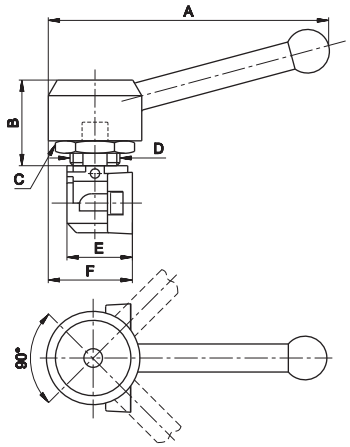


A Short lever
B Long lever

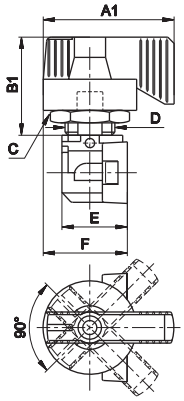
	A	A1	B	B1	C
G1/8	56	42	38,5	24	22,5

	A	B	C
G1/4	58,5	32	26

D G1/8 - G1/4 ROTATING LEVER

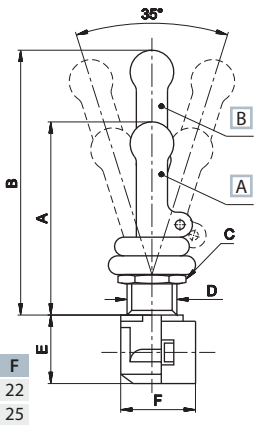


G1/8 - G1/4 SELECTOR



	A	A1	B	B1	C	D	E	F
G1/8	89	42	32	29	22	M16x1,5	22	27
G1/4	89	42	32	29	24	M18x1,5	25	27,5

E G1/8 - G1/4 90° LEVER

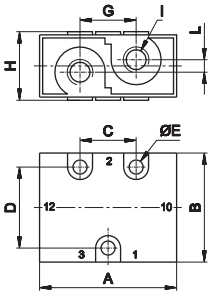


A Short lever
B Long lever

	A	B	C	D	E	F
G1/8	62	85	22	M16x1,5	21,5	22
G1/4	90	110	24	M18x1,5	29	25

Body

1 3/2 NC-NO G1/8 - G1/4

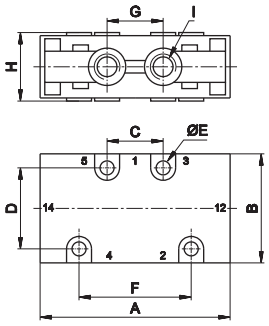


>> NC
1 =Supply port
2 = Use
3 = Exhaust
12 = Control
10 = Return

>> NO
1 = Exhaust
2 = Use
3 = Supply port
12 = Control
10 = Return

	A	B	C	D	E	G	H	I	L
G1/8	47,5	35	18	26	4,5	18	22	G1/8	4
G1/4	60	48	22	38	5,5	22	26	G1/4	4

2 5/2 - 5/3 G1/8 - G1/4

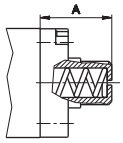


1 =Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

	A	B	C	D	E	F	G	H	I
G1/8	64	35	18	26	4,5	36	18	22	G1/8
G1/4	77,5	48	22	38	5,5	48	22	26	G1/4

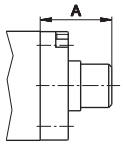
Return

F G1/8 - G1/4 MECHANICAL SPRING



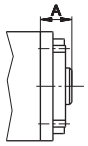
	A
G1/8	22,5
G1/4	25,5

G G1/8 - G1/4 2/3 POSITION



	A
G1/8	22,5
G1/4	25,5

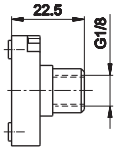
H BOTTOM PLATE WITHOUT SPRING G1/8 - G1/4



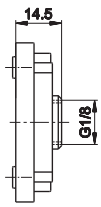
	A
G1/8	10
G1/4	14,5

I G1/8 - G1/4 PNEUMATIC NOT AMPLIFIED

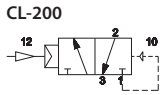
>> G1/8

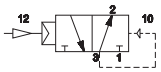


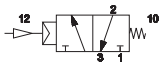
>> G1/4

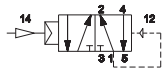


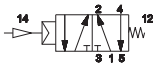
G1/8 Valves with pneumatic control

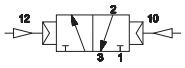

CL-200


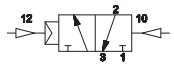

CL-203


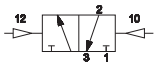

CL-200A


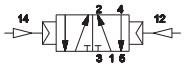

CM-500



CM-500A



CL-220



CL-221



CL-224



CM-520
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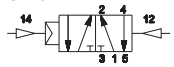
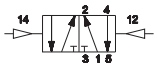
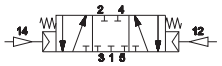
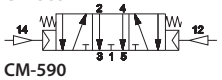
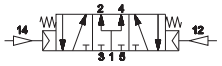



CM-524



CM-580

CM-585

CM-590


Control	Return	Pressure bar	Flow rate (Nl/min)	Ø mm	Weight Kg	Times (ms) En.	Times (ms) De-en.	Part no.	Composition (a) Control	Composition (a) Body	Composition (a) Return	Tot L. mm
SINGLE IMPULSE												
3/2 NC	pneumatic amplified	pneumatic spring	2,3÷10	890	6,5	0,20	11	14	**CL-200**	B	1	E	82,5
3/2 NO	pneumatic amplified	pneumatic spring	2,3÷10	890	6,5	0,20	11	14	**CL-203**	B	1	E	82,5
3/2 NC-NO	pneumatic amplified	mechanical spring	2,5÷10	890	6,5	0,21	9	17	**CL-200A**	B	1	D	95
5/2	pneumatic amplified	pneumatic spring	2,5÷10	890	6,5	0,20	10	15	**CM-500**	B	2	E	99
	pneumatic amplified	mechanical spring	3÷10	890	6,5	0,19	10	18	**CM-500A**	B	2	D	111,5
DOUBLE IMPULSE												
	pneumatic amplified	pneumatic amplified	1÷10	890	6,5	0,16	6	6	**CL-220**	B	1	F	97,5
3/2 NC-NO	pneumatic amplified	pneumatic not amplified	1,7÷10	890	6,5	0,15	6	8	**CL-221**	B	1	G	95
	pneumatic non amplified	pneumatic not amplified	1,7÷10	890	6,5	0,14	8	8	**CL-224**	C	1	G	92,5
	pneumatic amplified	pneumatic amplified	1,2÷10	890	6,5	0,18	7	7	**CM-520**	B	2	F	114
5/2	pneumatic amplified	pneumatic not amplified	2÷10	890	6,5	0,19	7	9	**CM-521**	B	2	G	111,5
	pneumatic non amplified	pneumatic not amplified	2÷10	890	6,5	0,20	9	9	**CM-524**	C	2	G	109
5/3 c.c.	pneumatic amplified	pneumatic amplified	2,5÷10	890	6,5	0,21	8	12	**CM-580**	B	2	F	114
5/3 o.c.	pneumatic amplified	pneumatic amplified	2,5÷10	890	6,5	0,21	8	12	**CM-585**	B	2	F	114
5/3 p.c.	pneumatic amplified	pneumatic amplified	2,5÷10	890	6,5	0,21	8	12	**CM-590**	B	2	F	114

o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

To get 3/2 NO version, supply the valve from port 3

(a) = see page **3**_23

G1/4 Valves with pneumatic control


CL-9200


CL-903


CL-9200A


CM-9500


CM-9500A


CL-9220


CL-9221


CL-9224


CM-9520


CM-9521


CM-9524


CM-9580
CM-9585
CM-9590

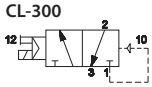
	Control	Return	Pressure bar	Flow rate (Nl/min)	Ø mm	Weight Kg	Times (ms) En.	Times (ms) De-en.	Part no.	Composition (a) Control	Composition (a) Body	Composition (a) Return	Tot L. mm
	SINGLE IMPULSE												
3/2 NC	pneumatic amplified	pneumatic spring	2÷10	1480	8,5	0,23	13	16	**CL-9200**	B	1	E	103
3/2 NO	pneumatic amplified	pneumatic spring	2÷10	1480	8,5	0,23	13	16	**CL-9203**	B	1	E	103
3/2 NC-NO	pneumatic amplified	mechanical spring	2÷10	1480	8,5	0,24	10	19	**CL-9200A**	B	1	D	114
5/2	pneumatic amplified	pneumatic spring	2÷10	1480	8,5	0,26	13	16	**CM-9500**	B	2	E	120,5
	pneumatic amplified	mechanical spring	2÷10	1480	8,5	0,17	11	20	**CM-9500A**	B	2	D	131,5
	DOUBLE												
	pneumatic amplified	pneumatic amplified	1÷10	1480	8,5	0,21	8	8	**CL-9220**	B	1	F	117
3/2 NC-NO	pneumatic amplified	pneumatic not amplified	1,5÷10	1480	8,5	0,22	8	10	**CL-9221**	B	1	G	103
	pneumatic not amplified	pneumatic not amplified	1,5÷10	1480	8,5	0,24	10	10	**CL-9224**	C	1	G	89
	pneumatic amplified	pneumatic amplified	1,5÷10	1480	8,5	0,24	9	9	**CM-9520**	B	2	F	134,5
5/2	pneumatic amplified	pneumatic not amplified	1,8÷10	1480	8,5	0,25	9	10	**CM-9521**	B	2	G	120,5
	pneumatic not amplified	pneumatic not amplified	1,8÷10	1480	8,5	0,27	10	10	**CM-9524**	C	2	G	198,5
5/3 c.c.	pneumatic amplified	pneumatic amplified	2,8÷10	1480	8,5	0,30	10	13	**CM-9580**	B	2	F	134,5
5/3 o.c.	pneumatic amplified	pneumatic amplified	2,8÷10	1480	8,5	0,30	10	13	**CM-9585**	B	2	F	134,5
5/3 p.c.	pneumatic amplified	pneumatic amplified	1,8÷10	1480	8,5	0,30	10	13	**CM-9590**	B	2	F	134,5

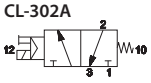
o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

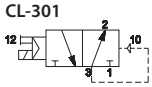
(a) = see page **3**_23

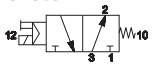
To get 3/2 NO version, supply the valve from port 3

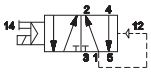
G1/8 Valves with electric control

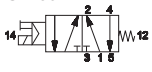

CL-300


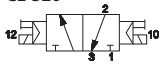
CL-302A


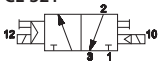
CL-301


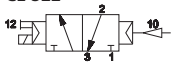
CL-303A


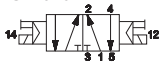
CM-600


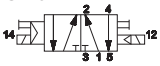
CM-602A


CL-320


CL-321


CL-322


CM-620


CM-621


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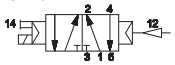
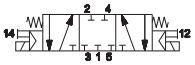
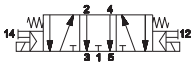
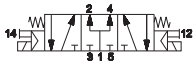


CM-680

CM-685

CM-690


- **Electropilots are supplied without coil, connector and locking ring**
- For technical details about coils see section **"Accessories > Coils"**

	Control	Return	Pressure bar	Flow rate (Nl/min)	Ø mm	Weight Kg	Times (ms) En.	Times (ms) De-en.	Part no.	Composition (a) Control	Composition (a) Body	Composition (a) Return	Tot L. mm
	SINGLE IMPULSE												
3/2 NC	electrical amplified	pneumatic spring	2,3÷10	890	6,5	0,20	23	19	**CL-300**	A	1	E	140,5
	electrical amplified	mechanical spring	2,5÷10	890	6,5	0,21	20	24	**CL-302A**	A	1	D	153
3/2 NO	electrical amplified	pneumatic spring	2,3÷10	890	6,5	0,20	23	19	**CL-301**	A	1	E	140,5
	electrical amplified	mechanical spring	2,5÷10	890	6,5	0,21	20	24	**CL-303A**	A	1	D	153
5/2	electrical amplified	pneumatic spring	2,5÷10	890	6,5	0,24	24	20	**CM-600**	A	2	E	157
	electrical amplified	mechanical spring	3÷10	890	6,5	0,25	21	25	**CM-602A**	A	2	D	169,5
	DOUBLE IMPULSE												
3/2 NC-NO	electrical amplified	electrical amplified	1÷10	890	6,5	0,24	17	17	**CL-320**	A	1	H	213,5
	electrical amplified	electrical not amplified	1,7÷10	890	6,5	0,24	17	20	**CL-321**	A	1	H	213,5
	electrical amplified	pneumatic amplified	2,5÷10	890	6,5	0,21	20	7	**CL-322**	A	1	F	155,5
5/2	electrical amplified	electrical amplified	1,2÷10	890	6,5	0,28	20	20	**CM-620**	A	2	H	230
	electrical amplified	electrical not amplified	2÷10	890	6,5	0,28	20	23	**CM-621**	A	2	H	230
	electrical amplified	pneumatic amplified	1,2÷10	890	6,5	0,24	20	8	**CM-622**	A	2	F	172
5/3 c.c.	electrical amplified	electrical amplified	2,5÷10	890	6,5	0,21	18	24	**CM-680**	A	2	H	230
5/3 o.c.	electrical amplified	electrical amplified	2,5÷10	890	6,5	0,21	18	24	**CM-685**	A	2	H	230
5/3 p.c.	electrical amplified	electrical amplified	2,5÷10	890	6,5	0,21	18	24	**CM-690**	A	2	H	230

o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres
To get 3/2 NO version, supply the valve from port 3

(a) = see page **3**_23

G1/4 Valves with electric control


CL-9300


CL-9302A


CL-9301


CL-9303A


CM-9600


CM-9602A


CL-9320


CL-9321

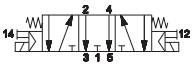

CL-9322

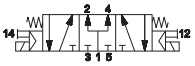

CM-9620


CM-9621


CM-9622


CM-9680


CM-9685


CM-9690

- **Electropilots are supplied without coil, connector and locking ring**
- For technical details about coils see section **"Accessories > Coils"**

Control	Return	Pressione bar	Portata (Nl/min)	Ø mm	Weight Kg	Times (ms) En.	Times (ms) De-en.	Part no.	Composition (a) Control	Composition (a) Body	Composition (a) Return	Tot L. mm
SINGLE IMPULSE												
electrical amplified	pneumatic spring	2÷10	1480	8,5	0,27	24	28	**CL-9300**	A	1	E	161
3/2 NC												
electrical amplified	mechanical spring	2÷10	1480	8,5	0,28	22	35	**CL-9302A**	A	1	D	172
electrical amplified	pneumatic spring	2÷10	1480	8,5	0,27	24	28	**CL-9301**	A	1	E	161
3/2 NO												
electrical amplified	mechanical spring	2÷10	1480	8,5	0,28	22	35	**CL-9303A**	A	1	D	172
electrical amplified	pneumatic spring	2÷10	1480	8,5	0,30	25	32	**CM-9600**	A	2	E	178,5
5/2												
electrical amplified	mechanical spring	2÷10	1480	8,5	0,31	22	43	**CM-9602A**	A	2	D	189,5
DOUBLE IMPULSE												
electrical amplified	electrical amplified	2÷10	1480	8,5	0,29	18	18	**CL-9320**	A	1	H	233
electrical amplified	elettrico not amplified	1,5÷10	1480	8,5	0,30	18	22	**CL-9321**	A	1	H	233
3/2 NC_NO												
electrical amplified	pneumatic amplified	2÷10	1480	8,5	0,26	22	8	**CL-9322**	A	1	F	175
electrical amplified	electrical amplified	1,5÷10	1480	8,5	0,32	22	22	**CM-9620**	A	2	H	250,5
electrical amplified	elettrico not amplified	1,8÷10	1480	8,5	0,32	22	25	**CM-9621**	A	2	H	250,5
5/2												
electrical amplified	pneumatic amplified	1,5÷10	1480	8,5	0,29	22	10	**CM-9622**	A	2	F	192,5
5/3 c.c. electrical amplified	electrical amplified	2,8÷10	1480	6,5	0,30	20	35	**CM-9680**	A	2	H	250,5
5/3 o.c. electrical amplified	electrical amplified	2,8÷10	1480	6,5	0,30	20	35	**CM-9685**	A	2	H	250,5
5/3 p.c. electrical amplified	electrical amplified	2,8÷10	1480	6,5	0,30	20	35	**CM-9690**	A	2	H	250,5

o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

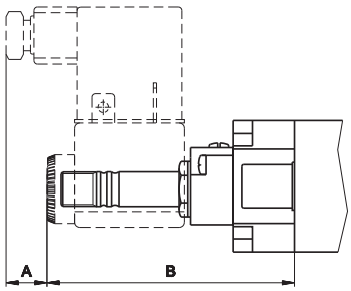
To get 3/2 NO version, supply the valve from port 3

(a) = see pages **3**_23

Composition

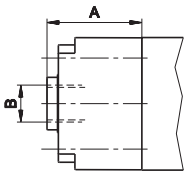
Control	Body	Return

A G1/8 - G1/4 ELECTRIC/AMPLIFIED



	A	B
G1/8	10	77
G1/4	10	80

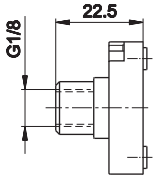
B G1/8 - G1/4 PNEUMATIC AMPLIFIED



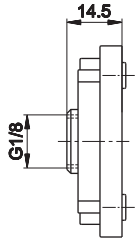
	A	B
G1/8	25	G1/8
G1/4	28,5	G1/8

C G1/8 - G1/4 PNEUMATIC NOT AMPLIFIED

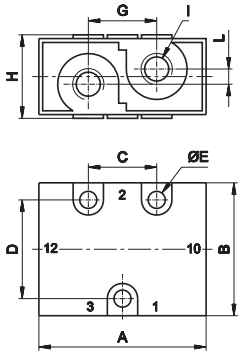
>> G1/8



>> G1/4



1 3/2 NC-NO G1/8 - G1/4



>> NC

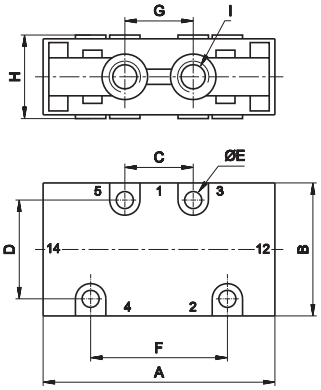
1 = Supply port
2 = Use
3 = Exhaust
12 = Control
10 = Return

>> NO

1 = Exhaust
2 = Use
3 = Supply port
12 = Control
10 = Return

	A	B	C	D	E	G	H	I	L
G1/8	47,5	35	18	26	4,5	18	22	G1/8	4
G1/4	60	48	22	38	5,5	22	26	G1/4	4

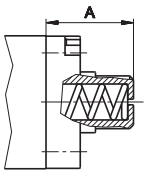
2 5/2 G1/8 - G1/4



1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

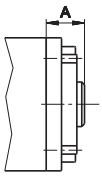
	A	B	C	D	E	F	G	H	I
G1/8	64	35	18	26	4,5	36	18	22	G1/8
G1/4	77,5	48	22	38	5,5	48	22	26	G1/4

D G1/8 - G1/4 MECHANICAL SPRING



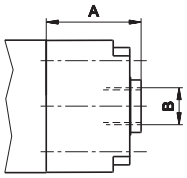
	A
G1/8	22,5
G1/4	25,5

E G1/8 - G1/4 PNEUMATIC SPRING



	A
G1/8	10
G1/4	14,5

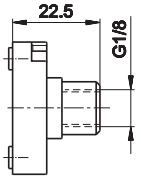
F G1/8 - G1/4 PNEUMATIC AMPLIFIED



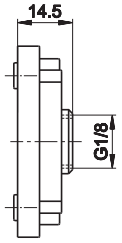
	A	B
G1/8	25	G1/8
G1/4	28,5	G1/8

G G1/8 - G1/4 PNEUMATIC NOT AMPLIFIED

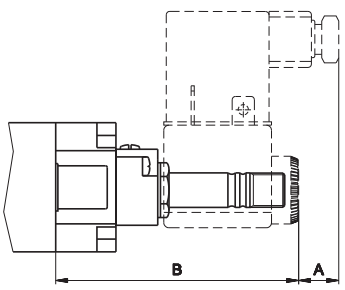
>> G1/8



>> G1/4

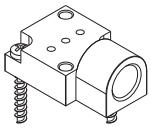


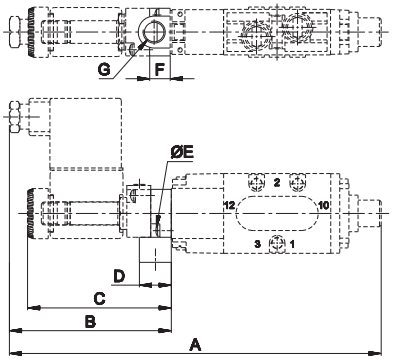
H G1/8 - G1/4 ELECTRIC AMPLIFIED



	A	B
G1/8	10	73
G1/4	10	76,5

AM-5148

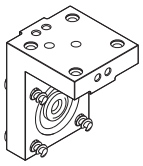




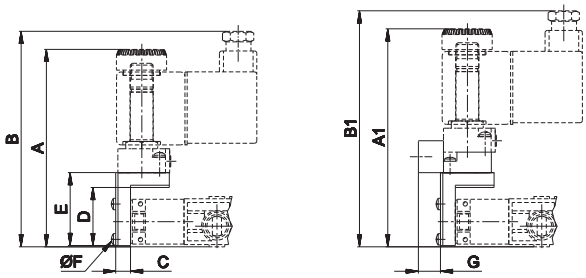
	G1/8	G1/4
A	163	175,5
B	71	71
C	63	63
D	14	14
E	2,9x10	2,9x10
F	9	9
G	G1/8	G1/8

Plate for external servoassistance
weight: 0,03 Kg

AM-5151



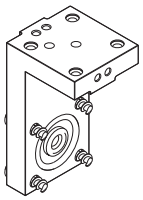
AM-5151 + AM-5148



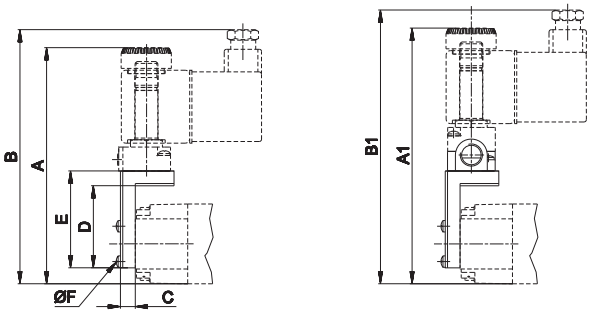
	G1/8	G1/4
A	86,7	88,7
A1	95,7	97,7
B	94,5	96,5
B1	103,5	105,5
C	6,5	6,5
D	25,5	25,5
E	32	32
F	2,9x10	2,9x10
G	9,7	9,7

"H" option angle plate
weight: 0,035 Kg

AM-5152



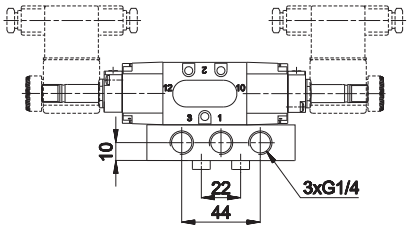
AM-5152 + AM-5148

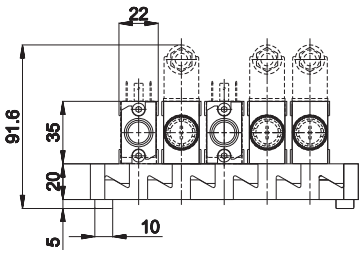


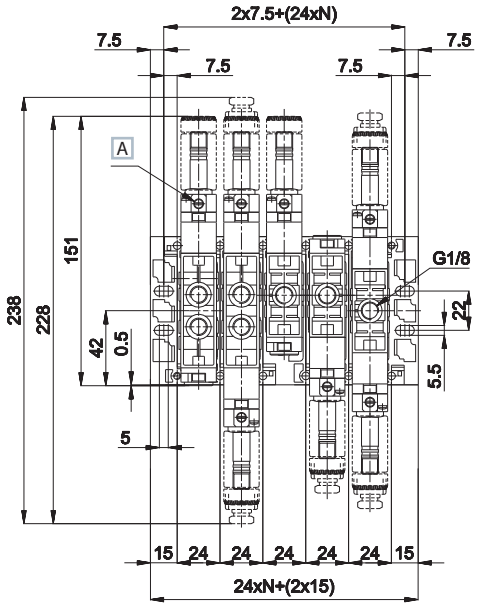
	G1/8	G1/4
A	103,5	110
A1	112,2	118,7
B	111,5	118
B1	120	126,5
C	6,5	6,5
D	36	36
E	42,5	42,5
F	2,9x10	2,9x10

"P" option angle plate
weight: 0,05 Kg

G1/8 Modular subbase "CLIPS" for 3/2 - 5/2 - 5/3 valves







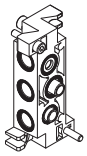
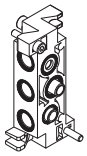
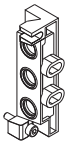
>> NC
1 = Supply port
2 = Use
3 = Exhaust
12 = Control
10 = Return

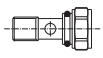
>> NO
1 = Exhaust
2 = Use
3 = Supply port
12 = Control
10 = Return

N = Number of valve places

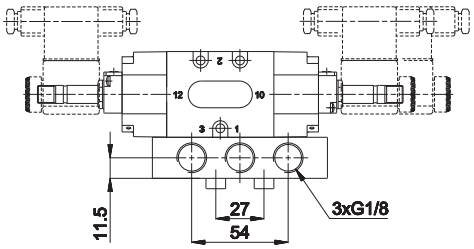
A Manual override

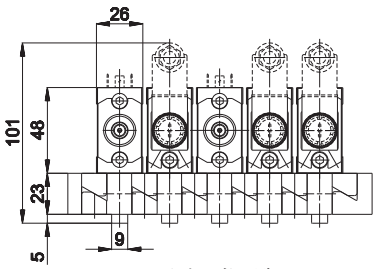
When assembling the manifold put the sub-base on a flat surface and tighten the special screw supplied. This will give perfect alignment.

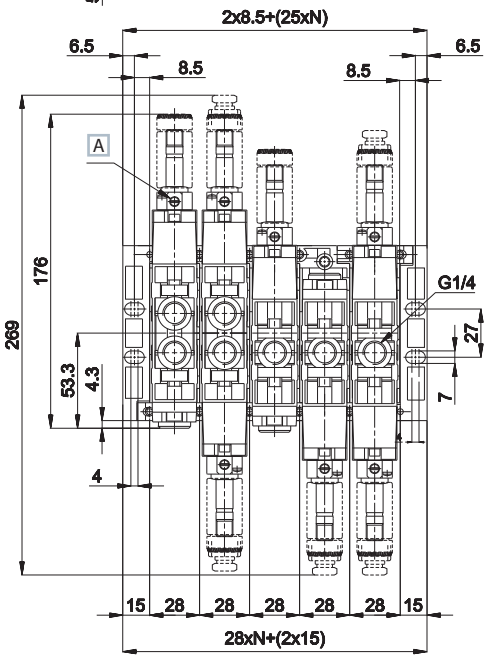
CP-100	CP-101	CP-105
	 N E W	
modular sub-base with regulated and conveyed exhausts connections: G1/8 material: zamak weight: 0,136 Kg	modular sub-base **without exhaust regulator** connections: G1/8 material: zamak weight: 0,136 Kg	inlet plate side connections connections: G1/4 material: zamak weight: 0,086 Kg
standard supplied: screws, seals, exhausts regulator and fixing coupling	standard supplied: screws, seals and fixing coupling of valve	standard supplied: screws and seals

CP-110	CP-111	CP-112	CP-113
			
coupling connections: G1/8 material: brass weight: 0,028 Kg	separatore pressioni differenziali connessione: G1/8 materiale: alluminio peso: 0,013 Kg	cap for 3/2 valve mounting connections: G1/8 material: alluminium weight: 0,010 Kg	adjustment screw connections: G1/8 material: brass weight: 0,006 Kg
For each additional pressure, one coupling and two separators must be ordered.		Cap for mounting of 3/2 NC-NO valves on "CLIPS" sub-base to close non-used way. Standard sub-base with adjustment screw. The screw head has a slot for screwdrivers. Upon request: adjustment screw with	

G1/4 Modular subbase "CLIPS" for 3/2 - 5/2 - 5/3 valves







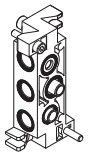
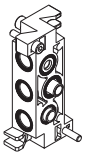
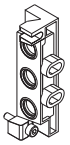
>> NC
1 = Supply port
2 = Use
3 = Exhaust
12 = Control
10 = Return

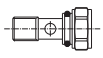
>> NO
1 = Exhaust
2 = Use
3 = Supply port
12 = Control
10 = Return

N = Number of valve places

A Manual override

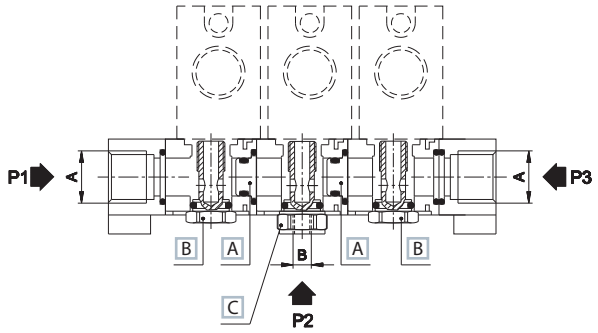
When assembling the manifold put the sub-base on a flat surface and tighten the special screw supplied. This will give perfect alignment.

CP-9100	CP-9101	CP-9105
	 N E W	
modular sub-base regulated and conveyed exhausts connections: G1/4 material: zamak weight: 0,210 Kg	modular sub-base **without exhaust regulator** connections: G1/4 material: zamak weight: 0,210 Kg	inlet plate side connections connections: G3/8 material: zamak weight: 0,120 Kg
standard supplied: screws, seals, exhaust regulator and fixing coupling	standard supplied: screws, seals and fixing coupling of valve	standard supplied: screws and seals

CP-9110	CP-9111	CP-9112	CP-9113
			
coupling connections: G1/4 material: brass weight: 0,028 Kg	separtor of differential pressure connections: G1/4 material: aluminium weight: 0,013 Kg	cap for 3/2 valve mounting connections: G1/4 material: aluminium weight: 0,010 Kg	adjustment screw connections: G1/4 material: ottone weight: 0,006 Kg
For each additional pressure, one coupling and two separators must be ordered.		Cap for mounting of 3/2 NC-NO valves on "CLIPS" sub-base to close non-used way. Standard sub-base with adjustment screw. The screw head has a slot for screwdrivers. Upon request: adjustment screw with	

Assembly examples

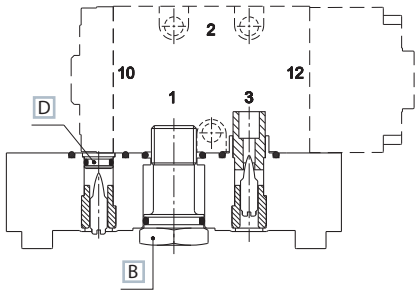
Manifold 3 pressures



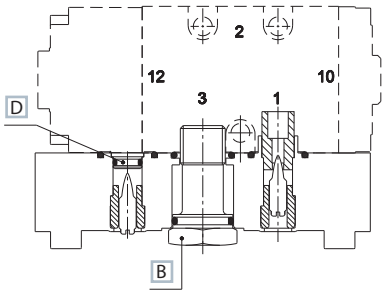
	A	B
G1/8	G1/4	G1/8
G1/4	G3/8	G1/4

A Separator of differential pressures **CP-111/CP-9111**
B Fixing coupling for valve inside the sub-base
C Coupling **CP-110/CP-9110**

Mounting of 3/2 NC valve



Mounting of 3/2 NO valve



B Fixing coupling for valve inside the sub-base
D Cap for valve mounting **CP-112/CP-9112**

>> NC	>> NO
1 = Supply port	1 = Exhaust
2 = Use	2 = Use
3 = Exhaust	3 = Supply port
12 = Control	12 = Control
10 = Return	10 = Return

In case there should be no need to regulate exhaust, plastic insert has to be removed whilst the adjustment screw must remain in its place.

E-15

5/2 M5 valves - mechanical and manual actuation

- Compact design: 15 mm body
- Original Univer spool system appreciated for decades
- Wide range of actuators and manual operators for panels - original Univer

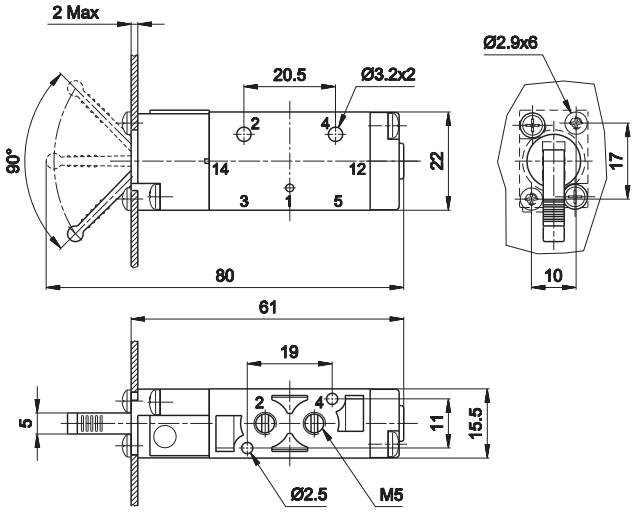
TECHNICAL CHARACTERISTICS

Ambient temperature	-10 ÷ +45 °C
Fluid temperature	-20 ÷ +50 °C
Fluid	not dehumidified filtered air 10 µm, lubricated or not
Commutation system	spool
Ways/Positions	**5/2**
Pressure	max 9 bar
Control	manual, mechanical
Return	mechanical spring
Nominal Ø	2 mm
Nominal flow rate	150 Nl/min

CONSTRUCTIVE CHARACTERISTICS

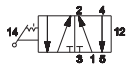
Valve body	zamak
Seals	nitrile rubber
Actuators	technopolymer
Spool	aluminium

Lever valve

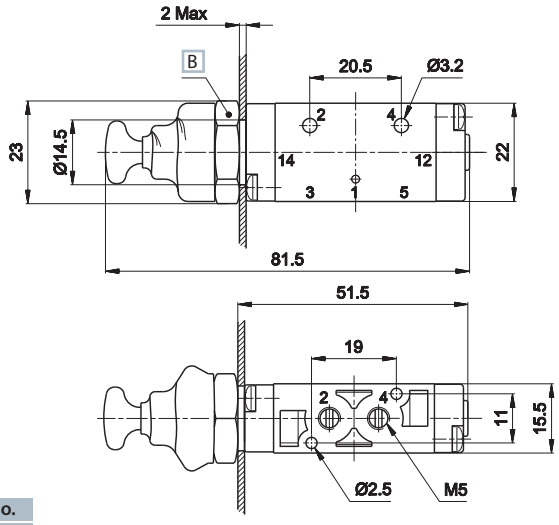


1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

Weight: 0,068

	Symbol	Control	Return	Lever colour	Part no.
5/2		lever	lever	yellow black red	**E-15422G** **E-15422N** **E-15422R**

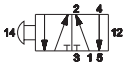
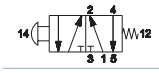
Push-pull valve



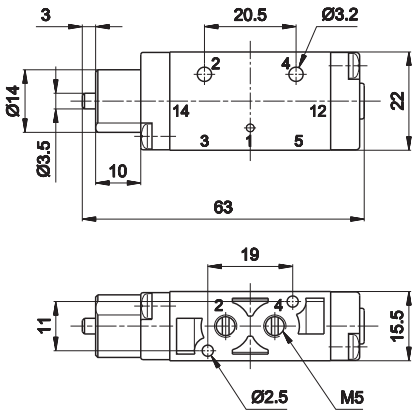
B Wrench 20

1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

Weight: 0,082

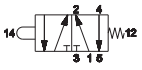
	Symbol	Control	Return	Lever colour	Part no.
5/2		push-pull	push-pull	black	**E-15420**
5/2		push-pull	mechanical spring	black	**E-15420A**

Tappet valve

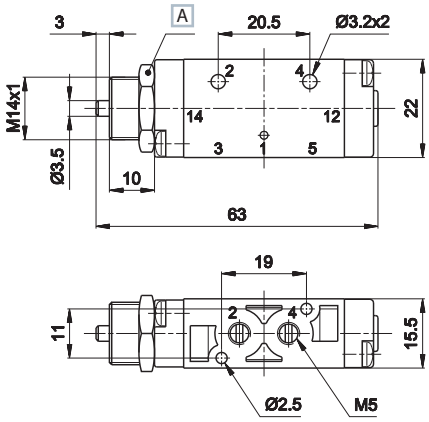


1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

Weight: 0,066

	Symbol	Control	Return	Part no.
5/2		ball-push	mechanical spring	**E-15402A**

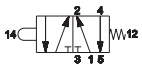
Ball-pushrod valve for mechanical screw operator



A Wrench 17

1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

Weight: 0,066

	Symbol	Control	Return	Part no.
5/2		ball-pushrod	mechanical spring	**E-15403A**

PNEUMATIC AND MECHANICAL ACTUATORS

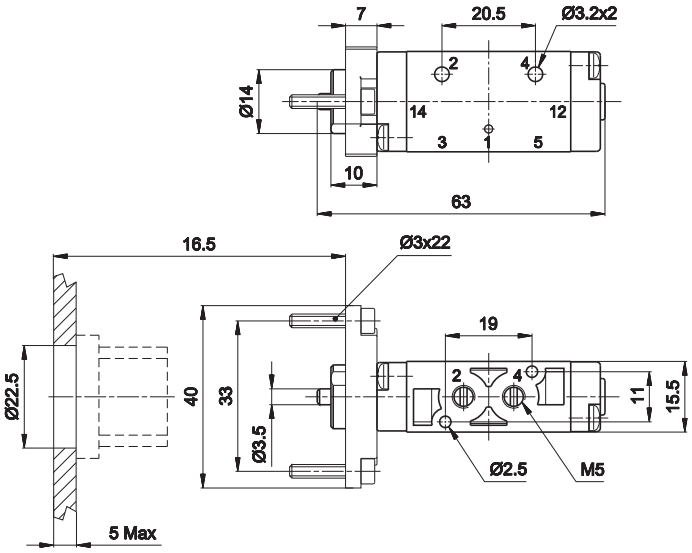
	Pneumatic actuator	AI-3550
	Amplified pneumatic actuator	AI-3551
	Roller operator 1 position	AI-3560
	Ball-push operator 1 position	AI-3562
	Omni-directional operator	AI-3563
	Roller lever operator 1 position	AI-3570
	Articulated roller lever operator 1 position Complete actuation with stroke 2,5 mm max stroke 4,7 mm	AI-3571
	Key operator 1 position	AI-3572

MANUAL ACTUATORS

	Recessed button	■BLACK ■RED ■GREEN	AI-3511 AI-3512 AI-3513
	Head button	■RED ■BLACK ■RED ■BLACK	AI-3514 AI-3516 AI-3514D AI-3516D
	Button	■GREEN ■RED ■BLACK	AI-3515 AI-3517 AI-3519
	Rotating selector	■BLACK ■BLACK	AI-3520 AI-3521
	Rotating lever selector	■BLACK ■BLACK	AI-3522 AI-3523
	Lever	■BLACK	AI-3524
	Omni-directional operator	■BLACK	AI-3525
	Push-pull operator	■BLACK	AI-3526

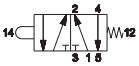
For technical features of coils and connector, see section **"Accessories>Buttons"**

Valve for mechanical operator for panel mounting



1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

Weight: 0,082

	Symbol	Control	Return	Part no.
5/2		ball-push	mechanical spring	**E-15412A**

MANUAL ACTUATORS

	Recessed button	■BLACK AI-3511 ■RED AI-3512 ■GREEN AI-3513	
	Head button	■RED AI-3514 ■BLACK AI-3516 ■RED AI-3514D ■BLACK AI-3516D	
	Button	■GREEN AI-3515 ■RED AI-3517 ■BLACK AI-3519	
	Rotating selector	■BLACK AI-3520 ■BLACK AI-3521	
	Rotating lever selector	■BLACK AI-3522 ■BLACK AI-3523	
	Lever	■BLACK AI-3524	
	Omni-directional operator	■BLACK AI-3525	
	Push-pull operator	■BLACK AI-3526	

For technical features of coils and connector, see section **"Accessories>Buttons"**

G6

20 mm - G 1/8 Valves and solenoid valves

- G1/8 threaded valve body with traditional Univer spool system
- Version with integrated electrical connection and esternal connection
- Compact design
- High flow rate
- Versions available: 5/2 - 5/3 - 3/2+3/2

TECHNICAL CHARACTERISTICS

Ambient temperature	-20 ÷ +50 °C
Fluid temperature	max +50 °C
Fluid	filtered air 50 µm not dehumidified, lubricated or not
Commutation system	spool
Ways/Positions	**5/2, 5/3, 3/2+3/2**
Pressure	1,5 ÷ 9 bar
Control	indirect electro-pneumatic, pneumatic
Return	mechanical spring, pneumomechanical spring
Connections	G1/8
Nominal Ø	5 mm
Nominal flow rate (Nl/min)	5/2 = **770** 5/3 = **700** 3/2+3/2 = **670**

CONSTRUCTIVE CHARACTERISTICS

Valve body	zamak
Seals	nitrile rubber
Subbase and actuators	self-extinguishing technopolymes
Spool	aluminum

ELECTRIC CHARACTERISTICS

Electropilot/coil	A/U05 series
Voltage	24 V DC standard, upon request 12 V DC
	24 V AC - 110 V AC - 230 V AC
	(only for version with integrated electrical connection)
Power consumption	for direct current 2 W (2,3 VA)
Protection degree	IP65
Manual override	with button with tool 1 position

CODIFICATION KEY

G	6	6	4	4	D
1		2	3	4	5

1 Series

G6 = G1/8 threaded body (except coils and connectors)

2 Type

2 = 5/2
3 = 5/3 c.c.
4 = 5/3 o.c.
5 = 5/3 p.c.
6 = 3/2+3/2 NC-NC
7 = 3/2+3/2 NC-NO
8 = 3/2+3/2 NO-NO

3 Control 14

3 = pneumatic amplified
4 = electrical amplified DC
5 = electrical amplified DC/AC

4 Return 12

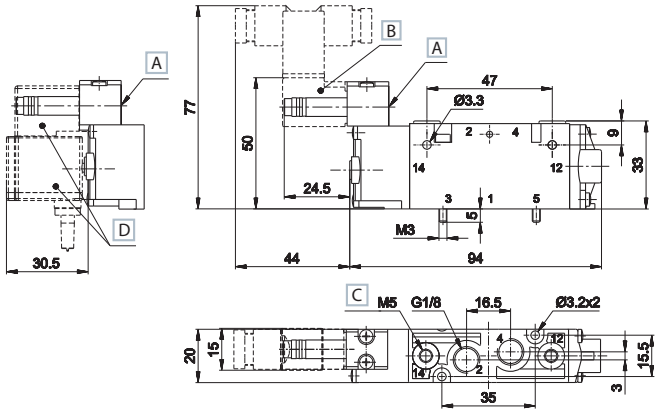
0 = pneumomechanical spring
1 = mechanical spring
3 = pneumatic amplified
4 = electrical amplified DC
5 = electrical amplified DC/AC

5 Option

D = external servoassisted pilot

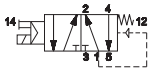
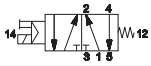
o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

Single **electric** impulse

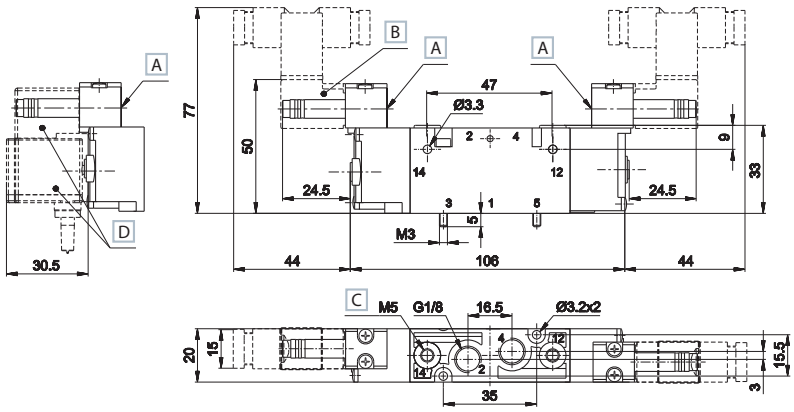


A Manual override
B Coil with connector for single connection
C External servoassisted pilot
D Coil with intergrated connector for multipolar version **DD-051**C**

1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

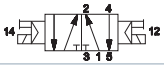
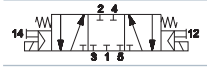
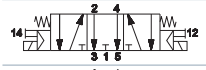
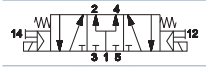
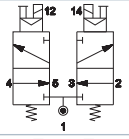
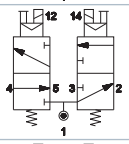
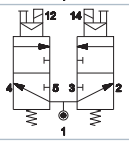
	Symbol	Control	Return	Flow rate (Nl/min)	Pressure bar	Times (ms) En.	Times (ms) De-en.	Weight Kg	Part no.
5/2		electrical amplified	pneumomechanical spring	770	1,5÷9	21	30	0,112	G-6240 G-6250
5/2		electrical amplified	mechanical spring	770	1,5÷9	18	64	0,112	G-6241 G-6251

Double **electric** impulse



A Manual override
B Coil with connector for single connection
C External servoassisted pilot
D Coil with intergrated connector for multipolar version **DD-051**C**

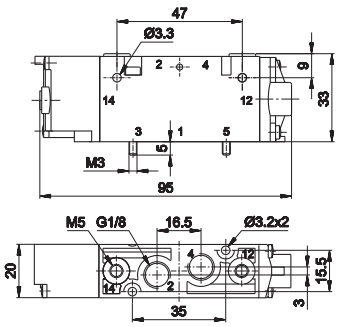
1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

	Symbol	Control	Return	Flow rate (Nl/min)	Pressure bar	Times (ms) En.	Times (ms) De-en.	Weight Kg	Part no.
5/2		electrical amplified	electrical amplified	770	0,6÷9	16	16	0,143	G-6244 G-6255
5/3 c.c.		electrical amplified	electrical amplified	700	1,9÷9	16	47	0,148	G-6344 G-6355
5/3 o.c.		electrical amplified	electrical amplified	700	2,0÷9	16	47	0,148	G-6444 G-6455
5/3 p.c.		electrical amplified	electrical amplified	700	1,9÷9	16	47	0,148	G-6544 G-6555
3/2 NC + 3/2 NC		electrical amplified	electrical amplified	670	1,5÷9	14	17	0,140	G-6644 G-6655
3/2 NC + 3/2 NO		electrical amplified	electrical amplified	670	1,5÷9	14	17	0,140	G-6744 G-6755
3/2 NO + 3/2 NO		electrical amplified	electrical amplified	670	1,5÷9	14	17	0,140	G-6844 G-6855

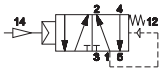
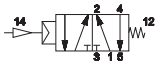
o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

Solenoid valves are supplied without coil and connector

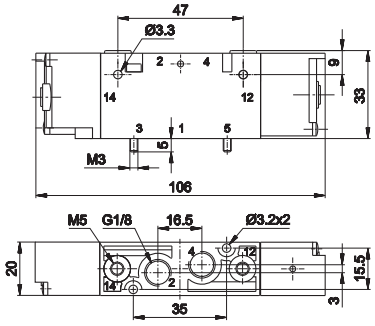
Single **pneumatic** impulse



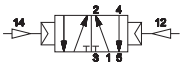
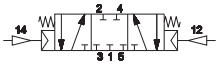
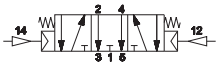
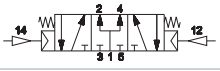
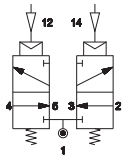
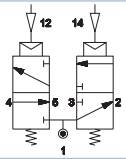
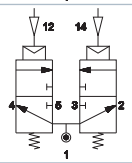
1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

	Symbol	Control	Return	Flow rate (Nl/min)	Pressure bar	Times (ms) En.	Times (ms) De-en.	Weight Kg	Part no.
5/2		pneumatic amplified	pneumomechanical spring	770	1,5÷10	7	16	0,092	**G-6230**
5/2		pneumatic amplified	mechanical spring	770	1,5÷10	6	18	0,092	**G-6231**

Double **pneumatic** impulse

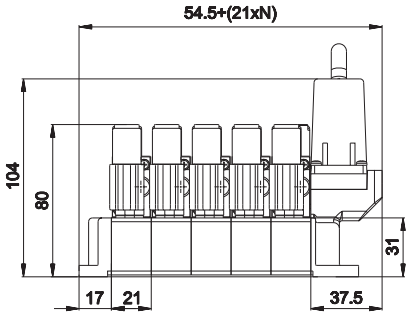


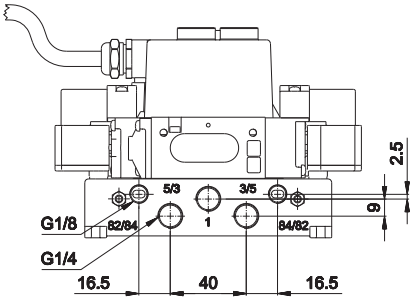
1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

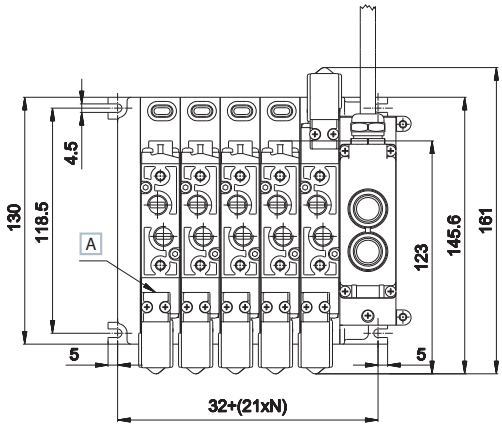
	Symbol	Control	Return	Flow rate (Nl/min)	Pressure bar	Times (ms) En.	Times (ms) De-en.	Weight Kg	Part no.
5/2		pneumatic amplified	pneumatic amplified	770	0,7÷10	5	5	0,103	**G-6233**
5/3 c.c.		pneumatic amplified	pneumatic amplified	700	1,9÷9	6	19	0,192	**G-6333**
5/3 o.c.		pneumatic amplified	pneumatic amplified	700	2,0÷9	6	19	0,192	**G-6433**
5/3 p.c.		pneumatic amplified	pneumatic amplified	700	1,9÷9	6	19	0,192	**G-6533**
3/2 NC + 3/2 NC		pneumatic amplified	pneumatic amplified	670	1,5÷9	3	14	0,188	**G-6633**
3/2 NC + 3/2 NO		pneumatic amplified	pneumatic amplified	670	1,5÷9	3	14	0,188	**G-6733**
3/2 NO + 3/2 NO		pneumatic amplified	pneumatic amplified	670	1,5÷9	3	14	0,188	**G-6833**

o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

Multipolar electrical connection



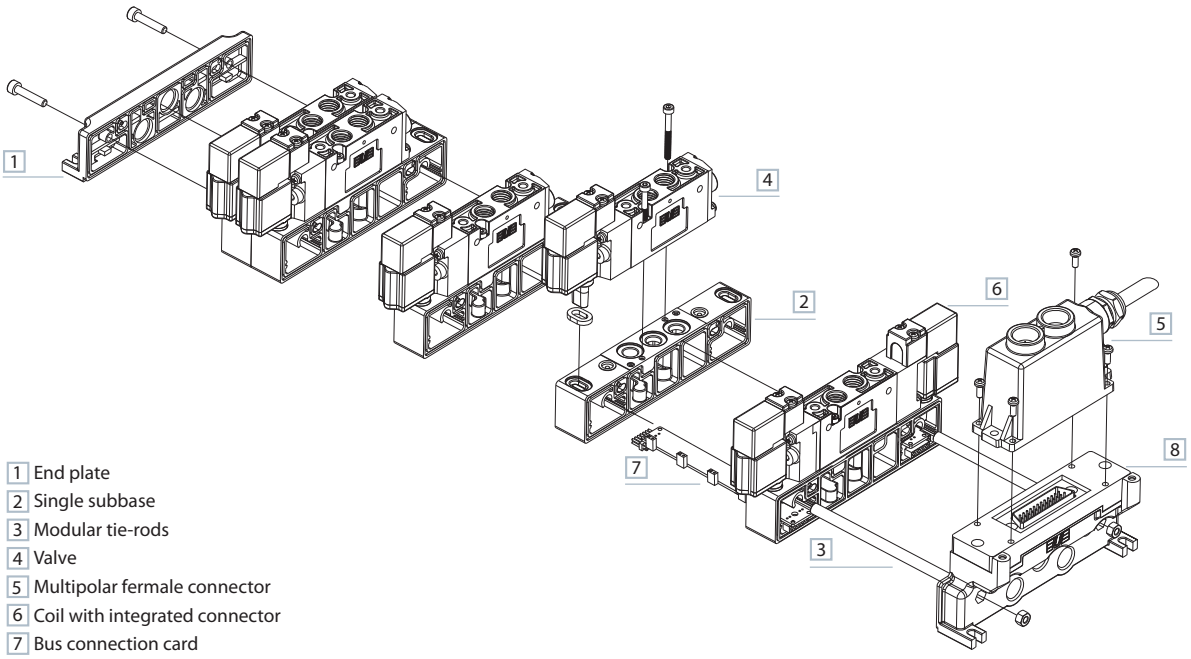




A Manual override

1 = Supply port
5/3 - 3/5 = Exhaust G1/4
82/84 - 84/82 = Electropilot exhaust G1/8

N = Number of valve positions

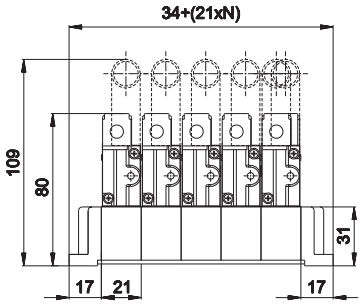


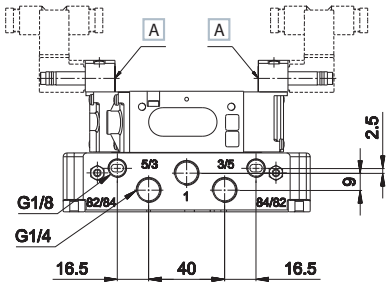
1 End plate
2 Single subbase
3 Modular tie-rods
4 Valve
5 Multipolar fermale connector
6 Coil with integrated connector
7 Bus connection card
8 End plate with modular connection

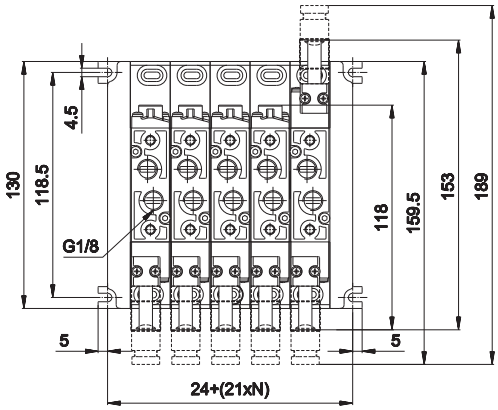
Tightening torque for fittings

Thread	max pair (Nm)
M5	3
M7	3
G1/8	3
G1/4	10

Electrical connection with external connector



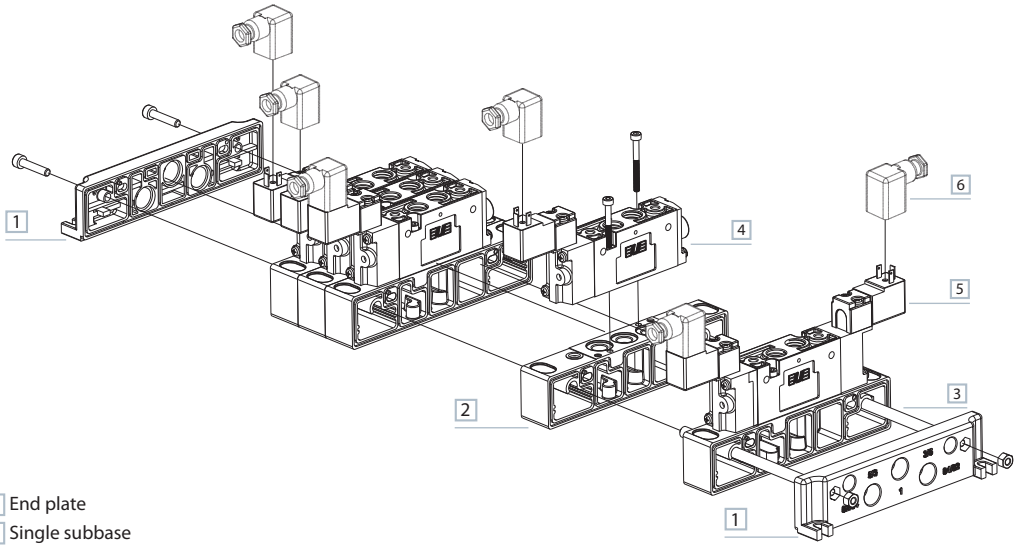




A Manual override

1 = Supply port
5/3 - 3/5 = Exhaust G1/4
82/84 - 84/82 = Electropilot exhaust G1/8

N = Number of valve positions

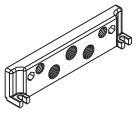


1 End plate
2 Single subbase
3 Modular tie-rods
4 Valve
5 Coil
6 Single connector

Tightening torque for fittings

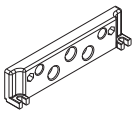
Thread	max pair (Nm)
M5	3
M7	3
G1/8	3
G1/4	10

GP-6100



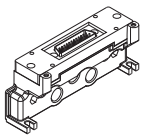
threaded end plate
weight: 0,046 Kg

GP-6110



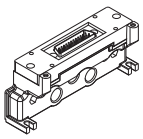
blank end plate
weight: 0,050 Kg

GP-611212



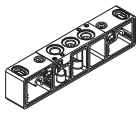
threaded end plate with
male connector
25 poles 12+12 coils
control 12-14
weight: 0,100 Kg

GP-611806



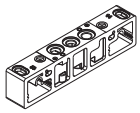
threaded end plate with
male connector
25 poles
18 coils control 14
6 coils control 12
(only for control 14
more than 12 coils max 18)
weight: 0,102 Kg

GP-6310/1/2



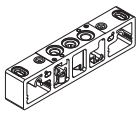
sub-base with
open diaphragms
GP-6310 without
electrical connection
GP-6311 monostable
GP-6312 bistable
weight: 0,060 Kg

GP-6320/1/2



sub-base with
closed diaphragms
GP-6320 without
electrical connection
GP-6321 monostable
GP-6322 bistable
weight: 0,062 Kg

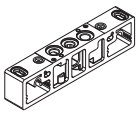
GP-6330/1/2



3 1 5

sub-base with
closed supply and
open exhausts
GP-6330 without
electrical connection
GP-6331 mostable
GP-6332 bistable
weight: 0,062 Kg

GP-6340/1/2



3 1 5

sud-base with
open supply and
closed exhausts
GP-6340 without
electrical connection
GP-6341 mostable
GP-6342 bistable
weight: 0,062 Kg

GP-6380

intermediate supply plate
(to be used only with
GP-63... series) sub-base
weight: 0,036 Kg

GP-6385

closing plate for
unused station
weight: 0,018 Kg

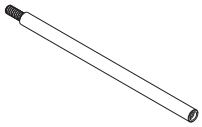
GP-6400-1

modular tie-rod
1 valve place
weight: 0,004 Kg
(package100 pcs.)

GP-6400-2

modular tie-rod
2 valve places
weight: 0,010 Kg
(package100 pcs.)

GP-6400-5



modular tie-rod
5 valve places
weight: 0,022 Kg
(package100 pcs.)

AZ4-VN0416 screw M04x16 for tie-rods (package100 pcs.)
AZ4-SN004A hexagonal nut M4 (package100 pcs.)

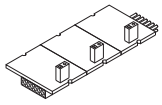
GP-6512-01/..MF

BUS connection card
control side 12 with 12 pin
GP-6512-01MF 1 place
GP-6512-02MF 2 places
GP-6512-03MF 3 places
GP-6512-05MF 5 places
GP-6512-06MF 6 places
weight: 0,003 Kg
(for each place)

GP-6514-01/..MF

BUS connection card
control side 14 with 12 pin
GP-6514-01MF 1 place
GP-6514-02MF 2 places
GP-6514-03MF 3 places
GP-6514-05MF 5 places
GP-6514-06MF 6 places
weight: 0,003 Kg
(for each place)

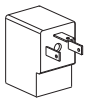
GP-651418



BUS connection card
control side 14 with 18 pin
(only12 places)
for manifolds with
control 14 and more than 12
coils up to 18 coils use
GP-651418 card 12 places
and then **GP-6514-...**
weight: 0,003 Kg
(for each place)

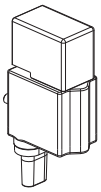
upon request customized solutions up to 12 places

DD-051



24 V CC 2 W coil
for single connection
weight: 0,019 Kg

DD-051**C



24 V CC 2 W coil
with integrated connector
for multipolar version
weight: 0,028 Kg

GL6

20 mm - G1/8 Valves and solenoid valves for base assembly

- Valve body for base assembly with traditional Univer spool system
- Version with integrated electrical connection and external connection
- Compact design
- High flow rate
- Versions available: 5/2 - 5/3 - 3/2+3/2

TECHNICAL CHARACTERISTICS

Ambient temperature	-20 ÷ +50 °C
Fluid temperature	max +50 °C
Fluid	filtered air 50 µm not dehumidified, lubricated or not
Commutation system	spool
Ways/Positions	**5/2, 5/3, 3/2+3/2**
Pressure	1,5 ÷ 9 bar
Control	indirect electro-pneumatic, pneumatic
Return	mechanical spring, pneumomechanical spring
Connections	sub-base interface
Nominal Ø (mm)	5 mm
Nominal flow rate (Nl/min)	

according to the type of fittings	**5/2**	**5/3**	**3/2+3/2**
streight tube Ø8 mm	740	670	640
90° tube Ø8 mm	620	550	520
streight tube Ø6 mm	510	510	510
90° tube Ø6 mm	370	370	370
streight tube Ø4 mm	200	200	200
90° tube Ø4 mm	140	140	140

CONSTRUCTIVE CHARACTERISTICS

Valve body	zamak
Seals	nitrile rubber
Subbase and actuators	self-extinguishing technopolymer
Spool	aluminum

ELECTRIC CHARACTERISTICS

Electropilot/coil		A/U05 series
Voltage	24 V DC standard, upon request 12 V DC	24 V AC - 110 V AC - 230 V AC (only version with external connection)
Power consumption		for direct current 2 W (2,3 VA)
Protection degree		IP65
Manual override		button with tool 1 position

CODIFICATION KEY

GL	6	6	4	4	D
1		2	3	4	5

1 Series

GL6 = valve body for except base assembly (coils and connectors)

2 Type

2 = 5/2
3 = 5/3 c.c.
4 = 5/3 o.c.
5 = 5/3 p.c.
6 = 3/2+3/2 NC-NC
7 = 3/2+3/2 NC-NO
8 = 3/2+3/2 NO-NO

3 Control 14

3 = pneumatic amplified
4 = electrical amplified DC
5 = electrical amplified DC/AC

4 Return 12

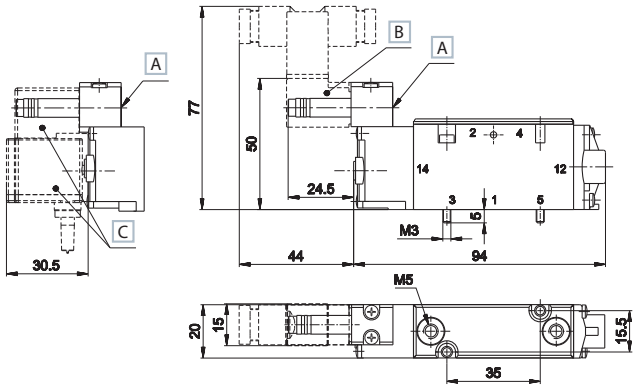
0 = pneumomechanical spring
1 = mechanical spring
3 = pneumatic amplified
4 = electrical amplified DC
5 = electrical amplified DC/AC

5 Option

D = external servoassisted pilot

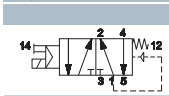
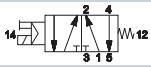
o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

Single **electric** impulse

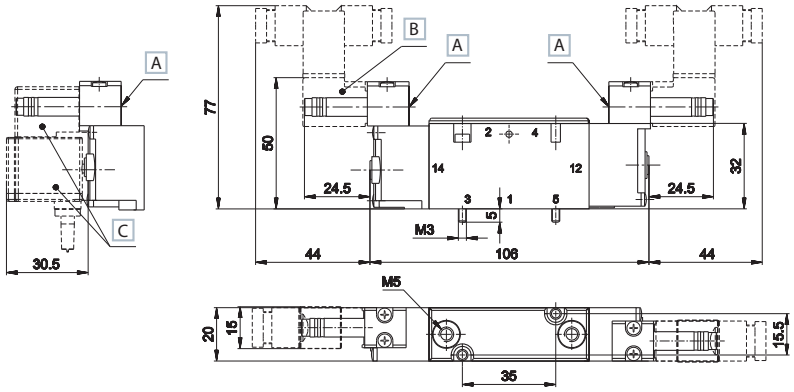


A Manual override
B Coil with connector for single connection
C Coil with intergrated connector for multipolar version **DD-051**C**

1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

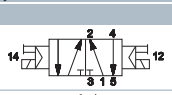
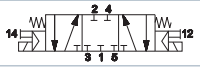
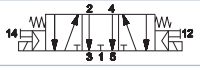
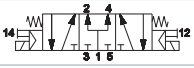
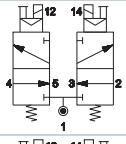
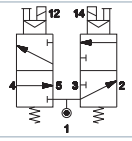
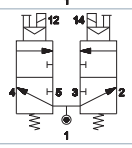
	Symbol	Control	Return	Flow rate (Nl/min)	Pressure bar	Times (ms) En.	Times (ms) De-en.	Weight Kg	Part no.
5/2		electrical amplified	spring pneumomechanical	740	1,5÷9	21	30	0,112	**GL-6240 GL-6250**
5/2		electrical amplified	spring mechanical	740	1,5÷9	18	64	0,112	**GL-6241 GL-6251**

Double **electric** impulse



A Manual override
B Coil with connector for single connection
C Coil with intergrated connector for multipolar version **DD-051**C**

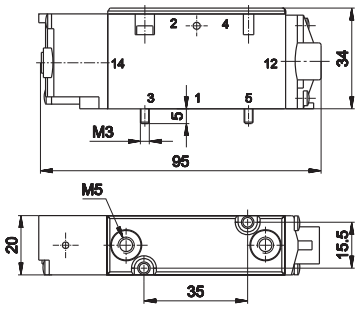
1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

	Symbol	Control	Return	Flow rate (Nl/min)	Pressure bar	Times (ms) En.	Times (ms) De-en.	Weight Kg	Part no.
5/2		electrical amplified	electrical amplified	740	0,6÷9	16	16	0,143	**GL-6244 GL-6255**
5/3 c.c.		electrical amplified	electrical amplified	670	1,5÷9	16	47	0,148	**GL-6344 GL-6355**
5/3 o.c.		electrical amplified	electrical amplified	670	2,0÷9	16	47	0,148	**GL-6444 GL-6455**
5/3 p.c.		electrical amplified	electrical amplified	670	1,5÷9	16	47	0,148	**GL-6544 GL-6555**
3/2 NC + 3/2 NC		electrical amplified	electrical amplified	640	1,5÷9	14	17	0,140	**GL-6644 GL-6655**
3/2 NC + 3/2 NO		electrical amplified	electrical amplified	640	1,5÷9	14	17	0,140	**GL-6744 GL-6755**
3/2 NO + 3/2 NO		electrical amplified	electrical amplified	640	1,5÷9	14	17	0,140	**GL-6844 GL-6855**

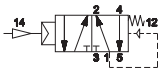
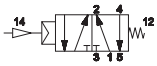
o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

Solenoid valves are supplied without coil and connector

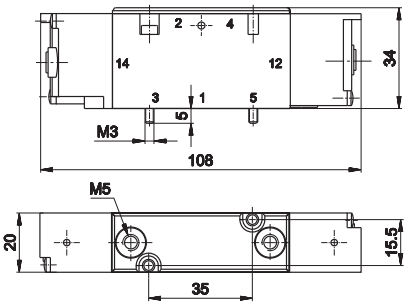
Single **pneumatic** impulse



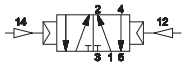
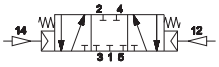
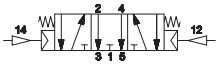
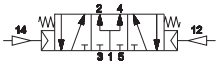
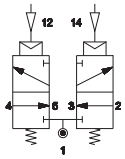
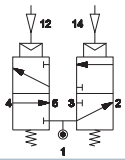
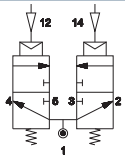
1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

	Symbol	Control	Return	Flow rate (Nl/min)	Pressure bar	Times (ms) En.	Times (ms) De-en.	Weight Kg	Part no.
5/2		pneumatic amplified	pneumomechanical spring	740	1,5÷10	7	16	0,092	**GL-6230**
5/2		pneumatic amplified	mechanical spring	740	0,9÷10	6	18	0,092	**GL-6231**

Double **pneumatic** impulse

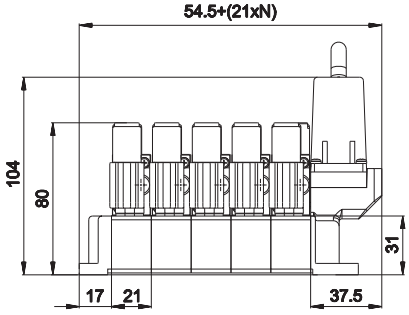


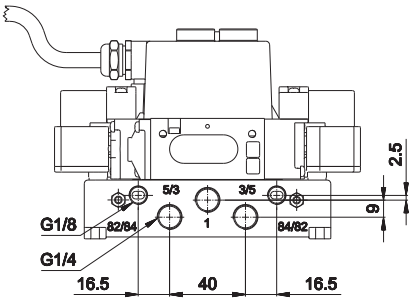
1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

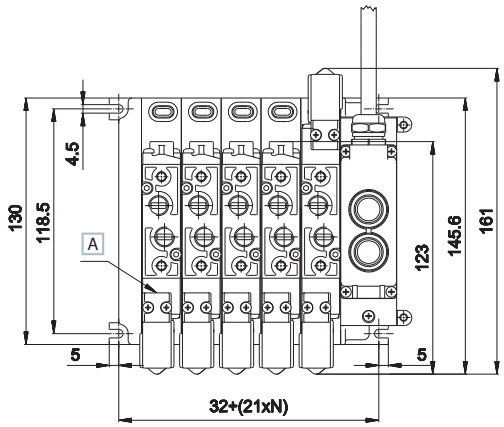
	Symbol	Control	Return	Flow rate (Nl/min)	Pressure bar	Times (ms) En.	Times (ms) De-en.	Weight Kg	Part no.
5/2		pneumatic amplified	pneumatic amplified	740	0,7÷10	5	5	0,103	**GL-6233**
5/3 c.c.		pneumatic amplified	pneumatic amplified	670	1,5÷9	6	19	0,192	**GL-6333**
5/3 o.c.		pneumatic amplified	pneumatic amplified	670	2,0÷9	6	19	0,192	**GL-6433**
5/3 p.c.		pneumatic amplified	pneumatic amplified	670	1,5÷9	6	19	0,192	**GL-6533**
3/2 NC + 3/2 NC		pneumatic amplified	pneumatic amplified	640	1,5÷9	3	14	0,188	**GL-6633**
3/2 NC + 3/2 NO		pneumatic amplified	pneumatic amplified	640	1,5÷9	3	14	0,188	**GL-6733**
3/2 NO + 3/2 NO		pneumatic amplified	pneumatic amplified	640	1,5÷9	3	14	0,188	**GL-6833**

o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

Multipolar electrical connection



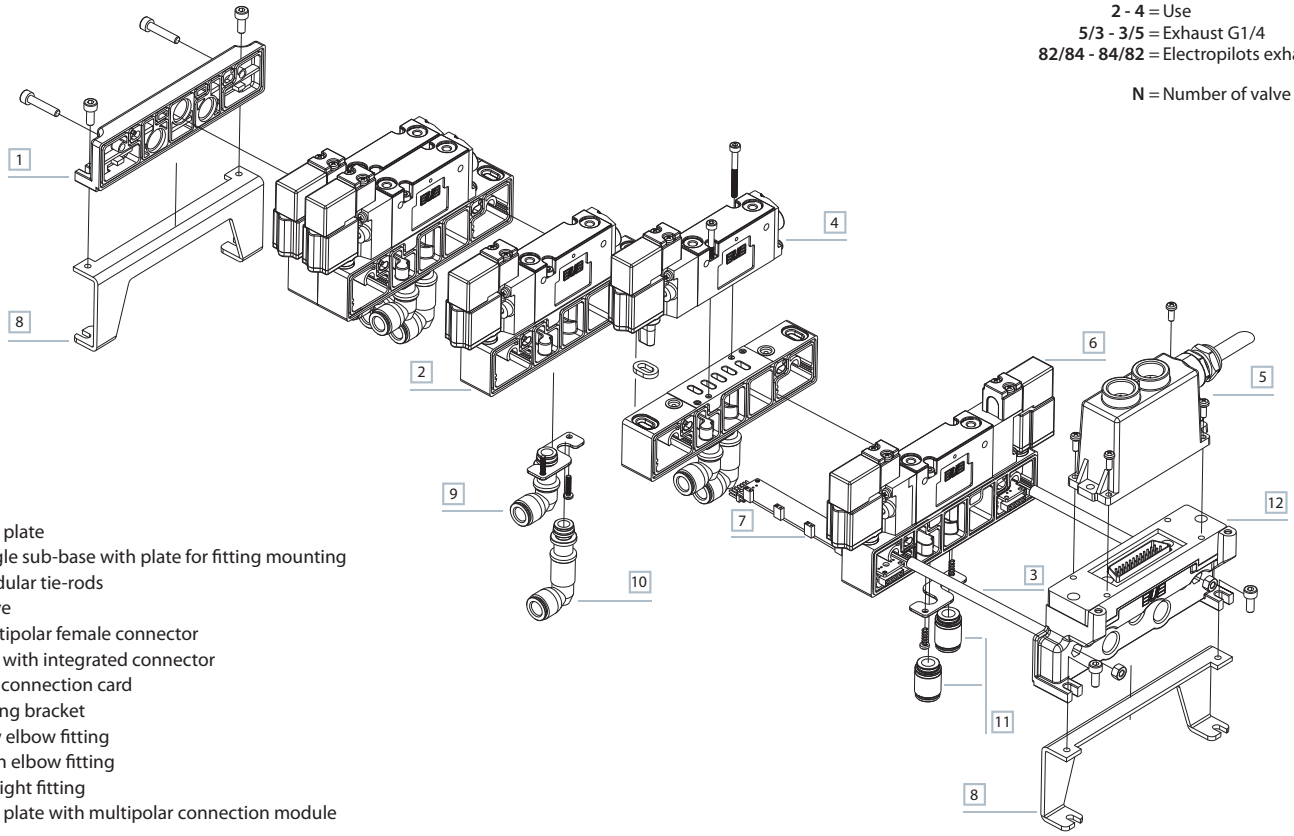




A Manual override

1 = Supply port
2 - 4 = Use
5/3 - 3/5 = Exhaust G1/4
82/84 - 84/82 = Electropilots exhaust G1/8

N = Number of valve positions

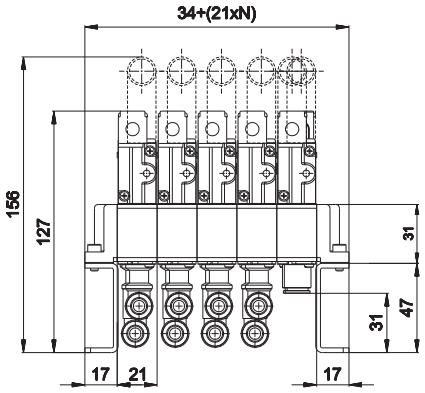


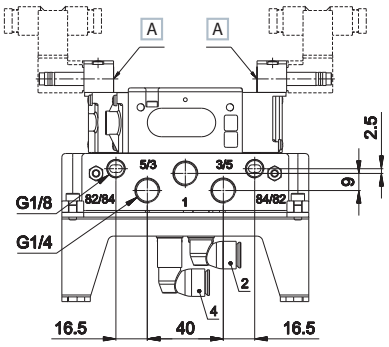
1 End plate
2 Single sub-base with plate for fitting mounting
3 Modular tie-rods
4 Valve
5 Multipolar female connector
6 Coil with integrated connector
7 Bus connection card
8 Lifting bracket
9 Low elbow fitting
10 High elbow fitting
11 Straight fitting
12 End plate with multipolar connection module

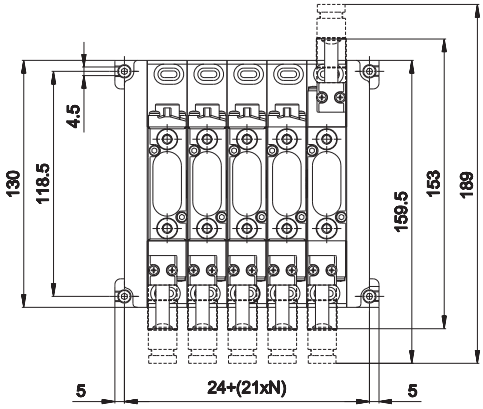
Tightening torque for fittings

Thread	max pair (Nm)
M5	3
M7	3
G1/8	3
G1/4	10

Electrical connection with external connector



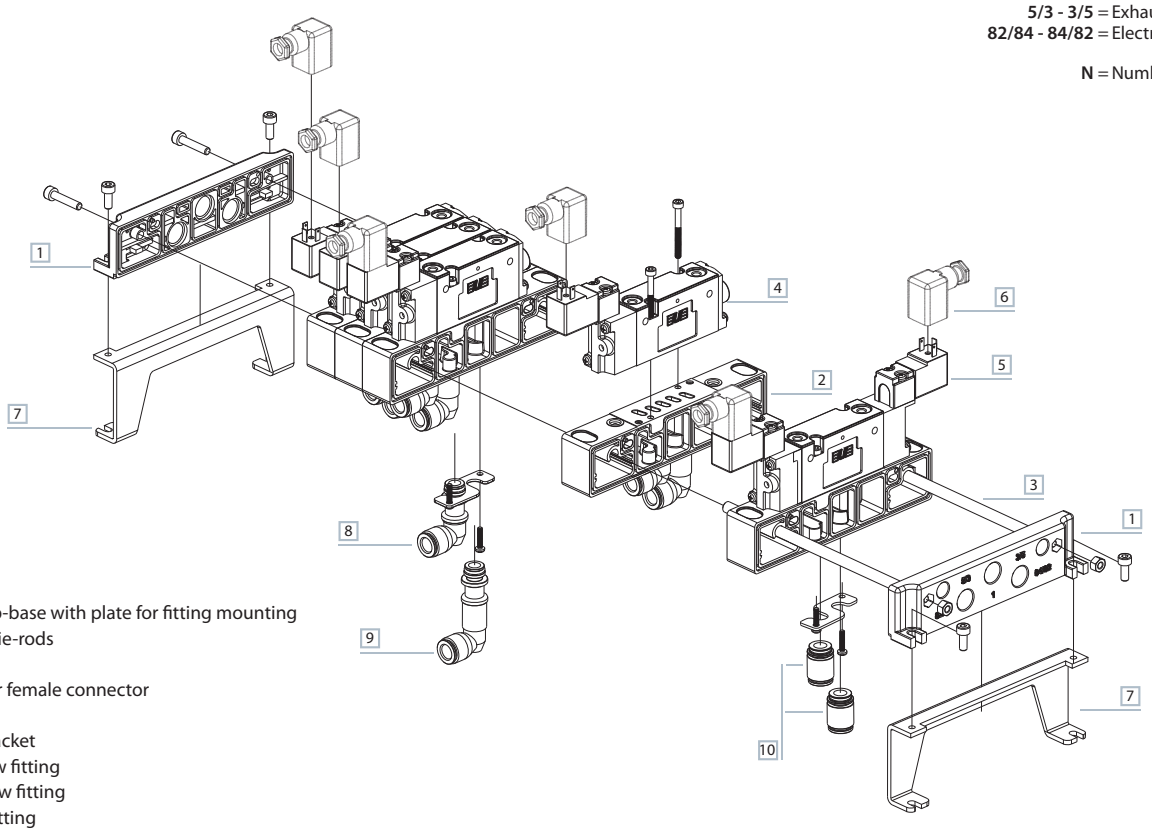




A Manual override

1 = Supply port
2 - 4 = Use
5/3 - 3/5 = Exhaust G1/4
82/84 - 84/82 = Electropilot exhaust G1/8

N = Number of valve position

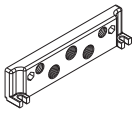


1 End plate
2 Single sub-base with plate for fitting mounting
3 Modular tie-rods
4 Valve
5 Multipolar female connector
6 Coil
7 Lifting bracket
8 Low elbow fitting
9 High elbow fitting
10 Straight fitting

Coppia di serraggio raccordi

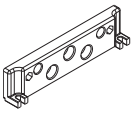
Thread	max pair (Nm)
M5	3
M7	3
G1/8	3
G1/4	10

GP-6100



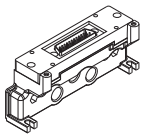
threaded end plate
weight: 0,046 Kg

GP-6110



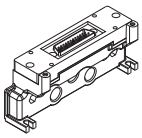
blank end plate
weight: 0,050 Kg

GP-611212



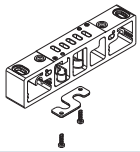
end plate with male connector
25 poles 12+12 coils
control 12-14
weight: 0,100 Kg

GP-611806



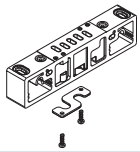
end plate with male connector
25 poles
18 coils control 14
6 coils control 12
(only for control 14
more than 12 coils max 18)
weight: 0,102 Kg

GP-6210/1/2



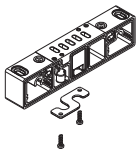
sub-base with
open diaphragms
GP-6310 without
electrical connection
GP-6311 monostable
GP-6312 bistable
weight: 0,060 Kg

GP-6220/1/2



sub-base with
closed diaphragms
GP-6320 without
electrical connection
GP-6321 monostable
GP-6322 bistable
weight: 0,062 Kg

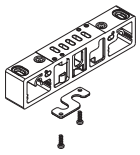
GP-6230/1/2



3 1 5

sub-base with
closed supply and
open exhausts
GP-6330 without
electrical connection
GP-6331 mostable
GP-6332 bistable
weight: 0,062 Kg

GP-6240/1/2



3 1 5

sud-base with
open supply and
closed exhausts
GP-6340 without
electrical connection
GP-6341 mostable
GP-6342 bistable
weight: 0,062 Kg

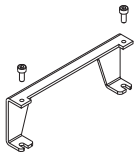
GP-6380

intermediate supply plate
(to be used only with
GP-63... series sub-base)
weight: 0,036 Kg

GP-6385

closing plate for
unused station
weight: 0,018 Kg

GP-6411



lifting bracket
weight: 0,086 Kg

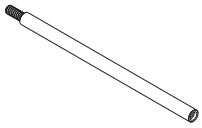
GP-6400-1

modular tie-rod
1 valve place
weight: 0,004 Kg
(package 100 pcs.)

GP-6400-2

modular tie-rod
2 valve places
weight: 0,010 Kg
(package 100 pcs.)

GP-6400-5



modular tie-rod
5 valve places
weight: 0,022 Kg
(package 100 pcs.)

AZ4-VN0416 screw M04x16 for tie-rods (package100 pcs.)
AZ4-SN004A hexagonal nut M4 (package100 pcs.)

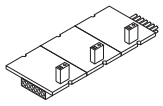
GP-6512-01/..MF

BUS connection card
control side 12 with 12 pin
GP-6512-01MF 1 place
GP-6512-02MF 2 places
GP-6512-03MF 3 places
GP-6512-05MF 5 places
GP-6512-06MF 6 places
weight: 0,003 Kg
(for each place)

GP-6514-01/..MF

BUS connection card
control side 14 with 12 pin
GP-6514-01MF 1 place
GP-6514-02MF 2 places
GP-6514-03MF 3 places
GP-6514-05MF 5 places
GP-6514-06MF 6 places
weight: 0,003 Kg
(for each place)

GP-651418



BUS connection card
control side 14 with 18 pin
(only12 places)
for manifold assemblies with
control 14 with more than 12
coils up to 18 coils use card
GP-651418 12 places
and then **GP-6514-**...
weight: 0,003 Kg
(for each place)

upon request customized solutions up to 12 places

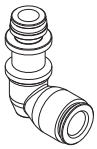
GZR-100

blanking plug
weight: 0,010 Kg

GZR-V10004/6/8

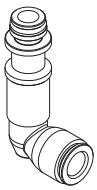
straight fitting
(package 50 pcs.)
GZR-V10004 tube: 4 mm
GZR-V10006 tube: 6 mm
GZR-V10008 tube: 8 mm
weight: 0,010 Kg

GZR-V20004/6/8



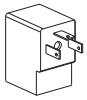
low elbow fitting
(package 50 pcs.)
GZR-V20004 tube: 4 mm
weight: 0,013 Kg
GZR-V20006 tube: 6 mm
weight: 0,014 Kg
GZR-V20008 tube 8 mm
weight: 0,015 Kg

GZR-V20L004/6/8



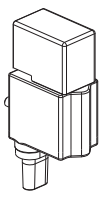
high elbow fitting
(package 50 pcs.)
GZR-V20L004 tube: 4 mm
weight: 0,017 Kg
GZR-V20L006 tube: 6 mm
weight: 0,021 Kg
GZR-V20L008 tube: 8 mm
weight: 0,027 Kg

DD-051



24 V CC 2 W coil
for single connection
weight: 0,019 Kg

DD-051**C

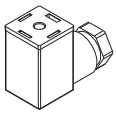


24 V CC 2 W coil
with integrated connector
for multipolar version
weight: 0,028 Kg

For subbases suitable for servoassistance add "**S**" to the part number (ex. GP-6210S)

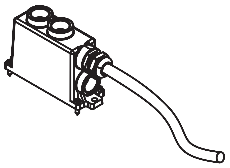
Electrical connections

AM-5109



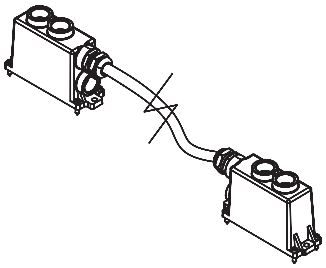
- 15 mm connector

TSCF24S0300
TSCF24S0500
TSCF24S1000



- flying fermale connector sub D according to CEI 20-22 O.R. II (upon request)
  prewired for 24 coils
  M3 x 12 fixing screws

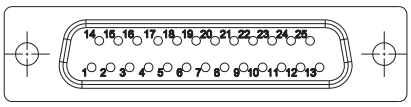
TSCF16D0300
TSCF16D0500
TSCF16D1000



- flying male/fermale connector sub D according to CEI 20-22 O.R. II (upon request)
  prewired for 24 coils with
  cable Ø8 mm of 3-5-10 m
  length suitable for mobile laying
  M3 x 12 fixing screws

Colour identification according to standard **DIN 47100**

Female connector **D-SUB 25 poles**
for **12+12 coils**



PIN No.	Colour	Coil	Control side		Valve No.
			GP-11212	GP-611806	
1	white	1	14	14	1
2	brown	2	12	12	1
3	green	3	14	14	2
4	yellow	4	12	12	2
5	grey	5	14	14	3
6	pink	6	12	12	3
7	blue	7	14	14	4
8	red	8	12	12	4
9	black	9	14	14	5
10	violet	10	12	12	5
11	grey-pink	11	14	14	6
12	red-blue	12	12	12	6
13	white-green	13	14	14	7
14	brown-green	14	12	14	7
15	white-yellow	15	14	14	8
16	yellow-brown	16	12	14	8
17	white-grey	17	14	14	9
18	grey-brown	18	12	14	9
19	white-pink	19	14	14	10
20	pink-brown	20	12	14	10
21	white-blue	21	14	14	11
22	brown-blue	22	12	14	11
23	white-red	23	14	14	12
24	brown-red brown-black shield		-	-	-
25	white-black	24	12	14	12

G7

26 mm G1/8 valves and solenoid valves

- G1/8 threaded valve body with traditional Univer spool system
- Versions available 5/2-5/3
- Aluminium multiple sub-base

TECHNICAL CHARACTERISTICS

Ambient temperature	-10 ÷ +45 °C
Fluid temperature	max +50 °C
Fluid	50 µm filtered and not dehumidified air, lubricated or not
Commutation system	spool
Ways/Positions	**5/2, 5/3**
Pressure	10 bar max
Control	indirect electro - pneumatic, pneumatic
Return	mechanical spring, pneumomechanical spring
Connections	G1/8
Nominal Ø	6 mm
Nominal flow rate	860 Nl/min

CONSTRUCTIVE CHARACTERISTICS

Valve body	zamak
Seals	nitrile rubber
Actuators	technopolymer
Spool	aluminium

ELECTRIC CHARACTERISTICS

Electropilot	U1
Coil	DA series
Power consumption	3,5 W (DC) - 5 VA (AC)
Connector	AM-5110
Voltage	12 V DC - 24 V DC - 24 V AC - 110 V AC - 230 V AC
Manual override	with 2 position screw

CODIFICATION KEY

G	7	3	9	0	D
1		2	3	4	5

1 Series

G7 = G1/8 26 mm valves

2 Type

2 = 5/2
3 = 5/3 c.c.
4 = 5/3 o.c.
5 = 5/3 p.c.

3 Control 14

3 = pneumatic on the body
9 = in line electric U1 pilot

4 Return 12

0 = pneumomechanical spring
1 = mechanical spring
3 = pneumatic on the body
9 = in line electric U1 pilot

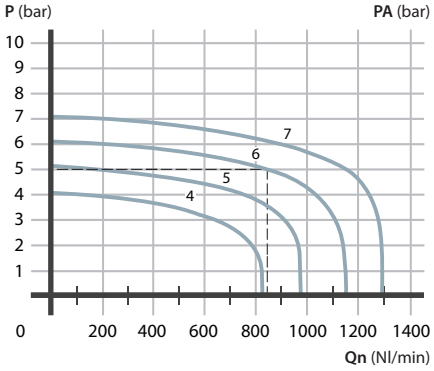
5 Option

D = pilot external servo-assistance on valve body (M5)

G = manual override on the valve body (only bistable versions)

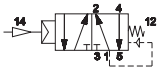
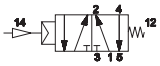
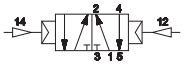
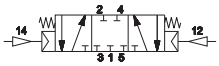
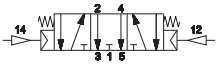
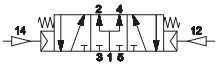
o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

Flow rate characteristics



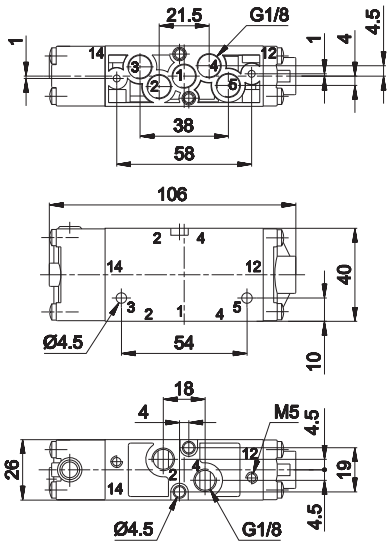
P = Working pressure
PA = Supply pressure
Qn = Flow rate

Single/double **pneumatic** impulse

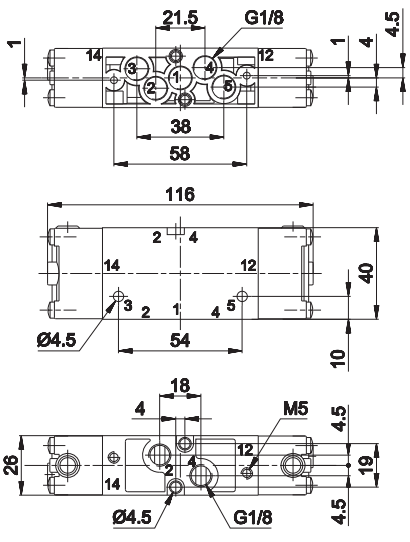
	Symbol	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Weight Kg	Part no.
	SINGLE PNEUMATIC IMPULSE							
5/2		pneumatic amplified	pneumomechanical spring	1,5÷10	8	14	0,190	**G-7230**
5/2		pneumatic amplified	mechanical spring	1,5÷9	18	64	0,190	**G-7231**
	DOUBLE PNEUMATIC IMPULSE							
5/2		pneumatic amplified	pneumatic amplified	0,7÷10	4	4	0,190	**G-7233**
5/3 c.c.		pneumatic amplified	pneumatic amplified	2÷10	8	8	0,200	**G-7333**
5/3 o.c.		pneumatic amplified	pneumatic amplified	2÷10	8	8	0,200	**G-7433**
5/3 p.c.		pneumatic amplified	pneumatic amplified	2÷10	8	8	0,200	**G-7533**

o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

Single pneumatic impulse



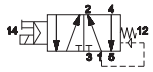
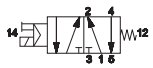
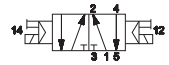
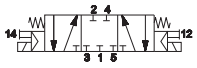
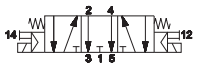
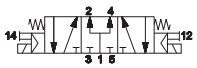
Double pneumatic impulse



1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

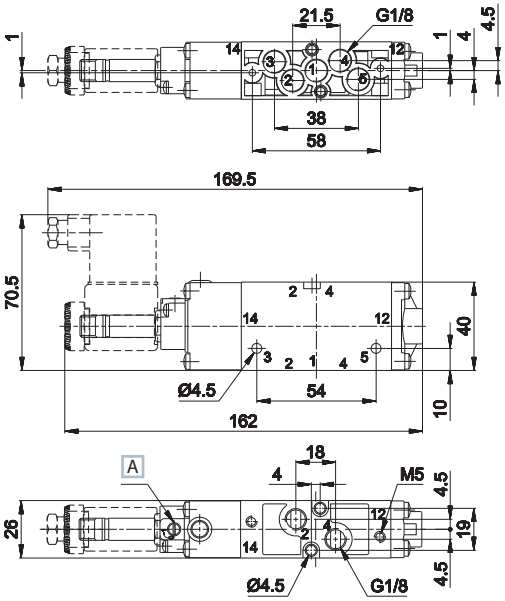
The valve is supplied with two plugs to be mounted with loctite onto the unused 2-4 connections

Single/double **electric** impulse

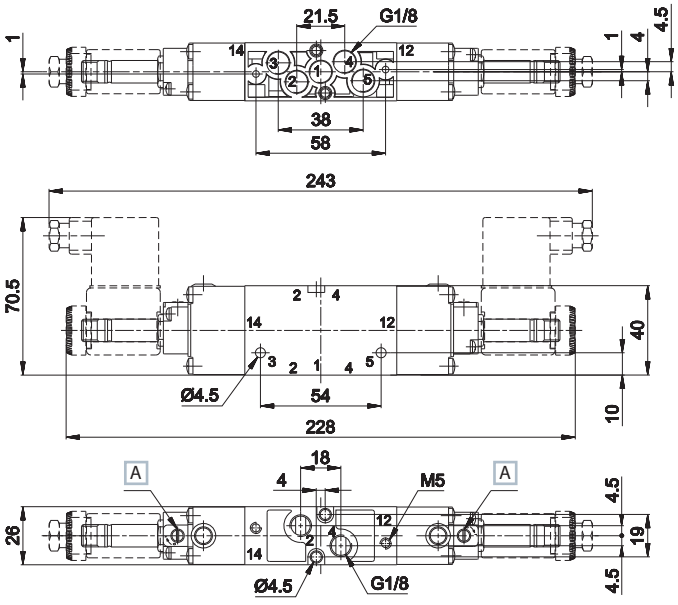
	Symbol	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Weight Kg	Part no.
	SINGLE ELECTRIC IMPULSE							
5/2		electric amplified	pneumomechanical spring	1,5÷10	15	23	0,214	**G-7290**
5/2		electric amplified	mechanical spring	1,5÷9	13	34	0,214	**G-7291**
	DOUBLE ELECTRIC IMPULSE							
5/2		electric amplified	electric amplified	0,7÷10	12	12	0,280	**G-7299**
5/3 c.c.		electric amplified	electric amplified	2÷10	14	18	0,309	**G-7399**
5/3 o.c.		electric amplified	electric amplified	2÷10	14	18	0,309	**G-7499**
5/3 p.c.		electric amplified	electric amplified	2÷10	14	18	0,309	**G-7599**

o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

Single electric impulse



Double electric impulse

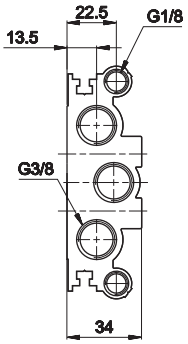


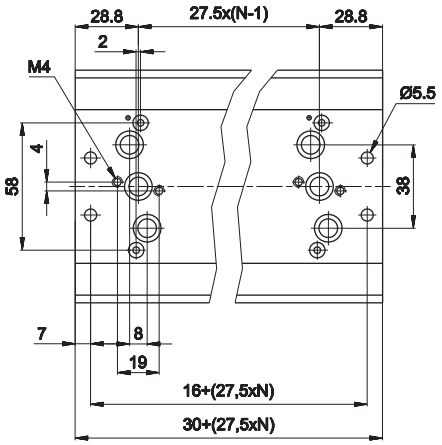
A Manual override

1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

The valve is supplied with two plugs to be mounted with loctite onto the unused 2-4 connections
Electropilots are supplied without coil, connector and locking ring

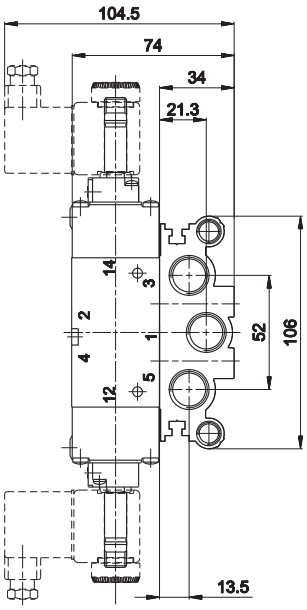
Multiple sub-base **G1/8**

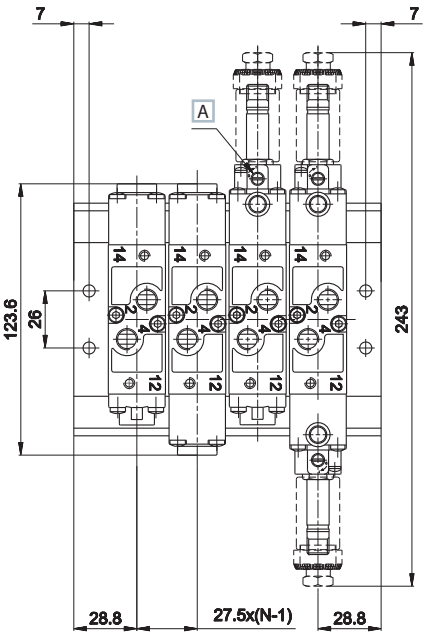




material	aluminium

Places N.	Weight Kg	Part no.
2	0,455	G-7900-02
3	0,594	G-7900-03
4	0,733	G-7900-04
5	0,872	G-7900-05
6	1,011	G-7900-06
7	1,150	G-7900-07
8	1,289	G-7900-08
9	1,428	G-7900-09
10	1,567	G-7900-10
11	1,706	G-7900-11
12	1,845	G-7900-12

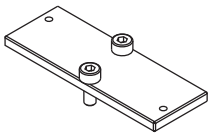




A Manual override

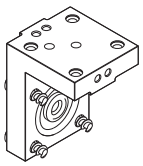
1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

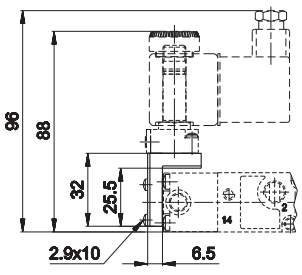
G-7885



covering-plate for sub-base place
weight: 0,019 Kg

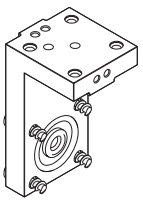
AM-5151

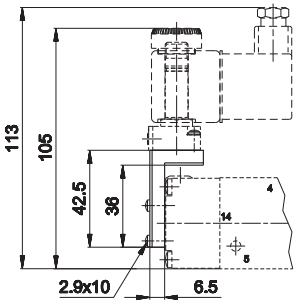




"H" option solenoid square
weight: 0,035 Kg

AM-5152





"P" option solenoid square
weight: 0,05 Kg

PS

COMBOBOX valves

- Valves with compact design: valve body with integrated sub-base
- High flexibility:
  > possibility of choosing fitting dimension (4-6-8) according to users' needs
  > manifolds from 2 up to 20 valve positions
  > electric and pneumatic control - versions 3/2+3/2 - 5/2 - 5/3
  > different pressures (vacuum included)
- Electrical connection: external - multipolar - serial connections

TECHNICAL CHARACTERISTICS

Ambient temperature	-5 ÷ +50 °C (**PSR**: -15 ÷ +50 °C)
Fluid temperature	max +50 °C
Fluid	not dehumidified filtered air 10 µm, lubricated or not
Commutation system	spool
Ways/Positions	**3/2+3/2, 5/2, 5/3**
Pressure	**electric control** = max 9 bar **pneumatic control** = max 10 bar
Control	indirect electro-pneumatic, pneumatic
Return	mechanical spring, pneumomechanical spring
Connections	tube Ø 4, 6, 8
Nominal Ø	6 mm
Nominal flow rate (Nl/min) according to the type of fittings:	
straight - tube Ø8 mm	**830**
90° elbow - tube Ø8 mm	**700**
straight - tube Ø6 mm	**510**
90° elbow - tube Ø6 mm	**370**
straight - tube Ø4 mm	**200**
90° elbow - tube Ø4 mm	**140**

CONSTRUCTIVE CHARACTERISTICS

Valve body	zamak
Seals	nitrile rubber
Actuators	self-extinguishing technopolymer
Spool	aluminum

ELECTRIC CHARACTERISTICS

Electropilot/Coil	B series_U04 - DE (U04)
Voltage	24 V DC (12 V DC upon request)
Power consumption	1,35 W
Protection degree	IP65
Manual override	button with tool - 1 position **(PSC)**
	1-2 position screw **(PSP)**

CODIFICATION KEY

P	S	C	2	6	0	2	4
1			2	3	4	5	

1 Series
PSC = separate wires
PSP = plug-in
PSR = pneumatic

2 Ways
2 = 5/2
3 = 5/3 c.c.
4 = 5/3 o.c.
5 = 5/3 p.c.
6 = 3/2+3/2 NC-NC
7 = 3/2+3/2 NC-NO
8 = 3/2+3/2 NO-NO

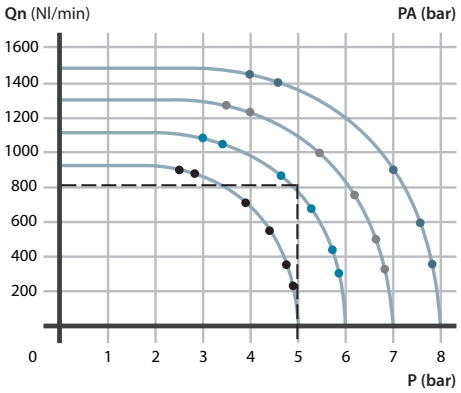
3 Control 14
2 = pneumatic amplified
6 = electrical amplified

4 Return 12
0 = pneumatic spring
1 = mechanical spring
2 = pneumatic amplified
3 = pneumatic not amplified
6 = electrical amplified
7 = electrical not amplified

5 Voltage and coil
PSC and PSP series, coils assembled with standard supplied led
24 = 24 V (standard)
12 = 12 V (upon request)

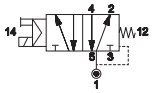
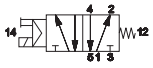
o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

Flow rate characteristics

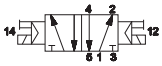
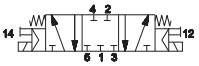
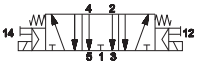
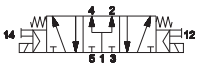
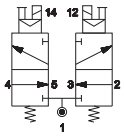
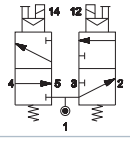
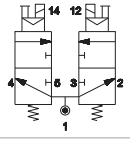


P = Working pressure
PA = Supply pressure
Qn = Flow rate

Single **electric** impulse

	Symbol	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Weight Kg	Part no.
5/2		electrical amplified	pneumomechanical spring	1,8÷9	17	38	0,143	**PSC26024**
5/2		electrical amplified	mechanical spring	2,2÷9	15	50	0,143	**PSC26124**

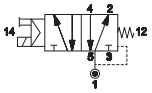
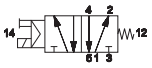
Double **electric** impulse

	Symbol	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Weight Kg	Part no.
5/2		electrical amplified	electrical amplified	0,7÷9	11	11	0,150	**PSC26624**
5/3 c.c.		electrical amplified	electrical amplified	2,2÷9	15	50	0,155	**PSC36624**
5/3 o.c.		electrical amplified	electrical amplified	2,2÷9	15	50	0,155	**PSC46624**
5/3 p.c.		electrical amplified	electrical amplified	2,2÷9	15	50	0,155	**PSC56624**
3/2 NC + 3/2 NC		electrical amplified	electrical amplified	2÷9	15	33	0,140	**PSC66624**
3/2 NC + 3/2 NO		electrical amplified	electrical amplified	2÷9	15	33	0,140	**PSC76624**
3/2 NO + 3/2 NO		electrical amplified	electrical amplified	2÷9	15	33	0,140	**PSC86624**

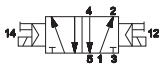
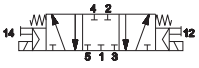
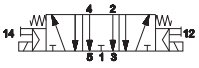
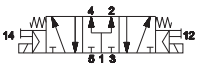
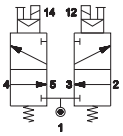
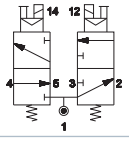
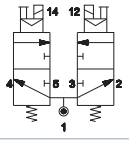
o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

Solenoid valves are supplied without coil and connector
Manual override on PSC series is with button with tool, 1 position

Single **electric** impulse

	Simbolo	Coontrol	Return	Pressure	Times (ms)		Weight	Part
				bar	En.	De-en.	Kg	
5/2		electrical amplified	pneumomechanical spring	1,8÷9	17	38	0,148	**PSP26024**
5/2		electrical amplified	mechanical spring	2,2÷9	15	50	0,148	**PSP26124**

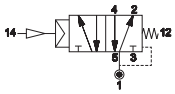
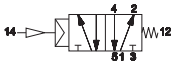
Double **electric** impulse

	Simbolo	Control	Return	Pressure	Times (ms)		Weight	Part no.
				bar	En.	De-en.	Kg	
5/2		electrical amplified	electrical amplified	0,7÷9	11	11	0,160	**PSP26624**
5/3 c.c.		electrical amplified	electrical amplified	2,2÷9	15	50	0,165	**PSP36624**
5/3 o.c.		electrical amplified	electrical amplified	2,2÷9	15	50	0,165	**PSP46624**
5/3 p.c.		electrical amplified	electrical amplified	2,2÷9	15	50	0,165	**PSP56624**
3/2 NC + 3/2 NC		electrical amplified	electrical amplified	2÷9	15	33	0,140	**PSP66624**
3/2 NC + 3/2 NO		electrical amplified	electrical amplified	2÷9	15	33	0,140	**PSP76624**
3/2 NO + 3/2 NO		electrical amplified	electrical amplified	2÷9	15	33	0,140	**PSP86624**

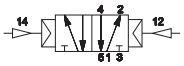
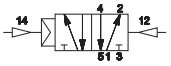
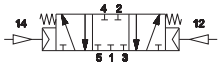
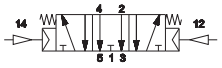
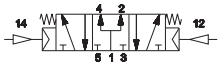
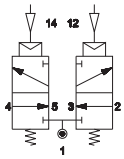
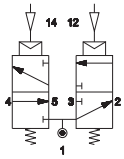
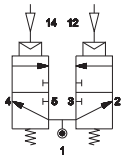
o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

Solenoid valves are supplied without coil and connector
Manual override on PSC series is with button with tool, 1 position
On PSP series a maximum of 20 coils can be used, restriction due to the connection modules

Single **pneumatic** impulse

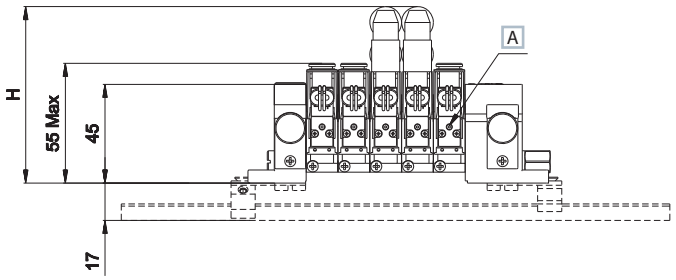
	Symbol	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Weight Kg	Part no.
5/2		pneumatic amplified	pneumomechanical spring	1,7÷10	14	33	0,136	**PSR220**
5/2		pneumatic amplified	mechanical spring	2,2÷10	12	45	0,136	**PSR221**

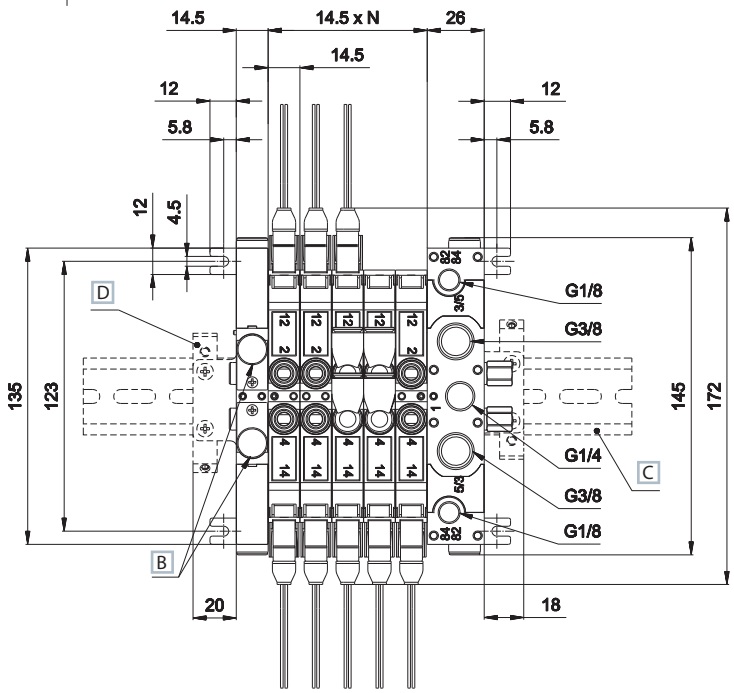
Double **pneumatic** impulse

	Symbol	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Weight Kg	Part no.
5/2		pneumatic amplified	pneumatic amplified	0,7÷10	5	5	0,136	**PSR222**
5/2		pneumatic amplified	pneumatic non amplified	1,1÷10	9	8	0,132	**PSR223**
5/3 c.c.		pneumatic amplified	pneumatic amplified	2,2÷10	12	45	0,140	**PSR322**
5/3 o.c.		pneumatic amplified	pneumatic amplified	2,2÷10	12	45	0,140	**PSR422**
5/3 p.c.		pneumatic amplified	pneumatic amplified	2,2÷10	12	45	0,140	**PSR522**
3/2 NC + 3/2 NC		pneumatic amplified	pneumatic amplified	2÷10	12	29	0,140	**PSR622**
3/2 NC + 3/2 NO		pneumatic amplified	pneumatic amplified	2÷10	12	29	0,140	**PSR722**
3/2 NO + 3/2 NO		pneumatic amplified	pneumatic amplified	2÷10	12	29	0,140	**PSR822**

o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

PSC Series with 26mm inlet plate and 14.5 mm end plate with DIN (EN50022) rain



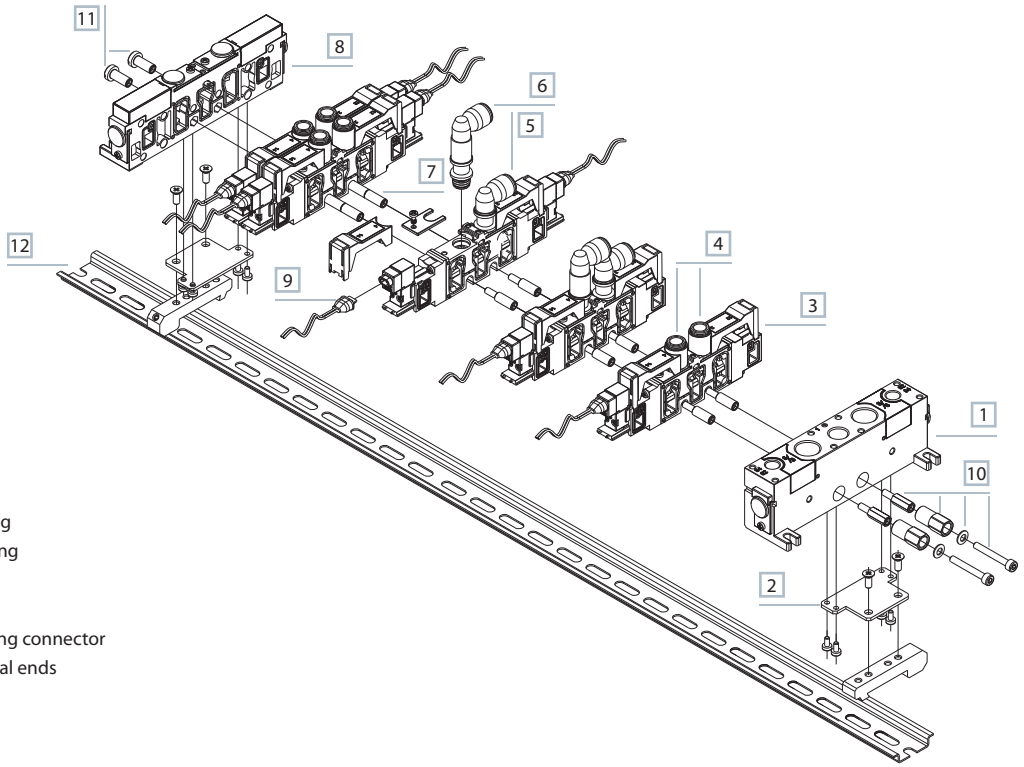


Tube Ø	H
4	72,6
6	76,6
8	80,5

A Manual override
B Possibility of supplementary exhausts 3-5
C Rail DIN (EN 50022)
D DIN rail connector as optional

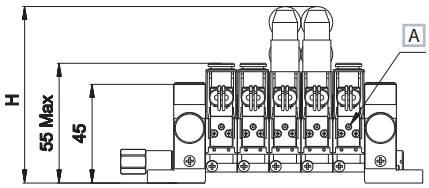
1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return
82 = Pilot exhaust side 2
84 = Pilot exhaust side 4

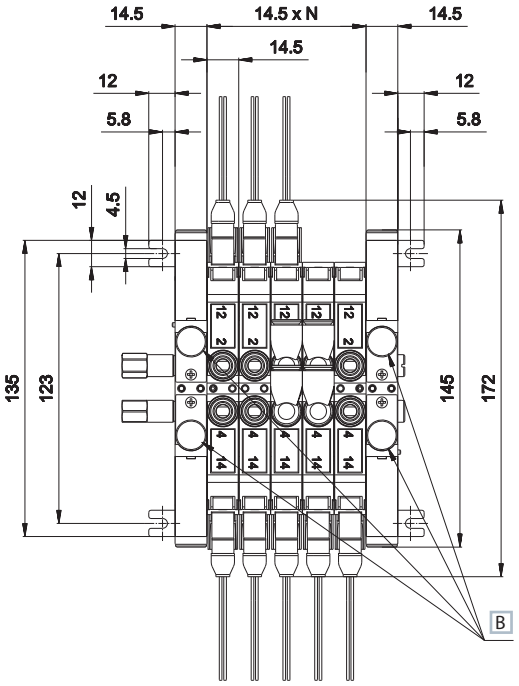
N = Number of valve positions



1 Inlet plate
2 DIN rail adapter plate
3 Valve
4 Straight fitting
5 Swivel low elbow fitting
6 Swivel high elbow fitting
7 Modular tie-rods
8 Blank plate
9 Micro double-pole flying connector
12 Tie-rods with hexagonal ends
11 Counter tie-rods
12 DIN rail

PSC series with 14,5 mm inlet and end plate



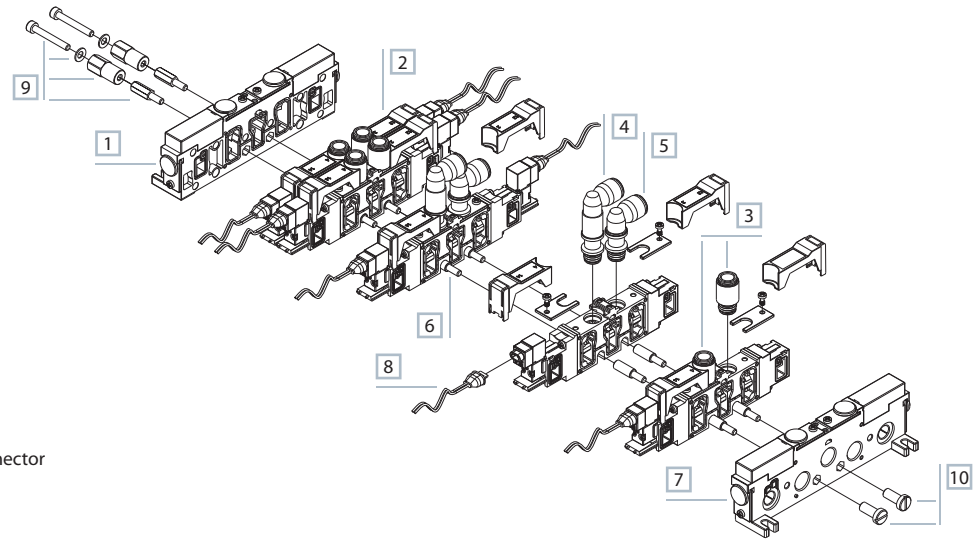


Tube Ø	H
4	72,6
6	76,6
8	80,5

A Manual override
B Possibility of supplementary exhausts 3 - 5

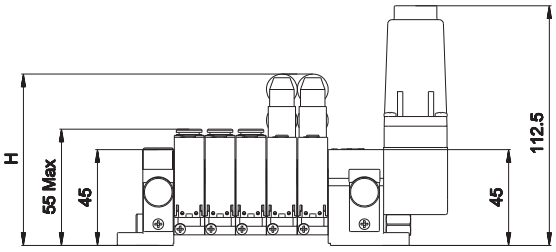
1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return
82 = Pilot exhaust side 2
84 = Pilot exhaust side 4

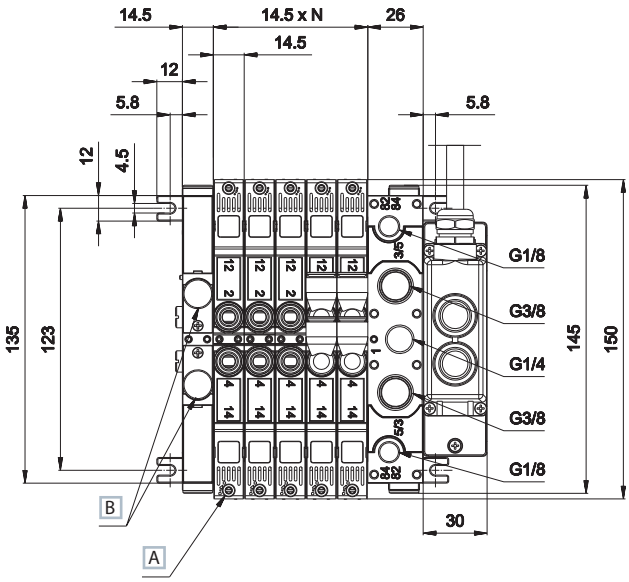
N = Number of valve positions



1 Inlet plate
2 Valve
3 Straight fitting
4 Swivel low elbow fitting
5 Swivel high elbow fitting
6 Modular tie-rods
7 Blank plate
8 Micro double-pole flying connector
9 Tie-rods with hexagonal ends
10 Counter tie-rods

PSP series with 26mm inlet plate and 14,5 mm end plate with multipolar connector



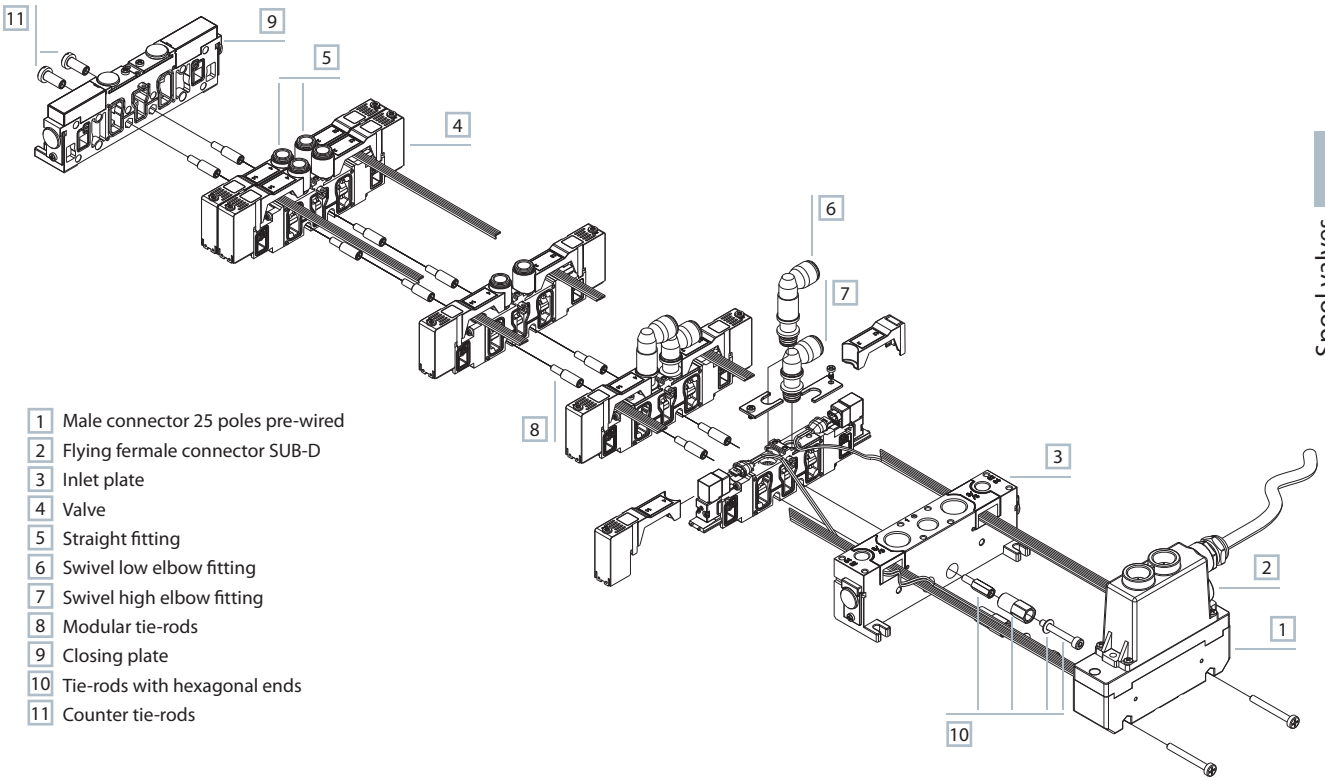


Tube Ø	H
4	72,6
6	76,6
8	80,5

A Manual override
B Possibility of supplementary exhausts 3 - 5

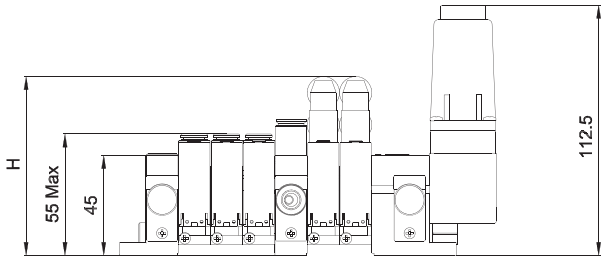
1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return
82 = Pilot exhaust side 2
84 = Pilot ehhaust side 4

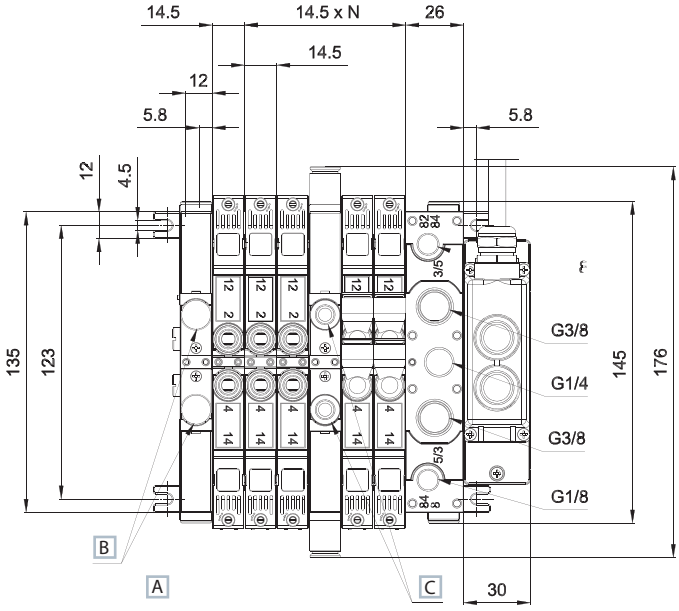
N = Number of valve positions



1 Male connector 25 poles pre-wired
2 Flying fermale connector SUB-D
3 Inlet plate
4 Valve
5 Straight fitting
6 Swivel low elbow fitting
7 Swivel high elbow fitting
8 Modular tie-rods
9 Closing plate
10 Tie-rods with hexagonal ends
11 Counter tie-rods

PSP series with 26mm inlet plate and 14.5mm end plate with multipolar connector and intermediate plate



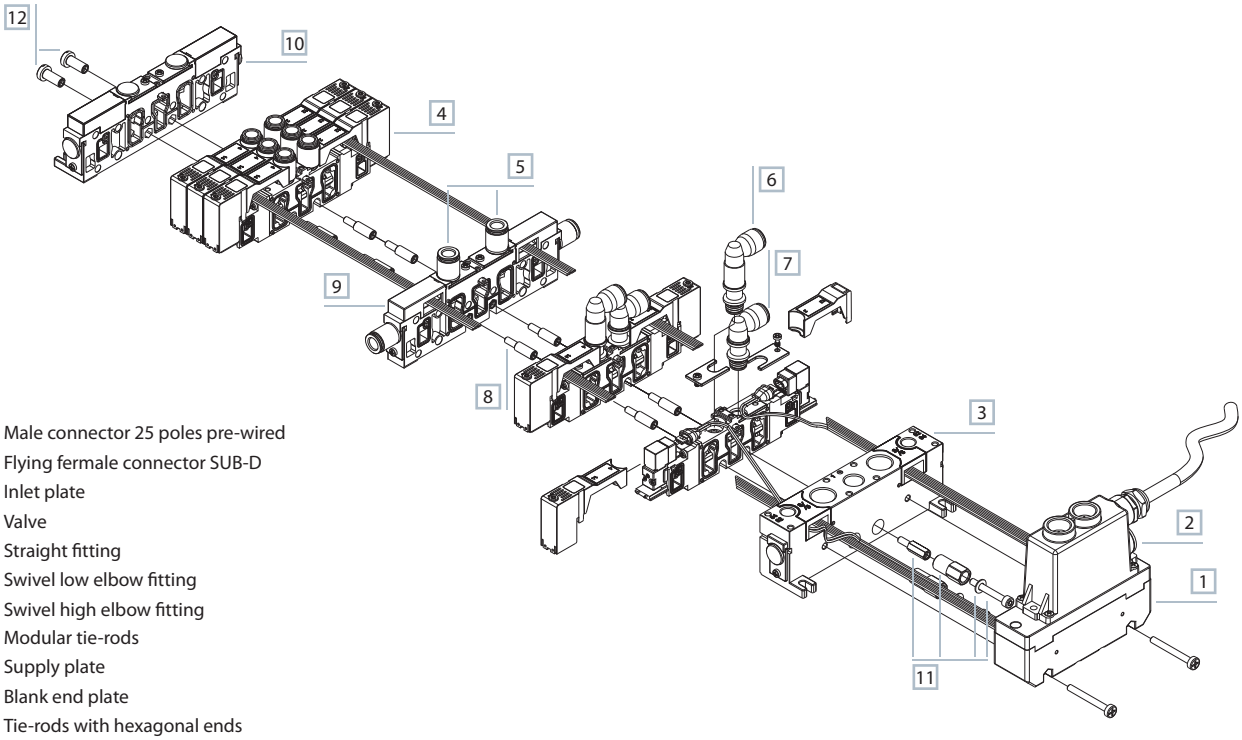


Tube Ø	H
4	72,6
6	76,6
8	80,5

A Manual override
B Possibility of supplementary exhausts 3 - 5
C For type of fittings see page **3**_59

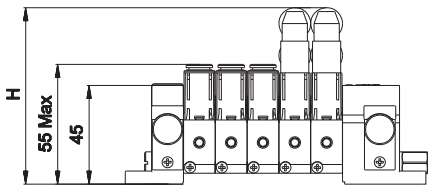
1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return
82 = Pilot exhaust side 2
84 = Pilot exhaust side 4

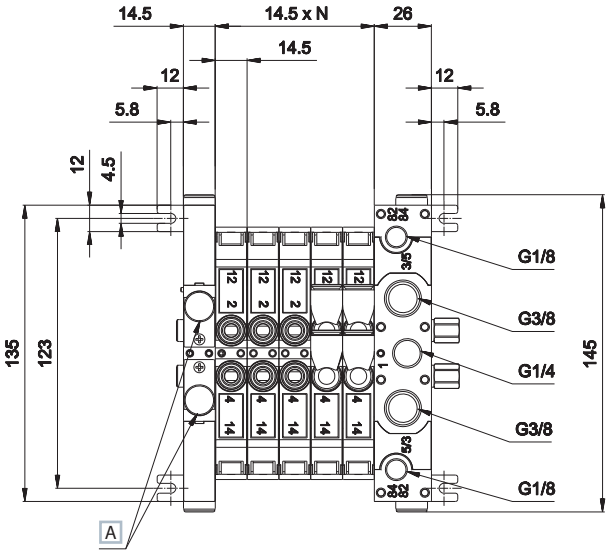
N = Number of valve positions



1 Male connector 25 poles pre-wired
2 Flying fermale connector SUB-D
3 Inlet plate
4 Valve
5 Straight fitting
6 Swivel low elbow fitting
7 Swivel high elbow fitting
8 Modular tie-rods
9 Supply plate
10 Blank end plate
11 Tie-rods with hexagonal ends
12 Counter tie-rods

PSR series with 26mm inlet and and end plate 14,5 mm



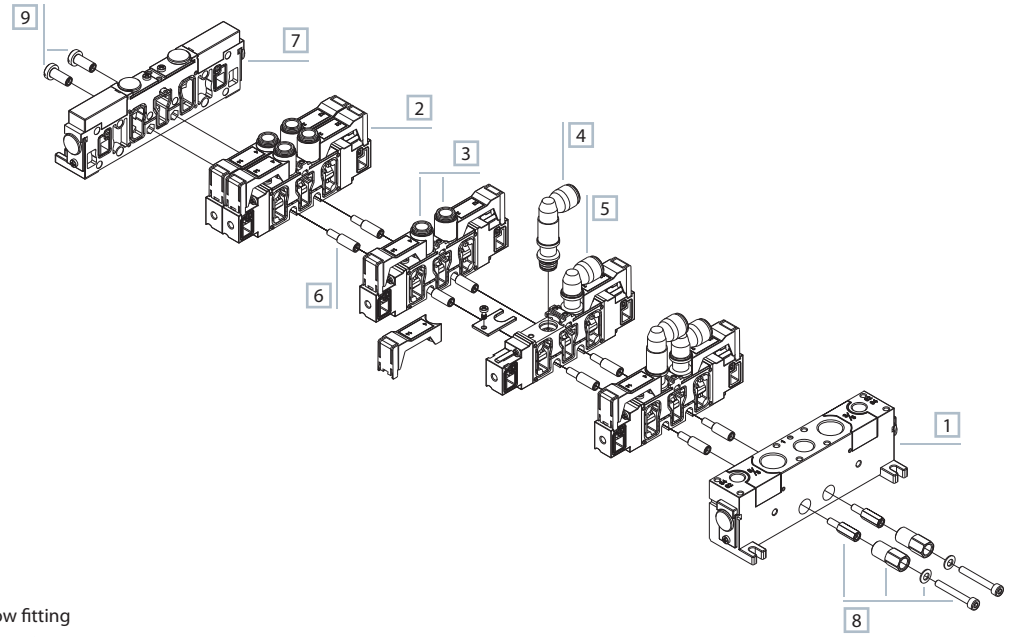


Tube Ø	H
4	72,6
6	76,6
8	80,5

A Possibility of supplementary exhausts 3 - 5

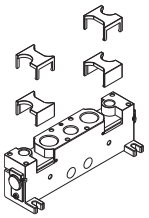
1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return
82 = Pilot exhaust side 2
84 = Pilot exhaust side 4

N = Number of valve positions



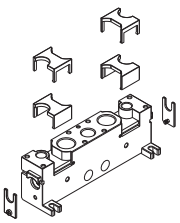
1 Inlet plate
2 Valve
3 Straight fitting
4 Swivel low elbow fitting
5 Swivel high elbow fitting
6 Modular tie-rods
7 Blank plate
8 Tie-rods with hexagonal ends
9 Counter tie-rods

PS14100



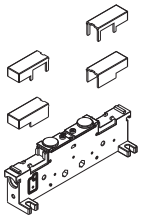
inlet plate 26 mm
internal pilot supply
weight: 0,295 Kg

PS14200



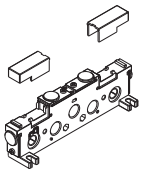
inlet plate 26 mm
external pilot pupply
weight: 0,290 Kg

PS15000



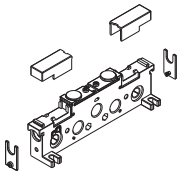
blank closing plate
weight: 0,168 Kg

PS15100



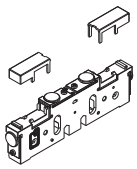
intel plate 14,5 mm
internal pilot supply
weight: 0,167 Kg

PS15200



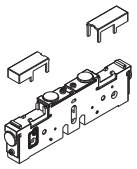
intel plate 14,5 mm
external pilot supply
weight: 0,162 Kg

PS15300*



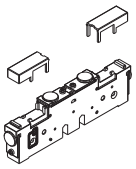
intermediate plate
14,5 mm, closed air
supply, open exhausts
weight: 0,167 Kg

PS15310*



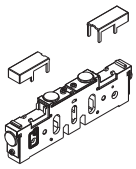
intermediate plate
14,5 mm, open air
supply, closed exhausts
weight: 0,170 Kg

PS15320*



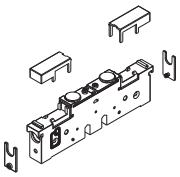
intermediate plate
14,5 mm, closed
air supply and exhaust
weight: 0,171 Kg

PS15330*



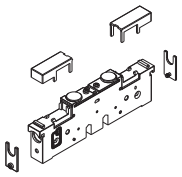
intermediate plate
14,5 mm open
air supply and exhaust
weight: 0,165 Kg

PS15340



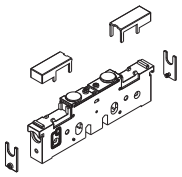
intermediate supply plate
with closed exhausts and
internal pilot supply
weight: 0,164 Kg

PS15350



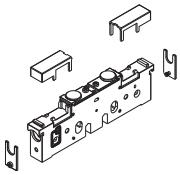
intermediate supply plate
with closed exhausts and
external pilot supply
weight: 0,164 Kg

PS15360



intermediate supply plate
with open exhausts and
internal pilot supply
weight: 0,164 Kg

PS15370

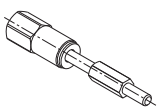


intermediate supply plate
with open exhausts and
external pilot supply
weight: 0,164 Kg

* = For intermediate plate with closed pilot supply ports add suffix 1 to part number.
The intermediate plate occupies one valve place, please keep this in mind for a correct order of the modular tie-rods.

Air supply of the electropilots by means of the end plates for both internal and external air supply. In case there are two different working pressures at the end plates, it is possible to supply all pilots with one of the two pressures (in general with the higher one) or to supply the pilots of each valve group with the working pressure of the same.
This can be realized by choosing the correct separation plate.
The same is valid if the pressures are more than two: in this case it is necessary to use intermediate supply plates suitably coupled with the separation plates.

PSK100145

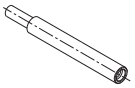


tie-rods with hexagonal
ends
(package 50 pcs.)
weight: 0,015 Kg

PSK200145

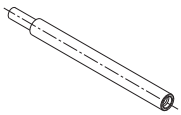
modular tie-rods
L1 = 14,5 mm each place
(package 100 pcs.)
weight: 0,003 Kg

PSK200290



modular tie-rods
L2 = 29 mm for 2 places
(package 100 pcs.)
weight: 0,006 Kg

PSK200725

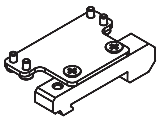


modular tie-rods
L5 = 72,5 mm for 5 places
(package 100 pcs.)
weight: 0,015 Kg

PSK300145

counter tie-rods
(package 50 pcs.)
weight: 0,003 Kg

PSK401



DIN rail adapter plate
with screws
(package 2 pcs. suitable
for all models)
weight: 0,066 Kg

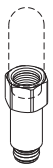
GZR-100

plug
(package 2 pcs. suitable
for all models)
weight: 0,002 Kg

GZR-101

G1/8
Fitting seat reducing
plug - gas thread for
silencer assembly
weight: 0,011 Kg

GZR-102

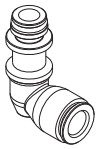


G1/4
Fitting seat reducing
plug - gas thread for
silencer assembly
weight: 0,0315 Kg

GZR-V10004/6/8

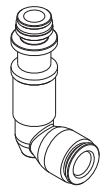
straight fitting
(package 50 pcs.)
GZR-V10004 tube: 4 mm
GZR-V10006 tube: 6 mm
GZR-V10008 tube: 8 mm
weight: 0,010 Kg

GZR-V20004/6/8

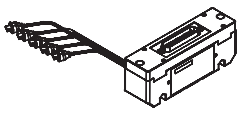
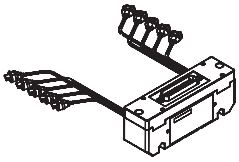


swivel low elbow fitting
(package 50 pcs.)
GZR-V20004 tube: 4 mm
weight: 0,013 Kg
GZR-V20006 tube: 6 mm
weight: 0,014 Kg
GZR-V20008 tube 8 mm
weight: 0,015 Kg

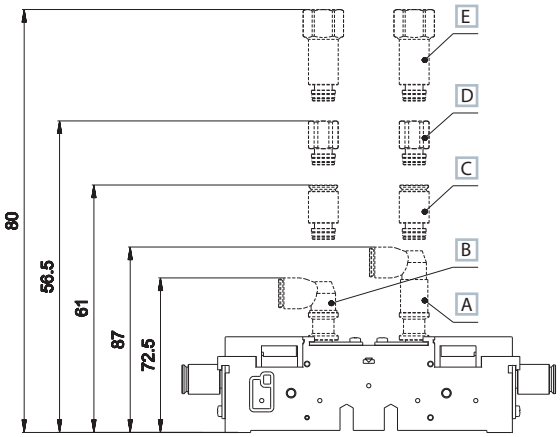
GZR-V20L004/6/8



swivel high elbow fitting
(package 50 pcs.)
GZR-V20L004 tube: 4 mm
weight: 0,017 Kg
GZR-V20L006 tube: 6 mm
weight: 0,021 Kg
GZR-V20L008 tube: 8 mm
weight: 0,027 Kg

TIM06M/10M/20M	TIM06B/10B	D-530C-100/200
		
male connector 25 poles pre-wired for monostable valves (M) **TIM06M** weight: 0,096 Kg (max 6M) **TIM10M** weight: 0,103 Kg (max 10M) **TIM20M** weight: 0,127 Kg (max 20M)	male connector 25 poles pre-wired for bistable valves (B) **TIM06B** weight: 0,11 Kg (max 6B) **TIM10B** weight: 0,118 Kg (max 10B)	micro double-pole flying connector: stripped and tinned wires with protection guard (package 100 pcs.) **D-530C-100** weight: 0,0047 Kg (wire length 100 cm) **D-530C-200** weight: 0,0093 Kg (wire length 200 cm)

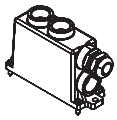
Overall dimensions of fittings on intermediate plates for exhausts 3-5



A Swivel high elbow fitting for tube Ø8
B Swivel low elbow fitting for tube Ø8
C Straight fitting for tube Ø8
D Fitting for silencer G1/8
E Fitting for silencer G1/4

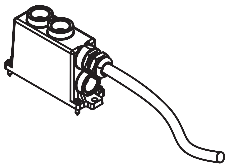
Flying connectors/connections table

TSCF000



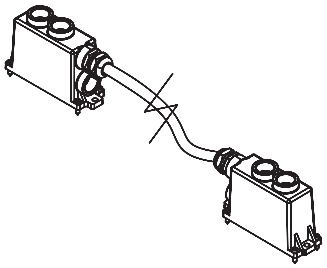
- female connector
  25 poles D-sub
  without cable

TSCF24S0300
TSCF24S0500
TSCF24S1000



- flying fermale connector sub D
  according to CEI 20-22 O.R. II
  (upon request)
  prewired for 24 coils
  M3 x 12 fixing screws

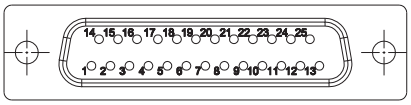
TSCF16D0300
TSCF16D0500
TSCF16D1000



- flying male/fermale connector sub D
  according to CEI 20-22 O.R. II
  (upon request)
  prewired for 24 coils
  with cable Ø8 mm (3-5-10 m lenght)
  suitable for mobile lying
  M3 x 12 fixing screws

Colour identification according to standard **DIN 47100**

Female connector **D-SUB 25 poles**
for **12+12 coils**



			TSCF16D		TSCF24S	
PIN N°	**Operator side**	**Valve N°**	**Colour**	**Coil**	**Colour**	**Coil**
1	14	1	white	coil 1	white	coil 1
2	12	1	brown	coil 2	brown	coil 2
3	14	2	green	coil 3	green	coil 3
4	12	2	grey	coil 4	yellow	coil 4
5	14	3	pink	coil 5	grey	coil 5
6	12	3	blue	coil 6	pink	coil 6
7	14	4	violet	coil 7	blue	coil 7
8	12	4	grey-pink	coil 8	red	bobina8
9	14	5	red-blue	coil 9	black	bobina9
10	12	5	white-green	coil 10	violet	coil 10
11	14	6	brown-green	coil 11	grey-pink	coil 11
12	12	6	white-yellow	coil 12	red-blue	coil 12
13	14	7	yellow-brown	coil 13	white-green	coil 13
14	12	7	white-grey	coil 14	brown-green	coil 14
15	14	8	grey-brown	coil 15	white-yellow	coil 15
16	12	8	white-pink	coil 16	yellow-brown	coil 16
17	14	9	white-brown	not used	white-grey	coil 17
18	12	9	white-blue	not used	grey-brown	coil 18
19	14	10	black	com 0V	white-pink	coil 19
20	12	10	black	com 0V	pink-brown	coil 20
21	14	11	red	24V INP	white-blue	coil 21
22	12	11	red	24V INP	brown-blue	coil 22
23	14	12	yellow	com 0V	white-red	coil 23
24	-	-	yellow	com 0V	brown-red brown-black shield	com 0V com 0V shield
25	12	12	shield	shield	white-black	coil 24





POPPET VALVES

4 Poppet valves

AC

MIXED threaded valves G1/8 - G 1/4 - G1/2

- Mixed commutation system (spool - poppet)
- High flow rate
- Quick response time
- High cycles
- Control: manual, mechanical, pneumatic, electric
- Modular sub-bases

TECHNICAL CHARACTERISTICS

Ambient temperature	-10 ÷ +45 °C		
Fluid temperature	max +50 °C		
Fluid	filtered air 50 µm, lubricated or not		
Commutation system	poppet mixed system		
Ways/Positions	**5/2**		
Pressure	10 bar max		
Control	pneumatic, electric, mechanical		
Return	pneumomechanical spring, pneumatic, electric		
Connections	**G1/8**	**G1/4**	**G1/2**
Nominal Ø (mm)	6	8	15
Nominal flow rate (Nl/min)	1080	1600	4600

CONSTRUCTIVE CHARACTERISTICS

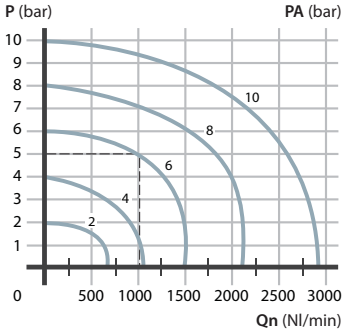
Valve body	**G1/8 - G1/4** = zamak
	G1/2 = die-cast aluminium
Seals	nitrile rubber, polyurethane
Actuators	technopolymer
Spool	aluminium

ELECTRIC CHARACTERISTICS

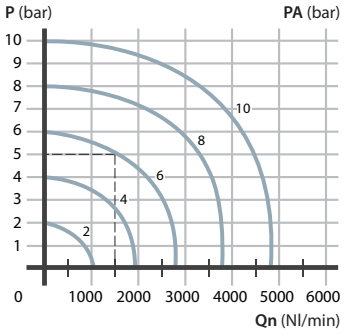
	G1/8 G1/4	**G1/2**
Electropilot	U1	U2
Coil	DA	DB
Power consumption	3,5 W (DC) - 5 VA (AC)	11 W (DC) - 10 VA (AC)
Connector	AM-5110	AM-5111
Voltage	12 V DC - 24 V DC - 24 V AC - 110 V AC - 230 V AC	
Manual override	with 2 position screw	

Flow rate characteristics

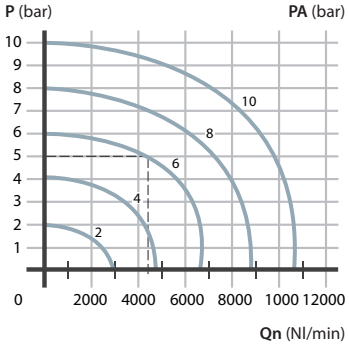
>> G1/8



>> G1/4

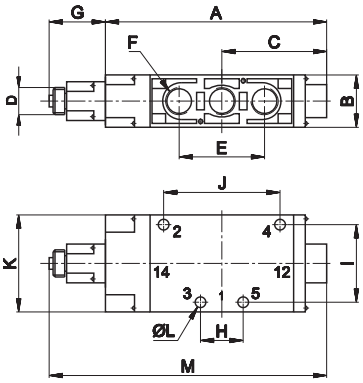


>> G1/2



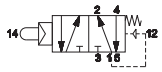
P = Working pressure
PA = Supply pressure
Qn = Flow rate

Indirect mechanical control for use with pneumatic, mechanical and manual actuators



1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

	G1/8	G1/4	G1/2
A	99	114	163
B	25	27	40
C	47	54	83
D	M14x1	M14x1	M14x1
E	36	44	80
F	G1/8	G1/4	G1/2
G	27	27	27
H	18	22	40
I	26	40	50
J	36	60	108
K	40	50	63
L	4,5	5,5	6,5
M	126	141	190

Symbol	Connection	Control	Return	Pressure	Weight	Part no.
				bar	Kg	
	G1/8	ball pushrod	pneumomechanical spring	1,8÷10	0,27	**AC-7010**
	G1/4			2,3÷10	0,28	**AC-8010**
	G1/2			2÷10	0,33	**AC-9010**

5/2

MANUAL ACTUATORS

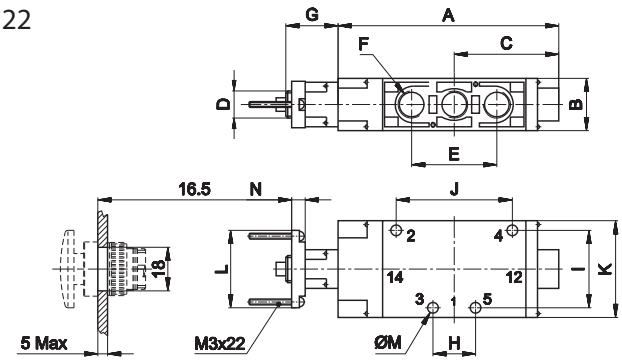
	Recessed button	■BLACK ■RED ■GREEN	AI-3511 AI-3512 AI-3513
	Head button	■RED ■BLACK ■RED ■BLACK	AI-3514 AI-3516 AI-3514D AI-3516D
	Button	■GREEN ■RED ■BLACK	AI-3515 AI-3517 AI-3519
	Rotating selector	■BLACK ■BLACK	AI-3520 AI-3521
	Rotating lever selector	■BLACK ■BLACK	AI-3522 AI-3523
	Lever operator	■BLACK	AI-3524
	Omni-directional operator	■BLACK	AI-3525
	Push-pull operator	■BLACK	AI-3526

PNEUMATIC AND MECHANICAL ACTUATORS

	Pneumatic actuator	AI-3550
	Amplified pneumatic actuator	AI-3551
	Roller operator 1 position	AI-3560
	Ball-push operator 1 position	AI-3562
	Operator with omni-directional antenna 1 position	AI-3563
	Roller lever operator 1 position	AI-3570
	Articulated roller lever opeartor 1 position Complete actuation with stroke 2,5 mm, max stroke 4,7 mm	AI-3571
	Key operator 1 position	AI-3572

For actuator dimensions refer to section **"Accessories>Actuators and buttons"**

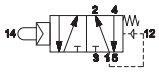
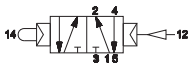
Indirect control
for panel mounting actuators Ø 22



	G1/8	G1/4	G1/2
A	99	114	163
B	25	27	40
C	47	54	83
D	M14x1	M14x1	M14x1
E	36	44	80
F	G1/8	G1/4	G1/2
G	27	27	27
H	18	22	40
I	26	40	50
J	36	60	108
K	40	50	63
L	40	40	40
M	4,5	5,5	6,5
N	7	7	7

1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust

14 = Control
12 = Return

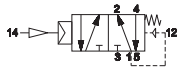
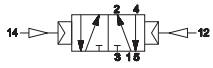
	Symbol	Connection	Control	Return	Pressure	Weight	Part no.
					bar	Kg	
5/2		G1/8	ball pushrod	pneumomechanical spring	1,8÷10	0,28	**AC-7013**
		G1/4			2,3÷10	0,29	**AC-8013**
		G1/2			2÷10	0,84	**AC-9013**
5/2		G1/8	ball pushrod	pneumatic amplified	1÷10	0,29	**AC-7013P**
		G1/4			1÷10	0,28	**AC-8013P**
		G1/2			1÷10	0,83	**AC-9013P**

MANUAL ACTUATORS

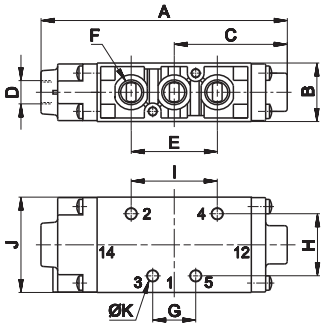
	Recessed button	■BLACK ■RED ■GREEN	AI-3511 AI-3512 AI-3513
	Head button	■RED ■BLACK ■RED ■BLACK	AI-3514 AI-3516 AI-3514D AI-3516D
	Button	■GREEN ■RED ■BLACK	AI-3515 AI-3517 AI-3519
	Rotating selector	■BLACK ■BLACK	AI-3520 AI-3521
	Rotating lever selector	■BLACK ■BLACK	AI-3522 AI-3523
	Lever operator	■BLACK	AI-3524
	Omni-directional operator	■BLACK	AI-3525
	Push-pull operator	■BLACK	AI-3526

For actuator dimensions refer to section **"Accessories>Actuators and buttons"**

Single/double **pneumatic** impulse

	Symbol	Connection	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Weight Kg	Part no.
	SINGLE PNEUMATIC IMPULSE								
5/2		G1/8	pneumatic amplified	pneumomechanical	1,8÷10	8	10	0,22	**AC-7100**
		G1/4			2,3÷10	10	10	0,23	**AC-8100**
		G1/2			2÷10	10	10	0,76	**AC-9100**
	DOUBLE PNEUMATIC IMPULSE								
5/2		G1/8	pneumatic amplified	pneumatic amplified	1÷10	5	10	0,23	**AC-7120**
		G1/4			0,8÷10	6	6	0,21	**AC-8120**
		G1/2			0,8÷10	8	8	0,77	**AC-9120**

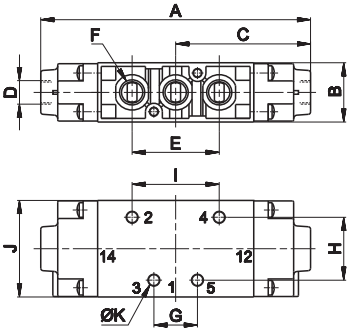
Single pneumatic impulse



1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

	A	B	C	D	E	F	G	H	I	J	K
G1/8	103	25	47	G1/8	36	G1/8	18	26	36	40	4,5
G1/4	117	27	54	G1/8	44	G1/4	22	40	60	50	5,5
G1/2	165	40	82,5	G1/8	80	G1/2	40	50	108	63	6,5

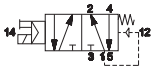
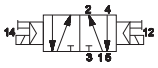
Double pneumatic impulse



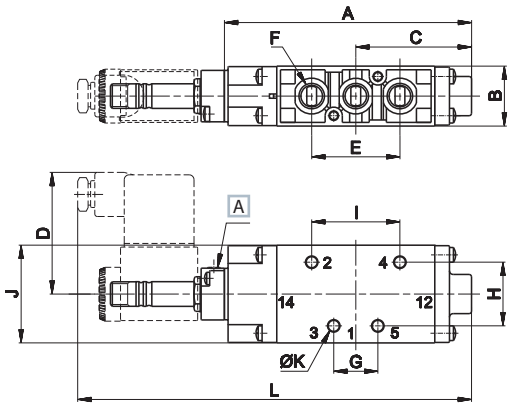
1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

	A	B	C	D	E	F	G	H	I	J	K
G1/8	112	25	56	G1/8	36	G1/8	18	26	36	40	4,5
G1/4	126,5	25	63	G1/8	44	G1/4	22	40	60	50	5,5
G1/2	165	40	82,5	G1/8	80	G1/2	40	50	108	63	6,5

Single/double **electric** impulse

	Symbol	Connection	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Weight Kg	Part no.
	SINGLE ELECTRIC IMPULSE								
5/2		G1/8	electric amplified	pneumomechanical	1,8÷10	18	20	0,27	**AC-7500**
		G1/4			2,3÷10	22	22	0,28	**AC-8500**
		G1/2			2÷10	23	30	1,1	**AC-9500**
	DOUBLE ELECTRIC IMPULSE								
5/2		G1/8	electric amplified	electric amplified	1÷10	14	14	0,33	**AC-7520**
		G1/4			0,8÷10	14	14	0,31	**AC-8520**
		G1/2			0,8÷10	16	16	1,1	**AC-9520**

Single electric impulse

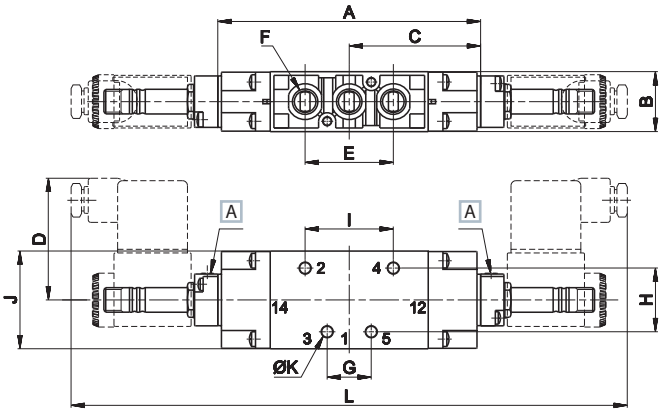


A Manual override

1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

	A	B	C	D	E	F	G	H	I	J	K	L
G1/8	101	25	47	50	36	G1/8	18	26	36	40	4,5	164
G1/4	116	27	54	50	44	G1/4	22	40	60	50	5,5	180
G1/2	165	40	83	48	80	G1/2	40	50	108	63	6,5	241

Double electric impulse



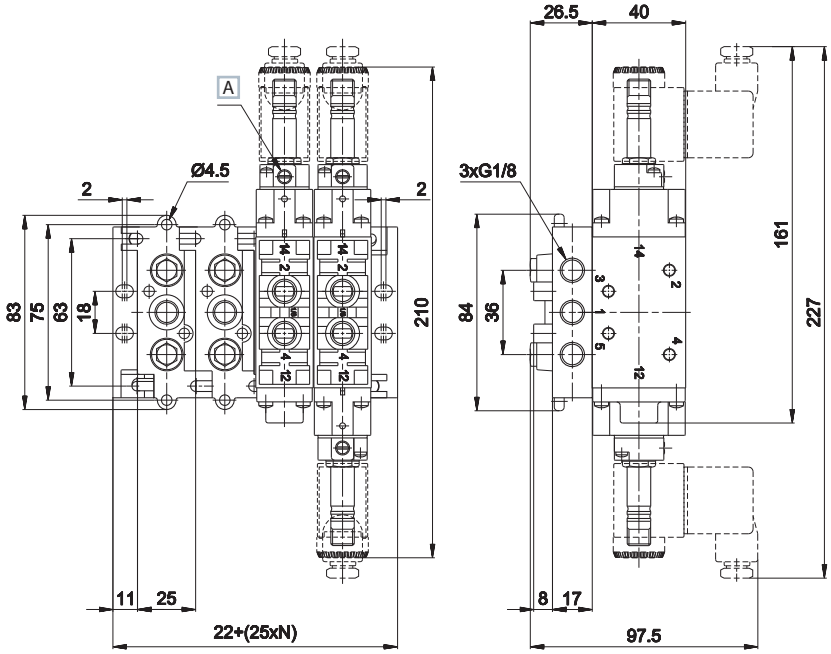
A Manual override

1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

	A	B	C	D	E	F	G	H	I	J	K	L
G1/8	107	25	53,5	50	36	G1/8	18	26	36	40	4,5	227
G1/4	124	27	62	50	44	G1/4	22	40	60	50	5,5	252
G1/2	164	40	80,5	48	80	G1/2	40	50	108	63	6,5	317

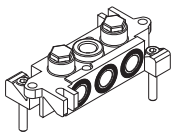
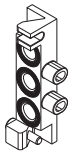
For technical data of coils, refer to section **"Accessories>Coils"**
For external servoassisted pilot, use AM - 5148 plates (refer to next pages)
Electrovalves are supplied without coil, connector and locking ring

Modular sub-base **G1/8**

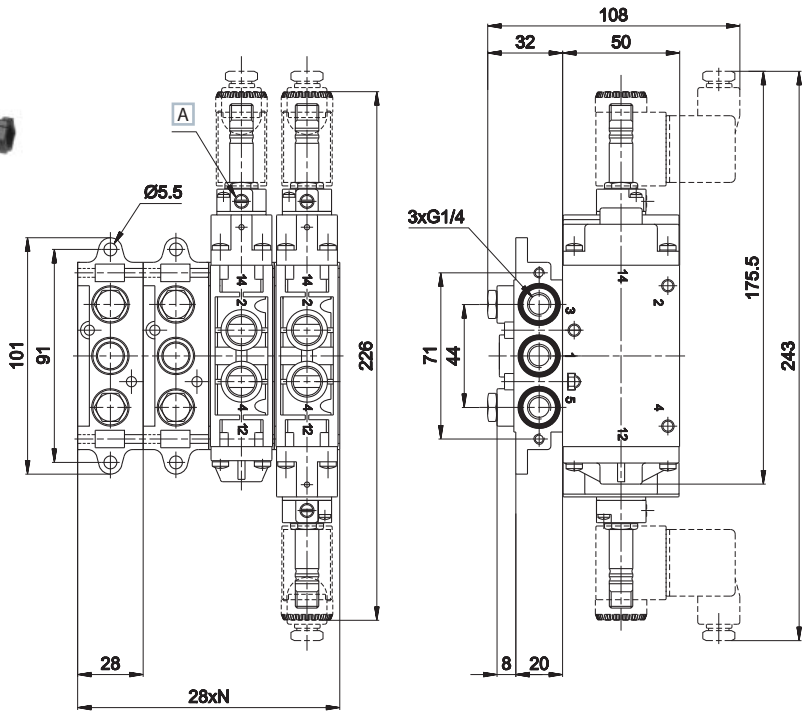


A Manual override

1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

AC-7900	AC-7905
	
Sub-base with connections **G1/8** weight: 0,15 Kg	Inlet plate **MIXED system 5/2 - G1/8** weight: 0,06 Kg

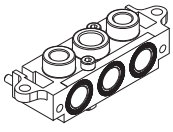
Modular sub-base **G1/4**



A Manual override

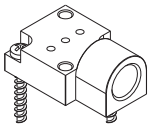
1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

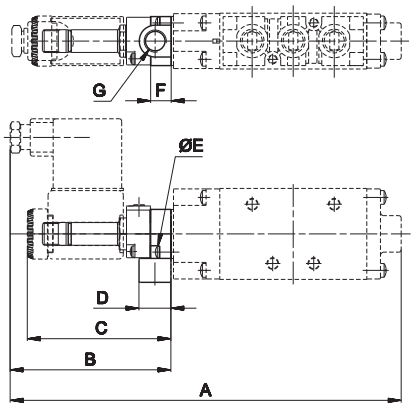
AC-8900



Sub-base with threaded connections **G1/4**
Screws are supplied separately
weight: 0,22 Kg

AM-5148

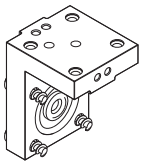




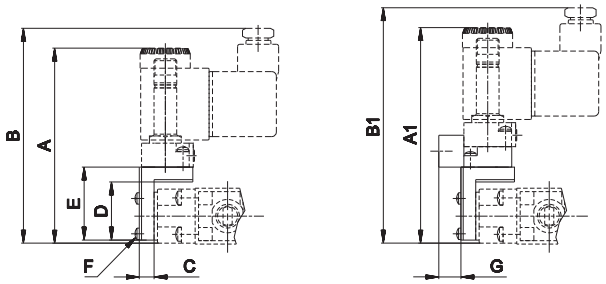
	G1/8	G1/4
A	171,5	186
B	70,5	70,5
C	63	63
D	14	14
E	2,9x10	2,9x10
F	9	9
G	G1/8	G1/8

Plate for external servoassisted pilot
weight: 0,03 Kg

AM-5151



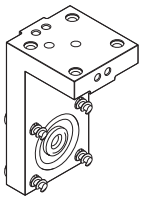
AM-5151 + AM-5148



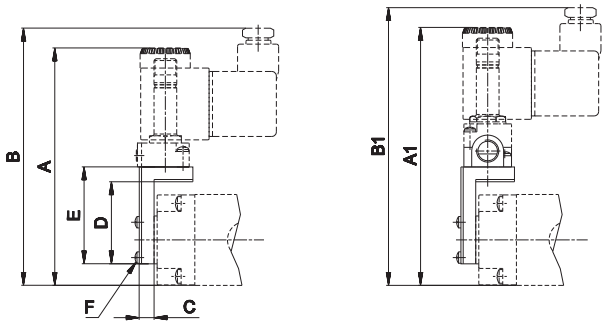
	G1/8	G1/4
A	87,7	88,7
A1	96,7	97,7
B	95,5	96,5
B1	104,5	105,5
C	6,5	6,5
D	25,5	25,5
E	32	32
F	2,9x10	2,9x10
G	9,7	9,7

"H" option solenoid square
weight: 0,035 Kg

AM-5152



AM-5152 + AM-5148



	G1/8	G1/4
A	106	111
A1	115	120
B	113,5	118,5
B1	122,5	127,5
C	6,5	6,5
D	36	36
E	42,5	42,5
F	2,9x10	2,9x10

"P" option solenoid square
weight: 0,05 Kg

CH

2/2 - 3/2 G1/8 poppet valves

Main features:
- closed centers
- high flow rate
- quick response time

Suitable for heavy duties and where the number of mechanical operation is high.

TECHNICAL CHARACTERISTICS

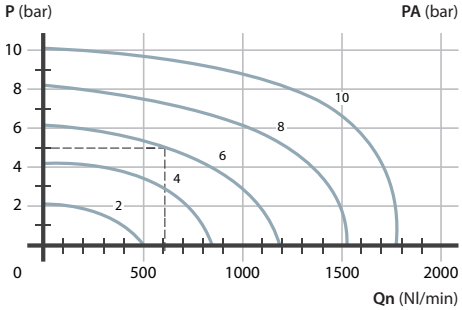
Ambient temperature	-10 ÷ +45 °C
Fluid temperature	max + 50 °C
Fluid	not dehumidified filtered air 50 µm, lubricated or not
Commutation system	poppet system
Ways/Positions	**2/2 NC, 3/2 NC, 2/2 NO, 3/2 NO**
Pressure	max 10 bar
Control	manual, mechanical
Return	mechanical spring
Connections	G1/8
Nominal Ø	5 mm
Nominal flow rate (Nl/min)	**NC** = 600 **NO** = 550

CONSTRUCTIVE CHARACTERISTICS

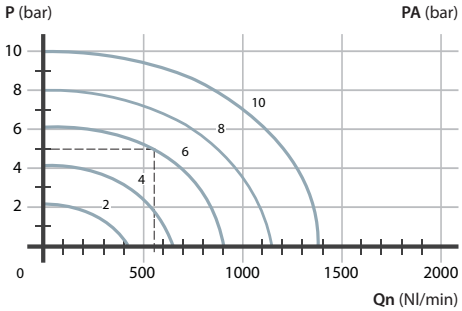
Valve body	die-cast zamak
Seals	nitrile rubber
Actuators	zinc-plated steel/technopolymer
Spool	nickel-plated brass

Flow rate characteristics

>> 3/2 NC

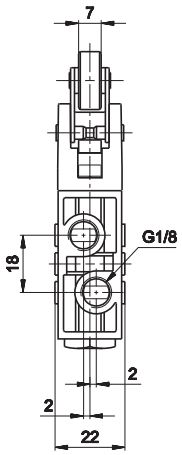


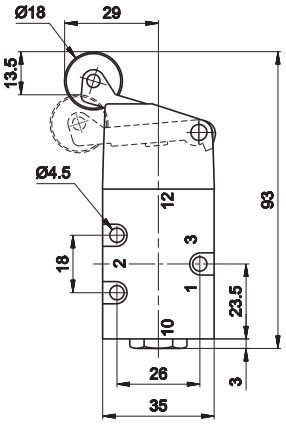
>> 3/2 NO

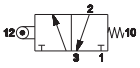
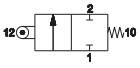
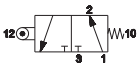
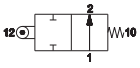


P = Working pressure
PA = Supply pressure
Qn = Flow rate

Roller lever - spring

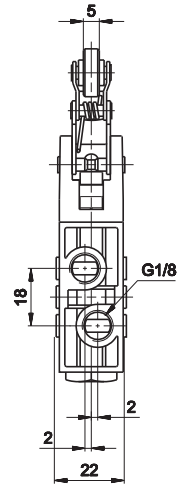


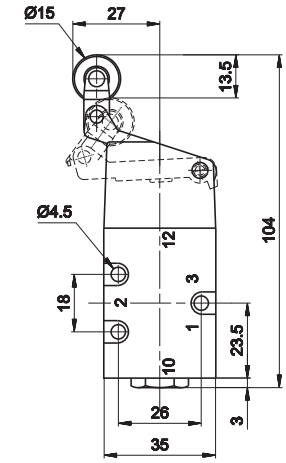


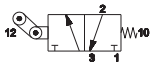
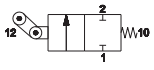
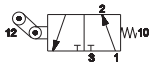
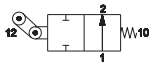
	Symbol	Flow rate (Nl/min)	Force N	Weight Kg	Part no.
3/2 NC		600	21	0,2	**CH-250**
2/2 NC		600	21	0,2	**CH-252**
3/2 NO		550	15	0,2	**CH-254**
2/2 NO		550	15	0,2	**CH-256**

1 = Supply port
2 = Use
3 = Exhaust
12 = Control
10 = Return

Uni-directional roller lever - spring

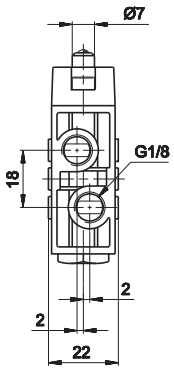


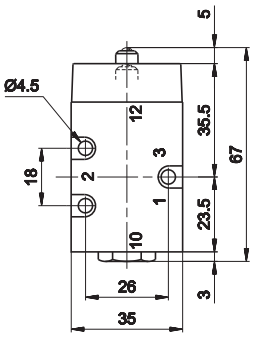


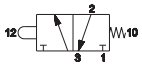
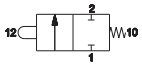
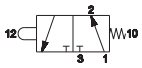
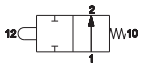
	Symbol	Flow rate (Nl/min)	Force N	Weight Kg	Part no.
3/2 NC		600	16	0,21	**CH-260**
2/2 NC		600	16	0,21	**CH-262**
3/2 NO		550	12	0,21	**CH-264**
2/2 NO		550	12	0,21	**CH-266**

1 = Supply port
2 = Use
3 = Exhaust
12 = Control
10 = Return

Ball-push - spring

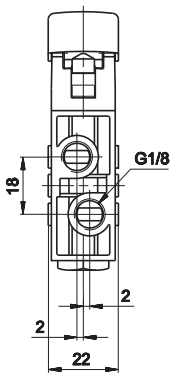


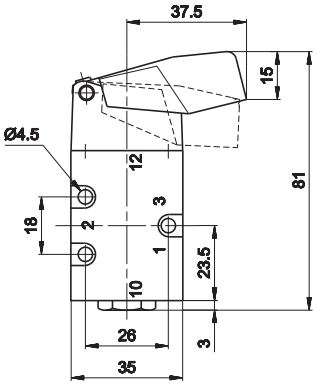


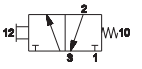
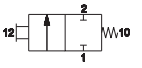
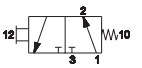
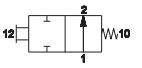
	Symbol	Flow rate (Nl/min)	Force N	Weight Kg	Part no.
3/2 NC		600	51	0,18	**CH-270**
2/2 NC		600	51	0,18	**CH-272**
3/2 NO		550	39	0,18	**CH-274**
2/2 NO		550	39	0,18	**CH-276**

1 = Supply port
2 = Use
3 = Exhaust
12 = Control
10 = Return

Button lever - spring





	Symbol	Flow rate (Nl/min)	Force N	Weight Kg	Part no.
3/2 NC		600	18	0,18	**CH-280**
2/2 NC		600	18	0,18	**CH-282**
3/2 NO		550	14	0,18	**CH-284**
2/2 NO		550	14	0,18	**CH-286**

Red button lever

1 = Supply port
2 = Use
3 = Exhaust
12 = Control
10 = Return

AF

G1/8 ÷ G1 1/2 Poppet valves for compressed air

- Wide range: G1/8 - G1/4 - G3/8 - G1/2 - G3/4 - G1 - G1 1/2
- Original Univer poppet system appreciated for decades
- Suitable for applications where high flow rate and high cycles rates are required
- G1 - 2/2 version for blowing

TECHNICAL CHARACTERISTICS

Ambient temperature							+50 °C max
Fluid temperature							-5 ÷ +60 °C
Fluid							filtered air 50 µm, lubricated or not
Commutation system							poppet
Ways/Positions							**2/2 NC (upon request), 3/2 NC, 3/2 NO, 3/2 NC-NO**
Pressure							max 10 bar
Control							pneumatic, indirect electropneumatic
Return							pneumomechanical spring
Connections	**G1/8**	**G1/4**	**G3/8**	**G1/2**	**G3/4**	**G1**	**G1 1/2**
Nominal Ø (mm)	5,5	8	10	15	19	25	39
Nominal flow rate (Nl/min)	580	1100	1500	5400	6500	13500	35000

CONSTRUCTIVE CHARACTERISTICS

Valve body	**G1/8** ÷ **G1** = zamak
	G1 1/2 = aluminium
Seals	nitrile rubber, polyurethane
Actuators	**G1/8** ÷ **G1** = zamak
	G1 1/2 = aluminium
Spool	**G1/8** ÷ **G3/8** = aluminium
	G1/2 ÷ **G1 1/2** = steel + plastic

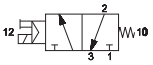
ELECTRIC CHARACTERISTICS

	G1/8 G1/4	**G1/4 ÷ G1 1/2**
Electropilot	U1	U2
Coil	DA	DB
Power consumption	3,5 W (DC) - 5 VA (AC)	11 W (DC) - 10 VA (AC)
Connector	AM-5110	AM-5111
Voltage	12 V DC - 24 V DC - 24 V AC - 110 V AC - 230 V AC	
Manual override	with 2 position screw	

G1/8 - G1/4 - G3/8 Electrovalves

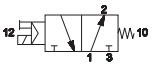
3/2 NC **G1/8**

AF-2500



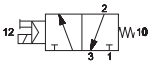
3/2 NO **G1/8**

AF-2501



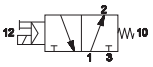
3/2 NC **G1/4 - G3/8**

AF-2510
AF-2517
AF-2520
AF-2524



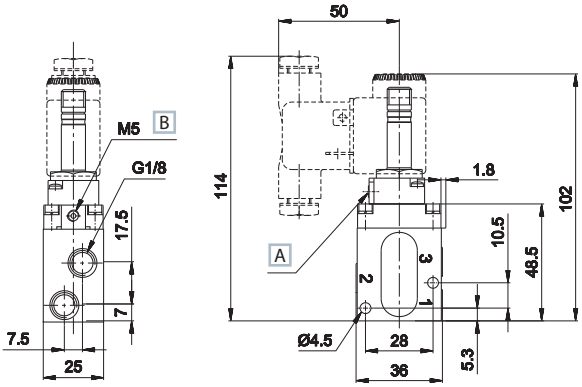
3/2 NO **G1/4 - G3/8**

AF-2511
AF-2518
AF-2521
AF-2525



	Connect.	Control	Return	Flow rate (Nl/min)	Ø mm	Times (ms) En.	Times (ms) De-en.	Pressure bar min.	Pressure bar max.	Weight Kg	Coil	Part no.
3/2 NC	G1/8	electric amplified	pneumomechanical spring	580	5,5	15	20	1,5	10	0,25	U1	**AF-2500**
	G1/4	electric amplified	pneumomechanical spring	1100	8	20	23	1,6	10	0,58	U1	**AF-2510**
	G1/4	electric amplified	pneumomechanical spring	1100	8	20	23	1,6	10	0,70	U2	**AF-2517**
	G3/8	electric amplified	pneumomechanical spring	1500	10	20	23	1,6	10	0,56	U1	**AF-2520**
	G3/8	electric amplified	pneumomechanical spring	1500	10	20	23	1,6	10	0,70	U2	**AF-2524**
3/2 NO	G1/8	electric amplified	pneumomechanical spring	580	5,5	15	20	1,5	10	0,25	U1	**AF-2501**
	G1/4	electric amplified	pneumomechanical spring	1100	8	15	20	1,6	10	0,58	U1	**AF-2511**
	G1/4	electric amplified	pneumomechanical spring	1100	8	15	20	1,6	10	0,70	U2	**AF-2518**
	G3/8	electric amplified	pneumomechanical spring	1500	10	15	20	1,6	10	0,56	U1	**AF-2521**
	G3/8	electric amplified	pneumomechanical spring	1500	10	15	20	1,6	10	0,70	U2	**AF-2525**

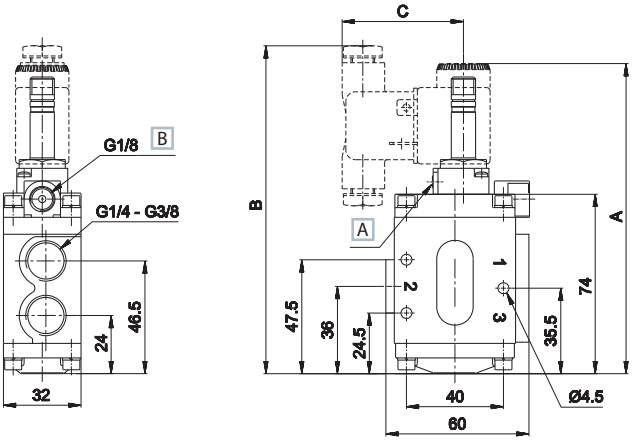
G1/8



1 = Supply port
2 = Use
3 = Exhaust

A Manual override
B External servoassistance of the pilot

G1/4 - G3/8



1 = Supply port
2 = Use
3 = Exhaust

A Manual override
B External servoassistance of the pilot

	A	B	C
U1	129	136	50
U2	140,5	150	51,5

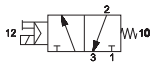
Upon request:
- external servoassistance of the pilot
- G1/4 - G3/8 U2 without manual override

Electrovalves are supplied without coil, connector and locking ring

G1/2 - G3/4 - G1 - G1 1/2 Electrovalves

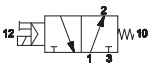
3/2 NC **G1/2 - G3/4 - G1**

AF-2530
AF-2540
AF-2545



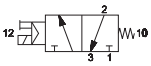
3/2 NO **G1/2 - G3/4 - G1**

AF-2531
AF-2541
AF-2546



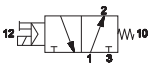
3/2 NC **G1 1/2**

AF-2565



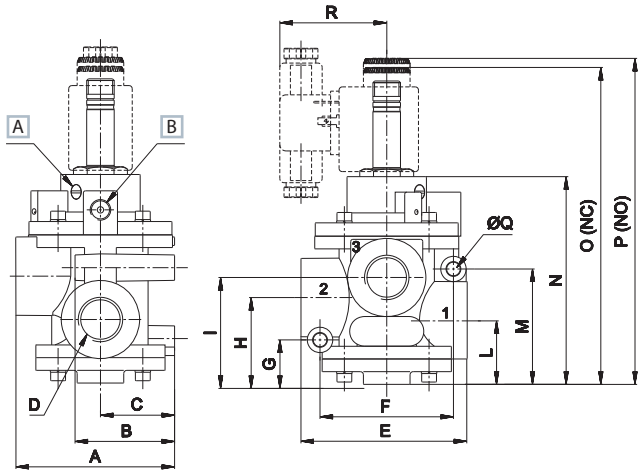
3/2 NO **G1 1/2**

AF-2561



	Connect.	Control	Return	Flow rate (Nl/min)	Ø mm	Times (ms) En.	Times (ms) De-en.	Pressure bar min.	Pressure bar max.	Weight Kg	Coil	Part no.
3/2 NC	G1/2	electric amplified	pneumomechanical spring	5400	15	17	27	2	10	1,19	U2	**AF-2530**
	G3/4	electric amplified	pneumomechanical spring	6500	19	17	27	2	10	1,13	U2	**AF-2540**
	G1	electric amplified	pneumomechanical spring	13500	25	20	32	2,2	10	1,62	U2	**AF-2545**
	G1 1/2	electric amplified	pneumomechanical spring	35000	39	47	22	2,5	10	2,27	U2	**AF-2565**
3/2 NO	G1/2	electric amplified	pneumomechanical spring	5400	15	30	22	3	10	1,19	U2	**AF-2531**
	G3/4	electric amplified	pneumomechanical spring	6500	19	30	22	3	10	1,13	U2	**AF-2541**
	G1	electric amplified	pneumomechanical spring	13500	25	28	23	3	10	1,62	U2	**AF-2546**
	G1 1/2	electric amplified	pneumomechanical spring	35000	39	55	20	3	10	2,27	U2	**AF-2561**

G1/2 - G3/4 - G1

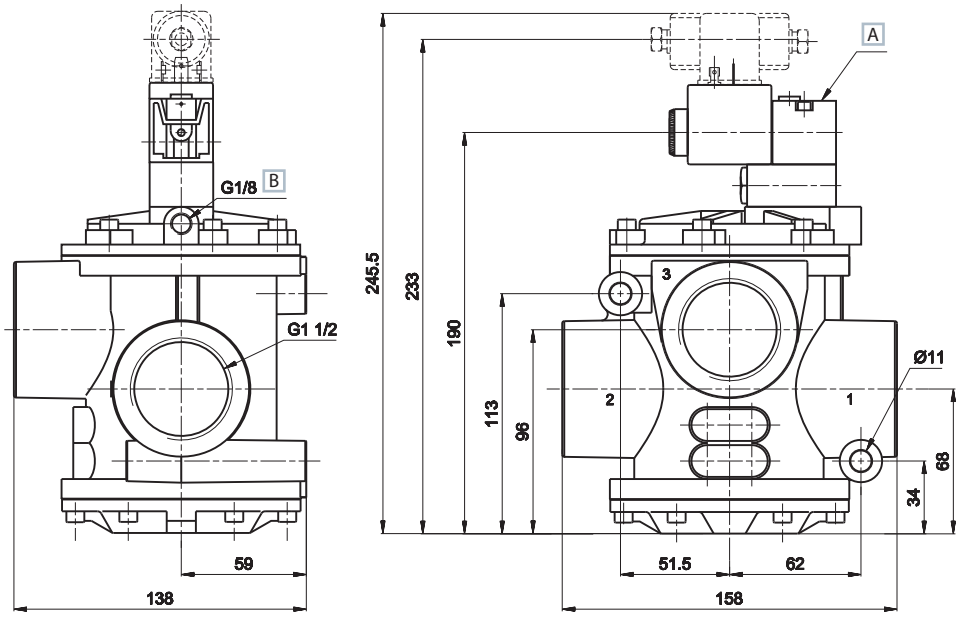


1 = Supply port
2 = Use
3 = Exhaust

A Manual override
B External servoassistance of the pilot

	A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R
G1/2	75	47	35	G1/2	78,5	63	21	41	50,5	30	54,5	100	150	154	6,4	50,5
G3/4	75	47	35	G3/4	78,5	63	21	41	50,5	30	54,5	100	150	154	6,4	50,5
G1	89	55	40	G1	101	76	25,5	51	64	38	62,5	115	167	175	8,4	50

G1 1/2



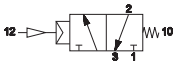
1 = Supply port
2 = Use
3 = Exhaust

A Manual override
B External servoassistance of the pilot

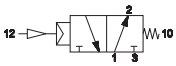
Electrovalves are supplied without coil, connector and locking ring

G1/8 - G1/4 - G3/8 Servo valves

3/2 NC **G1/8**
AF-2600

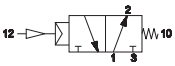


3/2 NO **G1/8**
AF-2700



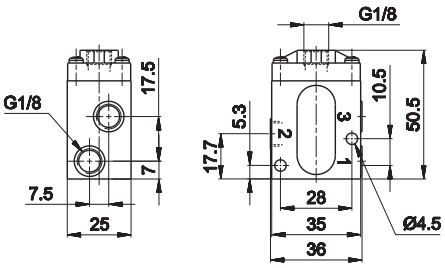
3/2 NC **G1/4 - G3/8**
AF-2601
AF-2606

3/2 NO **G1/4 - G3/8**
AF-2701
AF-2706



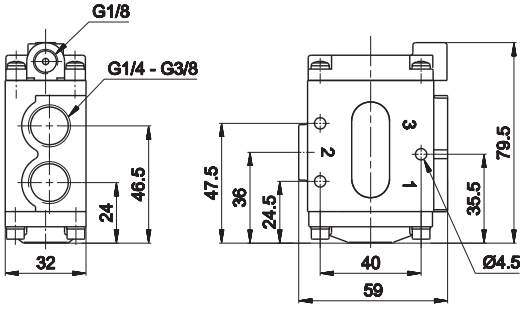
	Connect.	Control	Return	Flow rate (Nl/min)	Ø mm	Times (ms) En.	Times (ms) De-en.	Pressure bar supply	Pressure bar control	Weight Kg	Part no.
3/2 NC	G1/8	pneumatic amplified	pneumomechanical spring	580	5,5	5	8	6	3,5	0,21	**AF-2600**
	G1/4	pneumatic amplified	pneumomechanical spring	1100	8	5	7	6	4	0,54	**AF-2601**
	G3/8	pneumatic amplified	pneumomechanical spring	1500	10	5	7	6	4	0,52	**AF-2606**
3/2 NO	G1/8	pneumatic amplified	pneumomechanical spring	580	5,5	5	8	6	3,5	0,21	**AF-2700**
	G1/4	pneumatic amplified	pneumomechanical spring	1100	8	5	7	6	4	0,54	**AF-2701**
	G3/8	pneumatic amplified	pneumomechanical spring	1500	10	5	7	6	4	0,52	**AF-2706**

G1/8



1 = Supply port
2 = Use
3 = Exhaust

G1/4 - G3/8

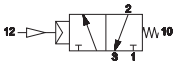


1 = Supply port
2 = Use
3 = Exhaust

G1/2 - G3/4 - G1 - G1 1/2 Servo valves

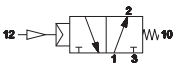
3/2 NC **G1/2 - G3/4 - G1**

AF-2603
AF-2610
AF-2615



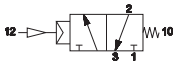
3/2 NO **G1/2 - G3/4 - G1**

AF-2603
AF-2610
AF-2615



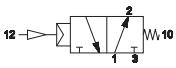
3/2 NC **G1 1/2**

AF-2620



3/2 NO **G1 1/2**

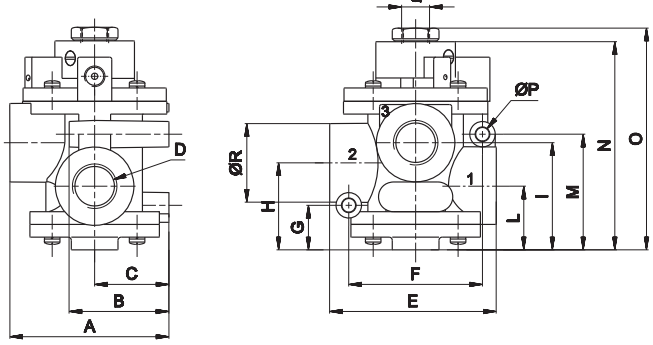
AF-2620



3/2 NC-NO

Connect.	Control	Return	Flow rate (Nl/min)	Ø mm	Times (ms) En.	Times (ms) De-en.	Pressure bar supply	Pressure bar control	Weight Kg	Part no.
G1/2	pneumatic amplified	pneumomechanical spring	5400	15	7	10	6	4	1,27	**AF-2603**
G3/4	pneumatic amplified	pneumomechanical spring	6500	19	7	10	6	4	1,10	**AF-2610**
G1	pneumatic amplified	pneumomechanical spring	13500	25	10	12	6	4	1,59	**AF-2615**
G1 1/2	pneumatic amplified	pneumomechanical spring	35000	39	36	15	6	4	2,19	**AF-2620**

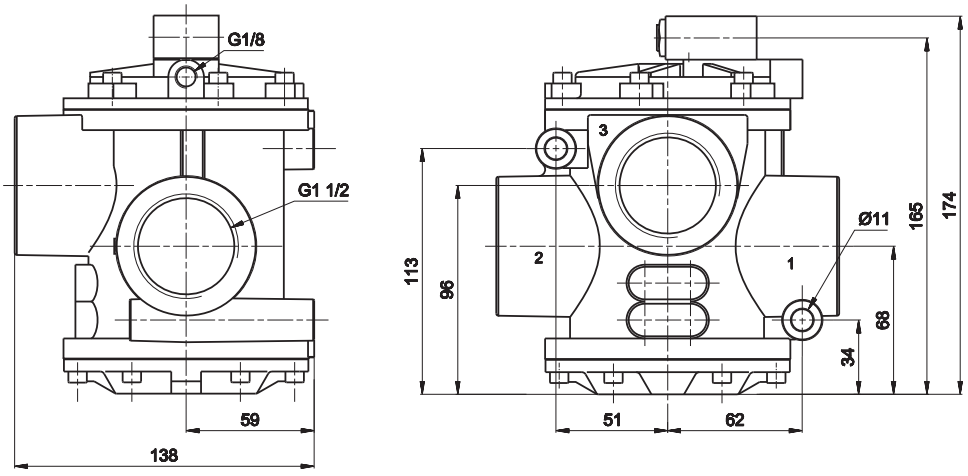
G1/2 - G3/4 - G1



1 = Supply port
2 = Use
3 = Exhaust

	A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R
G1/2	75	47	35	G1/2	78,5	63	21	41	50,5	30	54,5	100	105	6,4	G1/4	37
G3/4	75	47	35	G3/4	78,5	63	21	41	50,5	30	54,5	100	105	6,4	G1/4	37
G1	88,5	55	40	G1	101	76	25,5	51	64	38	62,5	115	120,5	8,4	G1/4	45

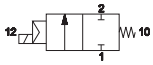
G1 1/2



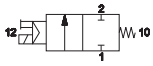
1 = Supply port
2 = Use
3 = Exhaust

G1 - 2/2 Electrovalve for blowing

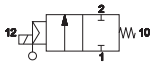
2/2 NC **G1**
AF-2550



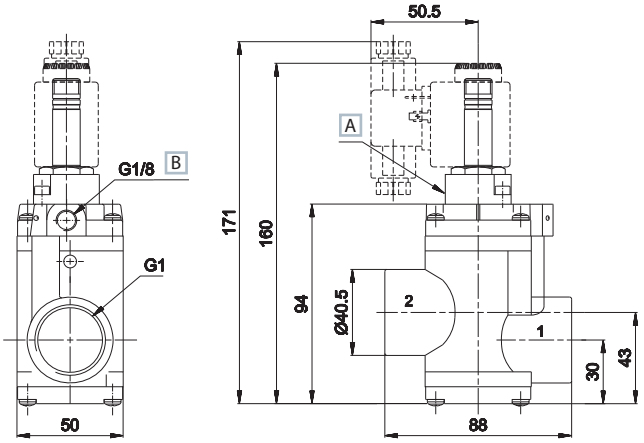
2/2 NC **G1**
AF-2551



2/2 NC **G1**
AF-2552



	Connect.	Control	Return	Flow rate (Nl/min)	Ø mm	Times (ms) En.	Times (ms) De-en.	Pressure bar min.	Pressure bar max	Pressure bar supply	Pressure bar control	Weight Kg	Part no.
2/2 NC	G1	electric amplified	pneumomechanical spring	16000	25	23	55	2	10	-	-	1,06	**AF-2550**
	G1	electric amplified	pneumomechanical spring	16000	25	23	55	2	10	-	-	1,06	**AF-2551**
	G1	electric amplified	pneumomechanical spring	16000	25	23	35	-	-	6	4	1,06	**AF-2552**

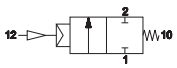


1 = Supply port
2 = Use

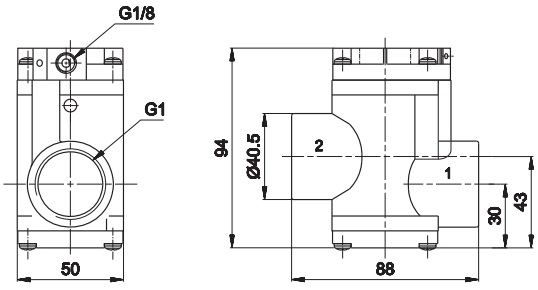
A Manual override **AF-2551**
B External servoassistance of the pilot **AF-2552**

G1 - 2/2 Servovalve for blowing

2/2 NC **G1**
AF-2617



	Connect.	Control	Return	Flow rate	Ø mm	Times (ms) En.	Times (ms) De-en.	Pressure bar min.	Pressure bar max	Weight Kg	Part no.
2/2 NC	G1	pneumatic amplified	pneumomechanical spring	16000	25	12	25	6	4	1	**AF-2617**



1 = Supply port
2 = Use

Electrovalves are supplied without coil, connector and locking ring

AG

Poppet valves for vacuum G1/8 ÷ G1 1/2

- A complete range: G1/8 - G1/4 - G3/8 - G1/2 - G3/4 - G1 - G1 1/2
- Original Univer poppet system appreciated for decades
- Servoassisted version
- A complete range of solenoid valves and pneumatic valves for vacuum with connection from G1/8 ÷ G1 1/2 to satisfy all requirements
- The internal system ensures high reliability and long life

TECHNICAL CHARACTERISTICS

Ambient temperature	+50 °C						
Fluid temperature	-5 ÷ +60 °C						
Fluid	filtered air 50 µm lubricated or not - vacuum						
Commutation system	poppet						
Ways/Positions	**2/2 NC (upon request), 3/2 NC, 3/2 NO, 3/2 NC-NO**						
Pressure	max 10 bar						
Control	indirect vacuum						
Return	automatic by vacuum						
Connections	**G1/8**	**G1/4**	**G3/8**	**G1/2**	**G3/4**	**G1**	**G1 1/2**
Nominal Ø (mm)	5,5	8	10	15	19	25	39

CONSTRUCTIVE CHARACTERISTICS

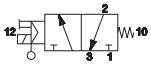
Valve body	**G1/8 ÷ G1** = zamak
	G1 1/2 = aluminium
Seals	**solenoid operated valve, servoassisted by compressed air**
	conical plungers and Vulkollan diaphragm
	solenoid operated valve, servoassisted by vacuum
	silicon plugs
Actuators	**G1/8 ÷ G1** = zamak
	G1 1/2 = aluminium
Spool	**G1/8 ÷ G3/8** = aluminium
	G1/2 ÷ G1 1/2 = steel + plastic

ELECTRIC CHARACTERISTICS

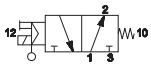
	G1/8 G1/4	**G1/4 ÷ G1 1/2**
Electropilot	U1	U2
Coil	DA	DB
Power consumption	3,5 W (DC) - 5 VA (AC)	11 W (DC) - 10 VA (AC)
Connector	AM-5110	AM-5111
Voltage	12 V DC - 24 V DC - 24 V AC - 110 V AC - 230 V AC	
Manual override	with 2 positions screw	

Solenoid valves 3/2 for vacuum, servoassisted by compressed air

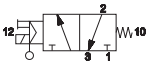
3/2 NC **G1/8**
AG-3001



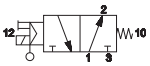
3/2 NO **G1/8**
AG-3002



3/2 NC **G1/4 - G3/8**
AG-3009
AG-3011

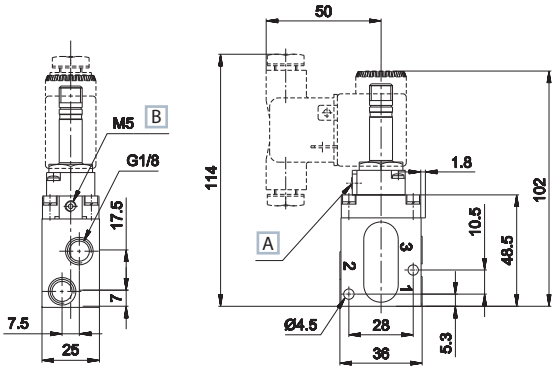


3/2 NO **G1/4 - G3/8**
AG-3010
AG-3012



	Connect.	Control	Return	Ø	Times (ms)		Minimum control	Pump	Max vacuum		Weight	Coil	Part no.
				mm	En.	De-en.	pressure bar	max m³/h	mm Hg	Torr	Kg		
3/2 NC	G1/8	electric amplified	mechanical spring	5,5	14	25	1,5	1,5	759,5	0,5	0,25	U1	**AG-3001**
	G1/4			8	16	27	2,5	4	759,5	0,5	0,58	U2	**AG-3009**
	G3/8			10	16	27	2,5	10	759,5	0,5	0,56	U2	**AG-3011**
3/2 NO	G1/8	electric amplified	mechanical spring	5,5	14	25	1,5	1,5	759,5	0,5	0,25	U1	**AG-3002**
	G1/4			8	16	27	2,5	4	759,5	0,5	0,58	U2	**AG-3010**
	G3/8			10	16	27	2,5	10	759,5	0,5	0,56	U2	**AG-3012**

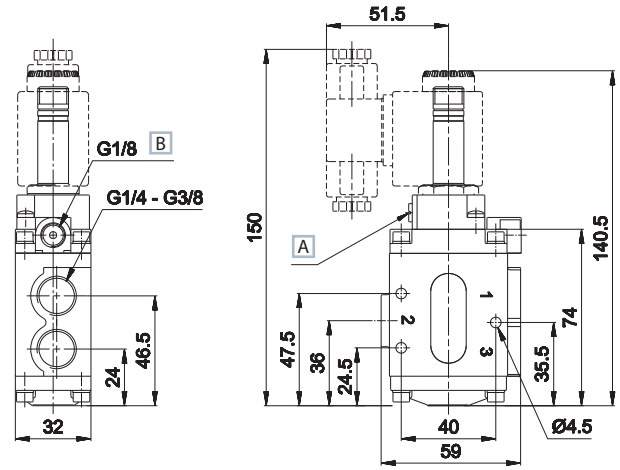
G1/8



1 = Supply port (vacuum)
2 = Use
3 = Exhaust

A Manual override
B Supply port for external servoassistance of the pilot

G1/4 - G3/8



1 = Suplly port (vacuum)
2 = Use
3 = Exhaust

A Manual override
B Supply port for external servoassistance of the pilot

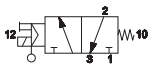
Upon request:
- external servoassistance of the pilot
- G1/4 - G3/8 U2 without manual override

Electrovalves are supplied without coil, connector and locking ring

Solenoid valves 3/2 for vacuum, servoassisted by compressed air

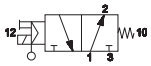
3/2 NC **G1/2 - G3/4 - G1**

AG-3020
AG-3040
AG-3050



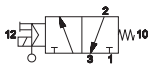
3/2 NO **G1/2 - G3/4 - G1**

AG-3021
AG-3041
AG-3051



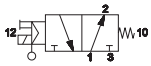
3/2 NC **G1 1/2**

AG-3062



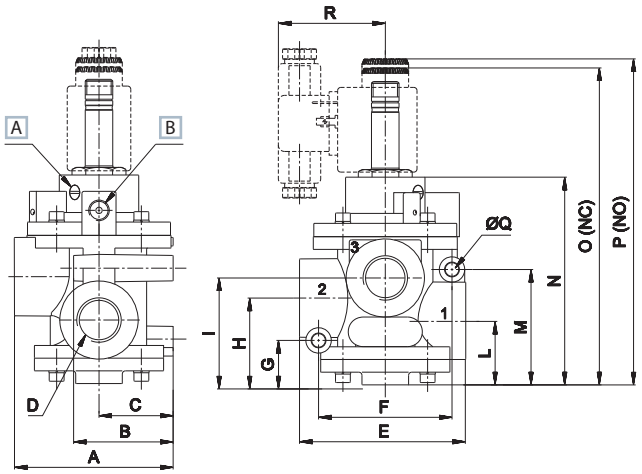
3/2 NO **G1 1/2**

AG-3063



	Connect.	Control	Return	Ø	Times (ms)		Minimum control	Pump	Max vacuum		Weight	Coil	Part.no
				mm	En.	Dis.	pressure bar	max m³/h	mm Hg	Torr	Kg		
3/2 NC	G1/2	electric amplified	mechanical spring	15	16	40	3	20	759,5	0,5	1,19	U2	**AG-3020**
	G3/4			19	16	40	3	35	759,5	0,5	1,13	U2	**AG-3040**
	G1			25	18	42	3	90	759,5	0,5	1,62	U2	**AG-3050**
	G1 1/2			39	60	38	4	180	759,5	0,5	2,25	U2	**AG-3062**
3/2 NO	G1/2	electric amplified	mechanical spring	15	16	40	3	20	759,5	0,5	1,19	U2	**AG-3021**
	G3/4			19	16	40	3	35	759,5	0,5	1,13	U2	**AG-3041**
	G1			25	18	42	3	90	759,5	0,5	1,62	U2	**AG-3051**
	G1 1/2			39	60	38	4	180	759,5	0,5	2,25	U2	**AG-3063**

G1/2 - G3/4 - G1

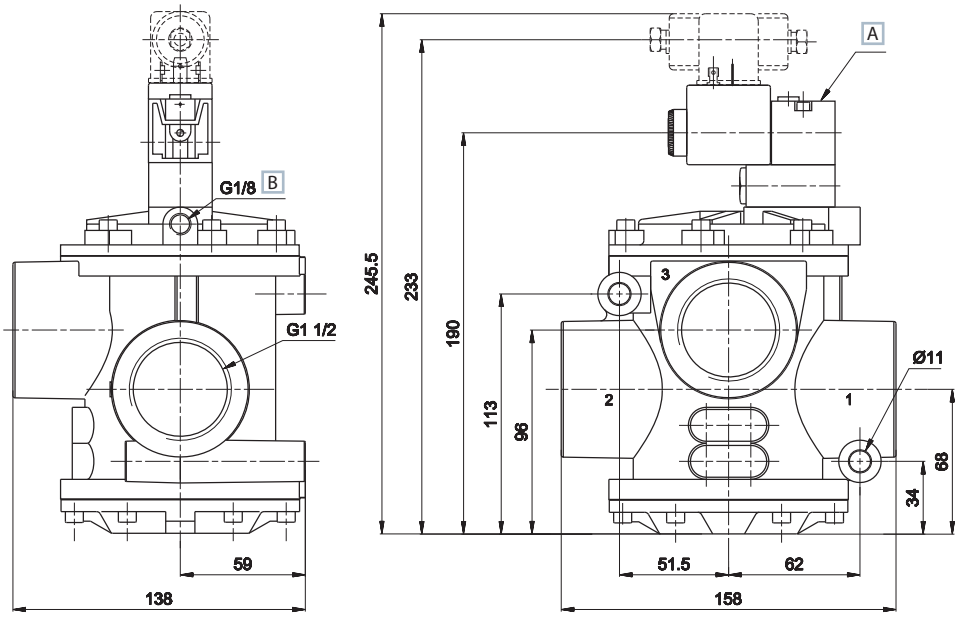


1 = Supply port
2 = Use
3 = Exhaust

A Manual override
B Supply port for external servoassistance of the pilot

	A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R
G1/2	75	47	35	G1/2	78,5	63	21	41	50,5	30	54,5	100	150	154	6,4	50,5
G3/4	75	47	35	G3/4	78,5	63	21	41	50,5	30	54,5	100	150	154	6,4	50,5
G1	89	55	40	G1	101	76	25,5	51	64	38	62,5	115	167	175	8,4	50

G1 1/2



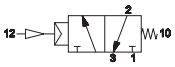
1 = Supply port
2 = Use
3 = Exhaust

A Manual override
B Supply port for external servoassistance of the pilot

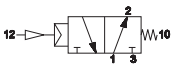
Electrovalves are supplied without coil, connector and locking ring

Servovalves 3/2 for vaccum servoassisted by compressed air

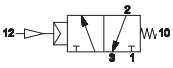
3/2 NC **G1/8**
AG-3071



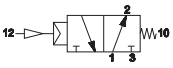
3/2 NO **G1/8**
AG-3072



3/2 NC **G1/4 - G3/8**
AG-3073
AG-3075

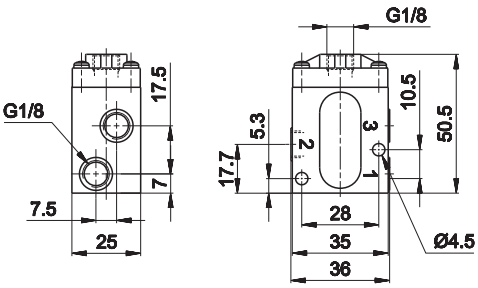


3/2 NO **G1/4 - G3/8**
AG-3074
AG-3076



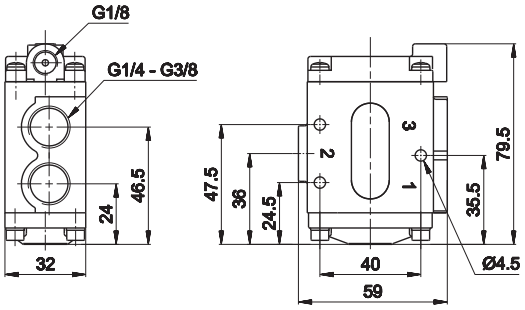
	Connect.	Control	Return	Ø	Times (ms)		Minimum control	Pump	Max vacuum		Weight	Part no.
				mm	En.	De-en.	pressure bar	max m³/h	mm Hg	Torr	Kg	
3/2 NC	G1/8	pneumatic amplified	mechanical spring	5,5	3	6	1,5	1,5	759,5	0,5	0,21	**AG-3071**
	G1/4			8	4	8	2,5	4	759,5	0,5	0,54	**AG-3073**
	G3/8			10	4	8	2,5	10	759,5	0,5	0,52	**AG-3075**
3/2 NO	G1/8	pneumatic amplified	mechanical spring	5,5	3	6	1,5	1,5	759,5	0,5	0,21	**AG-3072**
	G1/4			8	4	8	2,5	4	759,5	0,5	0,54	**AG-3074**
	G3/8			10	4	8	2,5	10	759,5	0,5	0,52	**AG-3076**

G1/8



1 = Supply port (vacuum)
2 = Use
3 = Exhaust

G1/4 - G3/8

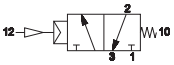


1 = Supply port (vacuum)
2 = Use
3 = Exhaust

Servovalves 3/2 for vaccum servoassisted by compressed air

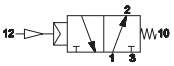
3/2 NC **G1/2 - G3/4 - G1**

AG-3081
AG-3091
AG-3100



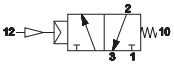
3/2 NO **G1/2 - G3/4 - G1**

AG-3082
AG-3092
AG-3101



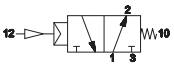
3/2 NC **G1 1/2**

AG-3110



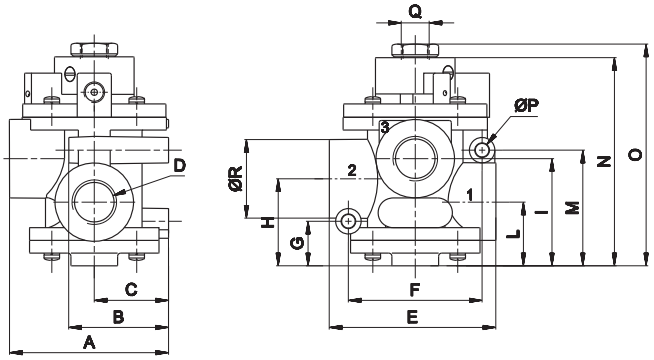
3/2 NO **G1 1/2**

AG-3111



	Connect.	Control	Return	Ø	Times (ms)		Minimum control	Pump	Max vacuum		Weight	Part no.
				mm	En.	De-en.	pressure bar	max m³/h	mm Hg	Torr	Kg	
3/2 NC	G1/2	pneumatic amplified	mechanical spring	15	6	15	3	20	759,5	0,5	1,16	**AG-3081**
	G3/4			19	6	15	3	35	759,5	0,5	1,10	**AG-3091**
	G1			25	7	16	3	90	759,5	0,5	1,59	**AG-3100**
	G1 1/2			39	65	25	4	180	759,5	0,5	2,19	**AG-3110**
3/2 NO	G1/2	pneumatic amplified	mechanical spring	15	6	15	3	20	759,5	0,5	1,16	**AG-3082**
	G3/4			19	6	15	3	35	759,5	0,5	1,10	**AG-3092**
	G1			25	7	16	3	90	759,5	0,5	1,59	**AG-3101**
	G1 1/2			39	65	25	4	180	759,5	0,5	2,19	**AG-3111**

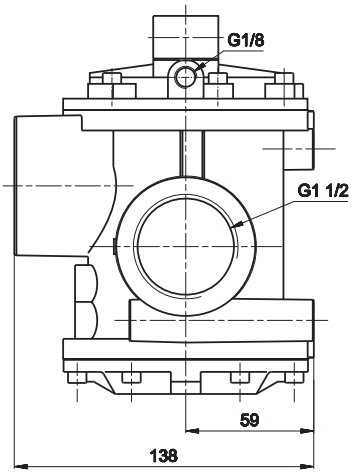
G1/2 - G3/4 - G1

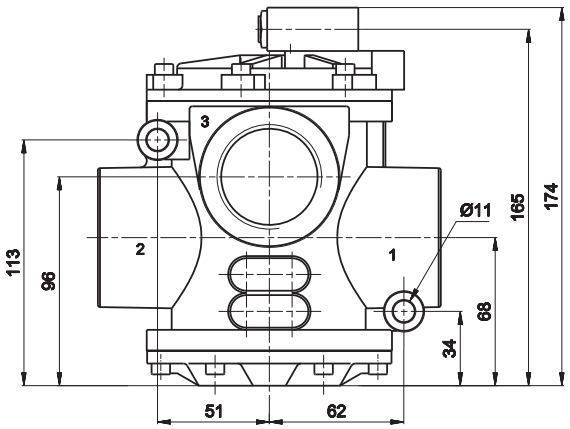


1 = Supply port (vacuum)
2 = Use
3 = Exhaust

	A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R
G1/2	75	47	35	G1/2	78,5	63	21	41	50,5	30	54,5	100	105	6,4	G1/4	37
G3/4	75	47	35	G3/4	78,5	63	21	41	50,5	30	54,5	100	105	6,4	G1/4	37
G1	88,5	55	40	G1	101	76	25,5	51	64	38	62,5	115	120,5	8,4	G1/4	45

G1 1/2



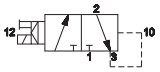


1 = Supply port (vacuum)
2 = Use
3 = Exhaust

Electrovalves 3/2 for direct vacuum servoassisted by vacum

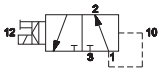
3/2 NC **G1/4 - G3/8**

AG-3210
AG-3214



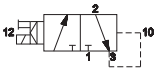
3/2 NO **G1/4 - G3/8**

AG-3211
AG-3215



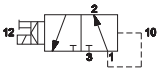
3/2 NC **G1/2 - G3/4 - G1**

AG-3222
AG-3232
AG-3242



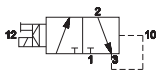
3/2 NO **G1/2 - G3/4 - G1**

AG-3223
AG-3233
AG-3243



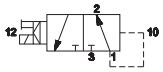
3/2 NC **G1 1/2**

AG-3256



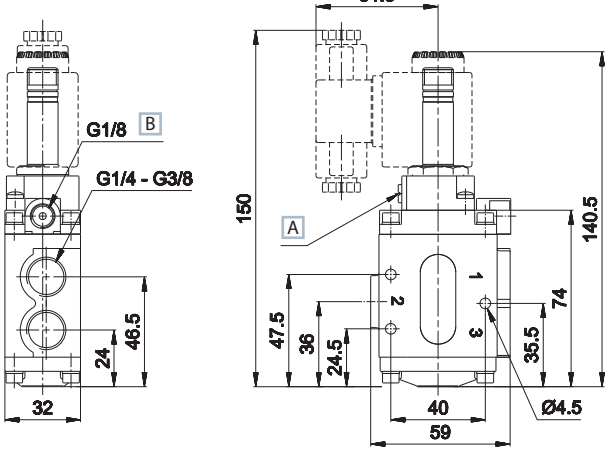
3/2 NO **G1 1/2**

AG-3257

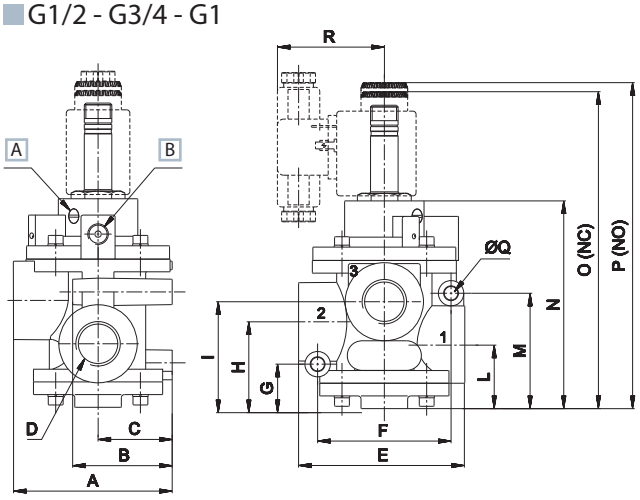


	Connect.	Control	Return	Ø	Times (ms)		Pump	Min. vacuum		Max vacuum		Weight	Coil	Part no.
				mm	En.	De-en.	max m³/h	mm Hg	Torr	mm Hg	Torr	Kg		
3/2 NC	G1/4	electric amplified	vacuum	8	25	16	4	150	610	759,5	0,5	0,52	U2	**AG-3210**
	G3/8			10	25	16	10	150	610	759,5	0,5	0,56	U2	**AG-3214**
	G1/2			15	30	15	20	150	610	759,5	0,5	1,19	U2	**AG-3222**
	G3/4			19	30	15	35	150	610	759,5	0,5	1,13	U2	**AG-3232**
	G1			25	38	18	90	150	610	759,5	0,5	1,62	U2	**AG-3242**
	G1 1/2			39	75	50	100	150	610	759,5	0,5	2	U2	**AG-3256**
3/2 NO	G1/4	electric amplified	vacuum	8	20	14	4	150	610	759,5	0,5	0,58	U2	**AG-3211**
	G3/8			10	20	14	10	150	610	759,5	0,5	0,56	U2	**AG-3215**
	G1/2			15	20	18	20	150	610	759,5	0,5	1,19	U2	**AG-3223**
	G3/4			19	20	18	35	150	610	759,5	0,5	1,13	U2	**AG-3233**
	G1			25	25	20	90	150	610	759,5	0,5	1,62	U2	**AG-3243**
	G1 1/2			39	70	60	100	150	610	759,5	0,5	2	U2	**AG-3257**

G1/4 - G3/8

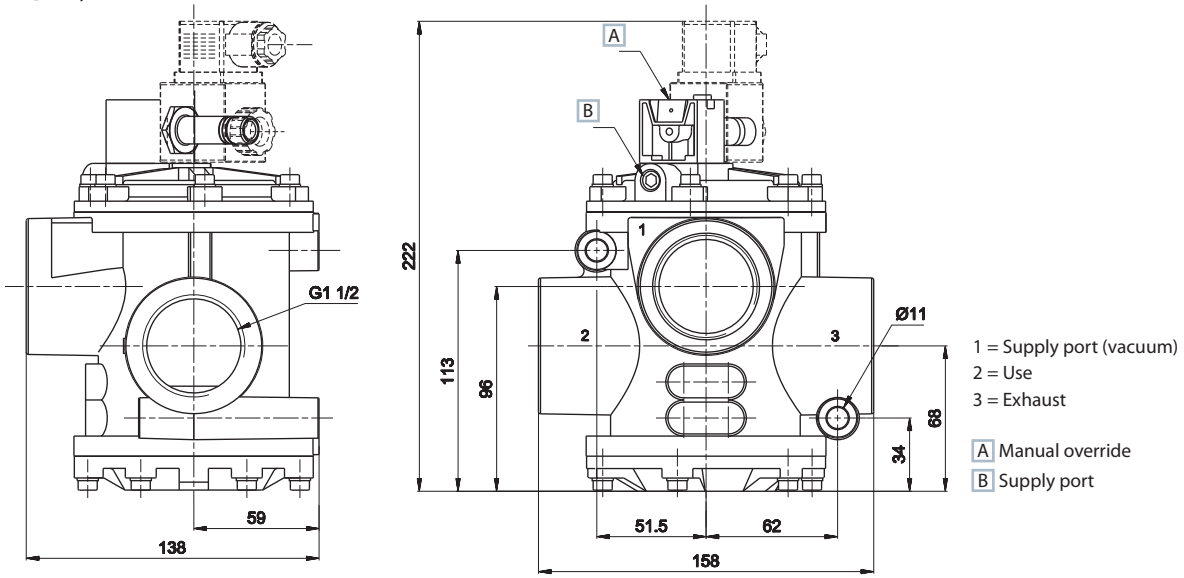


G1/2 - G3/4 - G1



	A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R
G1/2	75	47	35	G1/2	78,5	63	21	41	50,5	30	54,5	100	150	154	6,4	50,5
G3/4	75	47	35	G3/4	78,5	63	21	41	50,5	30	54,5	100	150	154	6,4	50,5
G1	89	55	40	G1	101	76	25,5	51	64	38	62,5	115	167	175	8,4	50

G1 1/2



1 = Supply port (vacuum)
2 = Use
3 = Exhaust

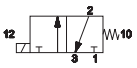
A Manual override
B Supply port

For 2/2 version put a cup on the exhaust (3)
Electrovalves are supplied without coil, connector and locking ring

Electrovalves 2/2 - 3/2 for direct vacuum servoassisted by vacum

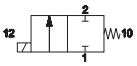
3/2 NC **G1/4**

AG-3310
AG-3311
AG-3312
AG-3313



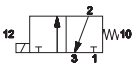
2/2 NC **G1/4**

AG-3300
AG-3301
AG-3302
AG-3303



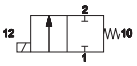
3/2 NC **G1/2**

AG-3330
AG-3331
AG-3332



2/2 NC **G1/2**

AG-3320
AG-3321
AG-3322



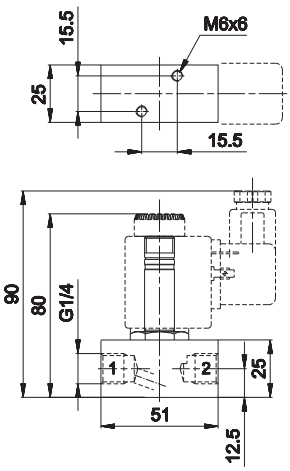
Material:	
valve body	**G1/4** = brass
	G1/2 = alluminium
tube/sleeve	stainless steel
nucleus and spring	stainless steel
seals (a)	**G1/4** = NBR
	G1/2 = vulkollan

(a) = vulkollan + NBR for valves 3/2 version

	Connect.	Control	Return	Ø	Times (ms)		Pump	Max vacuum		Weight	Part no.
				mm	En.	De-en.	max m³/h	mm Hg	Torr	Kg	
3/2 NC	G1/4	electric	mechanical spring	3-3*	10	10	1,8	759,5	0,5	0,22	**AG-3310**
	G1/4			4-3*	12	8	2,5	759,5	0,5	0,22	**AG-3311**
	G1/4			5-3*	13	8	4	759,5	0,5	0,22	**AG-3312**
	G1/4			6-3*	15	8	5	759,5	0,5	0,22	**AG-3313**
	G1/2			8-3*	17	8	6	759,5	0,5	0,25	**AG-3330**
	G1/2			10-3*	20	10	7,5	759,5	0,5	0,25	**AG-3331**
	G1/2			11-3*	28	10	10	759,5	0,5	0,25	**AG-3332**
2/2 NC	G1/4	electric	mechanical spring	3	10	-	1,8	759,5	0,5	0,22	**AG-3300**
	G1/4			4	12	-	2,5	759,5	0,5	0,22	**AG-3301**
	G1/4			5	13	-	4	759,5	0,5	0,22	**AG-3302**
	G1/4			6	15	-	5	759,5	0,5	0,22	**AG-3303**
	G1/2			8	17	-	6	759,5	0,5	0,25	**AG-3320**
	G1/2			10	20	-	7,5	759,5	0,5	0,25	**AG-3321**
	G1/2			11	28	-	10	759,5	0,5	0,25	**AG-3322**

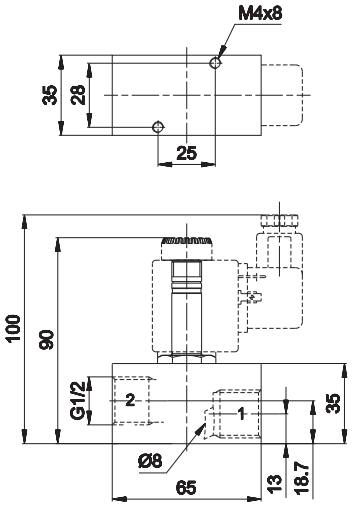
* = solenoid valves with 3 mm fixed exhaust

G1/4



1 = Supply port (vacuum)
2 = Use
3 = Exhaust

G1/2



1 = Supply port (vacuum)
2 = Use
3 = Exhaust

Coil U2 - 17 VA

Voltage	
24 V CA - 50/60 Hz	**DB-0607**
110 V CA - 50/60 Hz	**DB-0608**
220 V CA - 50/60 Hz	**DB-0610**

Electrovalves are supplied without coil, connector and locking ring

AI

Miniature limit switches

Univer limit switches, mounted on sub-bases with threaded connections or with quick couplings, may be combined with different types of manual operators for panel mounting complying with the various need of the plant.

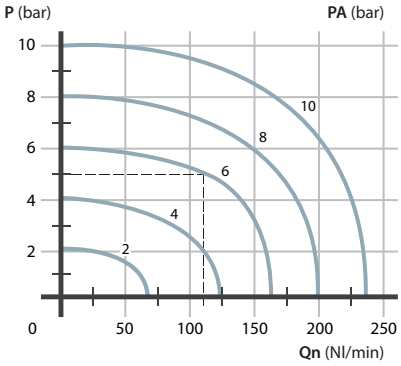
TECHNICAL CHARACTERISTICS

Ambient temperature	-10 ÷ +90 °C
Fluid temperature	max +50 °C
Fluid	defiltered air 50 um not dehumidified, lubricated or not
Commutation system	poppet system
Ways/Positions	**2/2 NC, 3/2 NC, 2/2 NO, 3/2 NO**
Pressure	max 10 bar
Control	manual, mechanical
Return	mechanical spring
Connections	interface for sub-base
Nominal Ø	2,3 mm (1,5 sensible type)
Nominal flow rate (Nl/min)	110 Nl/min

CONSTRUCTIVE CHARACTERISTICS

Valve body	zamak
Seals	nitrile rubber
Sub-base	zamak
Spool	nickel-plated brass

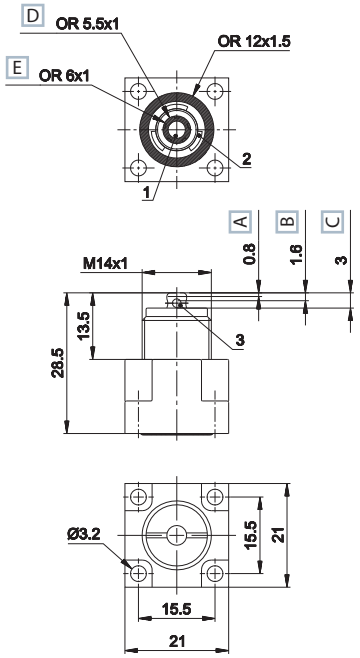
Flow rate characteristics



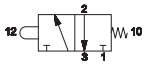
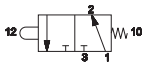
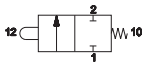
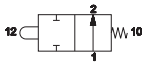
P = Working pressure
PA = Supply pressure
Qn = Flow rate

Mechanical push button - spring

A Pre-stroke
B Max opening
C Total stroke
D 3/2 NC - 3/2 NO - 2/2 NC
E 2/2 NO



1 = Supply port
2 = Use
3 = Exhaust

	Symbol	Ø mm	Flow rate Nl/min	Force N	Weight Kg	Part no.
3/2 NC		2,3 1,5	110 55	15 4	0,040 0,040	**AI-3500** **AI-3500S (a)**
3/2 NO		2,3 1,3	110 45	15 4	0,040 0,040	**AI-3501** **AI-3501S(a)**
2/2 NC		2,3	110	15	0,040	**AI-3502**
2/2 NO (b)		2,3	110	15	0,040	**AI-3503**

(a) = sensible (b) = 2/2 NO version available upon request

PNEUMATIC AND MECHANICAL ACTUATORS

	Pneumatic operator	AI-3550
	Amplified pneumatic operator	AI-3551
	Roller operator 1 position	AI-3560
	Ball-push operator 1 position	AI-3562
	Operator with omni-directional antenna 1 position	AI-3563
	Roller lever operator 1 posizione	AI-3570
	Articulated roller operator 1 position Complete actuation with stroke 2,5 mm, max stroke 4,7 mm	AI-3571
	Key operator 1 position	AI-3572

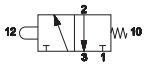
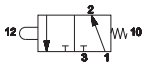
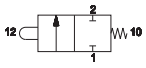
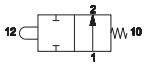
MANUAL PUSH

	Recessed button	■BLACK ■RED ■GREEN	AI-3511 AI-3512 AI-3513
	Head button	■RED ■BLACK ■RED ■BLACK	AI-3514 AI-3516 AI-3514D AI-3516D
	Button	■GREEN ■RED ■BLACK	AI-3515 AI-3517 AI-3519
	Accident prevention rotating selector	■BLACK ■BLACK	AI-3520 AI-3521
	Rotating lever selector	■BLACK ■BLACK	AI-3522 AI-3523
	Lever operator	■BLACK	AI-3524
	Omni-directional operator	■BLACK	AI-3525
	Push-pull operator	■BLACK	AI-3526

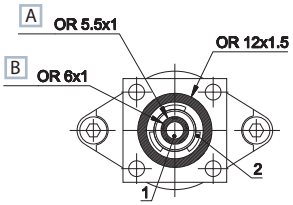
For actuators dimensions see section **"Accessories>Actuators"**

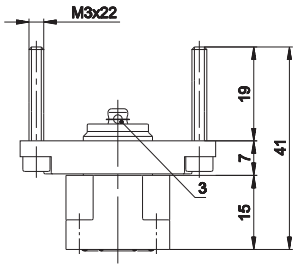
Mechanical push button for panel mounting - spring

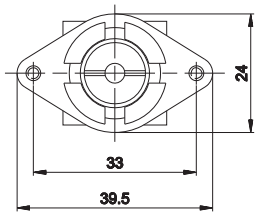
A 3/2 NC - 3/2 NO - 2/2
B 2/2 NO

	Symbol	Ø mm	Flow rate Nl/min	Force N	Weight Kg	Part no.
3/2 NC		2,3	110	15	0,055	**AI-3500Q**
		1,5	55	4	0,055	**AI-3500SQ (a)**
3/2 NO		2,3	110	15	0,055	**AI-3501Q**
		1,3	45	4	0,055	**AI-3501SQ (a)**
2/2 NC		2,3	110	15	0,055	**AI-3502Q**
2/2 NO (b)		2,3	110	15	0,055	**AI-3503Q**

(a) = sensible (b) = upon request only 2/2 NO version







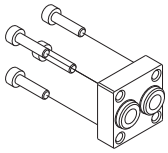
1 = Supply port
2 = Use
3 = Exhaust

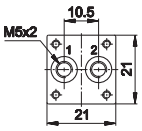
MANUAL PUSH

	Recessed button	■BLACK ■RED ■GREEN	AI-3511Q AI-3512Q AI-3513Q
	Head button	■RED ■BLACK ■RED ■BLACK	AI-3514Q AI-3516Q AI-3514QD AI-3516QD
	Button	■GREEN ■RED ■BLACK	AI-3515Q AI-3517Q AI-3519Q
	Accident prevention rotating selector	■BLACK ■BLACK	AI-3520Q AI-3521Q
	Rotating lever selector	■BLACK ■BLACK	AI-3522Q AI-3523Q
	Lever operator	■BLACK	AI-3524Q
	Omni-directional operator	■BLACK	AI-3525Q
	Push-pull operator	■BLACK	AI-3526Q

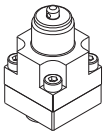
For actuators dimensions see section **"Accessories>Actuators"**

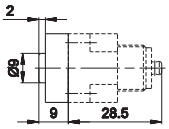
AI-3610



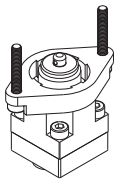


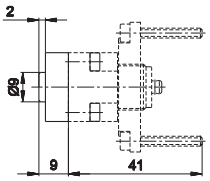
AI-3610 + AI-3500





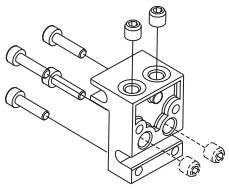
AI-3610 + AI-3500Q

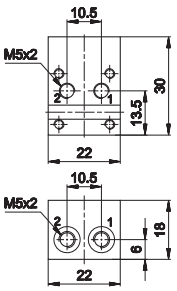




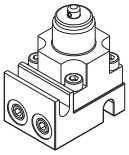
Sub-base with M5 threaded connections
weight: 0,020 Kg

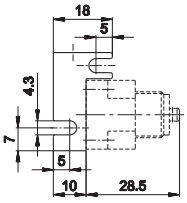
AI-3612



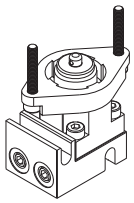


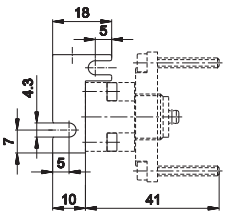
AI-3612 + AI-3500





AI-3612 + AI-3500Q





Sub-base with side or dorsal consumotions and threaded connections M5
weight: 0,020 Kg

Part numbers include M3x12 fixing screws (4 pcs) and M5x5 dowel pins to close the unused ways.
The M5x5 dowel pins must be mounted with loctite (243 type). Be sure that loctite does not obstruct the ports or sinks inside the valve.
The dowel pins must be screwed till reaching the base surface. Avoid screwing them completely.

AI JET

Pneumatic switches JET series

- Light with compact design
- Low operating force and high response time
- M5 threaded connections or push-in fitting tube Ø4
- Wide range of actuators and manual overrides for mounting panel (Original Univer)

TECHNICAL CHARACTERISTICS

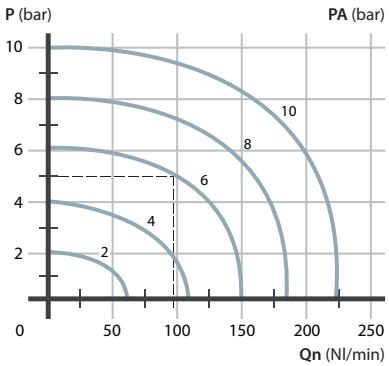
Ambient temperature	-10 ÷ +90 °C
Fluid temperature	max +50 °C
Fluid	not dehumidified filtered air 50 µm, lubricated or not
Commutation system	poppet system
Ways/Positions	**2/2 NC, 3/2 NC, 2/2 NO, 3/2 NO**
Pressure	max 10 bar
Control	manual, mechanical
Return	mechanical spring
Connections	M5, tube Ø4
Nominal Ø	2,5 mm
Nominal flow rate (Nl/min)	70 Nl/min

CONSTRUCTIVE CHARACTERISTICS

Valve body	zamak
Seals	nitrile rubber
Spool	nickel-plated brass

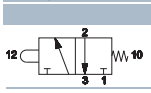
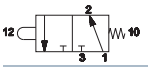
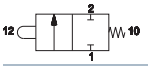
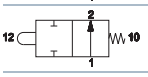
OTHER VERSIONS AVAILABLE

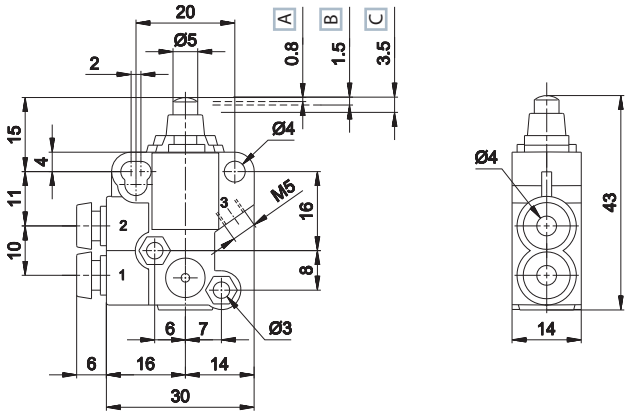
Flow rate characteristics



P = Working pressure
PA = Supply pressure
Qn = Flow rate

Ball-push - spring **tube Ø4**

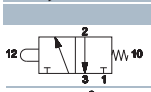
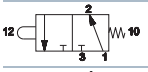
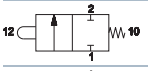
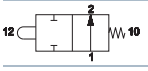
	Symbol	Connection	Force (a) N	Weight Kg	Part no.
3/2 NC		tube Ø4	14	0,060	**AI-9000**
3/2 NO		tube Ø4	14	0,060	**AI-9010**
2/2 NC		tube Ø4	14	0,060	**AI-9020**
2/2 NO (b)		tube Ø4	14	0,060	**AI-9030**

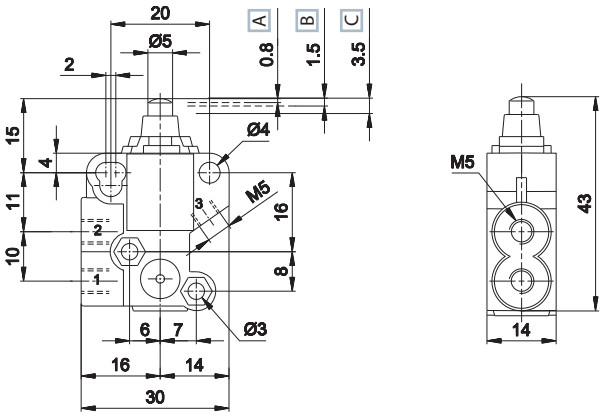


A Pre-stroke
B Maximum opening
C Total stroke

1 = Supply port
2 = Use
3 = Exhaust

Ball-push - spring **M5**

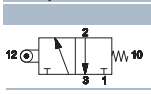
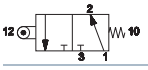
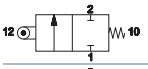
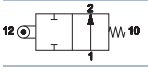
	Symbol	Connection	Force (a) N	Weight Kg	Part no.
3/2 NC		M5	14	0,060	**AI-9000M**
3/2 NO		M5	14	0,060	**AI-9010M**
2/2 NC		M5	14	0,060	**AI-9020M**
2/2 NO (b)		M5	14	0,060	**AI-9030M**

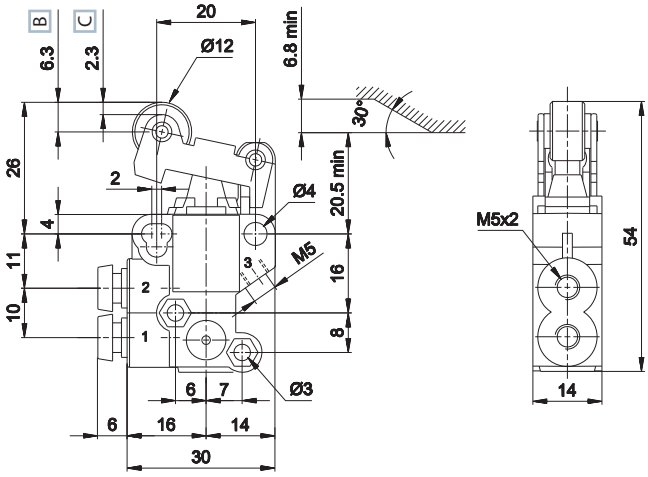


A Pre-stroke
B Maximum opening
C Total stroke

1 = Supply port
2 = Use
3 = Exhaust

Roller lever - **tube Ø4**

	Symbol	Connection	Force (a) N	Weight Kg	Part no.
3/2 NC		tube Ø4	7	0,085	**AI-9100**
3/2 NO		tube Ø4	7	0,085	**AI-9110**
2/2 NC		tube Ø4	7	0,085	**AI-9120**
2/2 NO (b)		tube Ø4	7	0,085	**AI-9130**

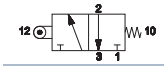
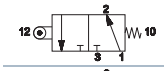
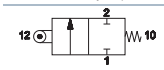
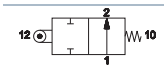


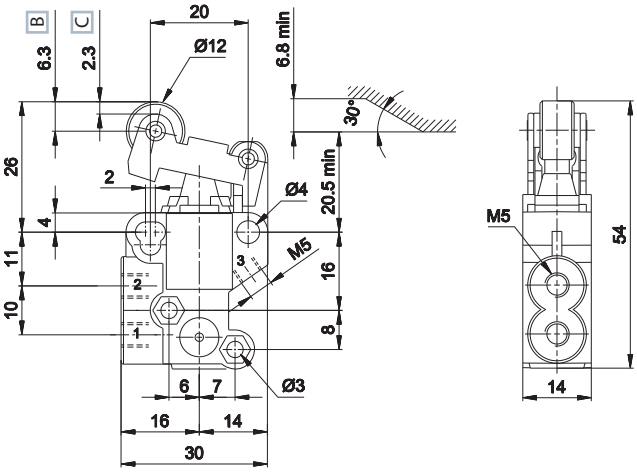
B Maximum opening
C Total stroke

1 = Supply port
2 = Use
3 = Exhaust

(a) = at 6 bar (b) = upon request 2/2 NO version

Roller lever - spring **M5**

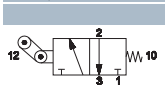
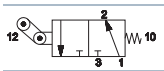
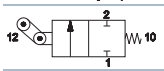
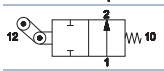
	Symbol	Connection	Force (a) N	Weight Kg	Part no.
3/2 NC		M5	7	0,085	**AI-9100M**
3/2 NO		M5	7	0,085	**AI-9110M**
2/2 NC		M5	7	0,085	**AI-9120M**
2/2 NO (b)		M5	7	0,085	**AI-9130M**

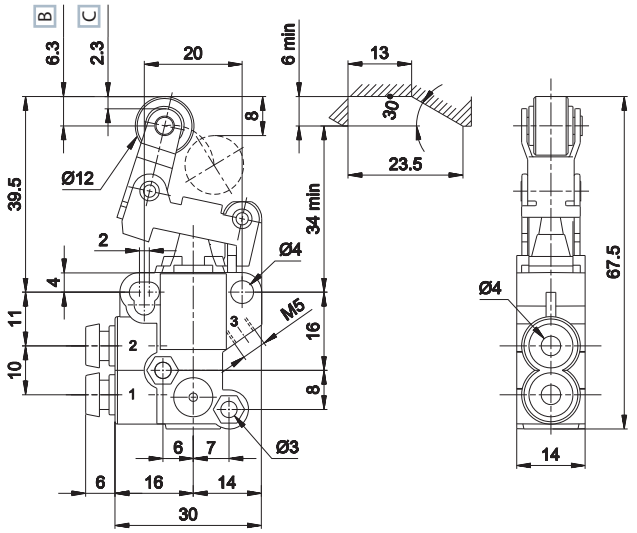


B Maximum opening
C Total stroke

1 = Supply port
2 = Use
3 = Exhaust

Uni-directional roller lever - spring **tube Ø4**

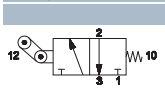
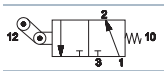
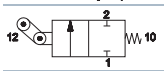
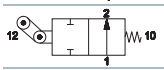
	Symbol	Connection	Force (a) N	Weight Kg	Part no.
3/2 NC		tube Ø4	4	0,085	**AI-9200**
3/2 NO		tube Ø4	4	0,085	**AI-9210**
2/2 NC		tube Ø4	4	0,085	**AI-9220**
2/2 NO (b)		tube Ø4	4	0,085	**AI-9230**

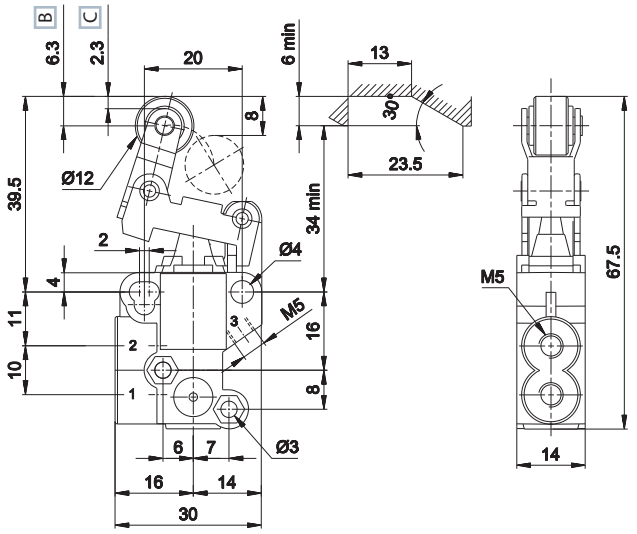


B Maximum opening
C Total stroke

1 = Supply port
2 = Use
3 = Exhaust

Uni-directional roller lever - spring **M5**

	Symbol	Connection	Force (a) N	Weight Kg	Part no.
3/2 NC		M5	4	0,085	**AI-9200M**
3/2 NO		M5	4	0,085	**AI-9210M**
2/2 NC		M5	4	0,085	**AI-9220M**
2/2 NO (b)		M5	4	0,085	**AI-9230M**

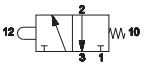
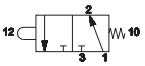
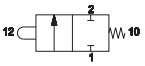
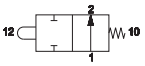


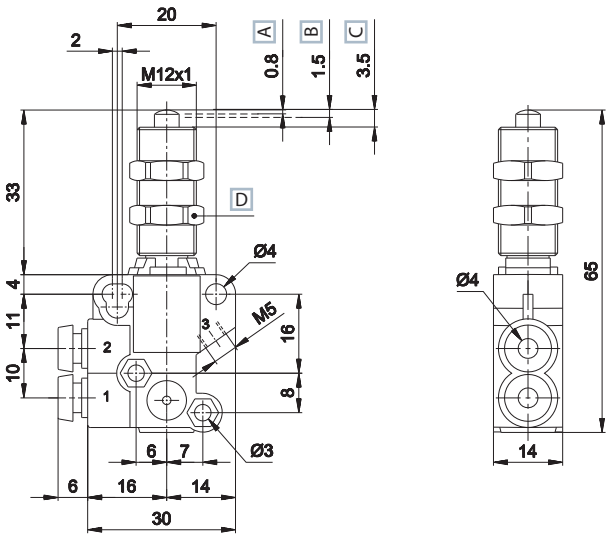
B Maximum opening
C Total stroke

1 = Supply port
2 = Use
3 = Exhaust

(a) = at 6 bar (b) = upon request 2/2 NO version

Mechanical push button with screw mounting - spring **tube Ø4**

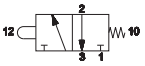
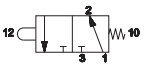
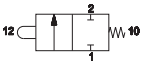
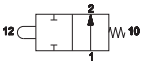
	Symbol	Connection	Force (a) N	Weight Kg	Part no.
3/2 NC		tube Ø4	14	0,082	**AI-9300**
3/2 NO		tube Ø4	14	0,082	**AI-9310**
2/2 NC		tube Ø4	14	0,082	**AI-9320**
2/2 NO (b)		tube Ø4	14	0,082	**AI-9330**

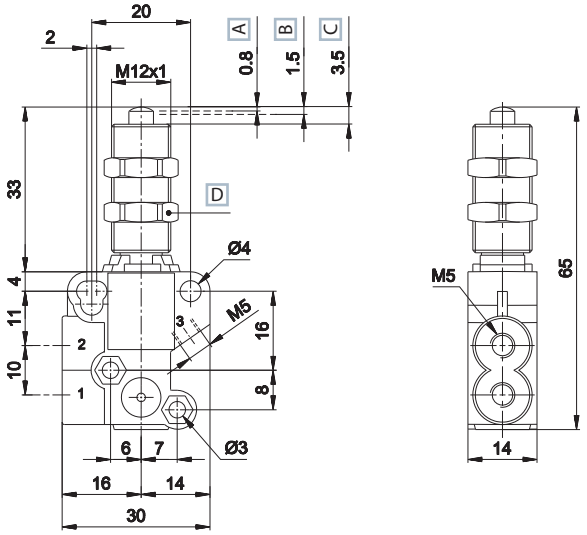


A Pre-stroke
B Maximum opening
C Total stroke
D Wrench 14

1 = Supply port
2 = Use
3 = Exhaust

Mechanical push button with screw mounting - spring **M5**

	Symbol	Connection	Force (a) N	Weight Kg	Part no.
3/2 NC		M5	14	0,082	**AI-9300M**
3/2 NO		M5	14	0,082	**AI-9310M**
2/2 NC		M5	14	0,082	**AI-9320M**
2/2 NO (b)		M5	14	0,082	**AI-9330M**

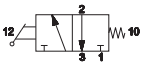
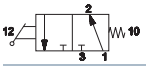
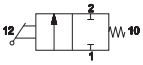
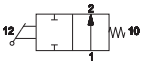


A Pre-stroke
B Maximum opening
C Total stroke
D Wrench 14

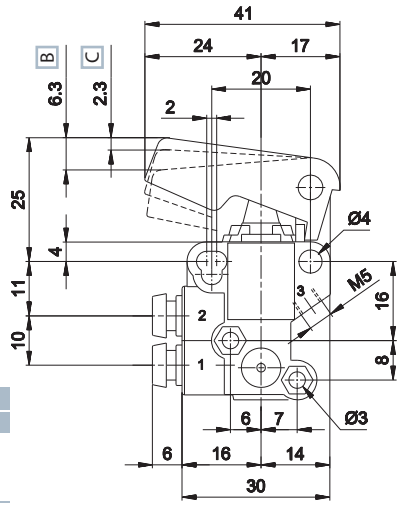
1 = Supply port
2 = Use
3 = Exhaust

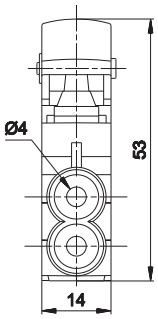
(a) = at 6 bar (b) = upon request 2/2 NO version

Button - spring **tube Ø4**

	Symbol	Connection	Force (a) N	Weight Kg	Part no.
3/2 NC		tube Ø4	7	0,065	**AI-9350**
3/2 NO		tube Ø4	7	0,065	**AI-9360**
2/2 NC		tube Ø4	7	0,065	**AI-9370**
2/2 NO (b)		tube Ø4	7	0,065	**AI-9380**

Button yellow colour

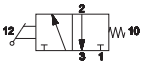
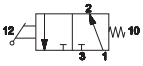
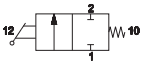
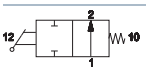




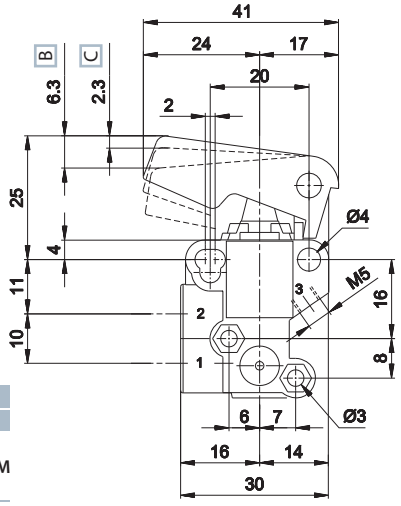
B Maximum opening
C Total stroke

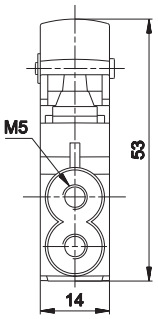
1 = Supply port
2 = Use
3 = Exhaust

Button - spring **M5**

	Symbol	Connection	Force (a) N	Weight Kg	Part no.
3/2 NC		M5	7	0,065	**AI-9350M**
3/2 NO		M5	7	0,065	**AI-9360M**
2/2 NC		M5	7	0,065	**AI-9370M**
2/2 NO (b)		M5	7	0,065	**AI-9380M**

Button yellow colour



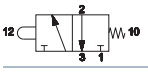
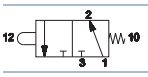
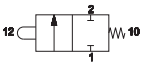
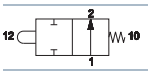


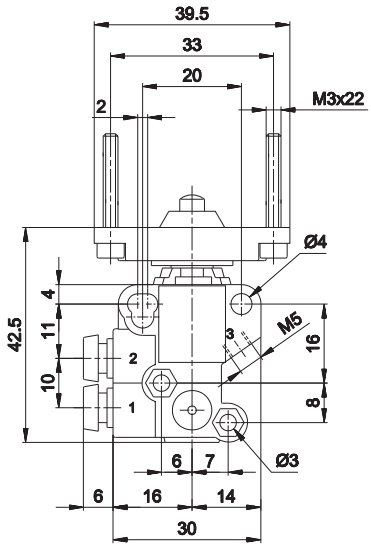
B Maximum opening
C Total stroke

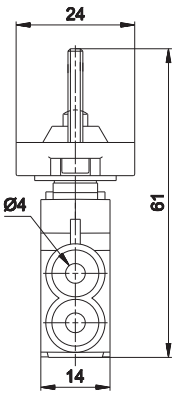
1 = Supply port
2 = Use
3 = Exhaust

(a) = at 6 bar (b) = upon request 2/2 NO version

Mechanical push button for panel mounting - spring **tube Ø4**

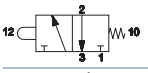
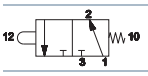
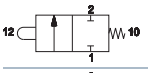
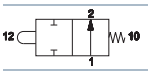
	Symbol	Connection	Force (a) N	Weight Kg	Part no.
3/2 NC		tube Ø4	14	0,075	**AI-9400**
3/2 NO		tube Ø4	14	0,075	**AI-9410**
2/2 NC		tube Ø4	14	0,075	**AI-9420**
2/2 NO (b)		tube Ø4	14	0,075	**AI-9430**

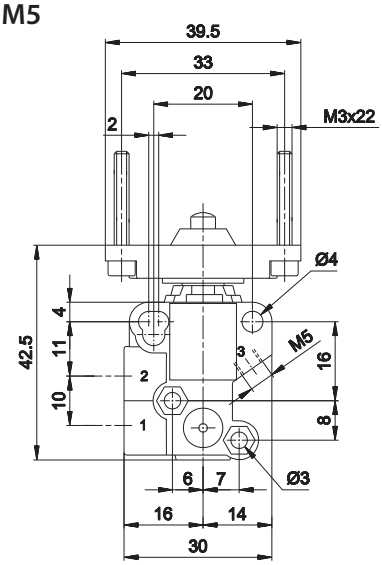


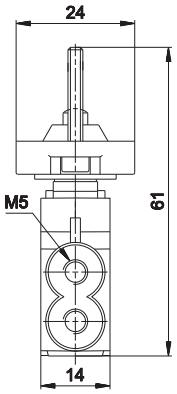


1 = Supply port
2 = Use
3 = Exhaust

Mechanical push button for panel mounting - spring **M5**

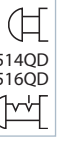
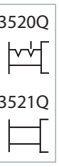
	Symbol	Connection	Force (a) N	Weight Kg	Part no.
3/2 NC		M5	14	0,075	**AI-9400M**
3/2 NO		M5	14	0,075	**AI-9410M**
2/2 NC		M5	14	0,075	**AI-9420M**
2/2 NO (b)		M5	14	0,075	**AI-9430M**





1 = Supply port
2 = Use
3 = Exhaust

MANUAL ACTUATORS

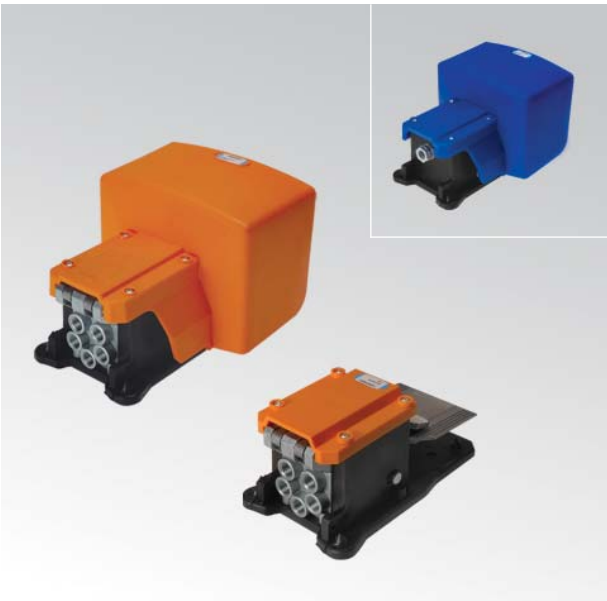
	Recessed button	■BLACK AI-3511Q ■RED AI-3512Q ■GREEN AI-3513Q			Rotating lever selector	■BLACK AI-3522Q ■BLACK AI-3523Q
	Head button	■RED AI-3514Q ■BLACK AI-3516Q ■RED AI-3514QD ■BLACK AI-3516QD			Lever operator	■BLACK AI-3524Q
	Button	■GREEN AI-3515Q ■RED AI-3517Q ■BLACK AI-3519Q			Omni-directional operator	■BLACK AI-3525Q
	Rotating selector	■BLACK AI-3520Q ■BLACK AI-3521Q			Push-pull operator	■BLACK AI-3526Q

(a) = at 6 bar (b) = upon request 2/2 NO version
For actuator dimensions refer to section **"Accessories>Actuators"**

AM

Pneumatic and electric foot valves

- Double poppet system appreciated for its reliability and high flow rate
- Aluminium valve body and pedal lever to the max strenght
- Available with and without protection (in the latter case the protection is to be realized by the machine builder according to the current rules)
- Available with safety devices to prevent unintentional operations
- Available with pneumatic servo-assitance in case of minimum stress
- Electric foot valves with single or double microswitch complete the foot valve range



TECHNICAL CHARACTERISTICS

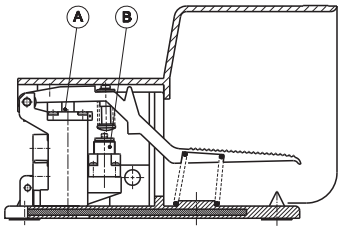
Ambient temperature	-10 ÷ +70 °C	
Fluid temperature	-10 ÷ +50 °C	
Fluid	not dehumidified filtered air 50 µm, lubricated or not	
Commutation system	poppet system	
Ways/Positions	**2/2 NC, 3/2 NC, 2/2 NO, 3/2 NO, 5/2**	
Pressure	max 10 bar	
Control	pedal	
Return	mechanical spring, pedal	
Connections	**G1/8**	**G1/4**
Nominal Ø (mm)	2,3	8
Nominal flow rate (Nl/min)	98	800

CONSTRUCTIVE CHARACTERISTICS

PNEUMATIC FOOT VALVE:	
Valve body	die-cast zamak
Foot valve lever	aluminium
Pedal body and protections	nylon with steel reinforcing plate
Seals	oil/wear-resistant compound
Spool	aluminium
ELECTRIC FOOT VALVE:	
Valve body, foot valve lever, protections	dielectric plastic material

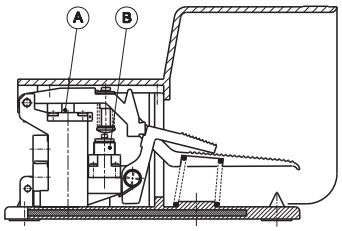
Functioning

Pedal with spring return



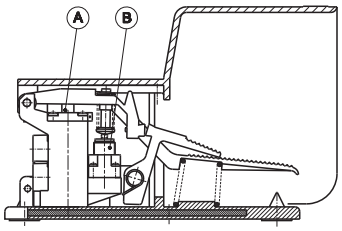
Direct operation **A** or pneumatic servo-assistance **B.**

Pedal with two positions (bistable)



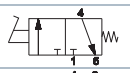
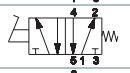
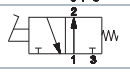
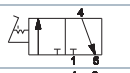
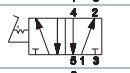
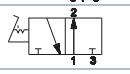
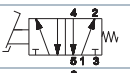
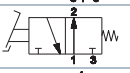
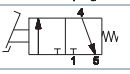
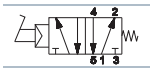
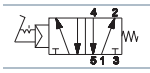
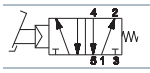
The pedal must be deeply pressed. The unlocking pedal brings the pedal back to the starting position.

Pedal with safety device

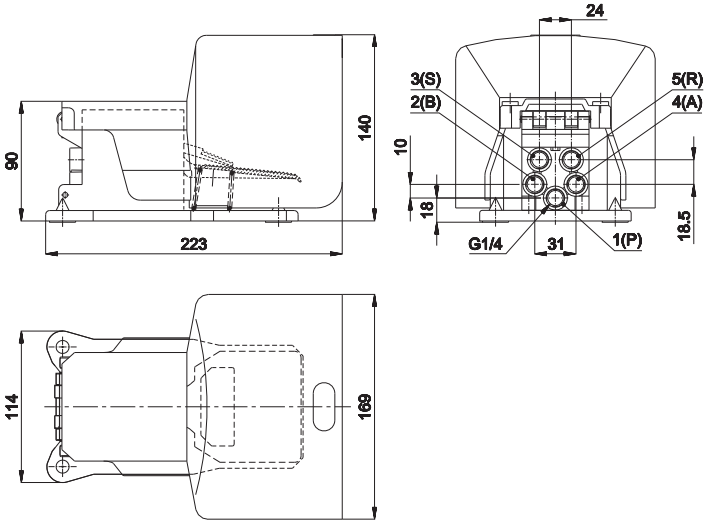


Operation in possible only by pushing both pedals at the same time. Pedals return to the starting position by releasing them. In this case unintentional operation is avoided.

G1/4 pneumatic foot valve with protection

	Symbol	Return	Force N	Weight Kg	Part no.
	SPRING RETURN PEDAL				
3/2 NC		mechanical spring	20	1,25	**AM-5000**
5/2		mechanical spring	20	1,45	**AM-5001**
3/2 NO		mechanical spring	20	1,25	**AM-5002**
	BISTABLE PEDAL				
3/2 NC		pedal	20	1,37	**AM-5003**
5/2		pedal	20	1,52	**AM-5004**
3/2 NO		pedal	20	1,37	**AM-5005**
	PEDAL WITH SAFETY CONTROL				
5/2		mechanical spring	20	1,45	**AM-5011**
3/2 NO		mechanical spring	20	1,25	**AM-5012**
3/2 NC		mechanical spring	20	1,25	**AM-5015**
	SERVOASSISTED PEDAL - SPRING RETURN				
5/2		mechanical spring	20	1,45	**AM-5021**
	SERVOASSISTED BISTABLE PEDAL				
5/2		mechanical spring	20	1,45	**AM-5031**
	SERVOASSISTED PEDAL WITH SAFETY CONTROL				
5/2		mechanical spring	20	1,45	**AM-5041**

Pneumatic foot valve with orange as standard protection.

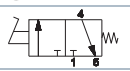
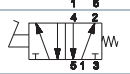
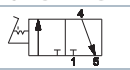
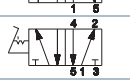


1 (P) = Supply port
2 - 4 (B - A) = Use
3 - 5 (S- R) = Exhaust

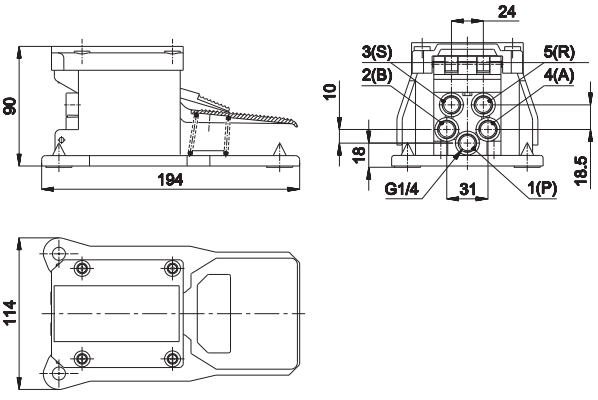
Threaded connections for different functions

2/2 NC		2/2 NO		3/2 NC			3/2 NO			5/2				
A	P	B	P	A	P	R	B	P	S	A	B	P	R	S
4	1	2	1	4	1	5	2	1	3	4	2	1	5	3

G1/4 pneumatic foot valves without protection

	Symbol	Return	Force N	Weight Kg	Part no.
	PEDAL				
3/2 NC		mechanical spring	20	1,25	**AM-5000A**
5/2		mechanical spring	20	1,45	**AM-5001A**
	BISTABLE PEDAL				
3/2 NC		pedal	20	1,37	**AM-5003A**
5/2		pedal	20	1,52	**AM-5004A**

Other versions upon request.
If this version is used the protection is to be realized by the user according to the current rules.

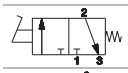
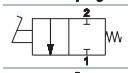
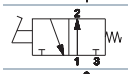
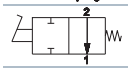


1 (P) = Supply port
2 - 4 (B - A) = Use
3 - 5 (S- R) = Exhaust

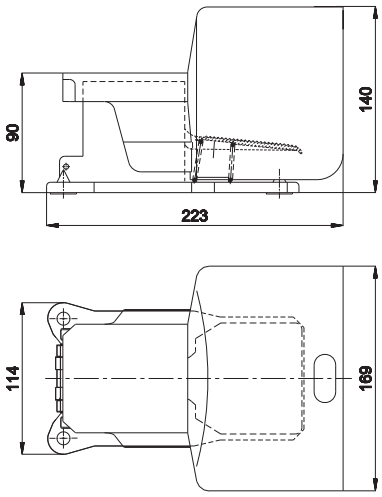
Threaded connections for different functions

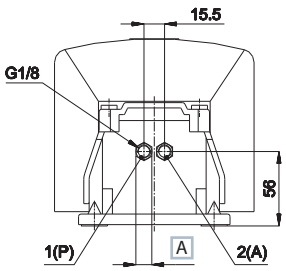
2/2 NC		2/2 NO		3/2 NC			3/2 NO			5/2				
A	P	B	P	A	P	R	B	P	S	A	B	P	R	S
4	1	2	1	4	1	5	2	1	3	4	2	1	5	3

G1/8 pneumatic foot valves with protection

	Symbol	Return	Force N	Weight Kg	Part no.
	PEDAL				
3/2 NC		mechanical spring	20	0,96	**AM-5043**
2/2 NC		mechanical spring	20	0,96	**AM-5043B**
3/2 NO		mechanical spring	20	0,96	**AM-5043C**
2/2 NO		mechanical spring	20	0,96	**AM-5043D**

Pneumatic foot valve with orange protection.
Upon request version without protection.

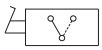




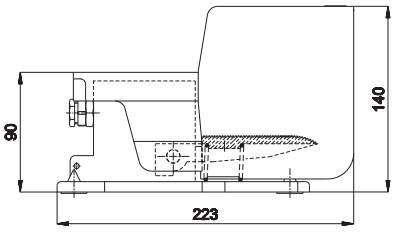
A Wrench 12

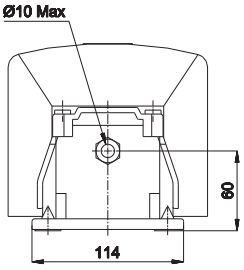
1 (P) = Supply port
2 (A) = Use

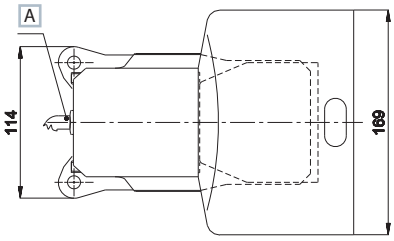
Electric foot valves

Symbol	Description	Force N	Weight Kg	Part no.
	pedal without electric microswitch	20	0,86	**AM-5050**
	pedal with electric microswitch	20	0,92	**AM-5051**
	pedal with double electric microswitch	20	0,95	**AM-5052**

Electric foot valve with blue protection.







A Electric cable





COMPACT VALVES

5 COMPACT valves

P10

10mm COMPACT valves - threaded body and for sub-base mounting

- Low standard power consumption (0,32W): low power consumption electropilot B10 (standard version with LED)
- Quick response times
- High flow rate: the development of the traditional UNIVER spool technology permits high flow rate values
- Compact design: the valve body (10mm) allows reduced overall dimensions
- Complete solution
- Threaded body (P10F) and body for sub-base (P10B) in the following versions: 5/2 - 5/3 - 3/2+3/2
- External and multipolar electrical connections
- TC serial transmission system
- Maximum application flexibility
- Modular sub-base (single and double) for a high versatility in the composition of the valve manifolds
- Simplified installation
- Easy installation of tubes and fittings thanks to connections being all on the same side

TECHNICAL CHARACTERISTICS

Ambient temperature	-5 ÷ +50 °C
Fluid temperature	max +50 °C
Fluid	filtered air 10 µm not dehumidified, lubricated or not
Commutation system	spool
Ways/Positions	**3/2+3/2, 5/2, 5/3**
Pressure	**electric control** = max 9 bar
	pneumatic control = max 10 bar
Control	indirect electro-pneumatic, pneumatic
Return	mechanical spring, pneumomechanical spring, pneumatic, electric
Connections	**P10F**: M5, M7 **P10B**: M5, M7, tube Ø 4
Nominal flow rate (Nl/min)	5/2 = **310** 5/3 = **230** 3/2+3/2 = **250**

CONSTRUCTIVE CHARACTERISTICS

Valve body	zamak
Seals	nitrile rubber
Sub-base and actuators	selfestinguishing technopolymer
Spool	aluminum

ELECTRIC CHARACTERISTICS

Electropilot	B10
Voltage	24 V DC (± 10%)
Power consumption	holding 0,32 W, pick-up 5,5 W (25 ms)
Protection degree	IP65
Manual override	button with tool

CODIFICATION KEY

P	1	0	F	2	4	4	2	4	D
1				2	3	4	5		6

1 Series
P10F = threaded valve
P10B = valve for base

2 Type
2 = 5/2
3 = 5/3 c.c.
4 = 5/3 o.c.
5 = 5/3 p.c.
6 = 3/2+3/2 NC-NC
7 = 3/2+3/2 NC-NO
8 = 3/2+3/2 NO-NO

3 Control 14
3 = pneumatic amplified
4 = electric amplified

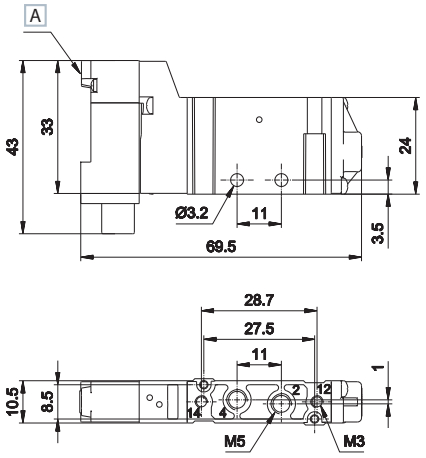
4 Return 12
0 = pneumomechanical spring
1 = mechanical spring
3 = pneumatic amplified
4 = elettric amplified

5 Voltage
24 = 24 V DC

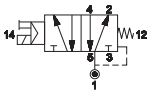
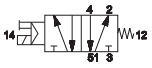
6 Variant
D = external servo-assistance of the pilot on valve body (**P10** = M3)

o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

Single **electric** impulse



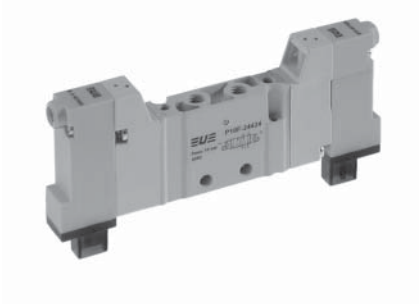
Weight (Kg): 0,054

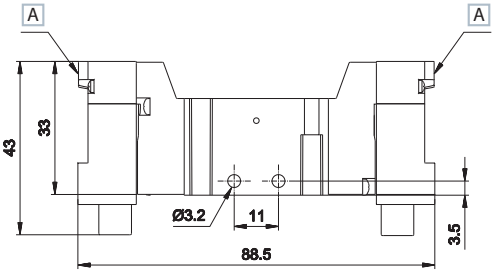
	Symbol	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Part no.
5/2		electric amplified	pneumo mechanical spring	1,5÷9	12	20	**P10F24024**
5/2		electric amplified	mechanical spring	1,9÷9	10	21	**P10F24124**

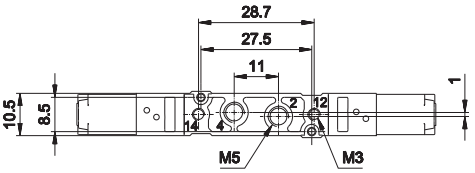
A Manual override

2 - 4 = Use
14 = Control
12 = Return

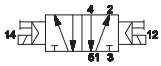
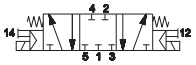
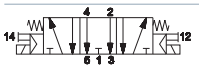
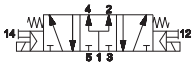
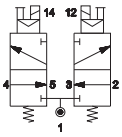
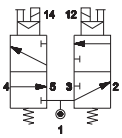
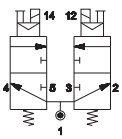
Double **electric** impulse







Weight (Kg): 0,069

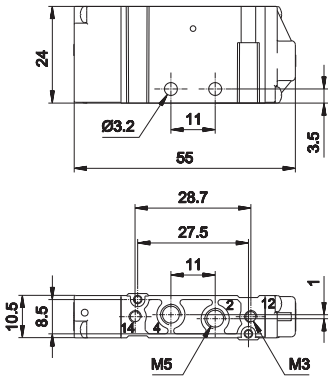
	Symbol	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Part no.
5/2		electric amplified	electric amplified	0,7÷9	10	10	**P10F24424**
5/3 c.c.		electric amplified	electric amplified	1,5÷9	11	22	**P10F34424**
5/3 o.c.		electric amplified	electric amplified	1,5÷9	11	22	**P10F44424**
5/3 p.c.		electric amplified	electric amplified	1,5÷9	11	22	**P10F54424**
3/2 NC + 3/2 NC		electric amplified	electric amplified	1,3÷9	9	14	**P10F64424**
3/2 NC + 3/2 NO		electric amplified	electric amplified	1,3÷9	9	14	**P10F74424**
3/2 NO + 3/2 NO		electric amplified	electric amplified	1,3÷9	9	14	**P10F84424**

A Manual override

2 - 4 = Use
14 = Control
12 = Return

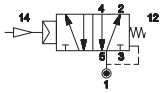
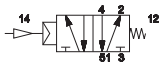
o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

Single **electric** impulse

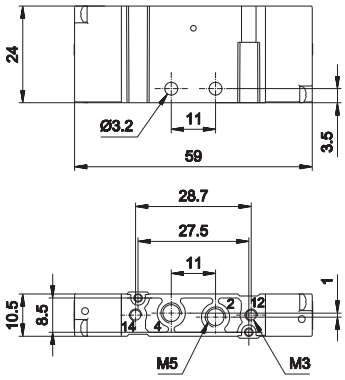


2 - 4 = Use
14 = Control
12 = Return

Weight (Kg): 0,042

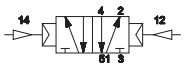
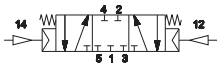
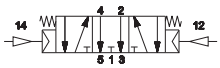
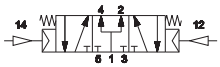
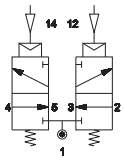
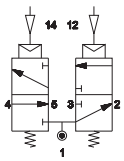
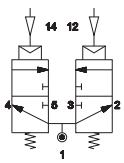
	Symbol	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Part no.
5/2		pneumatic amplified	pneumo mechanical spring	1,5÷10	8	14	**P10F230**
5/2		pneumatic amplified	mechanical spring	1,9÷10	7	16	**P10F231**

Double **electric** impulse



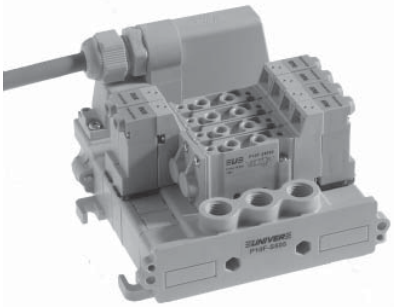
2 - 4 = Use
14 = Control
12 = Return

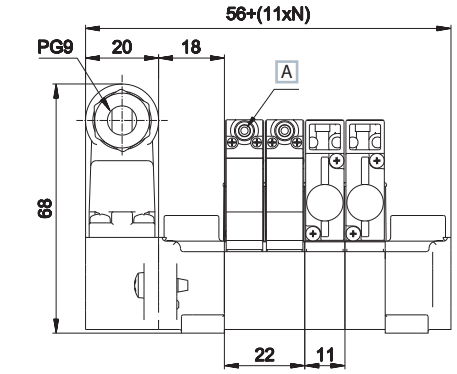
Weight (Kg): 0,044

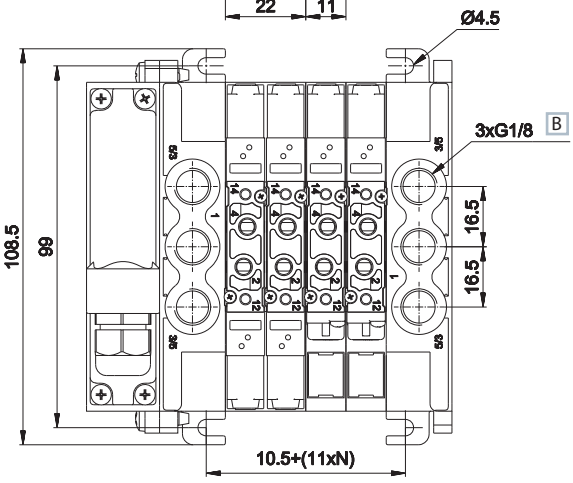
	Symbol	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Part no.
5/2		pneumatic amplified	pneumatic amplified	0,6÷10	6	6	**P10F233**
5/3 c.c.		pneumatic amplified	pneumatic amplified	1,5÷10	7	20	**P10F333**
5/3 o.c.		pneumatic amplified	pneumatic amplified	1,5÷10	7	20	**P10F433**
5/3 p.c.		pneumatic amplified	pneumatic amplified	1,5÷10	7	20	**P10F533**
3/2 NC + 3/2 NC		pneumatic amplified	pneumatic amplified	1,3÷10	8	14	**P10F633**
3/2 NC + 3/2 NO		pneumatic amplified	pneumatic amplified	1,3÷10	8	14	**P10F733**
3/2 NO + 3/2 NO		pneumatic amplified	pneumatic amplified	1,3÷10	8	14	**P10F833**

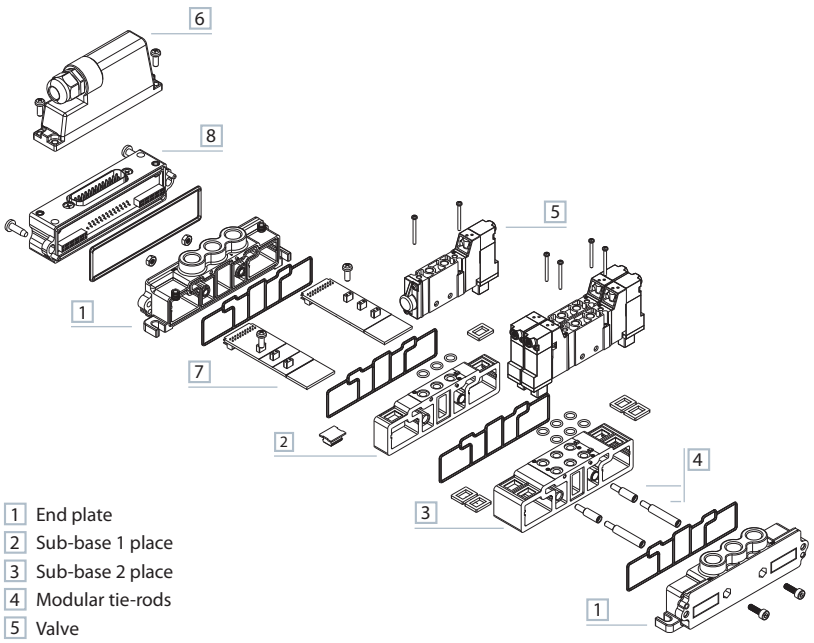
o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

Integrated electric connection









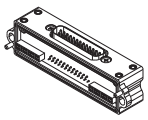
1 End plate
2 Sub-base 1 place
3 Sub-base 2 place
4 Modular tie-rods
5 Valve
6 Multipolar female connector
7 Bus connection card
8 Multipole connection module

1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

N = Number of valve places

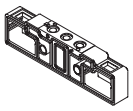
A Manual override
B Tightening torque
G1/8 = max 3 Nm

TIM1024



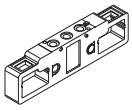
connection module
25 poles male
type D-sub
weight: 0,047 Kg

P10SF100



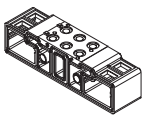
sub-base 1 place
weight: 0,018 Kg

P10SF110



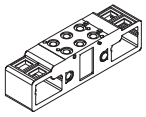
sub-base 1 place
1-3-5 closed
weight: 0,02 Kg

P10SF200



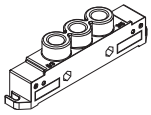
sub-base 2 places
weight: 0,04 Kg

P10SF210



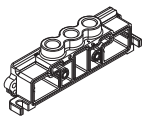
sub-base 2 places
1-3-5 closed
weight: 0,04 Kg

P10SF500



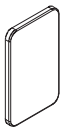
supply plate G1/8 left
for TIM module
weight: 0,04 Kg

P10SF505



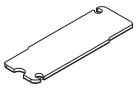
supply plate G1/8 right
weight: 0,04 Kg

P10SF550



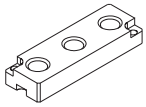
supply pressure
separator plate
weight: 0,002 Kg

P10SF560



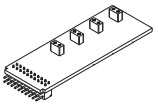
covering plate for
unused valve place
weight: 0,003 Kg

P10SF570



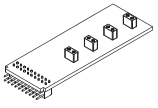
intermediate supply plate
for threaded version
weight: 0,004 Kg

P10SS14**M



bus connection card, side 14
** = 04, 06, 08, 10, 12 places
weight: 0,006 Kg

P10SS12**M



bus connection card, side 12
** = 04, 06, 08, 10, 12 places
weight: 0,006 Kg

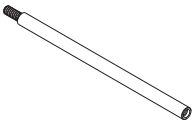
P10STR01

modular tie-rods
1 valve place
(package100 pcs.)
weight: 0,001 Kg

P10STR02

modular tie-rods
2 valve places
(package100 pcs.)
weight: 0,003 Kg

P10STR05

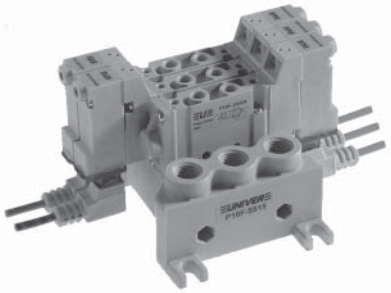


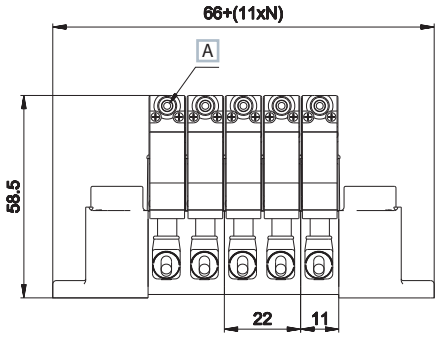
modular tie-rods
5 valve places
(package100 pcs.)
weight: 0,007 Kg

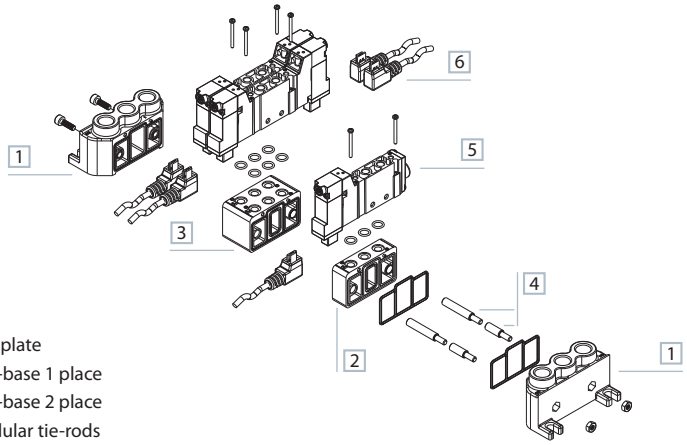
AZ4-SN003A
100 nuts M3 for tie-rods

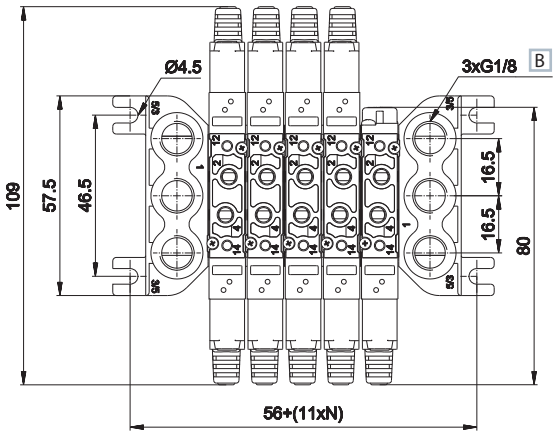
AZ4-VN0310
100 screws for tie-rods

Electric connection with external connector







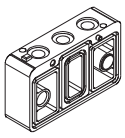
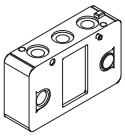
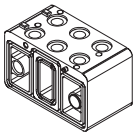
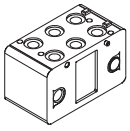
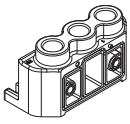
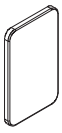


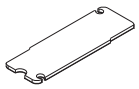
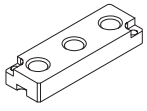
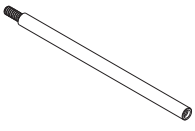
1 End plate
2 Sub-base 1 place
3 Sub-base 2 place
4 Modular tie-rods
5 Valve
6 Single connection

1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

N = Number of valve places

A Manual override
B Tightening torque
G1/8 = max 3 Nm

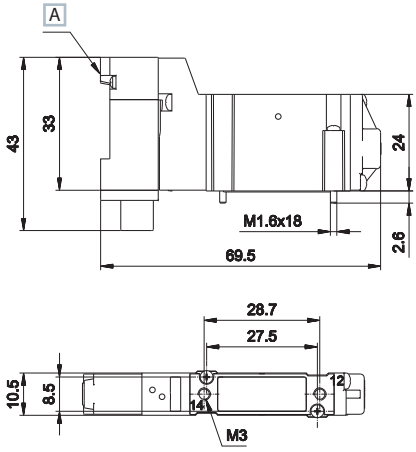
P10SF300	P10SF310	P10SF400	P10SF410	P10SF515	P10SF550
					
sub-base 1 place weight: 0,011 Kg	sub-base 1 place 1-3-5 closed weight: 0,013 Kg	sub-base 2 places weight: 0,024 Kg	sub-base 2 places 1-3-5 closed weight: 0,026	supply place G1/8 right/left weight: 0,032 Kg	supply pressure separator plate weight: 0,003 Kg

P10SF560	P10SF570	P10STR01	P10STR02	P10STR05
				
covering plate for unused valve place weight: 0,003 Kg	intermediate supply plate for threaded version weight: 0,004 Kg	modular tie-rods 1 valve place (package100 pcs.) weight: 0,001 Kg	modular tie-rods 2 valve places (package100 pcs.) weight: 0,003 Kg	modular tie-rods 5 valve places (package100 pcs.) weight: 0,007 Kg

AZ4-SN003A
100 nuts for tie-rods

AZ4-VN0310
100 screws for tie-rods

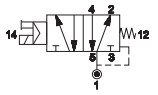
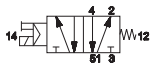
Single **electric** impulse



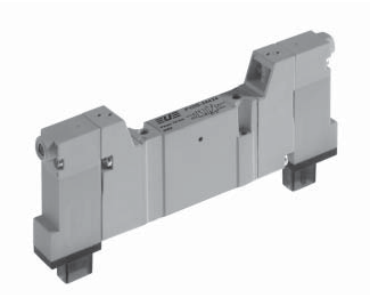
A Manual override

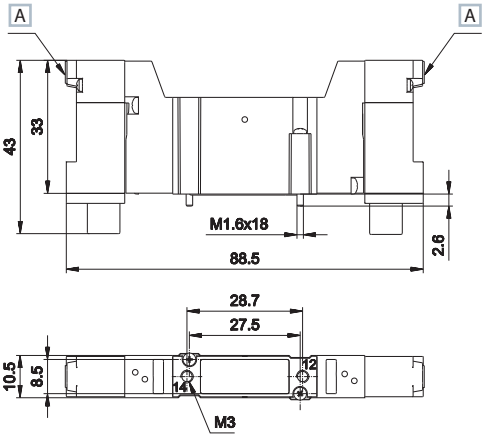
14 = Control
12 = Return

Weight (Kg): 0,054

	Symbol	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Part no.
5/2		electric amplified	pneumo mechanical spring	1,5÷9	12	20	**P10B24024**
5/2		electric amplified	mechanical spring	1,9÷9	10	21	**P10B24124**

Double **electric** impulse

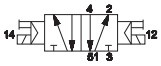
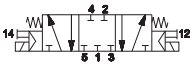
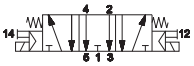
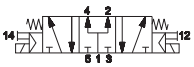
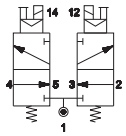
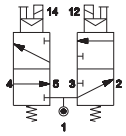
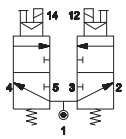




A Manual override

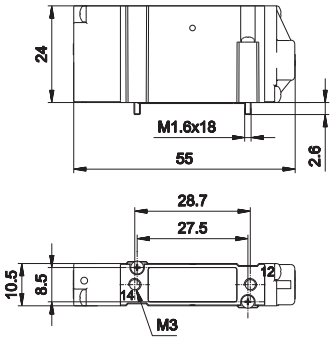
14 = Control
12 = Return

Weight (Kg): 0,069

	Symbol	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Part no.
5/2		electric amplified	electric amplified	0,7÷9	10	10	**P10B24424**
5/3 c.c.		electric amplified	electric amplified	1,5÷9	11	22	**P10B34424**
5/3 o.c.		electric amplified	electric amplified	1,5÷9	11	22	**P10B44424**
5/3 p.c.		electric amplified	electric amplified	1,5÷9	11	22	**P10B54424**
3/2 NC + 3/2 NC		electric amplified	electric amplified	1,3÷9	9	14	**P10B64424**
3/2 NC + 3/2 NO		electric amplified	electric amplified	1,3÷9	9	14	**P10B74424**
3/2 NO + 3/2 NO		electric amplified	electric amplified	1,3÷9	9	14	**P10B84424**

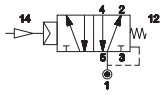
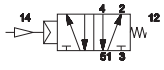
o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

Single **pneumatic** impulse

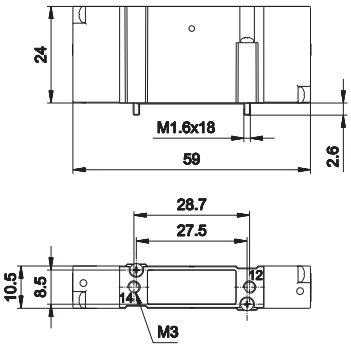


14 = Control
12 = Return

Weight (Kg): 0,042

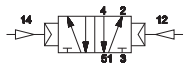
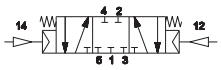
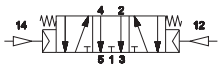
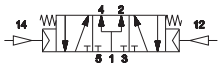
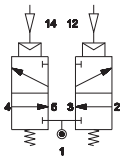
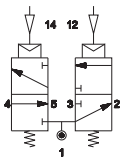
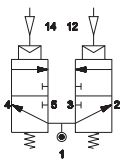
	Symbol	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Part no.
5/2		pneumatic amplified	pneumo mechanical spring	1,5÷9	8	14	**P10B230**
5/2		pneumatic amplified	mechanical spring	1,9÷9	7	16	**P10B231**

Double **pneumatic** impulse



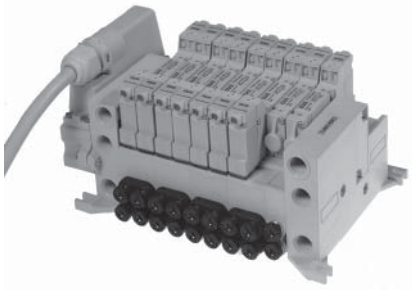
14 = Control
12 = Return

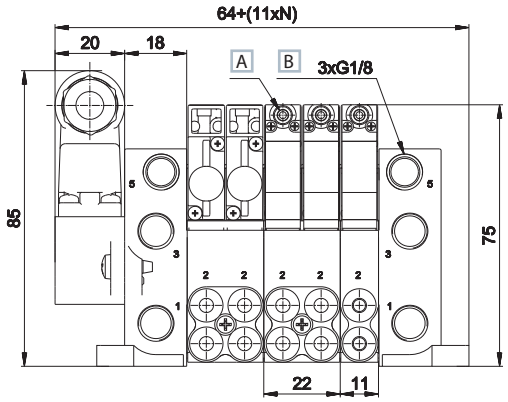
Weight (Kg): 0,044

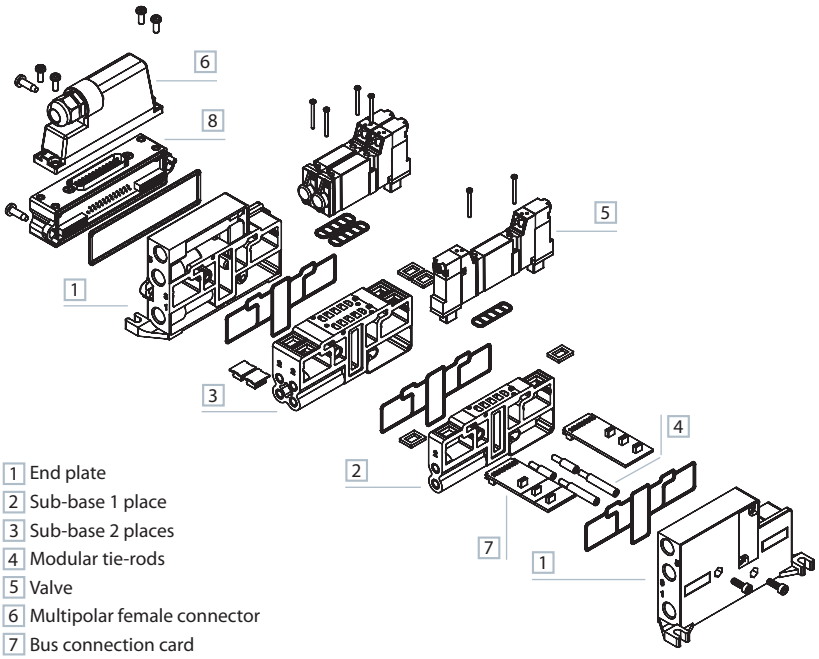
	Symbol	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Part no.
5/2		pneumatic amplified	pneumatic amplified	0,6÷9	6	6	**P10B233**
5/3 c.c.		pneumatic amplified	pneumatic amplified	1,5÷9	7	20	**P10B333**
5/3 o.c.		pneumatic amplified	pneumatic amplified	1,5÷9	7	20	**P10B433**
5/3 p.c.		pneumatic amplified	pneumatic amplified	1,5÷9	7	20	**P10B533**
3/2 NC + 3/2 NC		pneumatic amplified	pneumatic amplified	1,3÷9	8	14	**P10B633**
3/2 NC + 3/2 NO		pneumatic amplified	pneumatic amplified	1,3÷9	8	14	**P10B733**
3/2 NO + 3/2 NO		pneumatic amplified	pneumatic amplified	1,3÷9	8	14	**P10B833**

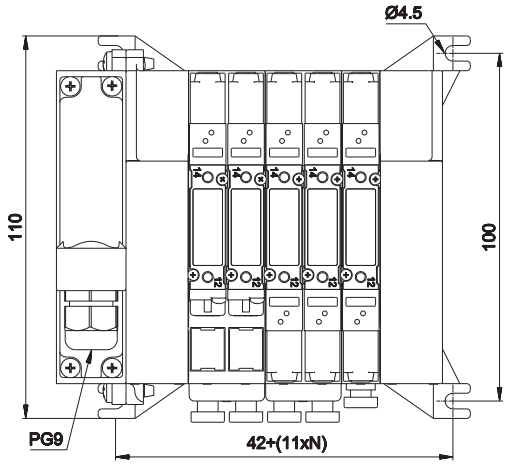
o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

Integrated electric connection









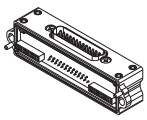
1 End plate
2 Sub-base 1 place
3 Sub-base 2 places
4 Modular tie-rods
5 Valve
6 Multipolar female connector
7 Bus connection card
8 Multipole connection module

1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

N = Number of valve places

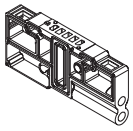
A Manual override
B Tightening torque
G1/8 - M5= max 3 Nm
M7 = 2 Nm

TIM1024



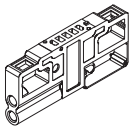
connection module
25 poles male
type D-sub
weight: 0,047 Kg

P10SB100/107



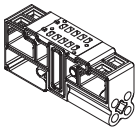
sub-base 1 place
side outlets M5, M7
weight: 0,031 Kg

P10SB110/117



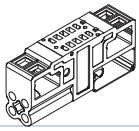
sub-base 1 place
side outlets M5, M7
1-3-5 closed
weight: 0,033 Kg

P10SB200/207



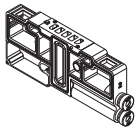
sub-base 2 places
side outlets M5, M7
weight: 0,062 Kg

P10SB210/217



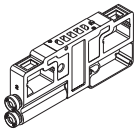
sub-base 2 places
side outlets M5, M7
1-3-5 closed
weight: 0,067 Kg

P10SB304



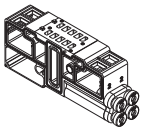
sub-base 1 place
side outlets with quick
couplings pipe 4
weight: 0,034 Kg

P10SB314



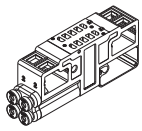
sub-base 1 place side
outlets with quick
couplings pipe 4
1-3-5 closed
weight: 0,034 Kg

P10SB404



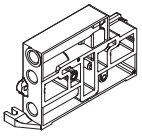
sub-base 2 places
side outlets with quick
couplings pipe 4
weight: 0,073 Kg

P10SB414



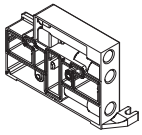
sub-base 1 place
side outlets with quick
couplings pipe 4
1-3-5 closed
weight: 0,068 Kg

P10SB500



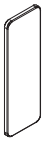
supply plate G1/8 left
for TIM module
weight: 0,074 Kg

P10SB505



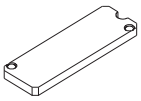
supply plate G1/8 right
weight: 0,074 Kg

P10SB550



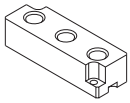
supply pressure
separator plate
weight: 0,004 Kg

P10SB560



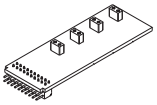
covering plate for
unused valve place
weight: 0,002 Kg

P10SB570



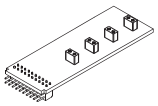
intermediate supply
plate for sub-base
weight: 0,007 Kg

P10SS14**M



bus connection card, side 14
** = 04, 06, 08, 10, 12 places
weight: 0,006 Kg

P10SS12**M



bus connection card,side 12
** = 04, 06, 08, 10, 12 places
weight: 0,006 Kg

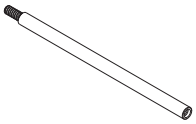
P10STR01

modular tie-rods
1 valve place
(package100 pcs.)
weight: 0,001 Kg

P10STR02

modular tie-rods
2 valve places
(package100 pcs.)
weight: 0,003 Kg

P10STR05



modular tie-rods
5 valve places
(package100 pcs.)
weight: 0,007 Kg

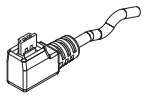
AZ4-SN003A

100 nuts for tie-rods

AZ4-VN0310

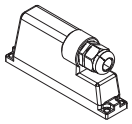
100 screws for tie-rods

D-535U40300
D-535U40500



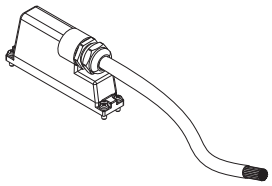
- single connector with cable 3-5 m

TSCFN24S000



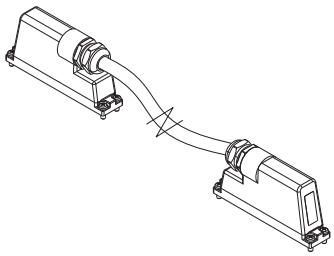
- female connector 25 poles type D-sub no cable M3 x 8 fixing screws

TSCFN24S0300
TSCFN24S0500
TSCFN24S1000



- female connector 25 poles type sub-D cable 3-5-10 m M3 x 8 fixing screws

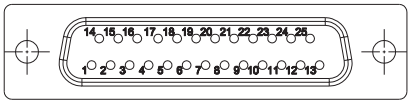
TSCFN16D0300
TSCFN16D0500
TSCFN16D1000



- flying male/female connector sub D (upon request) prewired for 24 coils with cable Ø 8 mm (3-5-10 m lenght) suitable for mobile laying M3 x 8 fixing screws

Colour identification according to standard **DIN 47100**

Female **D-SUB 25 poles**
for connection**12+12 coils**



PIN No.	Colour	Coil	Control side	ValveN°
1	white	1	14	1
2	brown	2	12	1
3	green	3	14	2
4	yellow	4	12	2
5	grey	5	14	3
6	pink	6	12	3
7	blue	7	14	4
8	red	8	12	4
9	nero	9	14	5
10	black	10	12	5
11	grey-pink	11	14	6
12	red-blue	12	12	6
13	white-green	13	14	7
14	brown-green	14	12	7
15	white-yellow	15	14	8
16	yellow-brown	16	12	8
17	white-grey	17	14	9
18	grey-brown	18	12	9
19	white-pink	19	14	10
20	pink-brown	20	12	10
21	white-blue	21	14	11
22	brown-blue	22	12	11
23	white-red	23	14	12
24	brown-red brown-black shield	common low	-	-
25	white-black	24	12	12

P15

15 mm COMPACT valves - threaded and for sub-base body

- Low standard power cosumption (0,32W): low power consuption electropilot B10 (standard version with LED)
- Quick response times
- High flow rate: the development of the traditional UNIVER spool technology permits high flow rate values
- Compact design: the valve body (15 mm) allows reduced overall dimensions
- Complete solution
- Threaded body (P15F) and body for sub-base (P15B) in the following versions: 5/2 - 5/3 - 3/2+3/2
- External and multipolar electrical connections
- TC serial transmission system
- Maximum application flexibility
- Modular sub-base (singles and doubles) for a high versatility in the composition of valve manifolds
- Simplified installation
- Easy installation of tubes and fittings thanks to connections being all on the same side

TECHNICAL CHARACTERISTICS

Ambient temperature	-5 ÷ +50 °C
Fluid temperature	max +50 °C
Fluid	filtered air 10 µm not dehumidified, lubricated or not
Commutation system	spool
Ways/Positions	**3/2+3/2, 5/2, 5/3**
Pressure	**electric control** = max 9 bar
	pneumatic control = max 10 bar
Control	indirect electro-pneumatic, pneumatic
Return	mechanical spring, pneumomechanical spring
Connections	**P15F:** G1/8, **P15B:** G1/8 - tube Ø 4-6-8
Nominal flow rate (Nl/min)	5/2 = **800** 5/3 = **720** 3/2+3/2 = **720**

CONSTRUCTIVE CHARACTERISTICS

Valve body	zamak
Seals	nitrile rubber
Sub-base and actuators	selfestinguishing technopolymer
Spool	aluminum

ELECTRIC CHARACTERISTICS

Electropilot	B10
Voltage	24 V DC (± 10%)
Power consumption	holding 0,32 W, pick-up 5,5 W (25 ms)
Protection degree	IP65
Manual override	button with tool

CODIFICATION KEY

P	1	5	F	2	4	4	2	4	D
1				2	3	4	5		6

1 Series
P15F = threaded valve
P15B = valve for base

2 Type
2 = 5/2
3 = 5/3 c.c.
4 = 5/3 o.c.
5 = 5/3 p.c.
6 = 3/2+3/2 NC-NC
7 = 3/2+3/2 NC-NO
8 = 3/2+3/2 NO-NO

3 Control 14
3 = pneumatic amplified
4 = elettric amplified

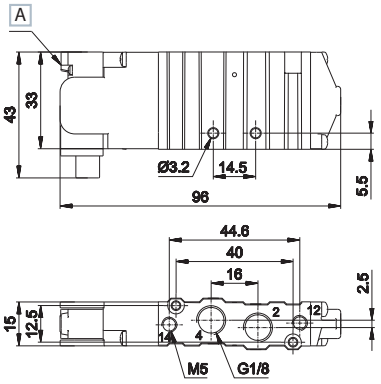
4 Return 12
0 = pneumomechanical spring
1 = mechanical spring
3 = pneumatic amplified
4 = electric amplified

5 Voltage
24 = 24 V DC

6 Variant
D = external servo-assistance of the pilot on valve body (**P15** = M5)

o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

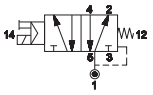
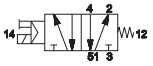
Single electric impulse



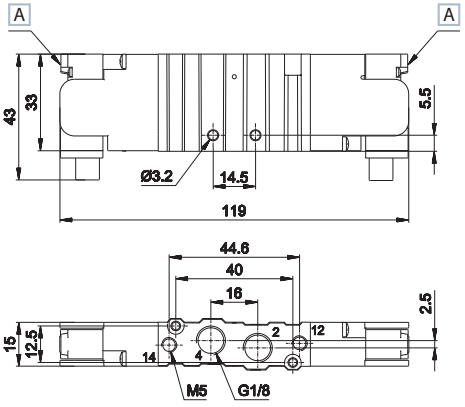
A Manual override

2 - 4 = Use
14 = Control
12 = Return

Weight (Kg): 0,138

	Symbol	Control	Return	Pressure bar	Times (ms) Ecc.	Dis.	Part no.
5/2		electric amplified	pneumo mechanical spring	1,9÷9	15	24	**P15F24024**
5/2		electric amplified	mechanical spring	2÷9	12	21	**P15F24124**

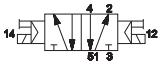
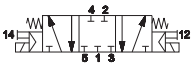
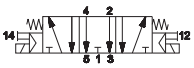
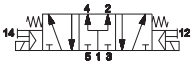
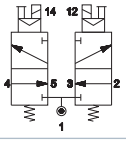
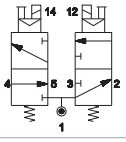
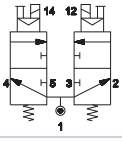
Double electric impulse



A Manual override

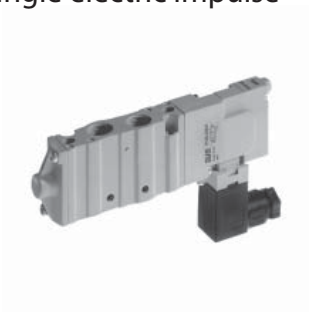
2 - 4 = Use
14 = Control
12 = Return

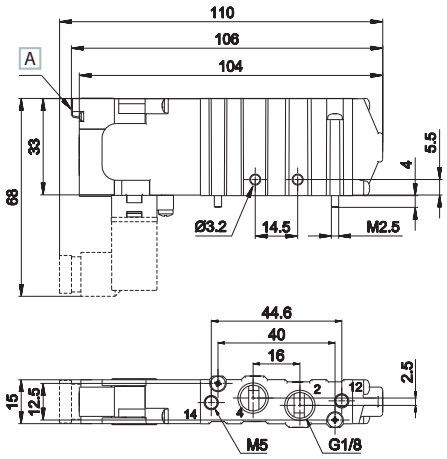
Weight (Kg): 0,158

	Symbol	Control	Return	Pressure bar	Times (ms) Ecc.	Dis.	Part no.
5/2		electric amplified	electric amplified	0,7÷9	11	11	**P15F24424**
5/3 c.c.		electric amplified	electric amplified	1,6÷9	11	35	**P15F34424**
5/3 o.c.		electric amplified	electric amplified	1,6÷9	11	35	**P15F44424**
5/3 p.c.		electric amplified	electric amplified	1,6÷9	11	35	**P15F54424**
3/2 NC + 3/2 NC		electric amplified	electric amplified	1,5÷9	14	16	**P15F64424**
3/2 NC + 3/2 NO		electric amplified	electric amplified	1,5÷9	14	16	**P15F74424**
3/2 NO + 3/2 NO		electric amplified	electric amplified	1,5÷9	14	16	**P15F84424**

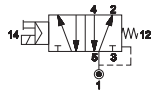
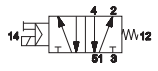
o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

Single electric impulse





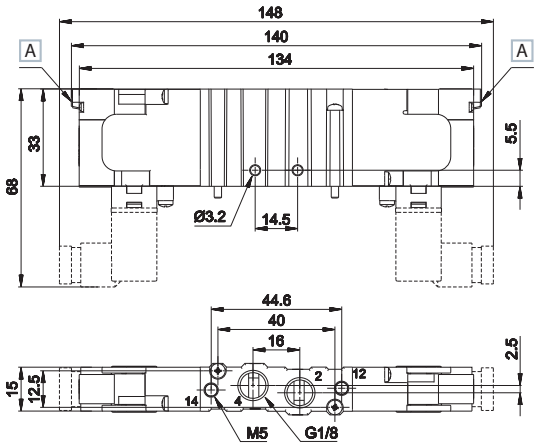
Weight (Kg): 0,142

	Symbol	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Part no.
5/2		electric amplified	pneumo mechanical spring	1,9÷9	15	24	**P15D24024**
5/2		electric amplified	mechanical spring	2÷9	12	21	**P15D24124**

A Manual override

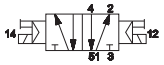
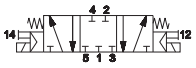
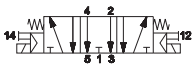
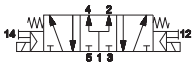
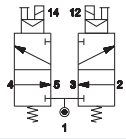
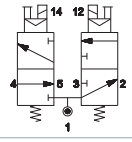
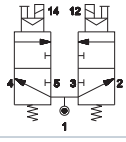
2 - 4 = Use
14 = Control
12 = Return

Double electric impulse



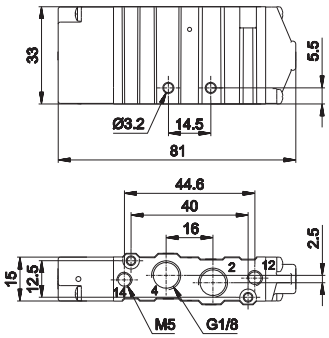
> AM-5109 connector not included

Weight (Kg): 0,166

	Symbol	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Part no.
5/2		electric amplified	electric amplified	0,7÷9	16	16	**P15D24424**
5/3 c.c.		electric amplified	electric amplified	1,6÷9	11	35	**P15D34424**
5/3 o.c.		electric amplified	electric amplified	1,6÷9	11	35	**P15D44424**
5/3 p.c.		electric amplified	electric amplified	1,6÷9	11	35	**P15D54424**
3/2 NC + 3/2 NC		electric amplified	electric amplified	1,5÷9	14	16	**P15D64424**
3/2 NC + 3/2 NO		electric amplified	electric amplified	1,5÷9	14	16	**P15D74424**
3/2 NO + 3/2 NO		electric amplified	electric amplified	1,5÷9	14	16	**P15D84424**

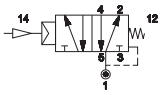
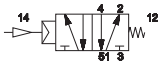
o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

Single electric impulse

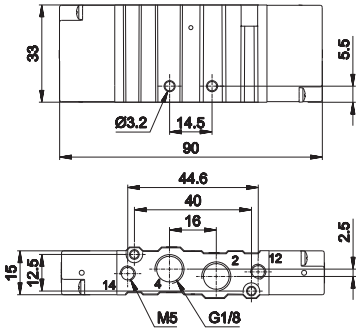


2 - 4 = Use
14 = Control
12 = Return

Weight (Kg): 0,042

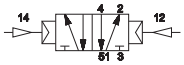
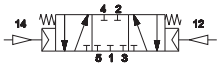
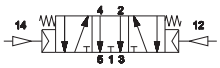
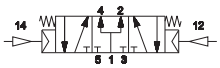
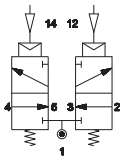
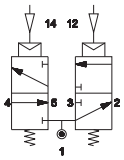
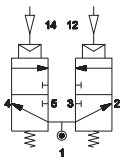
	Symbol	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Part no.
5/2		pneumatic amplified	pneumo mechanical spring	1,9÷10	11	15	**P15F230**
5/2		pneumatic amplified	mechanical spring	2÷10	10	14	**P15F231**

Double electric impulse



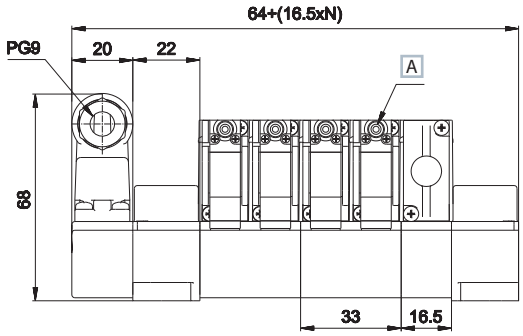
2 - 4 = Use
14 = Control
12 = Return

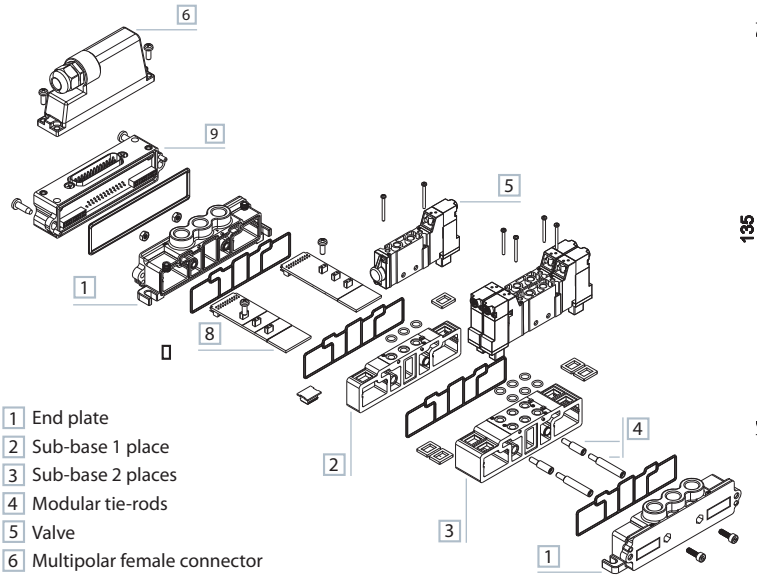
Weight (Kg): 0,044

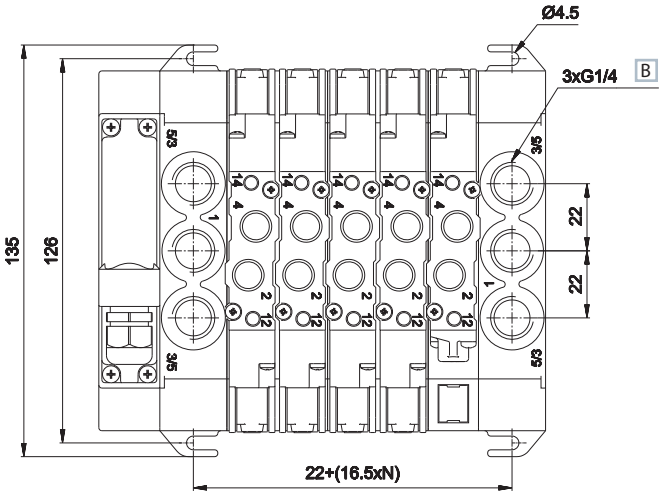
	Symbol	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Part no.
5/2		pneumatic amplified	pneumatic amplified	0,7÷10	10	10	**P15F233**
5/3 c.c.		pneumatic amplified	pneumatic amplified	1,6÷10	9	21	**P15F333**
5/3 o.c.		pneumatic amplified	pneumatic amplified	1,6÷10	9	21	**P15F433**
5/3 p.c.		pneumatic amplified	pneumatic amplified	1,6÷10	9	21	**P15F533**
3/2 NC + 3/2 NC		pneumatic amplified	pneumatic amplified	1,3÷10	10	14	**P15F633**
3/2 NC + 3/2 NO		pneumatic amplified	pneumatic amplified	1,3÷10	10	14	**P15F733**
3/2 NO + 3/2 NO		pneumatic amplified	pneumatic amplified	1,3÷10	10	14	**P15F833**

o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

Integrated electric connection





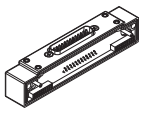
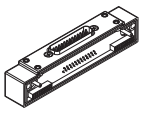
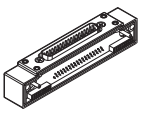
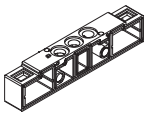
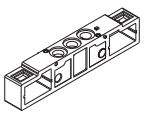
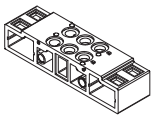
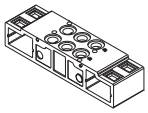


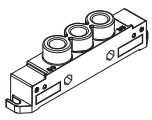
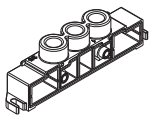
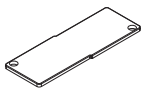
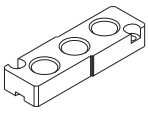
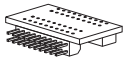
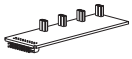
1 End plate
2 Sub-base 1 place
3 Sub-base 2 places
4 Modular tie-rods
5 Valve
6 Multipolar female connector
7 Single connector
8 Bus connection card
9 Multipole connection module

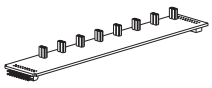
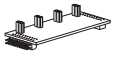
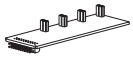
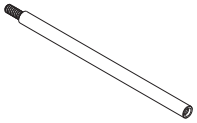
1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

N = Number of valve places

A Manual override
B Tightening torque
G1/4 = max 10 Nm

TIM1524	TIM151806	TIM1536	P15SF100	P15SF110	P15SF200	P15SF210
						
connection module 25 poles male 12+12 coils type D-sub weight: 0,047 Kg	connection module 25 poles male 18 coils, side 14 6 coils, side 12 type D-sub weight: 0,055 Kg	connection module 37 poles male 16+16 coils type D-sub weight: 0,057 Kg	sub-base 1 place weight: 0,037 Kg	sub-base 1 place 1-3-5 closed weight: 0,038 Kg	sub-base 2 places weight: 0,073 Kg	sub-base 2 places 1-3-5 closed weight: 0,074 Kg

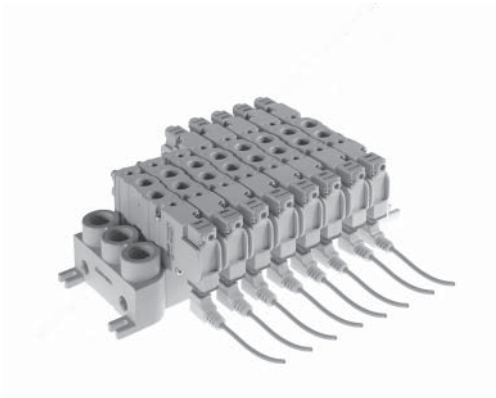
P15SF500	P15SF505	P15SF550	P15SF560	P15SF570	P15SS**01MC	P15SS**..M
						
supply plate G1/4 left for TIM module weight: 0,064 Kg	supply plate G1/4 right weight: 0,065 Kg	supply pressure separator plate weight: 0,003 Kg	covering plate for unused valve place weight: 0,007 Kg	intermediate supply plate for threaded version weight: 0,011 Kg	U-bus connection card, male ** = side14 or 12 weight: 0,004 Kg	bus connection card, male ** = side 14 or 12 .. = 04, 06, 08 places weight: 0,009 Kg 04 places 0,010 Kg 06 places 0,013 Kg 08 places

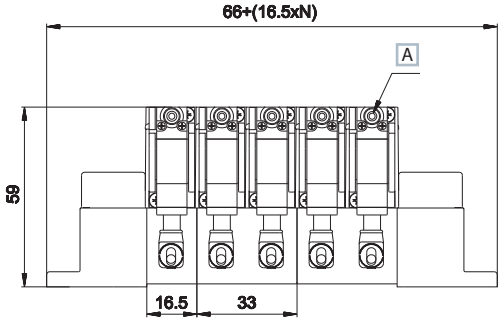
P15SS**08MF	P15SS**04MFP	P15SS**04MP	P15STR01	P15STR02	P15STR05
					
bus connection card male/female ** = side 14 or 12 weight: 0,014 Kg	bus connection card male/female extension ** = side 14 o 12 weight: 0,008 Kg	bus card extension ** = side 14 o 12 weight: 0,006 Kg	modular tie-rods 1 valve place (package 100 pcs.) weight: 0,003 Kg	modular tie-rods 2 valve places (package 100 pcs.) weight: 0,007 Kg	modular tie-rods 5 valve places (package 100 pcs.) weight: 0,018 Kg

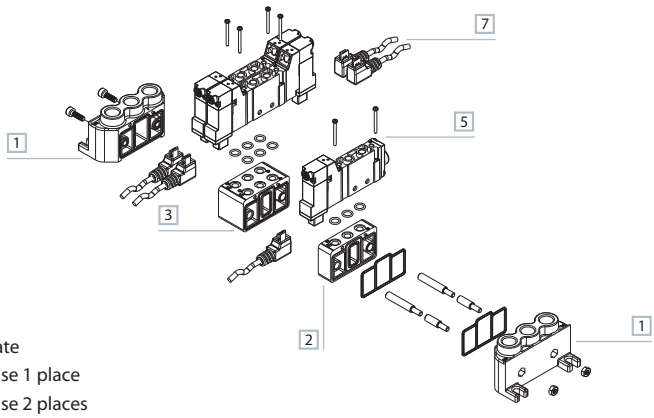
AZ4-SN004A
100 nuts M4 for tie-rods

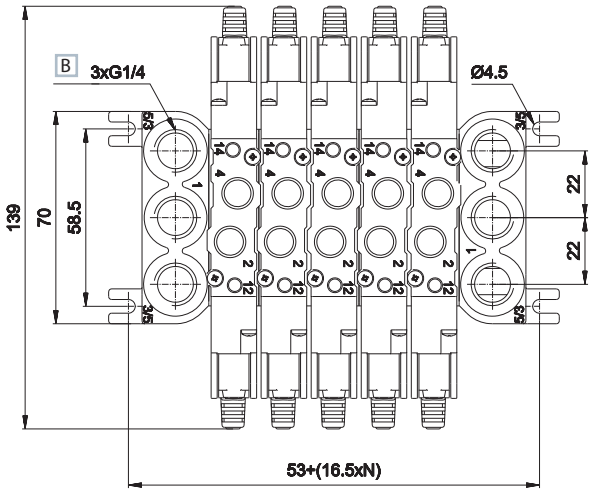
AZ4-VN0414
100 screws 4x14 for tie-rods

Electric connection with external connector







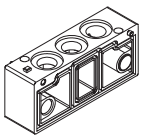
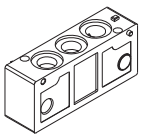
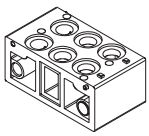
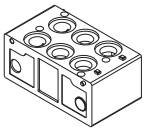
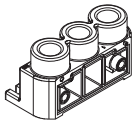
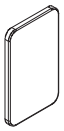
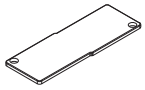


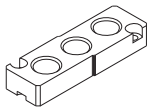
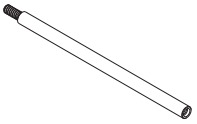
1 End plate
2 Sub-base 1 place
3 Sub-base 2 places
4 Modular tie-rods
5 Valve
6 Multipolar female connector
7 Single connector
8 Bus connection card
9 Multipole connection module

1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

N = Number of valve places

A Manual override
B Tightening torque
G1/4 = max 10 Nm

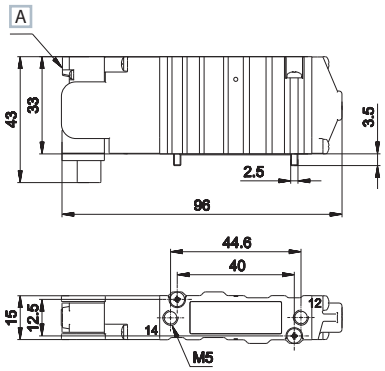
P15SF300	P15SF310	P15SF400	P15SF410	P15SF515	P15SF550	P15SF560
						
sub-base 1 place weight: 0,023 Kg	sub-base 1 place 1-3-5 closed weight: 0,024 Kg	sub-base 2 places weight: 0,046 Kg	sub-base 2 places 1-3-5 closed weight: 0,048 Kg	supply plate right/left G1/4 weight: 0,050 Kg	supply pressure separator plate weight: 0,001 Kg	covering plate for unused valve place weight: 0,007 Kg

P15SF570	P15STR01	P15STR02	P15STR05
			
intermediate supply plate for threaded version weight: 0,009 Kg	modular tie-rods 1 valve place (package 100 pcs.) weight: 0,003 Kg	modular tie-rods 2 valve places (package 100 pcs.) weight: 0,007 Kg	modular tie-rods 5 valve places (package 100 pcs.) weight: 0,018 Kg

AZ4-SN004A
100 nuts M4 for tie-rods

AZ4-VN0414
100 screws 4x14 for tie-rods

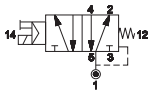
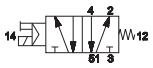
Single electric impulse



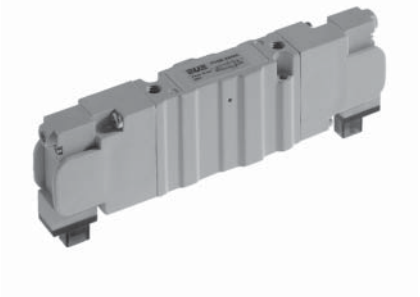
A Manual override

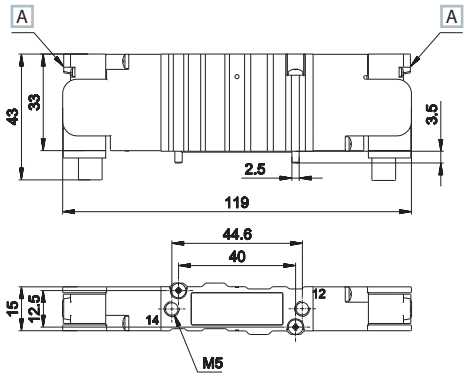
14 = Control
12 = Return

Weight (Kg): 0,138

	Symbol	Control	Return	Pressure	Times (ms)		Part no.
				bar	En.	De-en.	
5/2		electric amplified	pneumo mechanical spring	1,9÷9	15	24	**P15B24024**
5/2		electric amplified	mechanical spring	2÷9	12	21	**P15B24124**

Double electric impulse

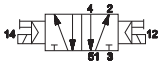
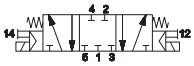
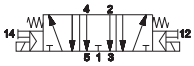
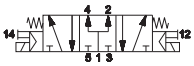
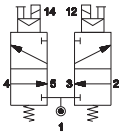
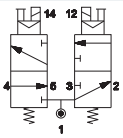
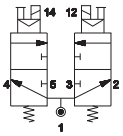




A Manual override

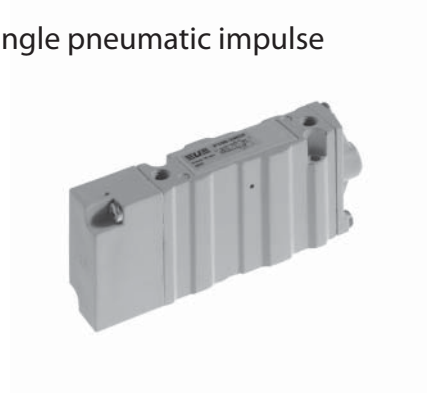
14 = Control
12 = Return

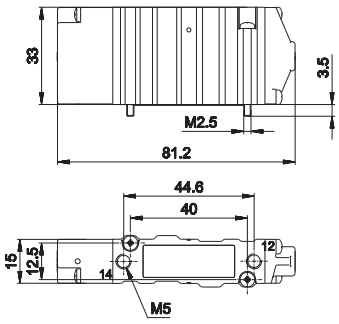
Weight (Kg): 0,158

	Symbol	Control	Return	Pressure	Times (ms)		Part no.
				bar	En.	De-en.	
5/2		electric amplified	electric amplified	0,7÷9	11	11	**P15B24424**
5/3 c.c.		electric amplified	electric amplified	1,6÷9	11	35	**P15B34424**
5/3 o.c.		electric amplified	electric amplified	1,6÷9	11	35	**P15B44424**
5/3 p.c.		electric amplified	electric amplified	1,6÷9	11	35	**P15B54424**
3/2 NC + 3/2 NC		electric amplified	electric amplified	1,5÷9	14	16	**P15B64424**
3/2 NC + 3/2 NO		electric amplified	electric amplified	1,5÷9	14	16	**P15B74424**
3/2 NO + 3/2 NO		electric amplified	electric amplified	1,5÷9	14	16	**P15B84424**

o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

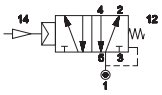
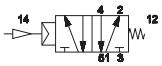
Single pneumatic impulse



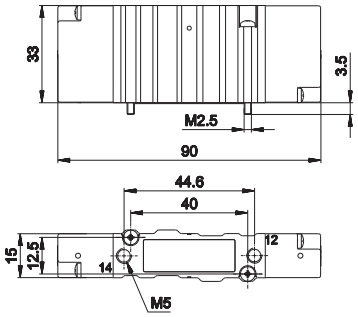


14 = Control
12 = Return

Weight (Kg): 0,127

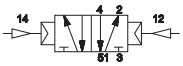
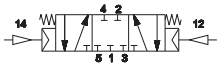
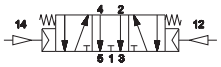
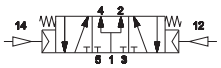
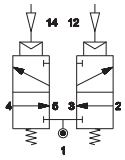
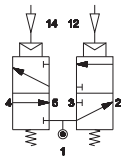
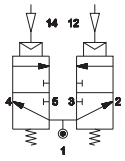
	Symbol	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Part no.
5/2		pneumatic amplified	pneumo mechanical spring	1,9÷9	11	15	**P15B230**
5/2		pneumatic amplified	mechanical spring	2÷9	10	14	**P15B231**

Double pneumatic impulse



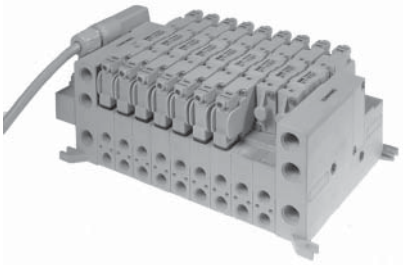
14 = Control
12 = Return

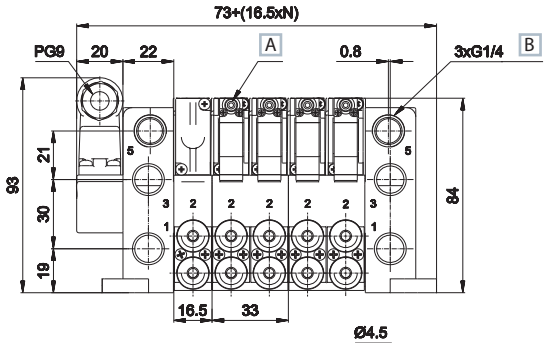
Weight (Kg): 0,132

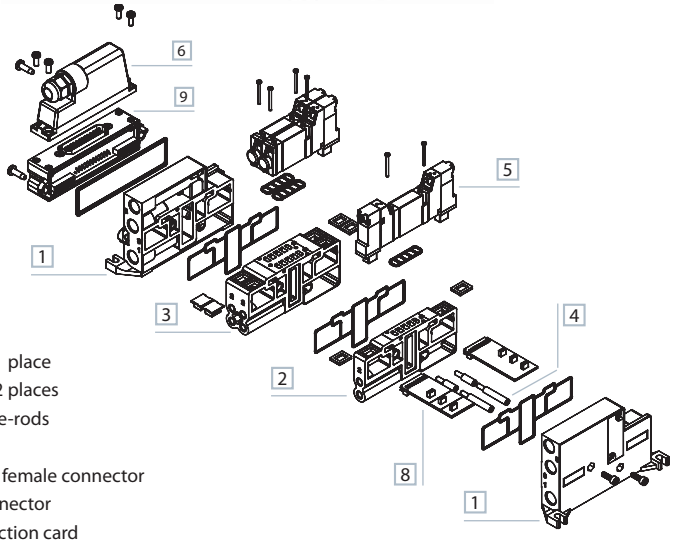
	Symbol	Control	Return	Pressure bar	Times (ms) En.	Times (ms) De-en.	Part no.
5/2		pneumatic amplified	pneumatic amplified	0,7÷9	10	10	**P15B233**
5/3 c.c.		pneumatic amplified	pneumatic amplified	1,6÷9	9	21	**P15B333**
5/3 o.c.		pneumatic amplified	pneumatic amplified	1,6÷9	9	21	**P15B433**
5/3 p.c.		pneumatic amplified	pneumatic amplified	1,6÷9	9	21	**P15B533**
3/2 NC + 3/2 NC		pneumatic amplified	pneumatic amplified	1,3÷9	10	14	**P15B633**
3/2 NC + 3/2 NO		pneumatic amplified	pneumatic amplified	1,3÷9	10	14	**P15B733**
3/2 NO + 3/2 NO		pneumatic amplified	pneumatic amplified	1,3÷9	10	14	**P15B833**

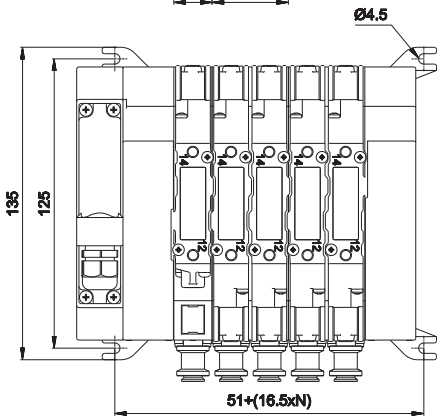
o.c. = open centres **c.c.** = closed centres **p.c.** = pressurized centres

Integrated electric connection









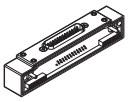
1 End plate
2 Sub-base 1 place
3 Sub-base 2 places
4 Modular tie-rods
5 Valve
6 Multipolar female connector
7 Single connector
8 Bus connection card
9 Multipole connection module

1 = Supply port
2 - 4 = Use
3 - 5 = Exhaust
14 = Control
12 = Return

A Manual override
B Tightening torque
G1/4 = max 10 Nm
G1/8 = max 3 Nm

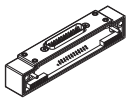
N = Number of valve places

TIM1524



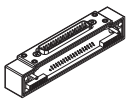
connection module
25 poles male
12+12 coils
type D-sub
weight: 0,047 Kg

TIM151806



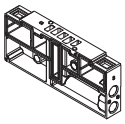
connection module
25 poles male
18 coils side 14
6 coils side 12
type D-sub
weight: 0,055 Kg

TIM1536



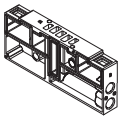
connection module
37 poles male
16+16 coils
type D-sub
weight: 0,057 Kg

P15SB100



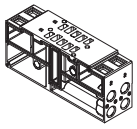
sub-base 1 place
side outlets G1/8
integrated version
weight: 0,060 Kg

P15SB110



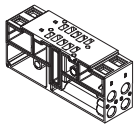
sub-base 1 place
side outlets G1/8
integrated version
1-3-5 closed
weight: 0,060 Kg

P15SB200



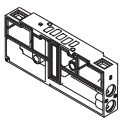
sub-base 2 places
side outlets G1/8
weight: 0,133 Kg

P15SB210



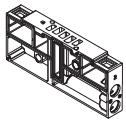
sub-base 2 places
side outlets G1/8
integrated version
1-3-5 closed
weight: 0,133 Kg

P15SB300



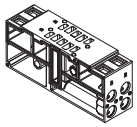
sub-base 1 place
side outlets for
quick couplings
integrated version
weight: 0,060 Kg

P15SB310



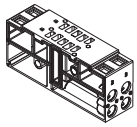
sub-base 1 place
side outlets for
quick couplings
1-3-5 closed
weight: 0,060 Kg

P15SB400



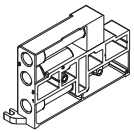
sub-base 2 places
side outlets for
quick couplings
integrated version
weight: 0,133 Kg

P15SB410



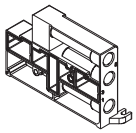
sub-base 2 places
side outlets for
quick couplings
1-3-5 closed
weight: 0,133 Kg

P15SB500



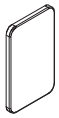
supply plate G1/8
for TIM module
weight: 0,127 Kg

P15SB505



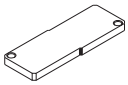
supply plate G1/4 right
weight: 0,124 Kg

P15SB550



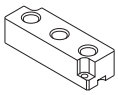
supply pressure
separator plate
weight: 0,003 Kg

P15SB560



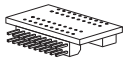
covering plate for
unused valve place
weight: 0,007 Kg

P15SB570



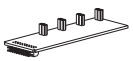
intermediate supply
plate for sub-base
weight: 0,016 Kg

P15SS01MC**



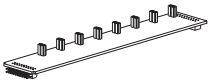
U-bus connection
card, male
** = lato14 o 12
weight: 0,004 Kg

P15SS..M**



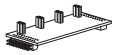
bus connection card
male
** = side14 or 12
.. = 04, 06, 08 places
weight: 0,009 Kg 04 places
0,010 Kg 06 places
0,013 Kg 08 places

P15SS08MF**



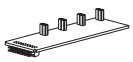
bus connection card
male/female
extension
** = side14 or 12
weight: 0,014 Kg

P15SS04MFP**



bus connection card
male/female
extension
** = side14 or 12
weight: 0,008 Kg

P15SS04MP**



bus card
extension
** = side14 or 12
weight: 0,006 Kg

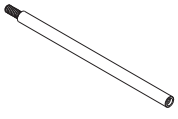
P15STR01

modular tie-rods
1 valve place
(package 100 pcs.)
weight: 0,003 Kg

P15STR02

modular tie-rods
2 valve places
(package 100 pcs.)
weight: 0,007 Kg

P15STR05



modular tie-rods
5 valve places
(package 100 pcs.)
weight: 0,018 Kg

GZR-V100..

fitting
.. = 04, 06, 08 places
weight: 0,013 Kg

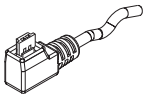
AZ4-SN004A

100 nuts M4 for tie-rods

AZ4-VN0414

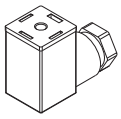
100 screws 4x14 for tie-rods

D-535U40300
D-535U40500



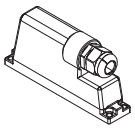
single connector with cable 3-5 m

AM-5109



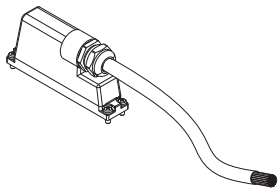
15 mm connector

TSCFN24S000
TSCFN36S000



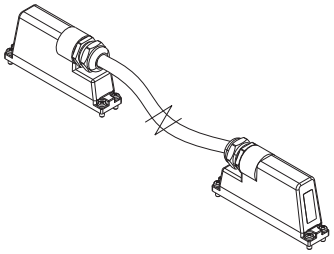
fermale connector 25/37 poles type D-sub no cable M3 x 8 fixing screws

TSCFN24S0300
TSCFN24S0500
TSCFN24S1000
TSCFN32S0300
TSCFN32S0500
TSCFN32S1000



fermale connector 25/37 poles type D-sub with cable 3-5-10 m M3 x 8 fixing screws

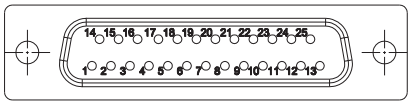
TSCFN16D0300
TSCFN16D0500
TSCFN16D1000



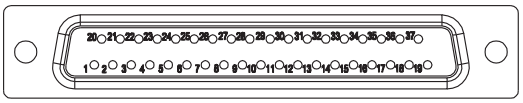
flying male/female connector sub D (upon request) prewired for 24 coils with cable Ø 8 mm (3-5-10 m lenght) suitable for mobile laying M3 x 8 fixing screws

Colour identification according to standard **DIN 47100**

Female **D-SUB 25 poles**
for connection**12+12 coils**



Female **D-SUB 37 poles**
for connection **16+16 coils**



PIN No.	Colour	Coil	Control side TIM1524	Control side TIM151806	Valve No.
1	white	1	14	14	1
2	brown	2	12	12	1
3	green	3	14	14	2
4	yellow	4	12	12	2
5	grey	5	14	14	3
6	pink	6	12	12	3
7	blue	7	14	14	4
8	red	8	12	12	4
9	black	9	14	14	5
10	violet	10	12	12	5
11	grey-pink	11	14	14	6
12	red-blue	12	12	12	6
13	white-green	13	14	14	7
14	brown-green	14	12	14	7
15	white-yellow	15	14	14	8
16	yellow-brown	16	12	14	8
17	white-grey	17	14	14	9
18	grey-brown	18	12	14	9
19	white-pink	19	14	14	10
20	pink-brown	20	12	14	10
21	white-blue	21	14	14	11
22	brown-blue	22	12	14	11
23	white-red	23	14	14	12
24	brown-red brown-black shield		-	-	-
25	white-black	24	12	14	12

PIN No.	Colour	Coil	Control side TIM1536	Valve No.
1	white	1	14	1
2	brown	2	12	1
3	green	3	14	2
4	yellow	4	12	2
5	grey	5	14	3
6	pink	6	12	3
7	blue	7	14	4
8	red	8	12	4
9	black	9	14	5
10	violet	10	12	5
11	grey-pink	11	14	6
12	red-blue	12	12	6
13	white-green	13	14	7
14	brown-green	14	12	7
15	white-yellow	15	14	8
16	yellow-brown	16	12	8
17	white-grey	17	14	9
18	grey-brown	18	12	9
19	white-pink	19	14	10
20	pink-brown	20	12	10
21	white-blue	21	14	11
22	brown-blue	22	12	11
23	white-red	23	14	12
24	brown-red	24	12	12
25	white-black	25	14	12
26	brown-black	26	12	13
27	grey-green	27	14	14
28	yellow-grey	28	12	14
29	pink-green	29	14	15
30	yellow-pink	30	12	15
31	green-blue	31	14	16
32	yellow-blue	32	12	16
33	-	not used	-	-
34	-	not used	-	-
35	-	not used	-	-
36	yellow-black	common	-	-
37	yellow-red shield	common law	-	-





ACCESSORIES

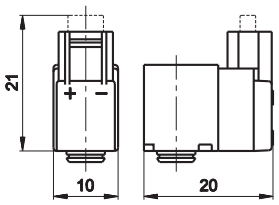
6 Accessories

COILS

COUPLING TABLE
COILS/ELECTROPILOTS
ELECTROPILOTS/SOLENOID VALVES

				Electropilots				
				A	B	AA(U1)	AA(U3)	AB (U2)
Coils	U04	10 mm			■			
	U05	15 mm		■				
	U1	22 mm				■		
	U2	30 mm						■
	U3	30 mm					■	
Solenoid valves	BE		ISO 1- ISO 2 ISO 3 - ISO 4			■	■	
	AE		ISO 1 ISO 2			■	■	
	BD		ISO 01 26 mm ISO 02 18 mm	■				
	AC-N		NAMUR interface			■	■	
	CL CM		G1/8 G1/4			■	■	
	G6 GL6		G1/8 sub-base	■				
	G7		G1/8	■				
	PS		tube Ø 4 tube Ø 6 tube Ø 8		■			
	AC		G1/8 - G1/4					
			G1/2			■	■	
	AF		G1/8			■	■	■
			G1/4 - G3/8			■	■	
			G1/2 ÷ G1 1/2					■
	AG		G1/8			■	■	
			G1/4 ÷ G1 1/2					■

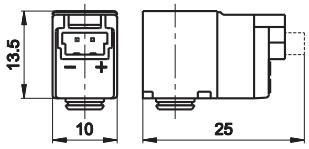
U04 coil with integrated 90° upward connector



Life of ED (a)	Input W		Tension tolerance	Rated voltage	Weight	Part no.	Connector
%	continuo	start	%		Kg		
100	1,2	1,2	±10	24 V DC	0,013	**DE-352**	**D-500** **D-530-...** **D-535-...**
100	1,35	1,35	±10	24 V DC	0,013	**DE-452**	

Upon request 12 VDC

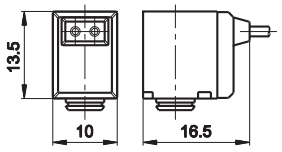
U04 coil with in-line connector



Life of ED (a)	Input W		Tension tolerance	Rated voltage	Weight	Part no.	Connector
%	continuo	start	%		Kg		
100	1,2	1,2	±10	24 V DC	0,013	**DE-552**	**D-500** **D-530-...** **D-535-...**
100	1,35	1,35	±10	24 V DC	0,013	**DE-652**	

Upon request 12 VDC

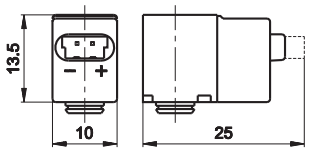
U04 coil with loose cables (length 300 mm)



Life of ED (a)	Input W		Tension tolerance	Rated voltage	Weight	Part no.(b)
%	continuo	start	%		Kg	
100	1,2	1,2	±10	24 VDC	0,013	**DE-052L030**

Upon request 12 VDC

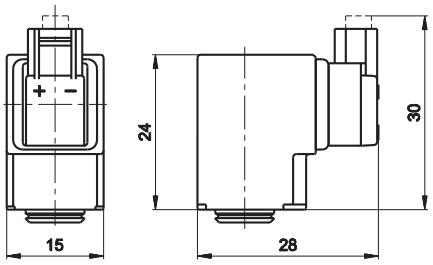
U04 coil with in-line connector with protecting cover for complete tightness



Life of ED (a)	Input W		Tension tolerance	Rated voltage	Weight	Part no.	Connector
%	continuo	start	%		Kg		
100	1,35	1,35	±10	12 V DC	0,013	**DE-642I**	**D-500** **D-530-...** **D-535-...**
100	1,35	1,35	±10	24 V DC	0,013	**DE-652I**	

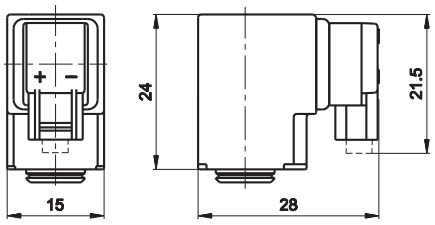
(a) = 110V - 230V solenoid valves must be built-in (EN-60204-1)
under continuous service a maximum temperature will not compromise the functioning of the coil provided that the working position is ventilated
(b) = different wire lengths are available upon request

U05 coil with integrated 90° upward connector



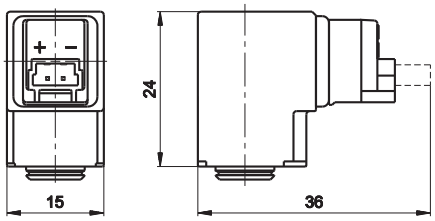
Life of ED (a)	Input W		Tension tolerance	Rated voltage	Weight	Part no.	Connector
%	continuo	start	%		Kg		
100	2	2	±10	24 V DC	0,019	**DD-351**	**D-500 D-530-... D-535-...**

U05 coil with integrated 90° upward connector



Life of ED (a)	Input W		Tension tolerance	Rated voltage	Weight	Part no.	Connector
%	continuo	start	%		Kg		
100	2	2	±10	24 V DC	0,019	**DD-151**	**D-500 D-530-... D-535-...**

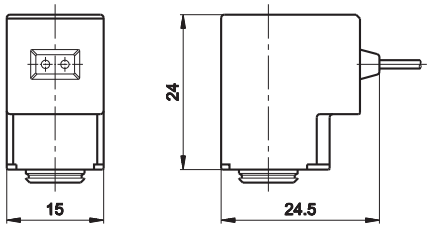
U05 coil with in-line connector



Life of ED (a)	Input W		Tension tolerance	Rated voltage	Weight	Part no.	Connector
%	continuo	start	%		Kg		
100	2	2	±10	24 V DC	0,019	**DD-551**	**D-500 D-530-... D-535-...**

Upon request: version with LED and V DC version

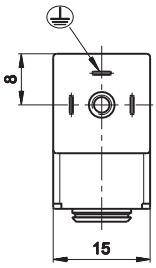
U05 coil with loose cables

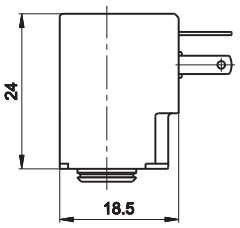


Life of ED (a)	Input W		Tension tolerance	Rated voltage	Weight	Part no. (b)
%	continuo	start	%		Kg	
100	1,5	1,5	±10	12 V DC	0,019	**DD-051L030**
100	2	2	±10	24 V DC	0,019	**DD-052L030**

(a) = 110V - 230V solenoid valves must be built-in (EN-60204-1)
under continuous service a maximum temperature will not compromise the functioning of the coil provided that the working position is ventilated
(b) = different wire lengths are available upon request

U05 lato 15 mm coil - Faston

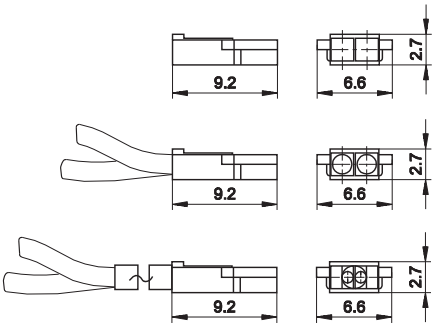




Life of ED (a)	Input W				Tolerance		Rated voltage		Frequency	Weight	Part no.	Connector
%	DC W		AC VA		tension %		DCV	ACV	HZ	Kg		
	Contin.	Start	Conti.	Start	DC	AC						
100	-	-	3,5	-	-	±10	-	24	50/60	0,019	DD-011	AM-5109
100	-	-	3,5	-	-	±10	-	230	50/60	0,019	DD-013	
100	-	-	2,3	3,2	±10	±10	-	24	50/60	0,019	DD-040	
100	1,5	1,5	-	-	±10	-	12	-	-	0,019	DD-041	
100	2,5	2,5	-	-	±10	±10	12	-	-	0,019	DD-042	
100	-	-	2,3	3,2	±10	-	-	48	50/60	0,019	DD-050	
100	2	2	-	-	±10	±10	24	-	-	0,019	DD-051	
100	2,5	2,5	-	-	±10	-	24	-	-	0,019	DD-052	
100	-	-	-	-	±10	±10	-	110	50/60	0,019	DD-060	
100	-	-	2,3	3,2	±10	-	-	230	50/60	0,019	DD-070	

Connectors for U04 e U05 coils

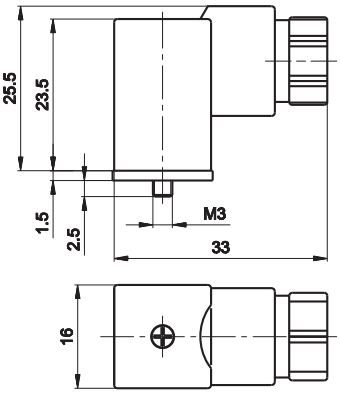
	Length mm	Coil	Part no.
MINIATURE CONNECTOR WITHOUT WIRES			
	-	U04/U05	D-500
MINIATURE CONNECTOR WITH LOOSE CABLES			
	300	U04/U05	D-530-30
	500	U04/U05	D-530-50
	2000	U04/U05	D-530-200
MINIATURE CONNECTOR WITH CABLE			
	300	U04/U05	D-535-30
	500	U04/U05	D-535-50
	2000	U04/U05	D-535-200



CAUTION! Do not invert the polarity when connecting to be coil with LED.

15 mm connector

-	U05	AM-5109

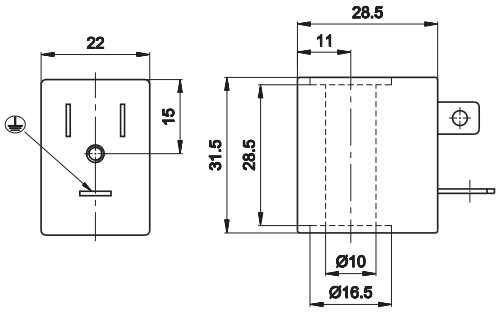


Protection according to IP65. PG9 cable connection. 180° rotation on the coil.

Upon request version with LED:
(a) = 110V - 230V solenoid valves must be built-in (EN-60204-1)
under continuons service a maximum temperature will not compromise the functioning of the coil provided that the working position is ventilated

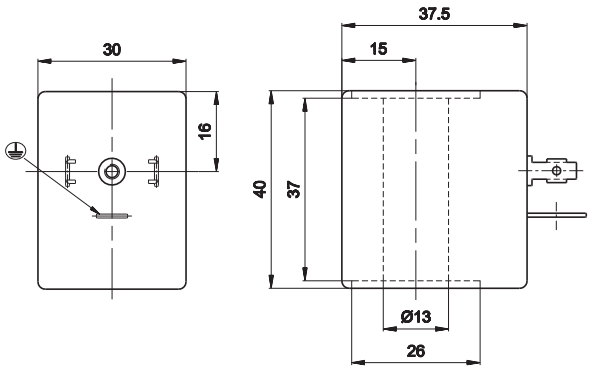
Possibility of replacement without intervention in the pneumatic circuit
Other voltages available upon request
360° rotation on the pilot. Coil winding: H class
Ambient temperature: -10 ÷ +45 °C. Fluid temperature: -10 ÷ +95 °C.
The solenoid valves functioning with 100V-230V must be incorporated (EN60204-1)
Under continuous service a maximum temperature will not compromise the functioning of the coil provided that the working position is ventilated.

U1 22 mm coil to be used with U1 electropilot



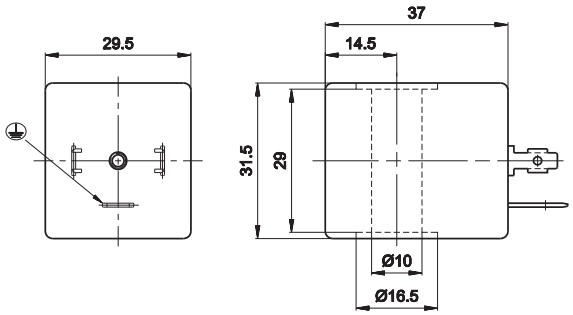
Life of ED (a)	Input W		Tolerance tension	Rated voltage	Weight	Part no.
%	continuo	start	%		Kg	
100	3,5	3,5	±10	12 V DC	0,06	**DA-0050**
100	3,5	3,5	±10	24 V DC	0,06	**DA-0051**
100	5,4 VA (max)	7,8 VA (max)	±10	24 V AC/50-60 HZ	0,06	**DA-0106**
100	5,4 VA (max)	7,8 VA (max)	±10	110 V AC/50-60 HZ	0,06	**DA-0108**
100	5,4 VA (max)	7,8 VA (max)	±10	230 V AC/50-60 HZ	0,06	**DA-0124**

U2 30 mm coil to be used with U2 electropilot



Life of ED (a)	Input W		Tension tolerance	Rated voltage	Weight	Part no.
%	continuous	start	%		Kg	
100	11	11	±10	12 V DC	0,10	**DB-0501**
100	11	11	±10	24 V DC	0,10	**DB-0502**
100	10 VA (max)	16 VA (max)	±10	24 V AC/50-60 HZ	0,10	**DB-0507**
100	10 VA (max)	16 VA (max)	±10	110 V AC/50-60 HZ	0,10	**DB-0509**
100	10 VA (max)	16 VA (max)	±10	230 V AC/50-60 HZ	0,10	**DB-0510**

U3 30 mm coil to be used with U1 electropilot



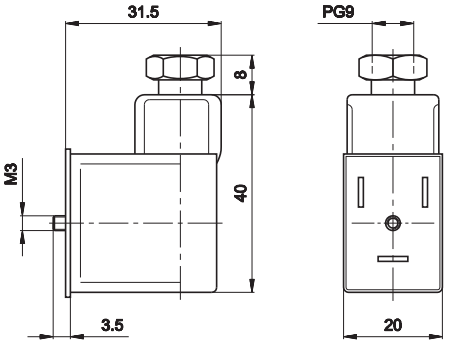
Life of ED (a)	Input W		Tension tolerance	Rated voltage	Weight	Part no.
%	continuous	start	%		Kg	
100	2,5	2,5	±10	12 V DC	0,08	**DC-0301**
100	2,5	2,5	±10	24 V DC	0,08	**DC-0302**
100	3,3 VA (max)	5 VA (max)	±10	24 V AC/50-60 HZ	0,08	**DC-0307**
100	3,3 VA (max)	5 VA (max)	±10	110 V AC/50-60 HZ	0,08	**DC-0309**
100	3,3 VA (max)	5 VA (max)	±10	230 V AC/50-60 HZ	0,08	**DC-0310**

(a) = 110V - 230V solenoid valves must be built-in (EN-60204-1)
under continuons service a maximum temperature will not compromise the functioning of the coil provided that the working position is ventilated

Connector for U1 coil

	Coil	Part no.
Connector		
	U1	**AM-5110**

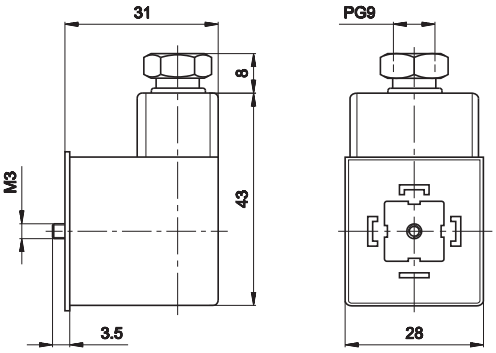
Protection according to IP 65. PG9 cable connection. 180° rotation on the coil
LED and moulded cable are available upon request.



Connector for U2, U3 coil

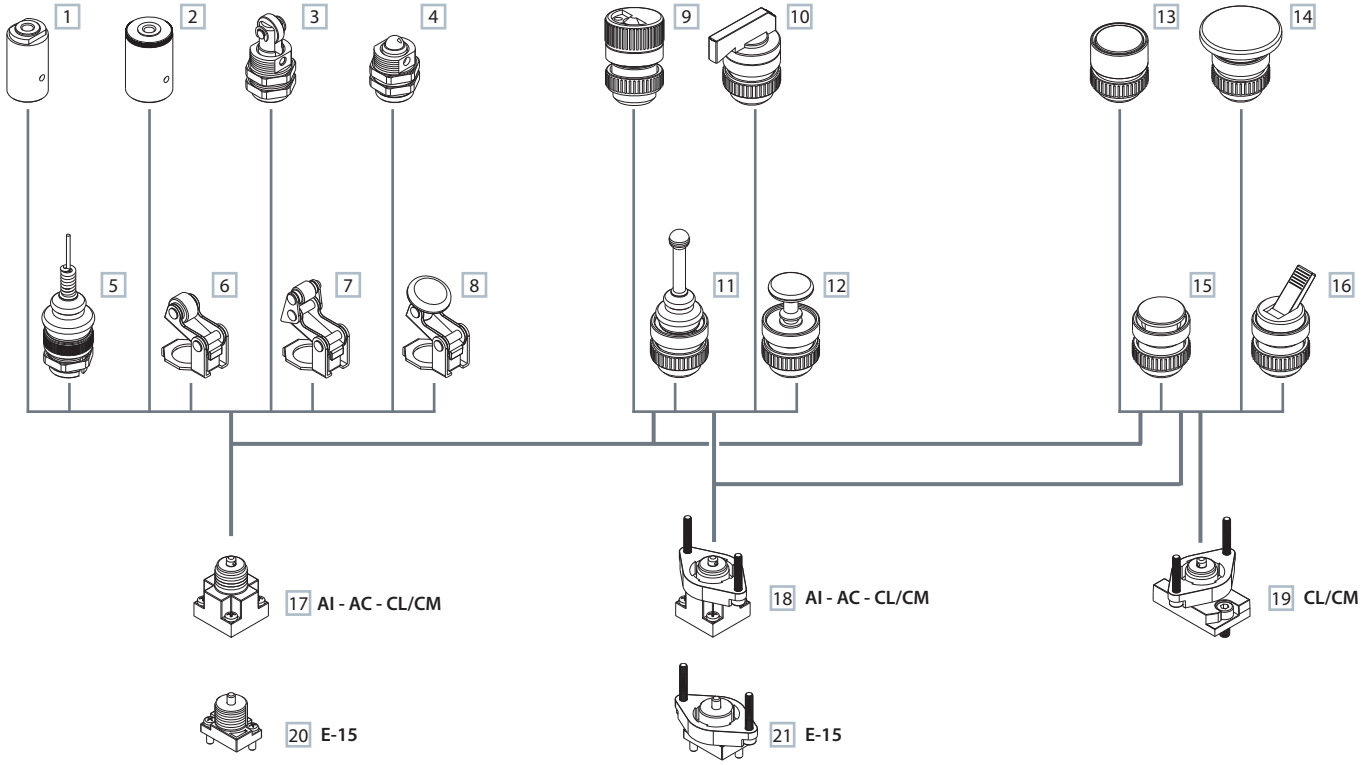
	Coil	Part no.
DIN 43650 connector		
	U2/U3	**AM-5111**

Protection according to IP 65. PG9 cable connection. 360° rotation on the coil.
LED and moulded cable are available upon request.



BUTTONS

Modular system actuators/buttons



PNEUMATIC / MECHANICAL ACTUATORS

1 Pneumatic actuator
2 Amplified pneumatic actuator
3 Roller operator 1 position
4 Ball-push operator 1 position
5 Operator with omni-directional antenna 1 position
6 Roller lever operator 1 position
7 Articulated roller lever operator 1 position
8 Key operator 1 position

MANUAL ACTUATORS

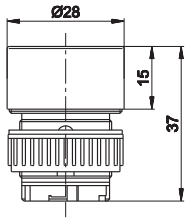
9 Rotating selector
10 Rotating lever selector
11 Omni-directional operator
12 Push-pull operator
13 Recessed button
14 Head button
15 Button
16 Lever operator

OVERRIDE

17 Threaded indirect operation
18 Indirect operation for panel mounting
19 Direct operation for panel mounting
20 Direct operation with tappet
21 Direct operation with tappet for panel mounting

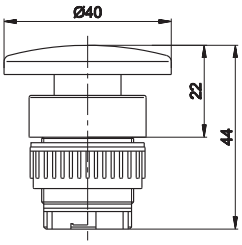
Recessed button

Symbol	Colour	Force (a) N	Weight Kg	Part no.
1 POSITION				
	black ■	16	0,031	AI-3511
	red ■	16	0,031	AI-3512
	green ■	16	0,031	AI-3513
FOR PANEL MOUNTING 1 POSITION (b)				
	black ■	16	0,031	AI-3511Q
	red ■	16	0,031	AI-3512Q
	green ■	16	0,031	AI-3513Q



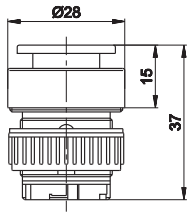
Head button

Symbol	Colour	Force (a) N	Weight Kg	Part
1 POSITION				
	red ■	16	0,022	AI-3514
	black ■	16	0,022	AI-3516
FOR PANEL MOUNTING 1 POSITION (b)				
	red ■	16	0,022	AI-3514Q
	black ■	16	0,022	AI-3516Q
2 POSITIONS				
	red ■	16	0,022	AI-3514D
	black ■	16	0,022	AI-3516D
FOR PANEL MOUNTING 2 POSITIONS (b)				
	red ■	16	0,022	AI-3514QD
	black ■	16	0,022	AI-3516QD



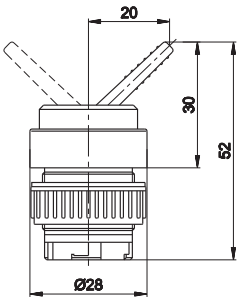
Button

Symbol	Colour	Force (a) N	Weight Kg	Part no.
1 POSITION				
	green ■	12,5	0,025	AI-3515
	red ■	12,5	0,025	AI-3517
	black ■	12,5	0,025	AI-3519
FOR PANEL MOUNTING 1 POSITION (b)				
	green ■	12,5	0,025	AI-3515Q
	red ■	12,5	0,025	AI-3517Q
	black ■	12,5	0,025	AI-3519Q



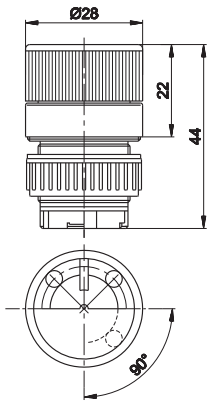
Lever operator

Symbol	Colour	Force (a) N	Weight Kg	Part no.
2 POSITIONS				
	black ■	6	0,022	AI-3524
FOR PANEL MOUNTINGS 2 POSITIONS (b)				
	black ■	6	0,022	AI-3524Q



Accident prevention rotating selector

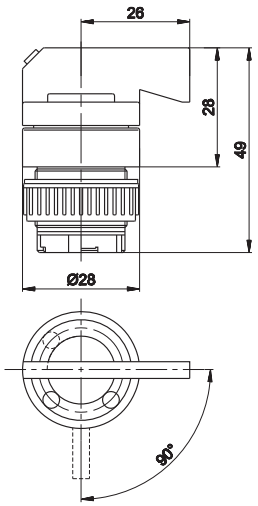
Symbol	Colour	Force (a) N	Weight Kg	Part no.
WITH INDICATOR LAMP 1 POSITION				
	black ■	12,5	0,025	AI-3521
FOR PANEL MOUNTING WITH INDICATOR LAMP 1 POSITION (b)				
	black ■	12,5	0,025	AI-3521Q
WITH INDICATOR LAMP 2 POSITIONS				
	black ■	12,5	0,025	AI-3520
FOR PANEL MOUNTING WITH INDICATOR LAMP 2 POSITIONS (b)				
	black ■	12,5	0,025	AI-3520Q



(a) = force at 6 bar with actuators assembled on AI-35.. standard limit switch
(b) = to be used with valves preset with flange for panel mounting

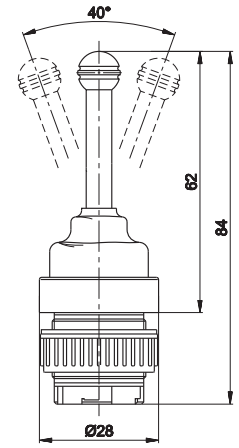
Rotating lever selector

Symbol	Colour	Force (a) N	Weight Kg	Part no.
WITH INDICATOR LAMP 1 POSITION				
	black ■	12,5	0,025	**AI-3523**
FOR PANEL MOUNTING WITH INDICATOR LAMP 1 POSITION (b)				
	black ■	12,5	0,025	**AI-3523Q**
WITH INDICATOR LAMP 2 POSITIONS				
	black ■	12,5	0,025	**AI-3522**
FOR PANEL MOUNTING WITH INDICATOR LAMP 2 POSITIONS (b)				
	black ■	12,5	0,025	**AI-3522Q**



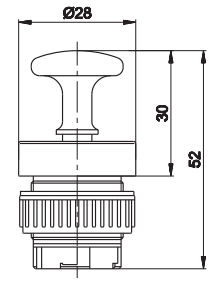
Omni-directional operator

Symbol	Colour	Force (a) N	Weight Kg	Part no.
WITH CENTRE RETURN 1 POSITION				
	■	7	0,029	**AI-3525**
FOR PANEL MOUNTING WITH CENTRE RETURN 1 POSITION (b)				
	■	7	0,029	**AI-3525Q**

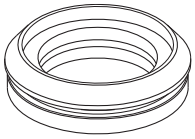


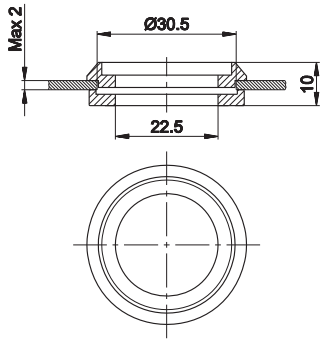
Push-pull operator

Symbol	Colour	Force (a) N	Weight Kg	Part no.
2 POSITIONS				
	black ■	16	0,029	**AI-3526**
FOR PANEL MOUNTING 2 POSITIONS (b)				
	black ■	16	0,029	**AI-3526Q**



AI-3529





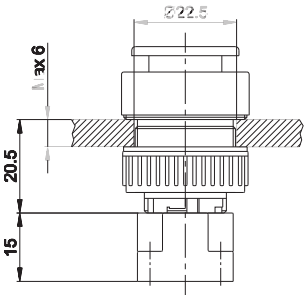
reducer for Ø 30,5 to Ø 22,5, to be used with AI-35..Q limit switches
(for details refer to next page)

(a) = force at 6 bar with actuators assembled on AI-35..
(b) = to be used with valves preset with flange for panel mounting

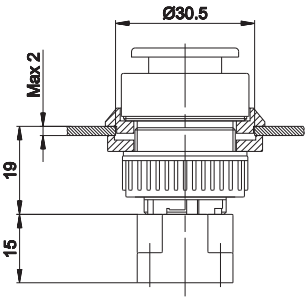
Reducer

Manual actuators for screw mounting (ring nut)

Panel mounting for Ø 22,5 bore sizes

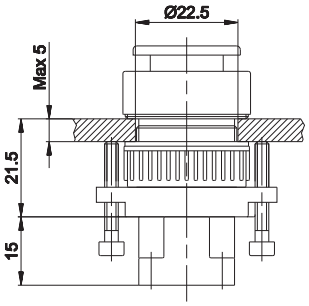


Panel mounting for Ø 30,5 bore sizes



Manual actuators for panel mounting (ring nut+screws)

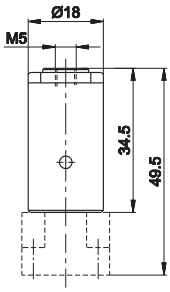
Panel mounting for Ø 22,5 bore sizes



Panel mounting for Ø 30,5 bore sizes, just for manual actuators with screw

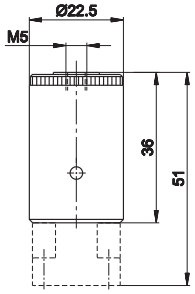
Pneumatic operator

Symbol	Control pressure bar	Operating pressure bar	Weight Kg	Part no.
	1,9÷2,7	1÷9	0,020	AI-3550



Amplified pneumatic operator

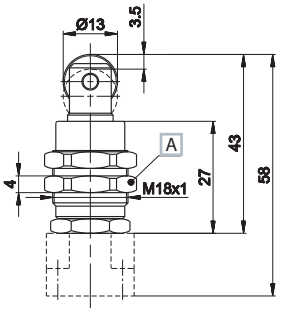
Symbol	Control pressure bar	Operating pressure bar	Weight Kg	Part no.
	0,6÷0,9	1÷9	0,030	AI-3551



Roller operator

A Wrench 20

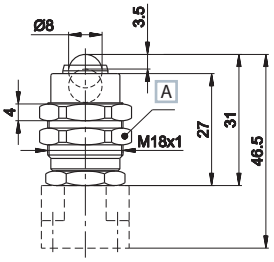
Symbol	Force (a) N	Weight Kg	Part no.
WITH DUST PROTECTION			
	-	0,031	AI-3560



Ball-push operator

A Wrench 20

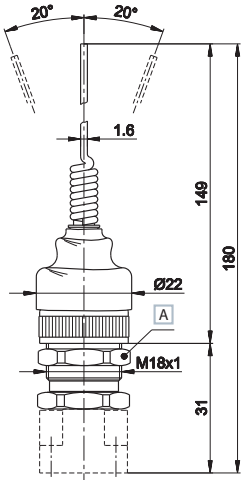
Symbol	Force (a) N	Weight Kg	Part no.
WITH DUST PROTECTION			
	26	0,023	AI-3562



Operator with omni-directional antenna

A Wrench 20

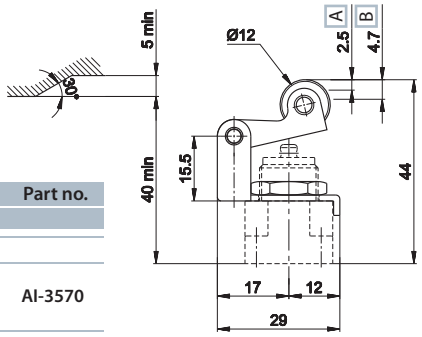
Symbol	Force (a) N	Weight Kg	Part no.
1 POSITION WITH CENTRE RETURN			
	3,3	0,034	AI-3563



(a) = force at 6 bar with actuators assembled on AI-35..standard limit switch

Roller lever operator

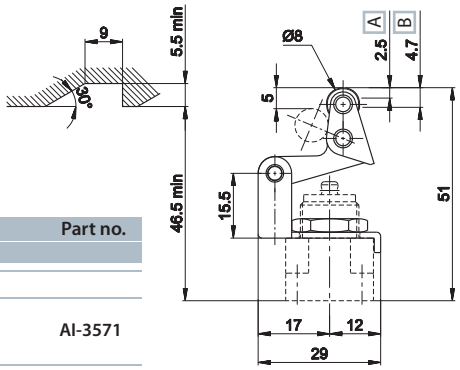
A Max opening
B Total stroke



Symbol	Force (a) N	Weight Kg	Part no.
1 POSITION			
	10	0,021	AI-3570

Articulated roller operator

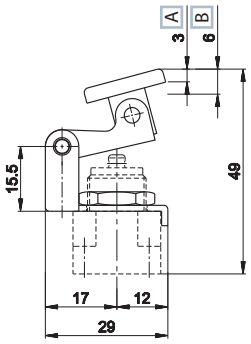
A Max opening
B Total stroke



Symbol	Force (a) N	Weight Kg	Part no.
1 POSITION			
	10	0,021	AI-3571

Key operator

A Max opening
B Total stroke



Symbol	Force (a) N	Weight Kg	Part no.
1 POSITION			
	10	0,021	AI-3572

(a) = force at 6 bar with actuators assembled on AI-35..