The sensors mounted onto the cylinders detect the position of the piston by commutating an electric signal when approaching the magnetic field produced by the magnet incorporated in the piston itself.
They are manufactured using two different technologies: electromechanical with Reed bulb; electronic with magneto-resistive effect (normally open with PNP output); upon request with NPN output.
The first one with Reed bulb function both in d.c. and a.c.; the second ones, electronic type function only in d.c. 30V max. In both versions the active status is indicated by the lighting of a luminous diode.

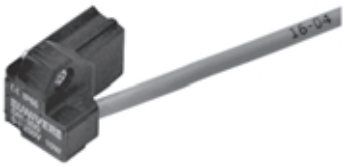
Characteristics	Type	electronic	electromechanical			
		DF-770 3 wires PNP N.O.	**DF-220** 2 wires N.O.	**DF-330** 3 wires PNP N.O.	**DF-440** 3 wires PNP N.C.	**DF-520** 3 wires PNP N.C. more sensitive
Nominal voltage	V AC/DC	24V DC	24V AC/DC	24V AC/DC	24V AC/DC	24V AC/DC
Working voltage	V AC/DC	7...30V	5...30V	5...30V	5...30V	5...30V
Max. switching current	mA	200	120	500	500	120
Max. switching power	W/VA	6	3,6	6	6	3,6
Max. voltage drop	V AC/DC	0,7V	2,8V	0,1V	0,1V	2,8V
Minimum magnetic field	gauss	30	60	60	60	50
Opening response time	ms	0,08	< 0,5	< 0,5	< 0,5	< 0,5
Closing response time	ms	0,03	< 1	< 1	< 1	< 1
Electric life with resistive load	Cicli	$>10^9$	$>10^7$	$>10^7$	$>10^7$	$>10^7$
State indicator	Red	LED	LED	LED	LED	LED
Cable number and section	mmq	3 x 0,14	2 x 0,14	3 x 0,14	3 x 0,14	3 x 0,14
Electric circuit (page 4)	Type	C	A	C	D	D
Protection degree	DIN40050	IP65				
Working temperature	°C	- 20 + 80 °C				

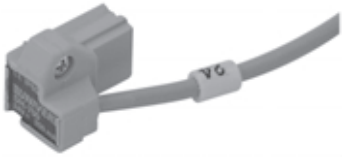
Part numbers

- Sensor with cable 3 m	DF-770	DF-220	DF-330	DF-440	DF-520
- Sensor with cable 20 cm male connector M08	DF-770M08	DF-220M08	DF-330M08	DF-440M08	DF-520M08
- Sensor with cable 20 cm male connector M12	DF-770M12	DF-220M12	DF-330M12	DF-440M12	DF-520M12
- Cable extension M08 3 m 3 poles	DHF-033M08				
- Cable extension M08 5 m 3 poles	DHF-053M08				
- Cable extension M12 3 m 3 poles	DHF-033M12				
- Cable extension M12 5 m 3 poles	DHF-053M12				
- Cable clamping	DF -001				

For the use of 3-pole cable extensions M08 and M12 with magnetic sensor DF-220, DF-220M08, DF-220M12 exclude blue wire when connecting.

Note: observe polarity for d.c. use, avoid that magnetic fields affect the sensor, for cables with length exceeding 10 m insert filter KM-008200, for use with inductive loads foresee suitable filters on the load itself.





		electronic	electromechanic		
Characteristics	**Type**	**DH-700** 3 wires PNP N.O.	**DH-100/KM...** 2 wires N.O.	**DH-200** 2 wires N.O.	**DH-500** 2 wires PNP N.C. more sensitive
Nominal voltage	AC/DC	24V DC	-	-	-
Working voltage	AC/DC	7...30V	5...250V	5...250V	5...250V
Max. switching current	mA	200	1000	500	500
Max. switching power	W/VA	6	30	10	10
Max. voltage drop	AC/DC	0,7V	2,8V	2,8V	2,8V
Minimum magnetic field	gauss	30	85	85	60
Opening response time	ms	0,08	< 0,5	< 0,5	< 0,5
Closing response time	ms	0,03	< 1	< 1	< 1
Electric life with resistive load	Cycles	$>10^9$	$>10^7$	$>10^7$	$>10^7$
State indicator	RED	LED	LED	LED	LED
Cable number and section	mmq	3 x 0,25	2 x 0,25	2 x 0,25	2 x 0,25
Electric circuit (page 4)	Type	C	A	A	A
Protection degree	DIN40050	IP65			
Working temperature	°C	-20 +80			

Part numbers

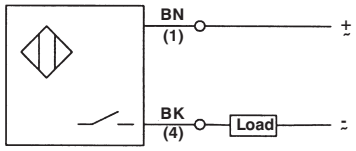
- Cable 3 m	PNP DH-700	DH-100	DH-200	DH-500
- Sensor with cable 3 m	NPN DH-700A	-	-	-
- Sensor with cable 5 m	PNP DH-700L5	DH-100L5	DH-200L5	DH-500L5
- Sensor with cable 10 m	PNP DH-700L10	DH-100L10	DH-200L10	DH-500L10
- Sensor with cable 20 cm male connector M08 60V	PNP DH-700M08	-	DH-200M08	DH-500M08
- Sensor with cable 20 cm male connector M12	PNP DH-700M12	-	DH-200M12	DH-500M12
- Cable extension M08 3 m 60V max 3 poles	DHF-033M08			
- Cable extension M08 5 m 60V max 3 poles	DHF-053M08			
- Cable extension M12 3 m 3 poles	DHF-033M12			
- Cable extension M12 5 m 3 poles	DHF-053M12			

For the use of 3-pole cable extensions M08 and M12 with magnetic sensor DH-100/KM..., DH-200, DH-500 exclude blue wire when connecting.

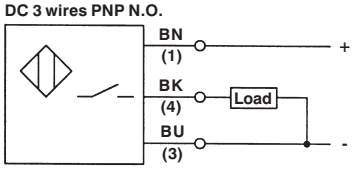
Note: observe polarity for d.c. use, avoid that magnetic fields affect the sensor, for cables with length exceeding 10 m insert filter KM-008200, for use with inductive loads foresee suitable filters on the load itself. The cable extension can be supplied with lengths upon request. For those versions without LED add suffix E to the part number.

Electric circuits

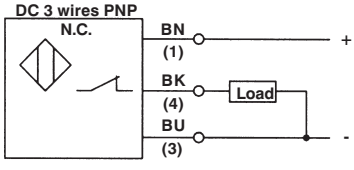
A AC/DC 2 wires N.O.



C DC 3 wires PNP N.O.

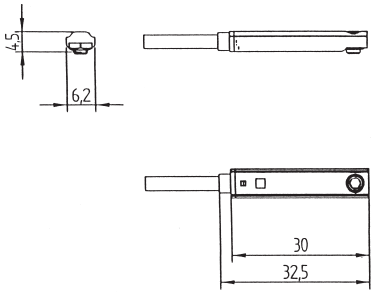


D DC 3 wires PNP N.C.

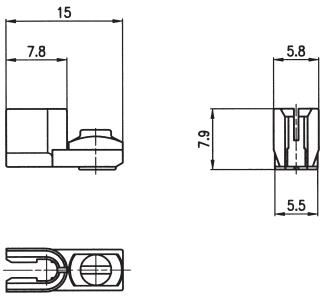


BN brown BK black BU blue

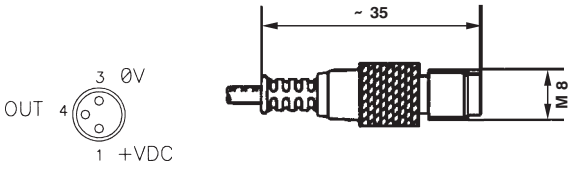
Overall dimensions DF-...

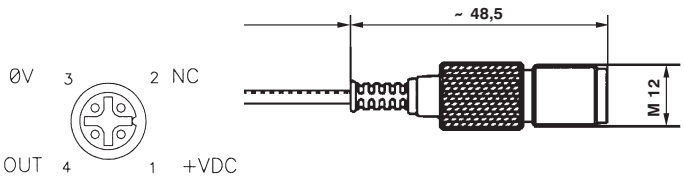


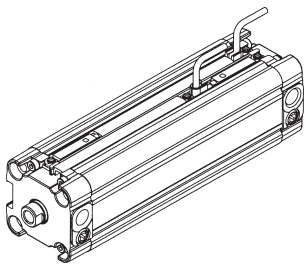
Cable clamping DF-001

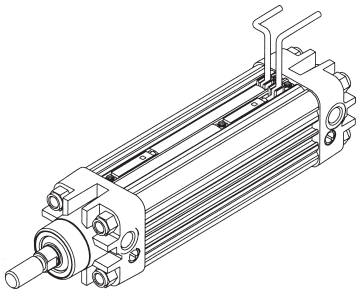


Male connector M08, M12

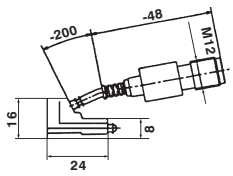


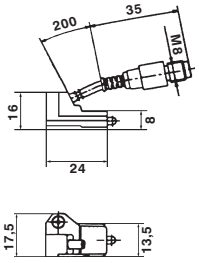






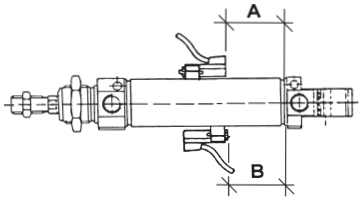
Overall dimensions DH-...



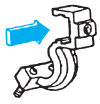


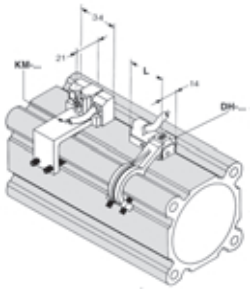
Correct mounting

The magnetic sensor is mounted onto the cylinder by means of a special clamp or bracket or simply inserted in the groove of the cylinder barrel.

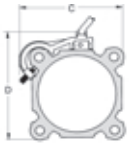


ISO cylinders K series

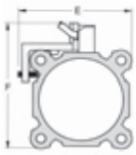




DH-....



KM-....

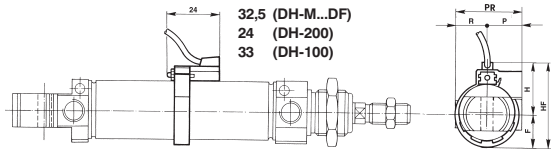


Cyl. Ø	A-B	C	D	Bracket part number	E	F	Sensor + bracket part number
32	4 - 4	50	57	DH-K032050	50	62	KM-032050
40	6 - 6	56	63		55	67	
50	6 - 6	64	74		65	77	
63	6 - 7	81	87	DH-K063125	80	82	KM-063100
80	9 - 10	96	104		97	109	
100	10 - 10	114	125		114	126	
125	18 - 18	138	150		137	149	KM-125000
160	25 - 27	180	180	DH-K160200			
200	24 - 26	200	220				

Microcylinders M series


DH-...

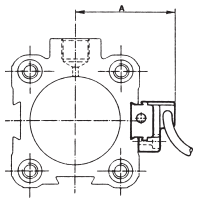

DH-M...DF

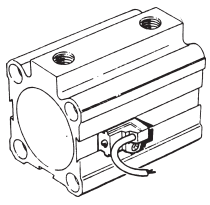


Cyl. Ø	A-B	F	H	HF	P	R	PR	M series part number
10	11 - 11	12,5	22,5	35	17	10	27	DH-M10
12	12,5 -12,5	11,5	23,5	35	17	10	27	DH-M12
16	14 - 14	15	25	40	18	13	31	DH-M16
20	18,5 - 18,5	19	27	46	18	17	35	DH-M20
25	19 - 19	18	30	48	20	17	37	DH-M25

To order the holder for the recessed sensor DF___ Series add suffix DF to the part number.

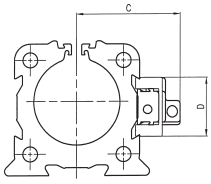
Short-stroke cylinders W series (no fixing necessary)

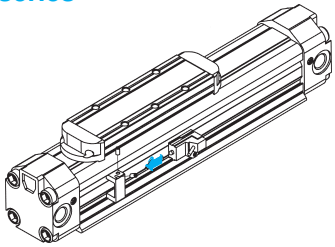




Cyl. Ø	16	20	25	32	40	50	63	80	100
A-B	8-8	9-9	11-10	11-10	7-7	6-6	5-5	8-7	11-11
A	26,8	28,8	31,3	35,3	39,5	44	52	60,5	71

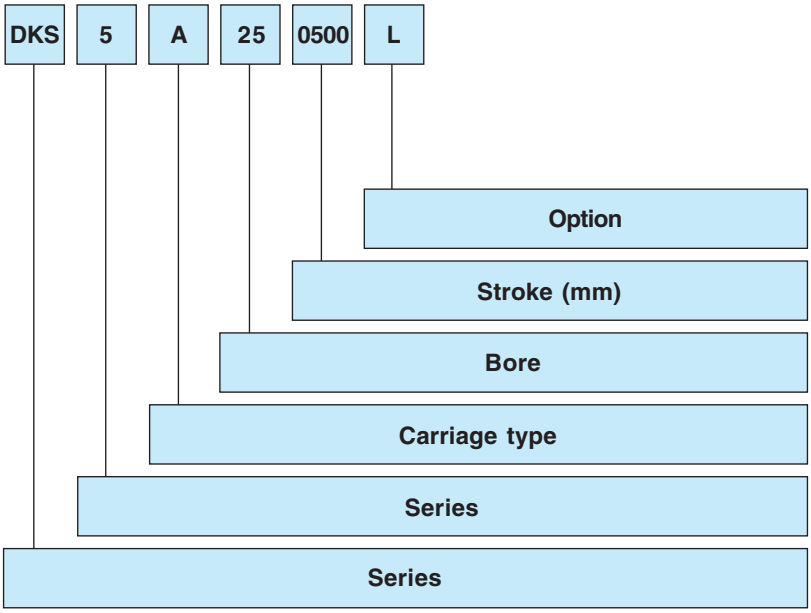
Rodless cylinders S1 series





Cyl. Ø	A-B	C	D	Bracket part num.
25	25 - 35	34	21	DH-S25
32	35 - 35	39	22	DH-S32
40	50 - 50	46	29	DH-S40
50	60 - 60	54	35	DH-S50

Mounting bracket for rodless cylinders S -V Series



SERIES

DKS = Mounting bracket magnetic sensor

SERIES

5 = Rodless cylinder S5 - VL1 Series

CARRIAGE OPTION

A = Standard carriage (S5 Ø 25 - 32)
C = Medium carriage (S5 - VL1)
D = Long carriage (S5 - VL1)
F = Double medium carriage (VL1)

BORE

25 - 32 - 40 - 50 mm

STROKE

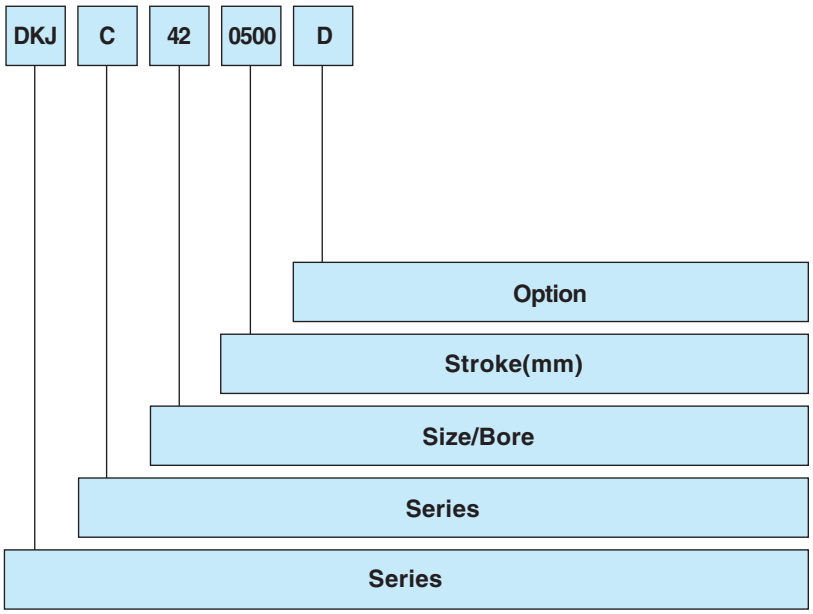
Length in mm

OPTION

D = Double mounting option for exposed reed switches

NOTE: magnetic switch mounting brackets are supplied with accessories for assembling. Item DH-200 (magnetic sensor) must be ordered separately.

Mounting bracket for slide units J Series



SERIES

DKJ = Mounting bracket magnetic sensor

SERIES

A = Slide unit for ISO 6431 - 6432 cylinders J14 - J14B - J16 - J16B -J17 -J17B
C = Slide unit for rodless cylinders with standard carriage J30
D = Slide unit for rodless cylinders with long carriage J31
E = Slide unit for short stroke cylinders J51 - J52 - J53 J54 - J56

SIZE/BORE

Slide unit size	Ø Cylinder
0 = 16	**0** = 16
2 = 25	**2** = 25
3 = 32	**3** = 32
4 = 40	**4** = 40
5 = 50	**5** = 50
6 = 63	**6** = 63
7 = 80	**7** = 80
8 = 100	**8** = 100

STROKE

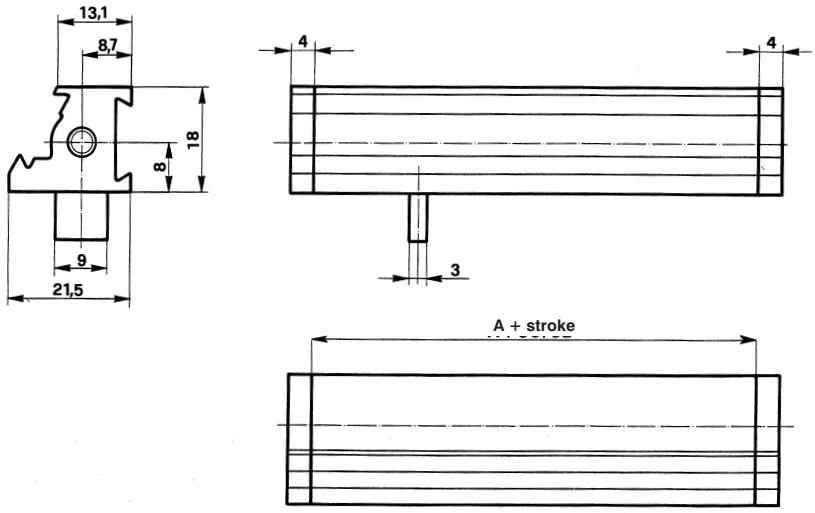
Length in mm

OPTION

D = Mounting option for exposed double reed switches, with right trailing rod

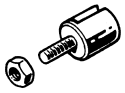
NOTE: magnetic switch mounting brackets are supplied with accessories for assembling. Item DH-200 (magnetic sensor) must be ordered separately.

Mounting bracket with double reed switches at sight mounting option DKS...D/ DKJ...D Series



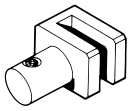
Mounting accessories standard supplied for:

S5 - VL1 Series



Part number
DKK62

J30 - J31 Series



Cyl. Ø	Part number
32-40	DKK75040
50	DKK75050
63-80	DKK75080

to be coupled with mounting bracket DKJ...D Series

Dimensions of mounting bracket for rodless cylinders (DKS...D Series) and slide units for rodless cylinders (DKJ...D Series).

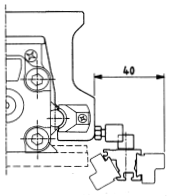
Cyl. Ø	Rodless cylinders					
	S5 series			VL1 series		
	A + STROKE					
	S	M	L	M	L	2 M
25	172	201	267	201	267	366
32	212	247	342	247	342	453
40	-	292	404	292	404	535
50	-	364	504	364	504	680

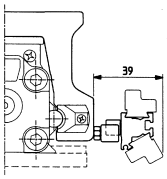
Size	Slide units for rodless cylinder		
	J30 - J31 series		
	A + STROKE		
	Cyl. Ø	J30	J31
40	25	200	295
50	32	250	380
63	40	300	450
80	50	350	550

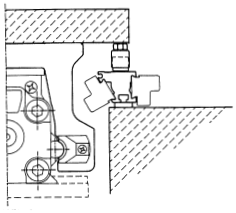
Carriage option:
S = Standard
M = Medium
L = Long
2M = Double medium

◆ The mountings of the brackets onto the slide units, vary according to the slide unit size.

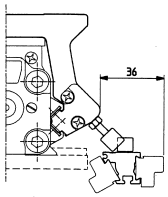
Assembling example with rodless cylinders S5 Series

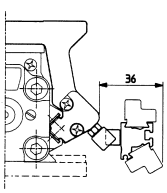


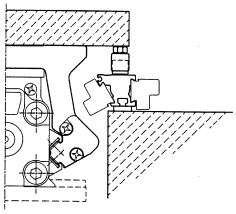




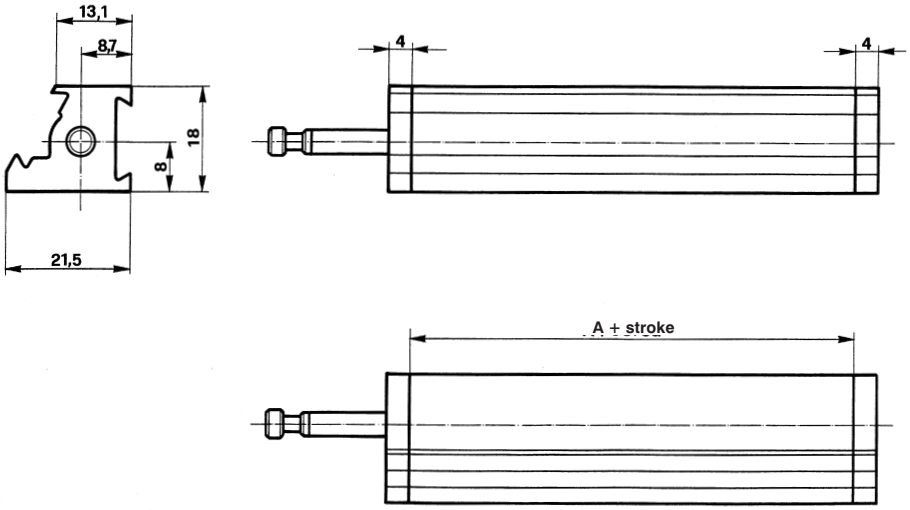
Assembling example with rodless cylinders VL1 Series







Mounting bracket with double reed switches at sight mounting option DKJ...D Series



Adaptor for:
J14-J16-J17 Series

Part number
DKK72

Adaptor for:
J51-J52-J53-J54-J56 Series

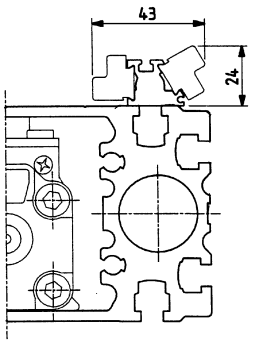
Cyl. Ø	Part number
25	DKK74025
32	DKK74032
40	DKK74040
50	DKK74050
63	DKK74063
80	DKK74080
100	DKK74100

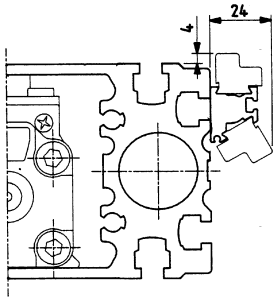
Dimensions of mounting brackets for slide units for short-stroke cylinders and slide units for ISO 6431 - 6432 cylinders (DKJ...D Series).

Size	Cyl. Ø	Slide units for short-stroke cylinders J51/J52/J53/J54/J56 series A + STROKE
25	20	52
32	25	52
40	32	52
50	40	52
63	50	52
80	63	52
100	80	52

Size	Slide units for ISO 6431 - 6432 cylinders J14/J16/J17 series A + STROKE
16	80
25	100
32	100
40	100
50	100
63	100
80	100
100	100

Assembly example with slide unit J Series





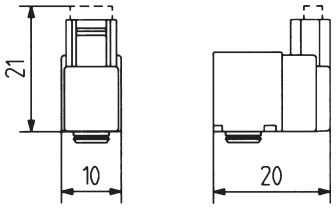
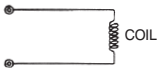
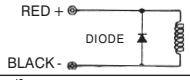
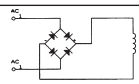
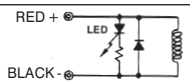
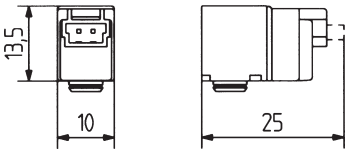
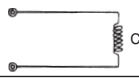
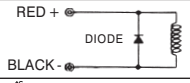
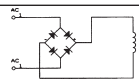
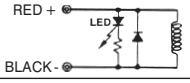
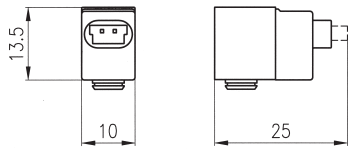
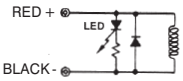
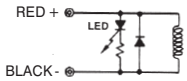
Coils are devices that are used together with an electropilot to transform an electrical pulse into the mechanical operation which makes the valve switch and so, a pneumatic actuator can be controlled using an electrical (electronic) signal.
UNIVER coils are formed by a self-extinguishing thermoplastic resin envelope and a coil of class H insulated wire that has been impregnated under vacuum. The electrical connection is made with MOLEX-type 2-pole female connector (U04 and U05 coils), as well as with DIN43650 and mPm 122 (U1-U2-U3-U05 coils) connector and with loose cables. In the first case the protection degree of the coil is IP50, in the second one IP65. On the whole, UNIVER coils are class-F insulated. UNIVER coils can be replaced without affecting the pneumatic circuit and they work correctly at an ambient temperature of between -10°C and +45°C and under normal pollution situation; if without connector, the coil has a protection degree IP00 and must be incorporated.

UNIVER coils are EC marked according to low tension directive n°73/23 and 93/68 and law by decree: n° 626/96 and L. 791/77 and L. 220/1 supplement to the Official Gazete n° 209 dated 9/96.

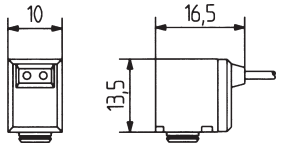
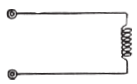
Coupling table Coils/Electropilots and Electopilots/Valves

	A	B	AA (U1)	AA (U3)	AB	
COILS			●			**U1** side 22 mm (for connection size 20 mm)
					●	**U2** side 30 mm (for connection DIN 43650 size 28 mm)
				●		**U3** side 30 mm (for connection DIN 43650 size 28 mm)
		●				**UO4** side 10 mm
	●					**UO5** side 15 mm
	A	**B**	**AA (U1)**	**AA (U3)**	**AB**	**ELECTROPILOTS**
VALVES					●	**AC - G 1/2**
			●	●		**AC - G 1/8 ÷ G 1/4**
					●	**AF G 1/2 ÷ G 1 1/2**
			●	●		**AF G 1/8**
			●	●	●	**AF G 1/4 ÷ G 3/8**
			●	●		**AG G 1/8**
					●	**AG G 1/4 ÷ G 1 1/2**
			●	●		**BE**
			●	●		**CM-CL G 1/8 ÷ G 1/4**
		●				**B-E-F-G-GL-PSC-PSP**
	●					**A-G-GH-GL-GM-BDA-BDB-BDE**

U04 coils with integrated 90° upward/in-line connector or external pins

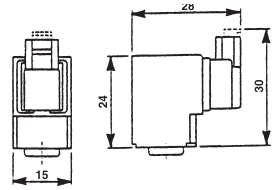
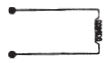
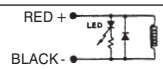
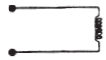
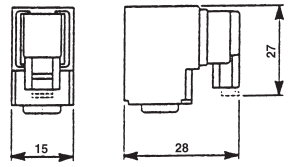
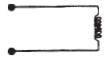
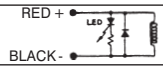
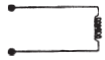
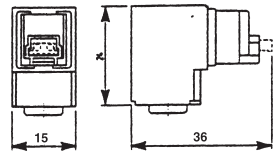
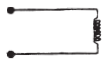
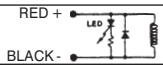
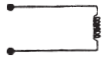
Dimensions	Life of ED*	Input W continuous	Input W start	Tension tolerance	Mass kg	Rated tension	Electric diagram	Part number
Coil with 90° upward facing connector 	100%	1,2	1,2	±10%	0,013	12 Vcc 24 Vcc		**DE-342** **DE-352**
		1,2	1,2			12 Vcc 24 Vcc		**DE-342-D** **DE-352-D**
		1,2	1,2			24 V/50-60 Hz		**DE-352-R**
		1,35	1,35			12 Vcc 24 Vcc		**DE-442** **DE-452**
Coil with in-line connector 	100%	1,2	1,2	±10%	0,013	12 Vcc 24 Vcc		**DE-542** **DE-552**
		1,2	1,2			12 Vcc 24 Vcc		**DE-542-D** **DE-552-D**
		1,2	1,2			24 V/50-60 Hz		**DE-552-R**
		1,35	1,35			12 Vcc 24 Vcc		**DE-642** **DE-652**
Coil with connector in line with protecting cover foreseen for complete tightness 	100%	1,35	1,35	±10%	0,013	12 Vcc		**DE-642I**
						24 Vcc		**DE-652I**

U04 coils with loose cables (length 30 cm**)

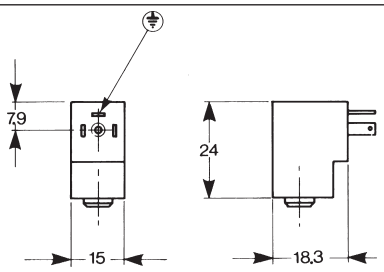
	100%	1,2	1,2	±10%	0,013	12 Vcc 24 Vcc		**DE-042L030** **DE-052L030**

* Under continuons service a maximum temperature will not compromise the functioning of the working position if ventilated.
** Different wire lengths are available upon request.

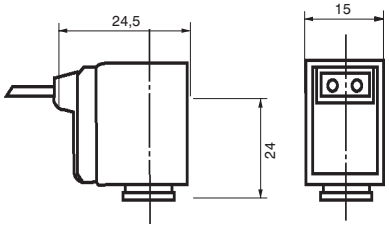
U05 15 mm coils with 90° upward / downward / in-line integrated connector

Dimensions	Life of ED*	Input W continuous	Input W start	Tolerance frequency	Tolerance tension	Mass kg	Rated voltage	Electric diagram	Part number
Coil with 90° upward facing connector 	100%	1,5 2 1,5	1,5 2 1,5		±10%	0,019	12 Vcc 24 Vcc 48 Vcc		DD-341 DD-351 DD-361
		2,2	2,2				24 Vcc con LED		DD-451
		2,3VA	3,2VA	±5%	±10%		12 V 50/60 Hz 24 V 50/60 Hz		DD-310 DD-340
Coil with 90° downward facing connector 		1,5 2 1,5	1,5 2 1,5		±10%	0,019	12 Vcc 24 Vcc 48 Vcc		DD-141 DD-151 DD-161
		2,2	2,2				24 Vcc con LED		DD-251
		2,3VA	3,2VA	±5%	±10%		12 V 50/60 Hz 24 V 50/60 Hz		DD-110 DD-140
Coil with connector in line 		1,5 2 1,5	1,5 2 1,5		±10%	0,019	12 Vcc 24 Vcc 48 Vcc		DD-541 DD-551 DD-561
		2,2	2,2				24 Vcc con LED		DD-651
		2,3VA	3,2VA	±5%	±10%		12 V 50/60 Hz 24 V 50/60 Hz		DD-510 DD-540

U05 15 mm coil

Dimensions	Life of ED*	Input CCW Contin.	Input CCW Start	Input CA VA Contin.	Input CA VA Start	Tolerance Frequency	Tolerance Tension CC	Tolerance Tension CA	Mass kg	Rated voltage CC v	Rated voltage CA v	Frequency Hz	Part number
	100%	-	-	2,3	3,2	±5%	±10%	±10%	0,019	12	24	50/60	DD-040
		1,5	1,5	-	-	-	±10%			12	–	-	DD-041
		2,5	2,5	-	-	-	±10%			12	–	-	DD-042
		-	-	2,3	3,2	±5%	±10%	±10%		24	48	50/60	DD-050
		2	2	-	-	-	±10%			24	–	-	DD-051
		2,5	2,5	-	-	-	±10%			24	–	-	DD-052
		-	-	3,5	-	±5%	±10%	±10%		48	110	50/60	DD-060
		-	-	2,3	3,2	±5%				110	230	50/60	DD-070

U05 coil with loose cables

	Life of ED*	Consumption W contin.	Consumption W start	Tolerance tension	Mass kg	Rated voltage	Part number**
	100%	2	2	±10%	0,019	24	DD-051L030
		2,5	2,5			24	DD-052L030

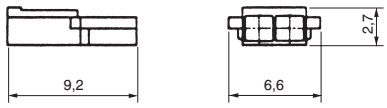
110V - 230V solenoid valves must be built-in (EN 60204-1)

* Under continuons service a maximum temperature will not compromise the functioning of the working position if ventilated.

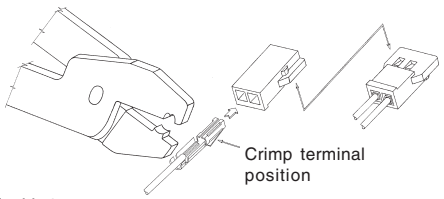
** Different wire lengths are available upon request.

Miniature connectors for U04 - U05 coils

Miniature connector without wires



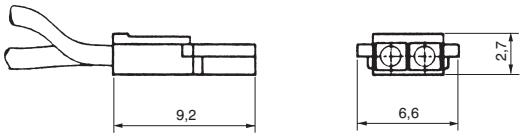
Connector wiring instruction



Standard supplied with 2 contacts

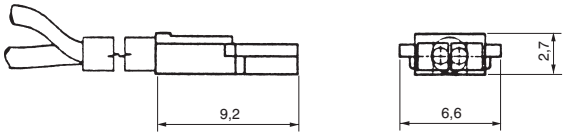
Part number
D-500

Miniature connector with loose cables



Cable length in mm	Part number
300	D-530-30
500	D-530-50
2000	D-530-200

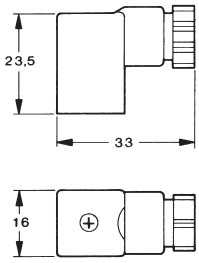
Miniature connector with cable



Cable length in mm	Part number
300	D-535-30
500	D-535-50
2000	D-535-200

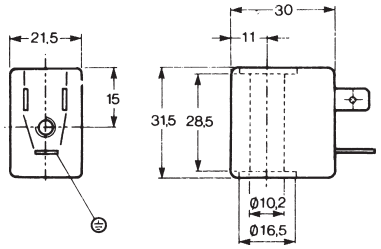
Caution! Do not invert the polarity when connecting to the coil with LED.

Connector for U05 coil

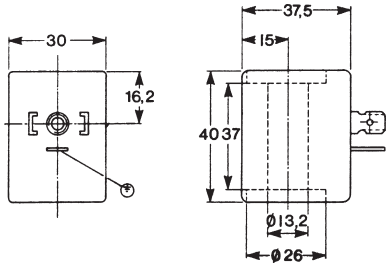


Characteristics	Description	Part number
Protection according to IP65 PG9 cable connection 180° orientable on the coil	Connector 15 mm	AM-5109
	LED connector 24 VDC 24Vcc 24Vca 50/60 Hz	AM-5105

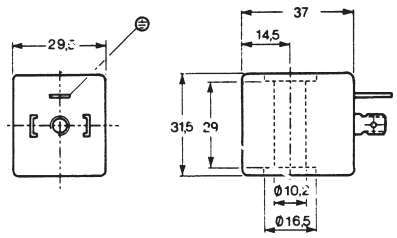
U1 22 mm coil to be used with U1 electropilot

Type	Overall dimensions	Life of ED*	Input W continuous	Input W start	Tolerance frequency	Tolerance tension	Mass kg	Rated voltage	Part number
		100%	3,5W	3,5W	–	±10%	0,06	12 Vcc	DA-0050
								24 Vcc	DA-0051
			5VA *(max)*	7,8VA *(max)*	±5%	±10%		24V/50-60Hz	DA-0106
								110V/50-60Hz	DA-0108
								230V/50-60Hz	DA-0124

U2 30 mm coil to be used with U2 electropilot

Type	Overall dimensions	Life of ED*	Input W continuous	Input W start	Tolerance frequency	Tolerance tension	Mass kg	Rated voltage	Part number
		100%	11W	11W	–	±10%	0,10	12 Vcc	DB-0501
								24 Vcc	DB-0502
			10VA *(max)*	16VA *(max)*	±5%	±10%		24V/50-60Hz	DB-0507
								110V/50-60Hz	DB-0509
								230V/50-60Hz	DB-0510

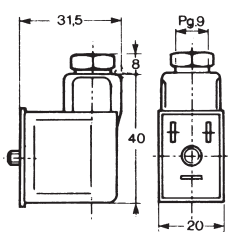
U3 30 mm coil to be used with U1 electropilot

Type	Overall dimensions	Life of ED*	Input W continuous	Input W start	Tolerance frequency	Tolerance tension	Mass kg	Rated voltage	Part number
		100%	2,5W	2,5W	–	±10%	0,08	12 Vcc	DC-0301
								24 Vcc	DC-0302
			3,3VA *(max)*	5VA *(max)*	±5%	±10%		24V/50-60Hz	DC-0307
								110V/50-60Hz	DC-0309
								230V/50-60Hz	DC-0310

Coils can be replaced without intervention in the pneumatic circuit.
Other voltages available on request.
360° rotation.
Coil winding: H class.
Ambient temperature: -10 ÷ +45°C
Fluid temperature: -10 ÷ +95°C

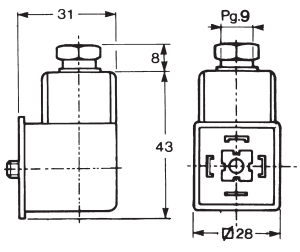
* Under continuous service a maximum temperature will not compromise the functioning of the coil provided that the working position is ventilated. The solenoid valves functioning with 110V - 230V must be incorporated (EN60204-1).

Connector for U1 coil

Type	Overall dimensions	Part number
		AM-5110

Protection according to IP 65. PG 9 cable connection.
It can rotate 180° on the coil.
LED and other types are available upon request.

DIN 43650 connector for U2 and U3 coils

Type	Overall dimensions	Part number
		AM-5111

Protection according to IP 65. PG 9 cable connection.
It can rotate 360° on the coil.
LED and other types are available upon request.

Electrovalve 3/2 - 5/2 according to NAMUR specifications

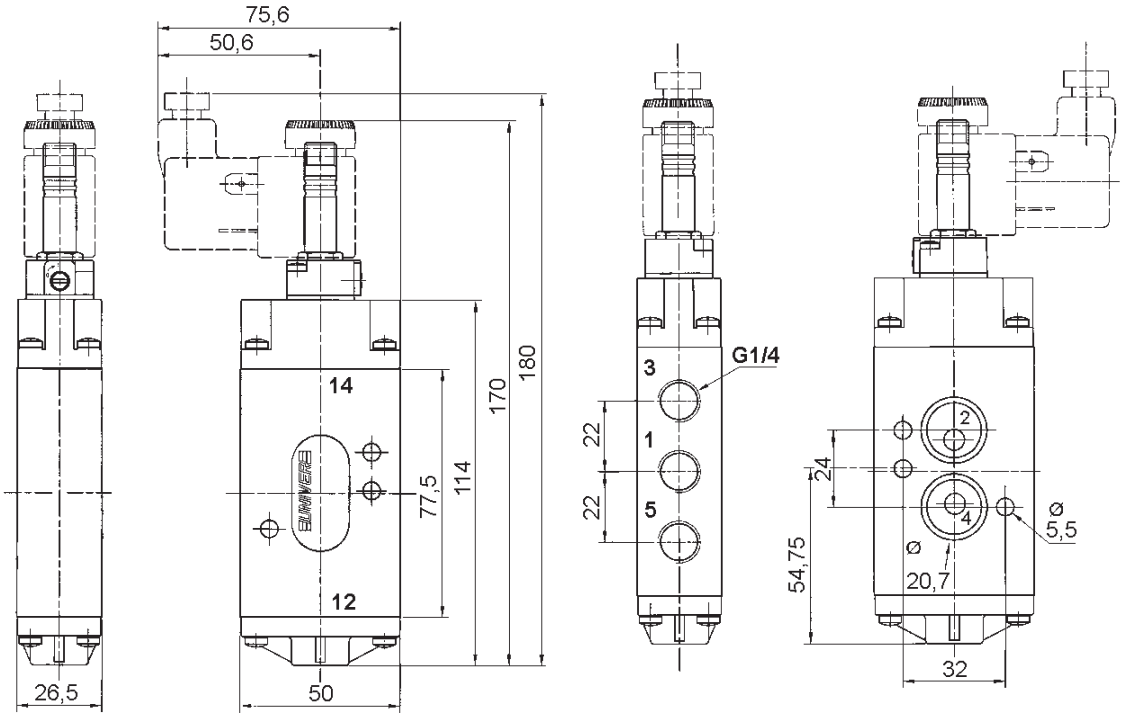
Electrovalve suitable for the control of single- and double-acting pneumatic rotary actuators used in industrial plants for the distribution of the fluids.

- **Body: die-cast Zamak**
- **Working pressure: 2÷10 bar**
- **Ambient temperature: -10 + 45°C**
- **Fluid: filtered air 50 µm**
- **Fluid temperature: -10 + 50°C**
- **Nominal diameter: 8 mm G ¼**
- **Rated capacity: 1200 Nl/min**
- **Switching system: mixed**
- **Response time: 5÷30 m/s**
- **Coils: DA series (U1) - DC series (U3)**

Ordering code

AC-N8100 = 5/2 P/M	**AC-N8300** = 3/2 E/M	**AC-N8500** = 5/2 E/M
AC-N8120 = 5/2 P/P	**AC-N8320** = 3/2 E/E	**AC-N8520** = 5/2 E/E

Legenda/Legend/Legende/Légende
E = Electric
M = Pneu-mechanical spring
P = Pneumatic



Legend
1 = Supply
2-4 = Consumption
3-5 = Exhausts
12 = Return
14 = Control

Upon request:
Components suitable for use in ambients with risk of explosion.
Group II Zone 2G and 22D

ATEX

UNIVER JET pneumatic switches have been designed to meet the ever increasing need to save space without compromising on performance or reliability. Available in two port options, M5 threaded, or quick couplings Ø (4 x 2) for quick assembly porposes.
The 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 needs of the plant. It can also be used as an operator on indirectly operated 3 and 5-port valves where a sensitive control is required.

TECHNICAL CHARACTERISTICS

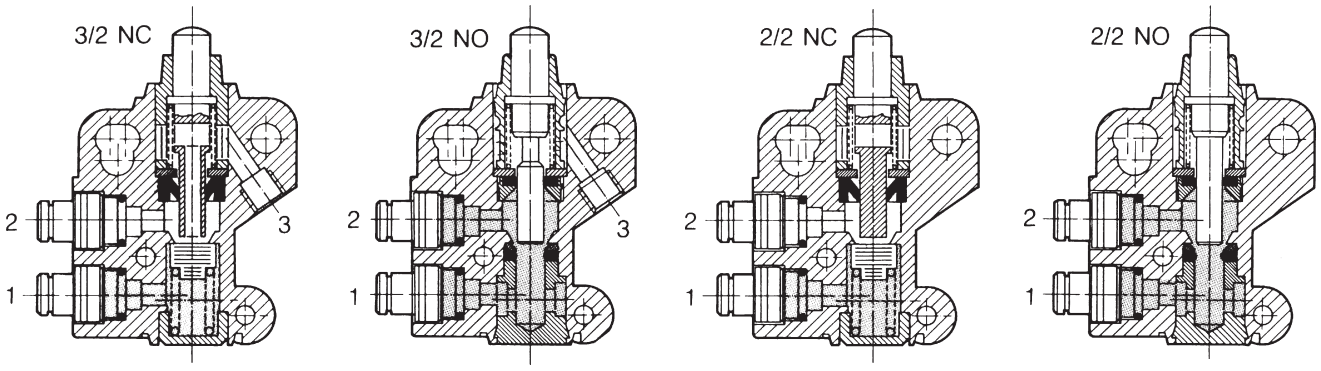
"JET" pneumatic switches

Ambient temperature: -10 ÷ 90°C
Working pressure: max 10 bar
Office: 2,5 mm
Fluid temperature: max 50°C
Flow capacity: 98 Nl/min at 6 bar $\Delta p = 1$ bar
Poppet system with oil-proof seals
Threaded connections M5 or quick couplings Ø 4 x 2
Conveyable exhausts (3): M5
Fluid: air, with or without lubrication

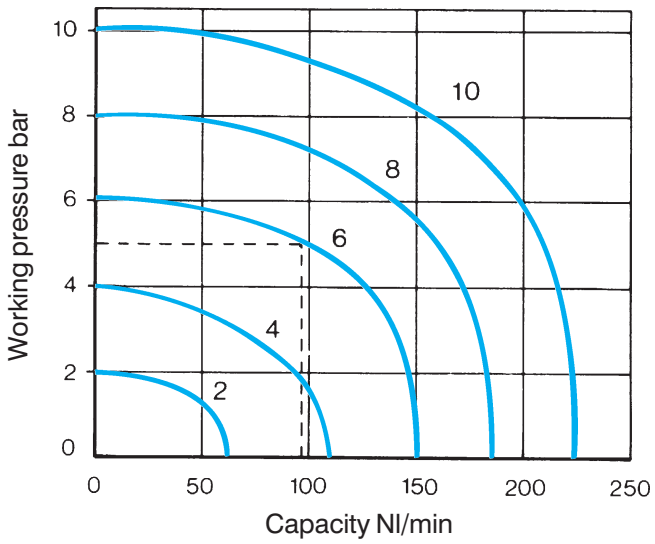
Miniature limit switches

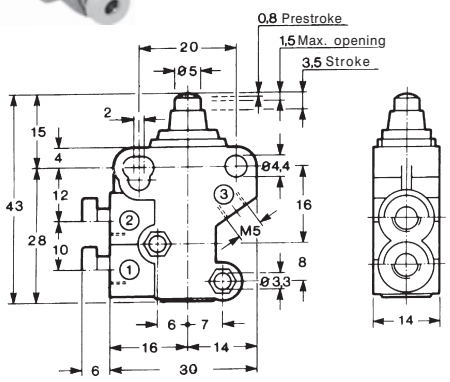
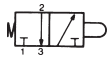
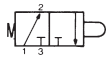
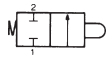
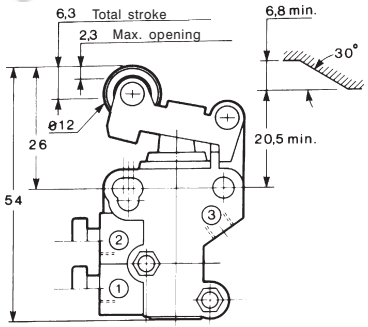
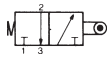
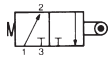
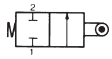
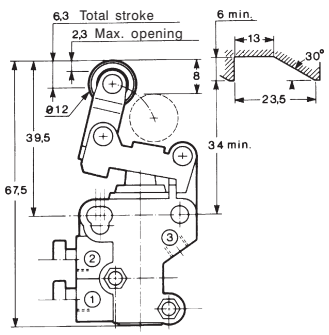
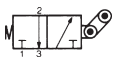
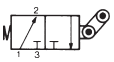
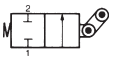
Ambient temperature: -10 ÷ 90°C
Working pressure: max 10 bar
Office: 2,3 mm (1,5 sensitive version)
Fluid temperature: max 50°C
Flow capacity: 110 Nl/min
Fluid: air, with or without lubrication
Poppet system with oil-proof seals
Body material: Die-cast alloy
Useful as operator for indirectly operated 3- and 5-port valves.

OPERATING PRINCIPLES AND FLOW CAPACITY CURVES

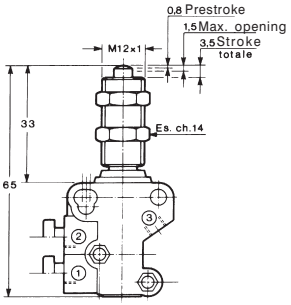
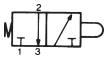
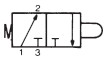
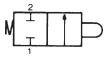
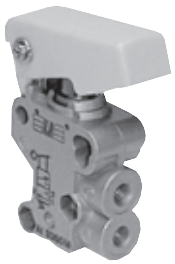
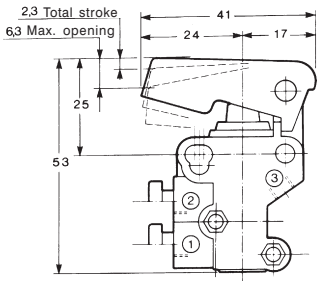
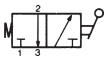
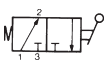
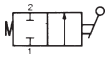
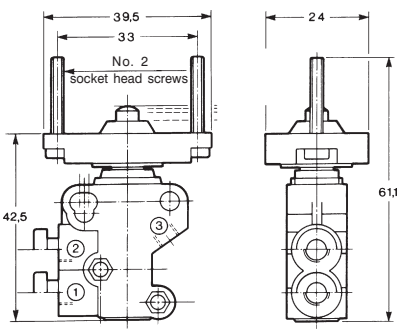
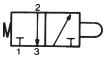
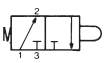
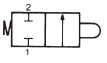


1 = Supply(P)
2 = Consumption (A)
3 = Exhaust (R)



Type	Overall dimensions	Symbol	Ways	Control	Return	Connection	Force N*	Mass kg	Part number
			3/2 NC	mechanical button	pneu-mech. spring	pipe Ø 4x2	14	0,060	**AI-9000**
			3/2 NC			M5			**AI-9000M**
			3/2 NO			pipe Ø 4x2			**AI-9010**
			3/2 NO			M5			**AI-9010M**
			2/2 NC			pipe Ø 4x2			**AI-9020**
			2/2 NC			M5			**AI-9020M**
			3/2 NC	roller lever	pneu-mech. spring	pipe Ø 4x2	7	0,085	**AI-9100**
			3/2 NC			M5			**AI-9100M**
			3/2 NO			pipe Ø 4x2			**AI-9110**
			3/2 NO			M5			**AI-9110M**
			2/2 NC			pipe Ø 4x2			**AI-9120**
			2/2 NC			M5			**AI-9120M**
			3/2 NC	uni-directional roller lever	pneu-mech. spring	pipe Ø 4x2	4	0,085	**AI-9200**
			3/2 NC			M5			**AI-9200M**
			3/2 NO			pipe Ø 4x2			**AI-9210**
			3/2 NO			M5			**AI-9210M**
			2/2 NC			pipe Ø 4x2			**AI-9220**
			2/2 NC			M5			**AI-9220M**

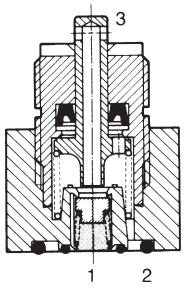
* Force refers to a 6 bar pressure.

Type	Overall dimensions	Symbol	Ways	Control	Return	Connection	Force N*	Mass kg	Part number
			3/2 NC	Mechanical push button with screw mounting	pneu-mech. spring	pipe Ø 4x2	14	0,082	**AI-9300**
			3/2 NC			M5			**AI-9300M**
			3/2 NO			pipe Ø 4x2			**AI-9310**
			3/2 NO			M5			**AI-9310M**
			2/2 NC			pipe Ø 4x2			**AI-9320**
			2/2 NC			M5			**AI-9320M**
			3/2 NC	Manual lever	pneu-mech. spring	tubo Ø 4x2	7	0,065	**AI-9350**
			3/2 NC			M5			**AI-9350M**
			3/2 NO			pipe Ø 4x2			**AI-9360**
			3/2 NO			M5			**AI-9360M**
			2/2 NC			pipe Ø 4x2			**AI-9370**
			2/2 NC			M5			**AI-9370M**
			3/2 NC	Mechanical push button for panel mounting	pneu-mech. spring	pipe Ø 4x2	14	0,075	**AI-9400**
			3/2 NC			M5			**AI-9400M**
			3/2 NO			pipe Ø 4x2			**AI-9410**
			3/2 NO			M5			**AI-9410M**
			2/2 NC			pipe Ø 4x2			**AI-9420**
			2/2 NC			M5			**AI-9420M**

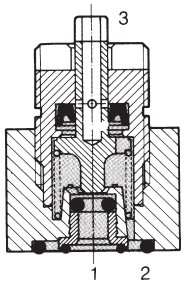
* Force refers to a 6 bar pressure.

OPERATING PRINCIPLES AND FLOW CAPACITY CURVES

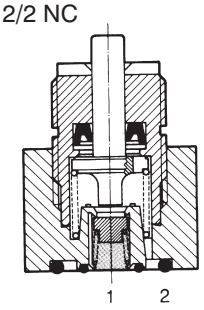
3/2 NC



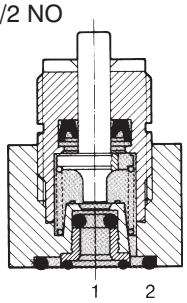
3/2 NO

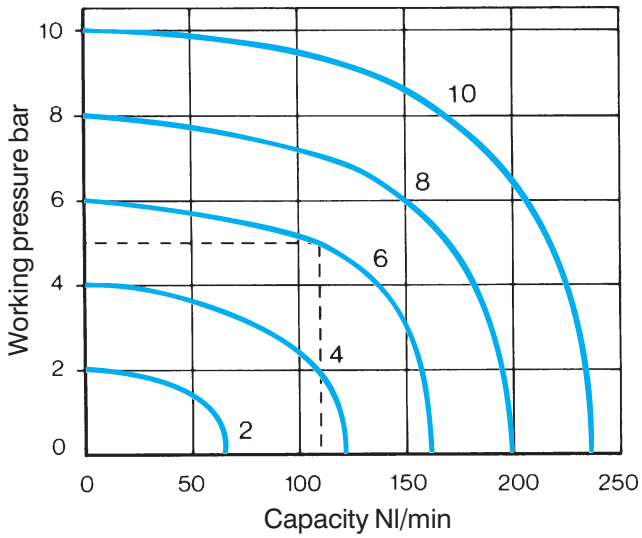


2/2 NC



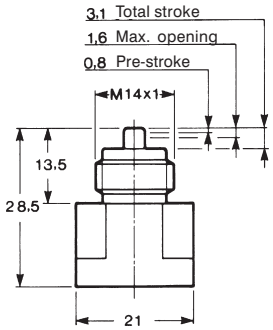
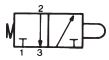
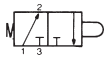
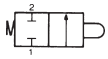
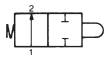
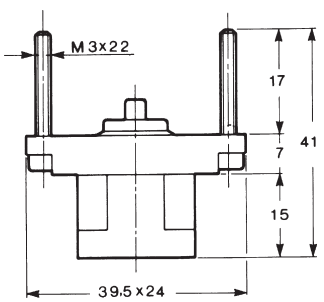
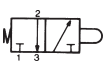
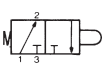
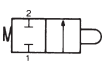
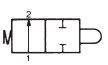
2/2 NO

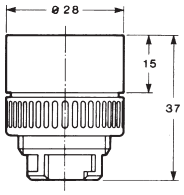
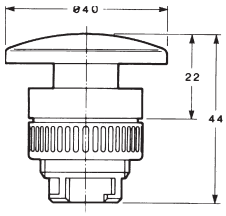
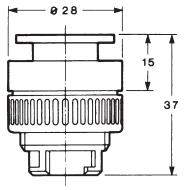
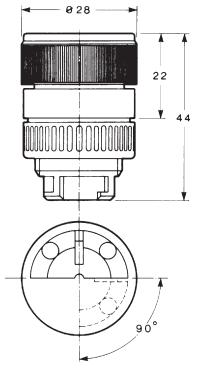
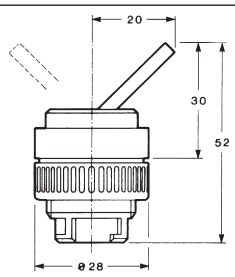




1 = Supply (P) 2 = Consumption (A) 3 = Exhaust (R)

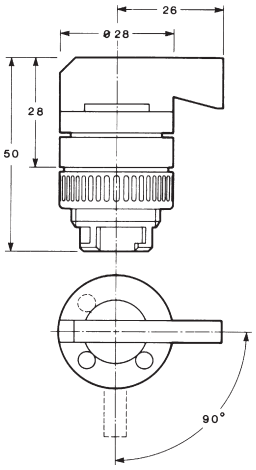
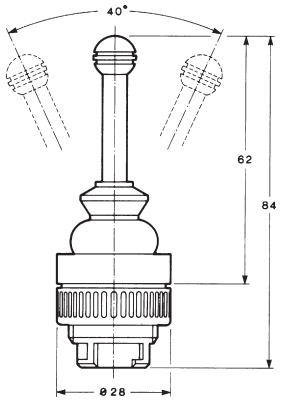
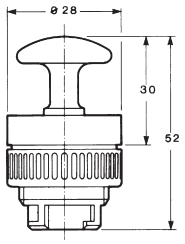
Panel mounted limit switch can be coupled with AI-35..Q actuators only.

Type	Overall dimensions	Symbol	Ways	Control	Ø mm	Capacity Nl/min	Force N	Mass kg	Part number
			3/2 NC	pneu-mech. push button	2,3	110	15	0,040	**AI-3500**
			3/2 NC sensit.		1,5	55	4		**AI-3500S**
			3/2 NO		2,3	110	15		**AI-3501**
			3/2 NO sensit.		1,3	45	4		**AI-3501S**
			2/2 NC		2,3	110	15		**AI-3502**
			–		–	–	–		–
			2/2 NO		2,3	110	15		**AI-3503**
			–		–	–	–		–
			3/2 NC	panel mounted mechanical push button	2,3	110	15	0,055	**AI-3500Q**
			3/2 NC sensit.		1,5	55	4		**AI-3500SQ**
			3/2 NO		2,3	110	15		**AI-3501Q**
			3/2 NO sensit.		1,3	45	4		**AI-3501SQ**
			2/2 NC		2,3	110	15		**AI-3502Q**
			–		–	–	–		–
			2/2 NO		2,3	110	15		**AI-3503Q**
			–		–	–	–		–

Type	Overall dimensions	Symbol	Description	Colour	Force N *	Mass kg	Part number
			Recessed button 1 position	black	16	0,031	AI-3511
				red			AI-3512
				green			AI-3513
			Recessed button for panel assembly 1 position ✧	black			AI-3511Q
				red			AI-3512Q
				green			AI-3513Q
			Head button 1 position	red	16	0,022	AI-3514
				black			AI-3516
			Head button for panel assembly 1 position ✧	red			AI-3514Q
				black			AI-3516Q
			Head button 2 positions	red	16	0,022	AI-3514D
				black			AI-3516D
			Head button for panel assembly 2 positions ✧	red			AI-3514QD
				black			AI-3516QD
			Button 1 position	green	12,5	0,025	AI-3515
				red			AI-3517
				black			AI-3519
			Button for panel assembly 1 position ✧	green			AI-3515Q
				red			AI-3517Q
				black			AI-3519Q
			Accident prevention rotating selector with indicator lamp 1 position	black	12,5	0,025	AI-3521
			Accident prevention rotating selector with indicator lamp for panel assembly 1 position	black			AI-3521Q
			Accident prevention rotating selector with indicator lamp 2 positions	black	12,5	0,025	AI-3520
			Accident prevention rotating selector with indicator lamp for panel assembly 2 positions	black			AI-3520Q
			Lever operator 2 positions	black	6	0,022	AI-3524
			Lever operator for panel assembly 2 positions ✧	black			AI-3524Q

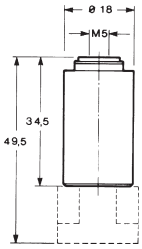
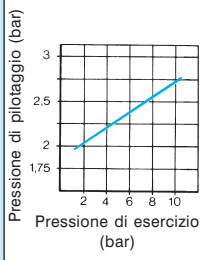
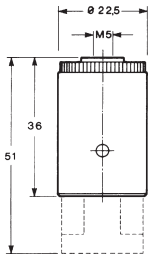
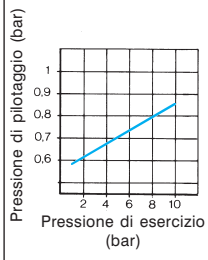
* Force at 6 bar with actuators assembled on an AI-35.. standard limit switch.

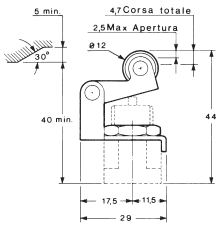
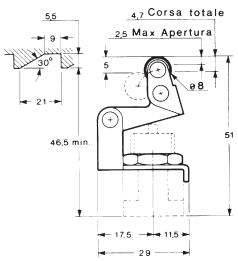
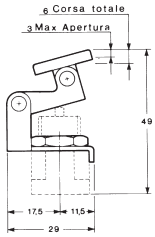
✧ Can be used with valves preset with flange for panel mounting .

Type	Overall dimensions	Symbol	Description	Colour	Force N *	Mass kg	Part number
			Rotating lever selector with indicator lamp 1 position	black	12,5	0,025	**AI-3523**
			Rotating lever selector with indicator lamp for panel assembly 1 position ✦				**AI-3523Q**
			Rotating lever selector with indicator lamp 2 positions	black	12,5	0,025	**AI-3522**
			Rotating lever selector with indicator lamp for panel assembly 2 position ✦				**AI-3522Q**
			Omni-directional operator with centre return 1 position	black	7	0,029	**AI-3525**
			Omni-directional operator with centre return for panel mounting 1 position ✦				**AI-3525Q**
			Push-pull operator 2 positions	black	16	0,029	**AI-3526**
			Push-pull operator for panel mounting 2 positions ✦				**AI-3526Q**

* Force at 6 bar with actuators assembled on an AI-35.. standard limit switch.

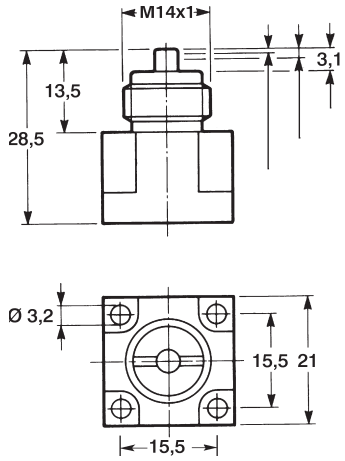
✦ Can be used with valves preset with flange for panel mounting .

Type	Overall dimensions	Symbol	Description	Basic control pressure	Operating pressure bar	Work diagram	Mass kg	Part number
			Pneumatic actuators	1,9 ÷ 2,7	1 ÷ 9		0,020	**AI-3550**
			Pneumatic actuators amplified	0,6 ÷ 0,9	1 ÷ 9		0,030	**AI-3551**

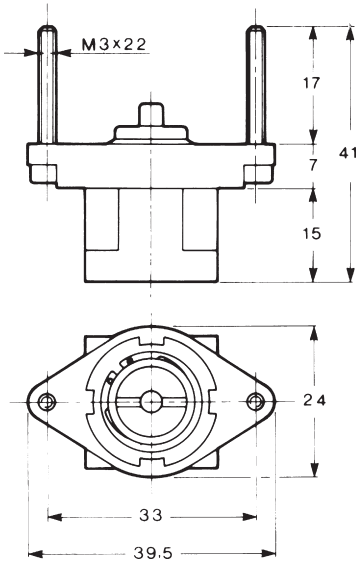
Type	Overall dimensions	Symbol	Description	Force N*	Mass kg	Part number
			Roller operator 1 position	10	0,021	**AI-3570**
			Articulated roller operator 1 position complete operation with stroke 2,5 mm Max stroke 4,7 mm	10	0,021	**AI-3571**
			Key operator 1 position	10	0,021	**AI-3572**

* Force at 6 bar with actuators assembled on an AI-35.. standard limit switch.

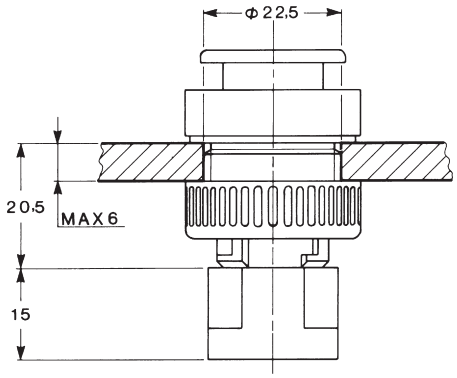
Pneumatic limit switch for ring assembly



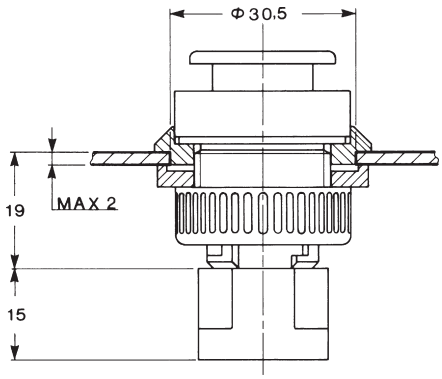
Pneumatic limit switch for panel assembly



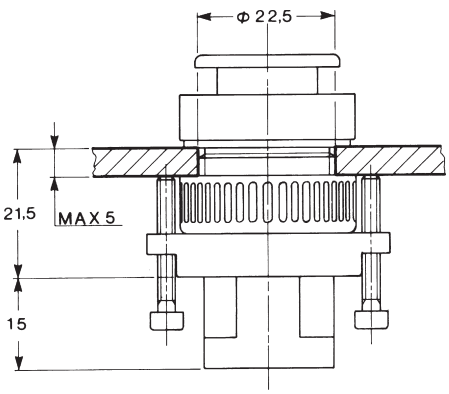
Manual ring actuator for Ø 22,5 bore size with reducer (to be used with AI-35...limit switches)



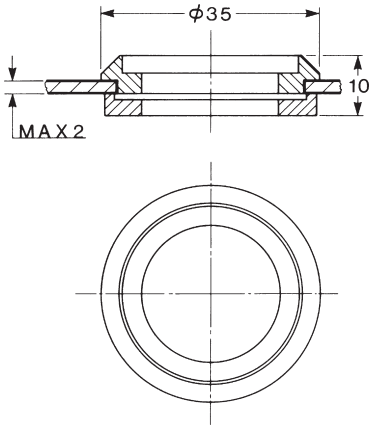
Manual ring actuator for Ø 30,5 bore size with reducer (to be used with AI-35...limit switches) (reducer part number AI-3529)

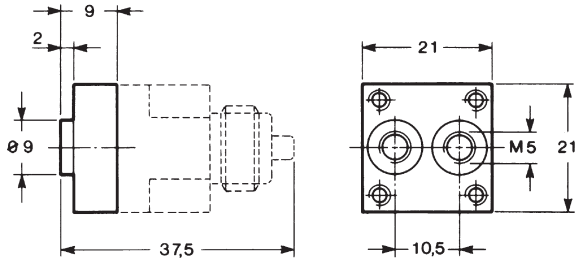
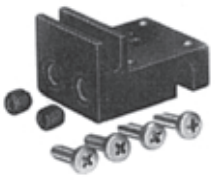
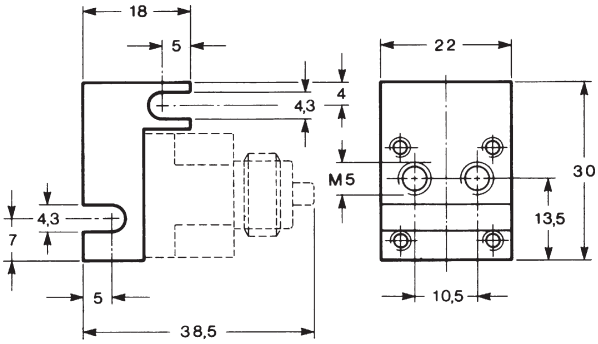
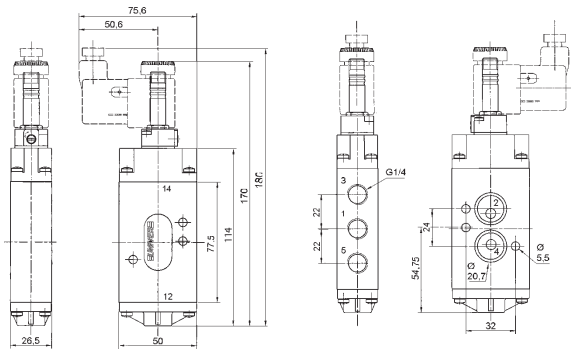


Manual ring actuator for panel assembly for Ø 22,5 bore size (to be used with AI-35...limit switches)



Reducer for Ø 30,5 bore size (to be used with AI-35...limit switches) AI-3529



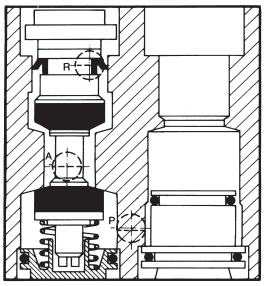
Type	Overall dimensions	Mass kg	Part number
Back port sub-base with M5 threaded connections			
	 Order part number includes No. 4 M3x12 fixing screws.	0,020	**AI-3610**
Sub-base with side or dorsal consumptions and threaded connections M5			
	 M5x5 grub-screws must be fixed with loctite 242, preventing this from closing the holes or enter the valve. Grub-screws must be screwed in without touching the bottom. Order part number includes No. 4 M3x12 fixing screws.	0,020	**AI-3612**
Solenoid valve 5/2 according to NAMUR specification Solenoid valve suitable for the control of pneumatic actuators, rotating single-acting and double-acting, used in industrial plants for the distribution of fluids.			
	 Body: in die-cast zamak Working pressure: 2÷10 bar Ambient temperature: -10÷45 °C Fluid: filtered air 50 µm Fluid temperature: -10÷50°C Nominal diameter: 8 mm G¼ Nominal flow capacity: 1200 Nl/min Switching system: mixed or poppet Response time: 5÷30 m/s Coil: DA series (U1) DC series (U3) Possible use: 3/2	0,620	**AC-N8500** = 5/2 E/M **AC-N8520** = 5/2 E/E

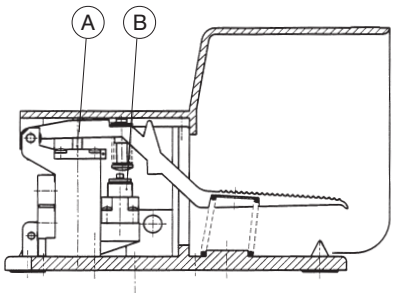
Legend:
E= electrical
M= pneumechanical spring
P= pneumatic

Mechanical characteristics
Foot valve body and protection in nylon with steel reinforcing plate.
Valve body in die-cast zinc alloy (zamak).
Seals in oil/wear-resistance compound.

Pneumatic characteristics
Max working pressure: 10 bar
Ambient temperature: -10 ÷ 70°C
Fluid temperature: -10 ÷ 50°C
Operation with or without lubrication.
Capacity: 800 Nl/min

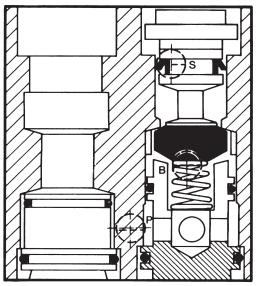
3/2 NC valve body

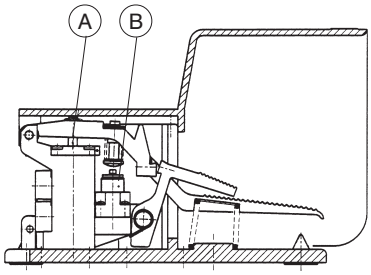




Servoassisted pedal with spring return. Direct operation (A) or pneumatically assisted (B).

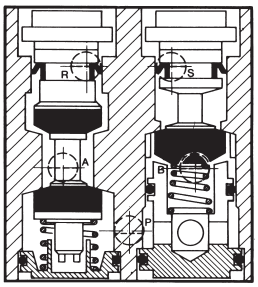
3/2 NO valve body

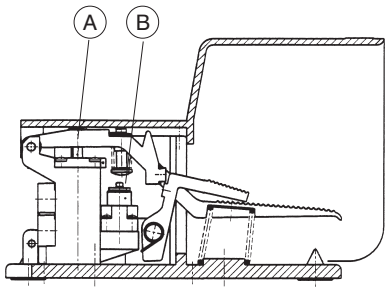




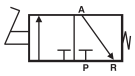
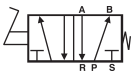
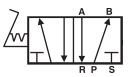
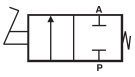
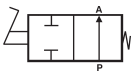
Servoassisted pedal with two positions (bistable). The pedal must be deeply pressed. The unlocking pedal brings the pedal back to the starting position.

5/2 valve body

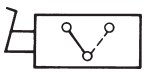




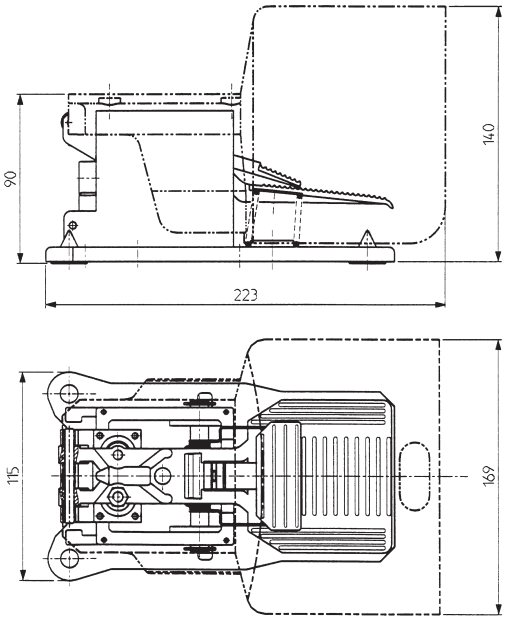
Servoassisted pedal with safety device. Operation is possible only by pushing both pedals at the same time. Pedals return to the starting position simply by releasing them. In this case unintentional operation is avoided.

Pneumatic pedal	Symbol	Control	Return	Ways	Connec-tions	Ø mm	Capacity Nl/min	Force (N)	Mass kg	Part number
		Pedal	Spring	3/2 NC	M 5	2,3	98	20	0,92	AM-5053
					G 1/8	2,3	98	20	0,96	AM-5043
					G 1/4	6	800	20	1,25	AM-5000
		Pedal	Spring	5/2	G 1/4	6	800	20	1,45	AM-5001
			Pedal		G 1/4	6	800	20	1,52	AM-5004
		Pedal	Spring	2/2 NC	M5	2,3	98	20	0,92	AM-5053B
					G 1/8				0,96	AM-5043B
				2/2 NO	M5	2,3	98	20	0,92	AM-5053D
					G 1/8				0,96	AM-5043D

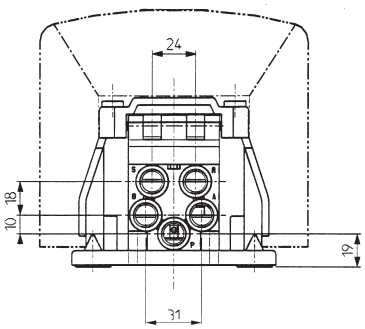
Upon request: operation with pedal provided with safety stop - servoassisted pedal - servoassisted pedal with safety control - NO valves 3/2

Electric pedal	Symbol	Description	Force N	Mass Kg	Part number
		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
		Body, protection and pedal in dielectric plastic material			

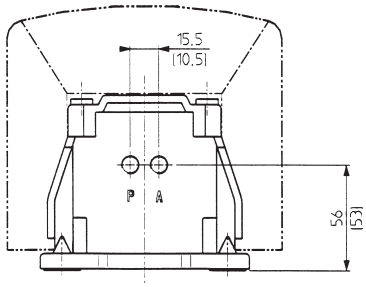
2/2 - 3/2 NC, NO 5/2 - M5 - G 1/8 - G 1/4 pneumatic pedals
Poppet system



G 1/4



G 1/8 (M5)

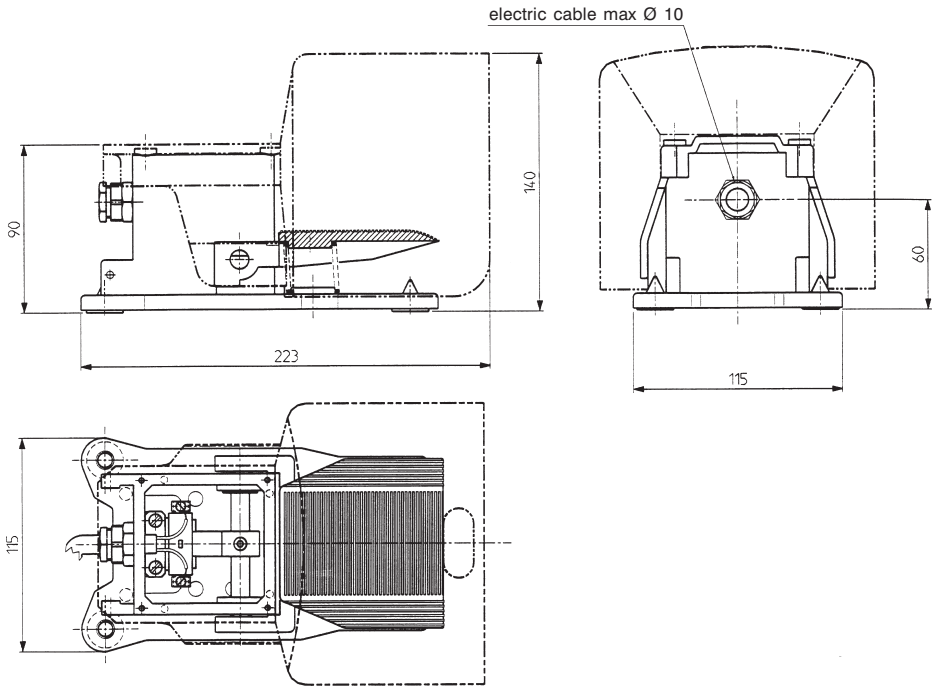


P (1) = Supply
A-B (4-2) = Consumption
R-S (5-3) = Exhaust

Threaded connections for different functions (G 1/4 valves):

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

Electric pedal



Flow–control valves are used mainly where there is a need to regulate piston speed in double or single acting pneumatic cylinders. They are also used to regulate air flow, where necessary. The unidirectional flow regulator allows flow regulation in one direction only (indicated on the apparatus), and the bidirectional version in both directions.

TECHNICAL CHARACTERISTICS

Body in anodized aluminium alloy or painted zamak
Oil-resistant seals
Brass regulation pin with non-removable lock
Max. working pressure: 12 bar

Ambient and fluid temperature: -20 ÷ 80 °C
Seal closing and opening movements are automatic and work without the help of adjustment springs

OPERATING PRINCIPLES AND FLOW-CAPACITY CHARACTERISTICS

Flow regulators with M5 - G 1/8 - G 1/4 - G 3/8 - G 1/2 connections

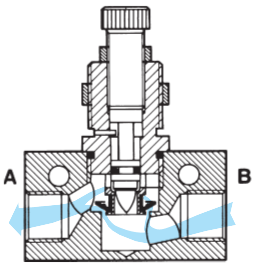


Fig. 1: air direction with free flow

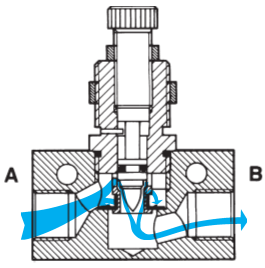
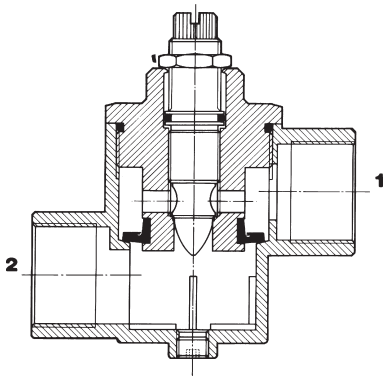
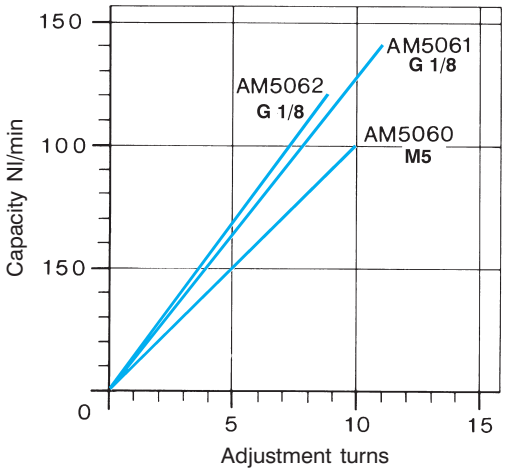
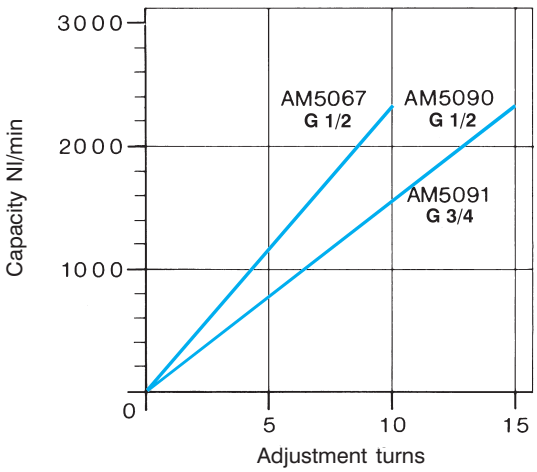


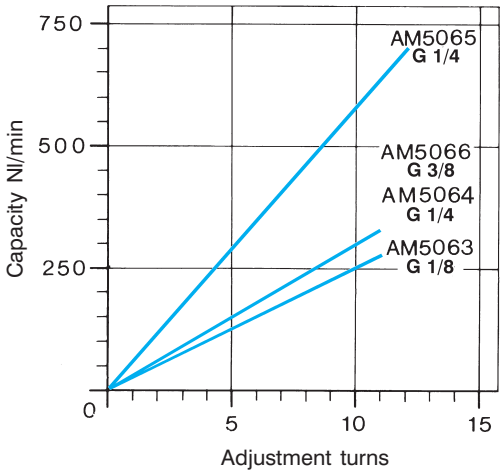
Fig. 2: air direction with regulated flow

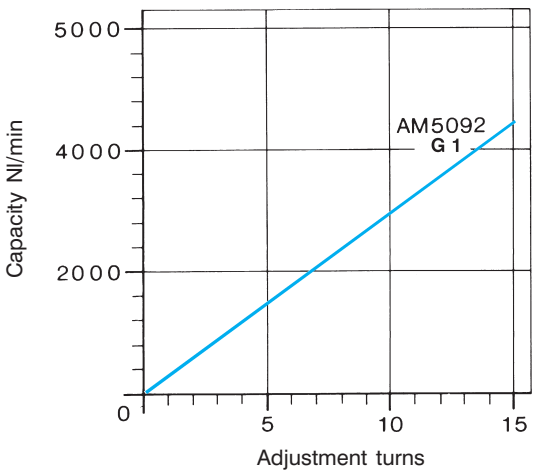
Flow regulators with G 1/2 - G 3/4 - G 1 connections







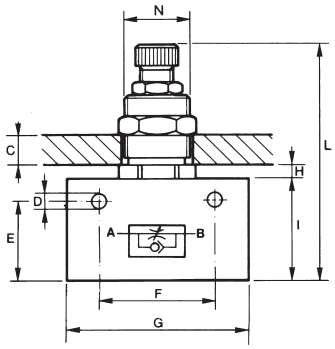




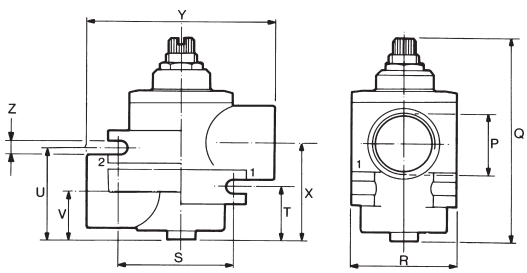
Type	Symbol	Connec-tions	Capacity Nl/min regulated	free	Ø Orifice mm regulated	free	Pressure bar	Mass kg	Part number
M5 - G 1/8 - G 1/4 - G 3/8 - G 1/2 unidirectional and bidirectional flow regulators									
M5 ÷ G 1/2 	 unidirectional regulation	M5	99	125	1	2	0 ÷ 12	0,06	**AM-5060**
		G 1/8	140	410	1	5		0,05	**AM-5061**
		G 1/8	120	470	2,25	5		0,05	**AM-5062**
		G 1/8	280	520	3,5	5		0,05	**AM-5063**
		G 1/4	350	890	5	7		0,12	**AM-5064**
		G 1/4	700	900	6	7		0,12	**AM-5065**
		G 3/8	350	980	6	7		0,11	**AM-5066**
		G 1/2	2200	2800	9	12		0,22	**AM-5067**
	 bidirectional regulation	M5 •	99		1		0 ÷ 12	0,06	**AM-5070**
		G 1/8 •	140		1			0,05	**AM-5071**
		G 1/8 •	120		2,25			0,05	**AM-5072**
		G 1/4	350		5			0,12	**AM-5074**
		G 3/8	350		6			0,11	**AM-5076**
		G 1/2	2200		9			0,22	**AM-5077**
G 1/2 - G 3/4 - G 1 unidirectional flow regulators									
G 1/2 ÷ G 1 		G 1/2	2300	4500	9	15		0,42	**AM-5090**
		G 3/4	2300	4500	9	15		0,35	**AM-5091**
		G 1	4200	5500	12	24		0,83	**AM-5092**

•The locking nut is included.
For G 1/4 - G 1/2 -G 3/8 connections, the locking nut must be ordered separately (part number **AM-5100**).

Overall dimensions



Connec-tions A	B	max. C	D	E	F	G	H	I	L min-max	M	N	O
M5	10	6	3,5	17	19	25	4	23	48-55	7	M 12x1	15
G 1/8	8	6	4,5	18	25	35	4	23	48-55	7	M 12x1	15
G 1/4	11	14	6,3	23,5	35	52	4	30	69-76	10	M 20x1,5	25
G 3/8	11	14	6,3	23,5	35	52	4	30	69-76	10	M 20x1,5	25
G 1/2	18,5	18	6,5	35	44	65	5	40	82-92	15	M 20x1,5	30



Connections P	Q min-max	R	S	T	U	V	X	Y	Z
G 1/2 - G 3/4	92 - 102	40	43	25	41	22	47	67	6,245
G 1	108 - 121	57	58	30	50	26	53	101	8,25

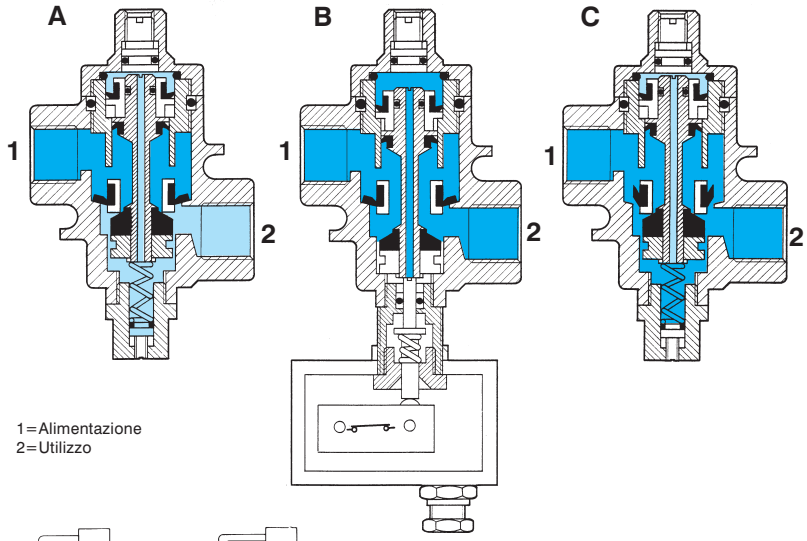
The gradual starter (patented) is used in pneumatic circuits where a cut-off in pressure, an abrupt start-up is to be avoided to prevent possible damages to equipment.

TECHNICAL CHARACTERISTICS

Max. working pressure: 10 bar
Ambient and fluid temperature: -20 ÷ 80°C

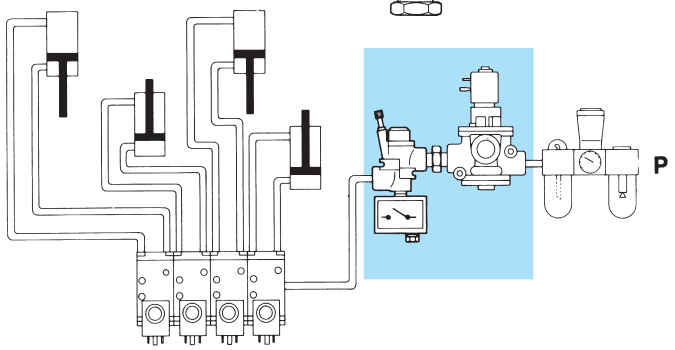
Valve body: die-cast zamak
Oil resistant seal
Fluid: filtered air, with or without lubrication

FUNCTIONING PRINCIPLE



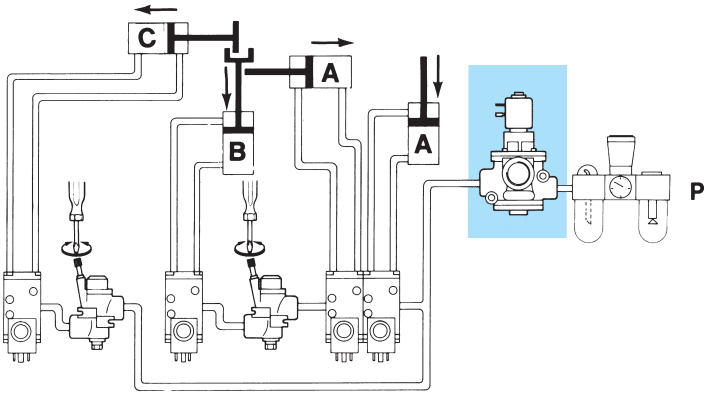
1=Alimentazione
2=Utilizzo

The gradual starter is a 2–way valve which, in the stand–by position, allows the passage of an air regulated flow (A). When the working pressure is reached the valve allows the full passage of the air by remaining open even when pressure falls to 2 ÷ 2,5 bar. Coupled with an NO electrical swith the valve gives a contemporary pneumatic and electrical reply (B). When pressure is blocked, air exhausts through the unidirectional seals (C).

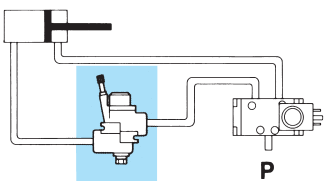


Advantages
It prevents accidents and possible damages to the parts of the equipments.
It reduces wear in pneumatic equipments and contributes to the synchronisation of the actuator movements after stopping.
It can be installed on existing equipments without modifications.

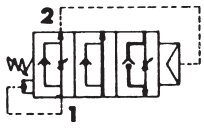
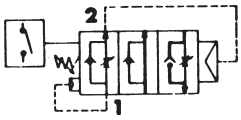
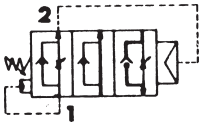
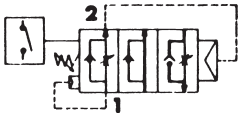
When the starter is applied after the 3–way valve the cylinders can be progressively positioned. If an electrical reply is given, the integration of the starter will allow the reading of the complete opening, guaranteeing the operator complete starting safety.



The starter can act as plant selector if correctly applied and regulated and position cylinders according to a fixed sequence. The sequence of the example is A – B – C.

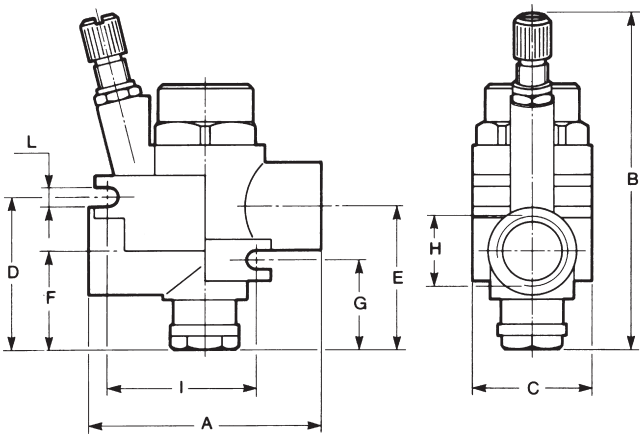


When the starter is inserted between the valve and the cylinder the rod will exit at low pressure up to max. stroke. At this point the automatic release of maximum pressure is reached.

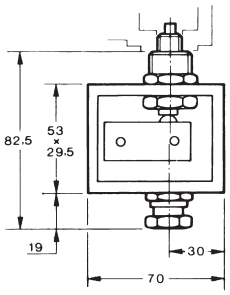
Type	Connections	Ø mm	Capacity Nl/min.	Description	Mass kg	Patr number
	G 1/8	6,5	620	with manual regulation 	0,12	**AM-5240**
	G 1/4	6,5	620		0,11	**AM-5241**
	G 1/4	9,5	2100		0,18	**AM-5242**
	G 3/8	9,5	2100		0,16	**AM-5243**
	G 1/4	9,5	2100	with electrical switch 	0,18	**AM-5242 E**
	G 3/8	9,5	2100		0,16	**AM-5243 E**
	G 1/2	15	3500	with manual regulation 	0,37	**AM-5254**
	G 3/4	15	3500		0,33	**AM-5255**
	G 1	24	6800		0,75	**AM-5256**
	G 1/2	15	3500	with electrical switch 	0,51	**AM-5259**
	G 3/4	15	3500		0,47	**AM-5260**
	G 1	24	6800		0,75	**AM-5261**

Overall dimensions

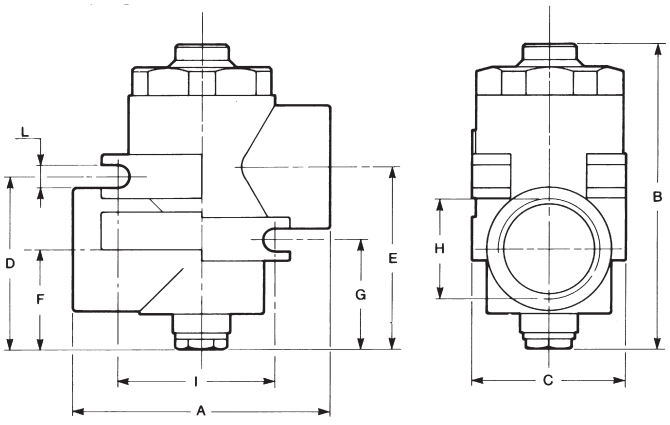
Gradual starters with G 1/8 - G 1/4 connections



Electrical switch

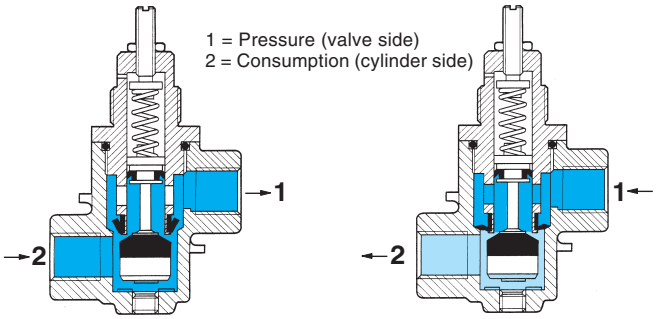


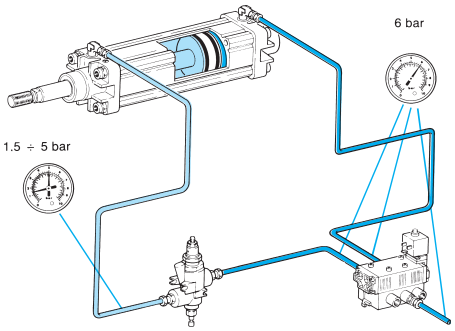
Gradual starters with G 1/4 - G 3/8 - G 1/2 - G 3/4 - G 1 connections



A	B	C	D	E	F	G	H	I	L
46	61÷67	24	31	29	20	18,5	G 1/8 G 1/4	31	4,25
50	64÷71	28	35	38	21	24,5	G 1/4 G 3/8	37	5,25
67	86	40	46	48	27	28,5	G 1/2 G 3/4	42	6,25
101	107	56,5	54	57,5	30	33,5	G1	59,5	8,25

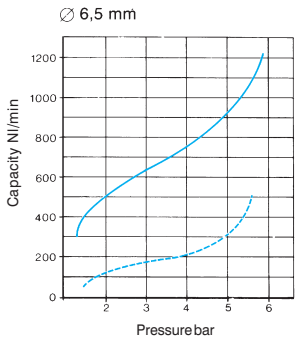
The economizer is generally used in those pneumatic equipments which require energy saving. The economizer with G 1/8 to G 1 connections functions as a pressure reducer, in one direction, with 1 to 5 bar regulation, and has free return on the opposite direction.
Applications: • Cylinders with different thrusts • Pneumatic clampings • Pneumatic presses • Elimination of the simple-acting cylinder and passing to a double-acting one • Low pressure (0,5 ÷ 2 bar) and differentiated pressure cylinders.

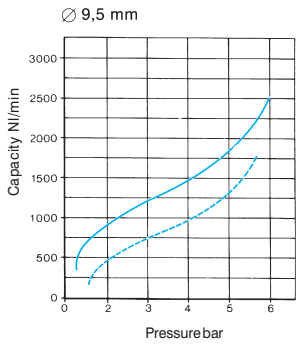


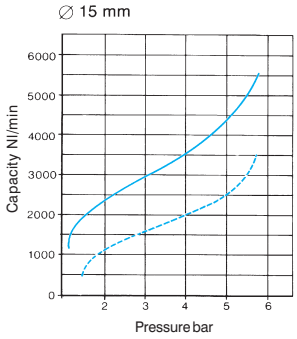


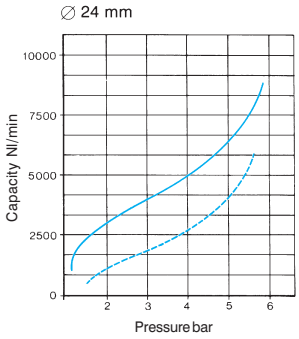
Flow from 1 to 2 – – – – – –

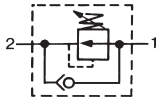
Flow from 2 to 1 ———



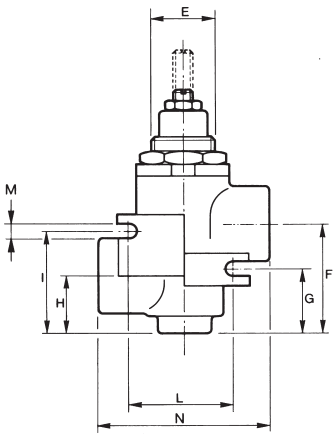


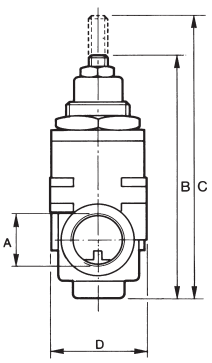




Type	Symbol	Version	Ports	Ø mm	Capacity Nl/min	Mass kg	Part number
		Manually controlled	G 1/8	6,5	700-900	0,10	**AM-5350**
			G 1/4	6,5	700-900	0,10	**AM-5351**
			G 1/4	9,5	1200-2000	0,17	**AM-5352**
			G 3/8	9,5	1200-2000	0,16	**AM-5353**
			G 1/2	15	3500-5000	0,33	**AM-5354**
			G 3/4	15	3500-5000	0,34	**AM-5355**
			G 1	24	5200-7500	0,84	**AM-5356**

Overall dimensions





A	B	C	D	E	F	G	H	I	L	M	N
G 1/8 G 1/4	82	102	23,5	M 14x1	25	14	15,5	26,5	31	4,25	46
G 1/4 G 3/8	94	106	27,5	M 18x1	34	20	17	30,5	37	5,25	50
G 1/2 G 3/4	105	125	40	M 22x1	44	24,5	22	41,5	42	6,25	67
G 1	139	155	56,5	M 40x1	53	28,5	26	50	49,5	8,25	101

G 1/8 cap included.
For the panel, a fixing ring nut must be ordered:

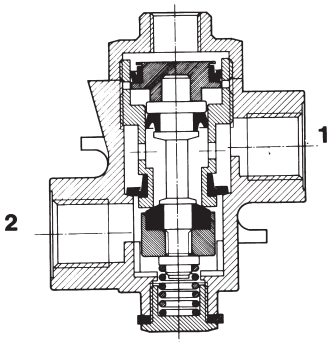
AM-5230 (G 1/8 - G 1/4) **AM-5231** (G 1/4 - G 3/8)
AM-5232 (G 1/2 - G 3/4) **AM-5233** (G 1)

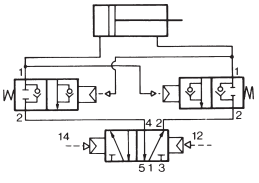
Unidirectional blocking valves are safety devices which can block the cylinder rod when, accidentally, the pressure fails. Bidirectional blocking valves are used to block the cylinder rod when the bistable 5/2 valve that controls it has deenergized pilots. In this case the 5/3 function is obtained.

Max. working pressure: 10 bar
Ambient and fluid temperature: -20 ÷ +180 °C
Fluid temperature: 50°C max.

Body: die–cast zamak
Oil proof seals
Fluid: filtered air with or without lubrication

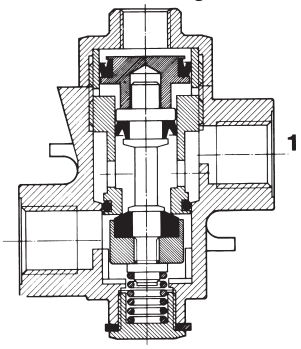
Undirectional blocking valve

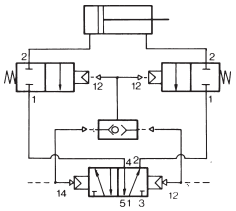




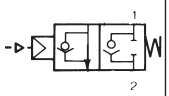
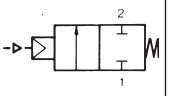
Functioning: the valve in rest position allows the air flow from 2 to 1; air flows from 1 to 2 only when it receives the control signal.
Use: when mounted on the cylinder (opening 1 connected to the cylinder) the valve blocks the cylinder when pressure accidentally fails.

Bidirectional blocking valve



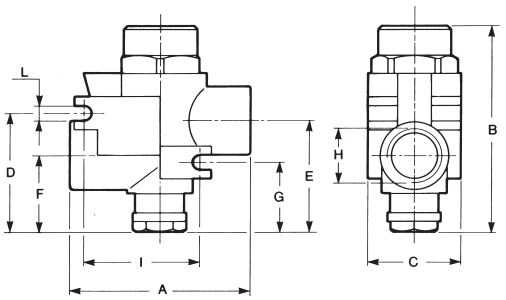


Functioning: the valve allows the air flow from 2 to 1 (or from 1 to 2) only when it receives the control signal.
Use: when mounted on the cylinder openings it allows the 3 position operation (closed centres) although a 5/2 valve controls the cylinder. This is reached by connecting the opening 2 to the cylinder, the opening 1 to the 5/2 valve and controlling the two valves at the same time through an OR. The OR inputs must be connected to the control impulses of the 5/2 valve.

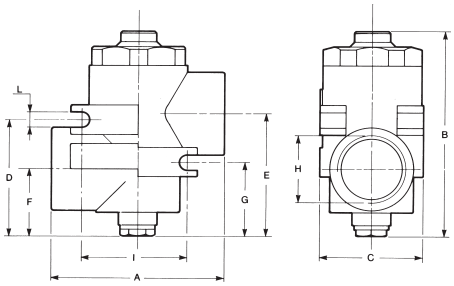
Type	Symbol	Function	Ports	Capacity Nl/min	Ø mm	Pressure bar	Mass kg	Part number
		unidirectional	G 1/8	620	6,5	1,5 ÷ 10	0,110	**AM-5500**
			G 1/4	620	6,5		0,110	**AM-5501**
			G 1/4	2100	9,5		0,110	**AM-5502**
			G 3/8	2100	9,5		0,150	**AM-5503**
			G 1/2	3500	15		0,360	**AM-5504**
		bidirectional	G 1/8	620	6,5	1,5 ÷ 10	0,110	**AM-5510**
			G 1/4	620	6,5		0,110	**AM-5511**
			G 1/4	2100	9,5		0,110	**AM-5512**
			G 3/8	2100	9,5		0,150	**AM-5513**
			G 1/2	3500	15		0,360	**AM-5514**

Overall dimensions

Blocking valves with G 1/8 - G 1/4 ports



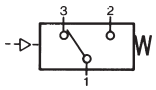
Blocking valves with G 1/4 - G 1/8 - G 1/2 ports



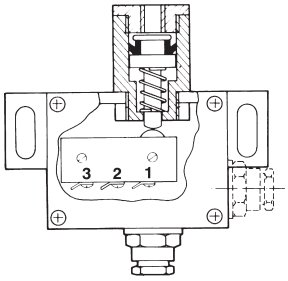
A	B	C	D	E	F	G	H	I	L
46	58	24	31	29	20	18,5	G 1/8 G 1/4	31	4,25
50	65	28	35	38	21	24,5	G 1/4 G 3/8	37	5,25
67	81	40	46	48	27	28,5	G 1/2	42	6,25

Pneumoelectric transducer

The pneumoelectric transducer is used to convert a pneumatic signal into an ON-OFF electric signal. An example of its application is the piloting of a solenoid valve or other electrical device when there is a pressure at a point in the system (the pressure can be of any value provided it falls between the minimum and maximum operating values).

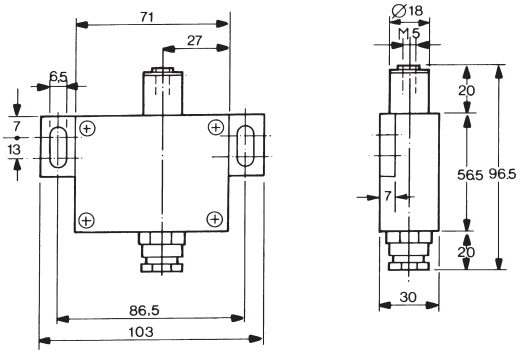
Type	Symbol	Description	Capacity	Ambient temperature	Pressure bar	Mass kg	Part number
		Body in dielectric material with fitting for wall mounting. IP 65 protection NO or NC function according to the connected terminals	16* A - 250 V 50 Hz 5** A - 250 V 50 Hz 3 A - 30 V c.c. * Resistive load ** Inductive load	–20 ÷ 80°C	0,8 ÷ 10	0,143	**AM-5200**

Functional scheme



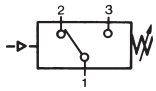
Terminals connection
1 = normal terminal
2 = NO terminal
3 = NC terminal

Overall dimesions

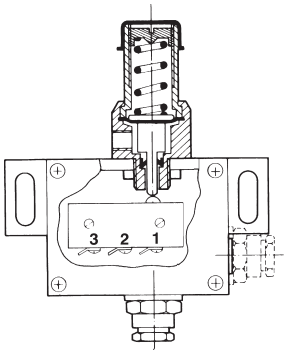


Calibrated pressure switch

The device is used when there is need of an ON-OFF electric signal at a pre-determined pressure in a plant (example: an electric reply to a solenoid valve).
The above-mentioned pressure value can be calibrated between 1 and 8 bar by means of an adjusting screw.

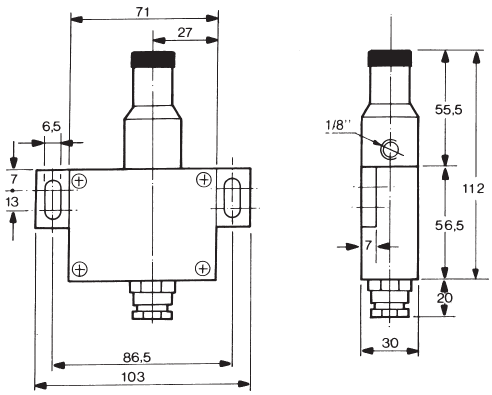
Type	Symbol	Description	Capacity	Ambient temperature	Pressure bar	Mass kg	Part number
		Body in dielectric material with fitting for wall mounting. IP 65 protection NO or NC function according to the connected terminals	16* A - 250 V 50 Hz 5** A - 250 V 50 Hz 3 A - 30 V c.c. * Resistive load ** Inductive load	–20 ÷ 80°C	1 ÷ 8 (max 10)	0,200	**AM-5220**

Functional scheme



Terminals connection
1 = normal terminal
2 = NO terminal
3 = NC terminal

Overall dimesions



G 1/2 - G 3/4 - G 1 check valves

Check valves are devices that let compressed air flow in just one direction.

TECHNICAL CHARACTERISTICS

Max. working pressure: 10 bar
Ambient and fluid temperature: -20 ÷ 80°C
Max. fluid temperature: 50°C

Body: die-cast zamak
Oil-proof seals
Fluid: filtered air

Type	Symbol	Ports	Ø mm	Capacity Nl/mm	Pressure bar	Mass kg	Part number
		G 1/2	15	4500	0 ÷ 10	0,354	**AM-5400**
		G 3/4	15	4500	0 ÷ 10	0,312	**AM-5401**
		G 1	24	7500	0 ÷ 10	0,740	**AM-5402**

OPERATING PRINCIPLE

Fig. 1

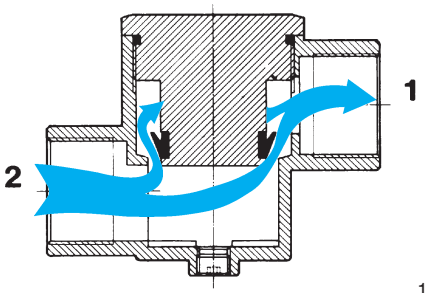
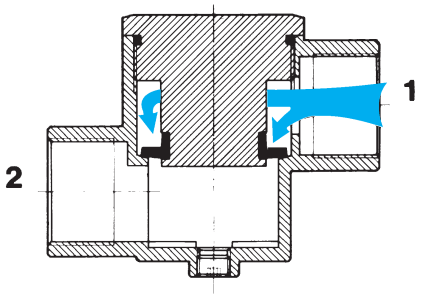


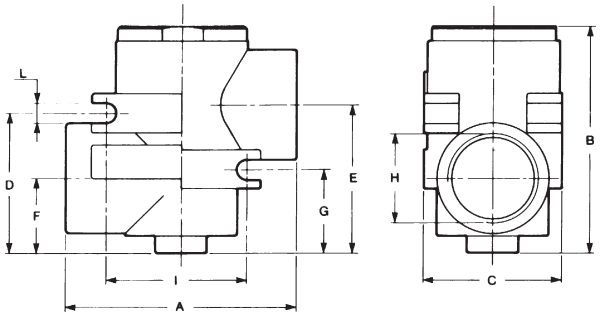
Fig. 2



1 =Consumption
2 =Pressure

Compressed air flows freely from 2 to 1 (fig.1), while it is stopped when it flows from 1 to 2 (fig.2)

Overall dimensions



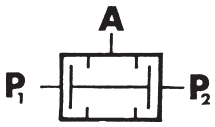
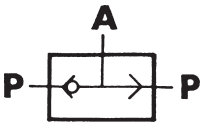
A	B	C	D	E	F	G	H	I	L
67	67	40	46	48	27	28,5	G 1/2 G 3/4	42	6,25
101	80	56,5	54	57,5	30	33,5	G 1	59,5	8,25

Signal processing valves

These valves suitable for power or control circuits allow to obtain an output signal provided there are both input signals (AND valve) or one of the two (OR valve). The two versions, threaded connections G 1/8 or quick couplings Ø 4x2, solve all application needs.

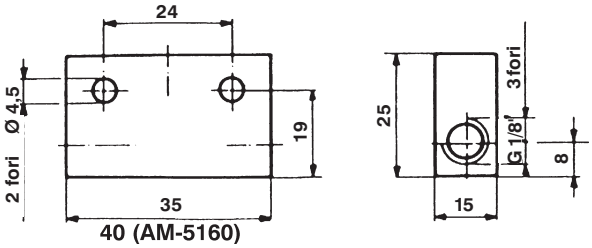
TECHNICAL CHARACTERISTICS

Max. working pressure: 1,5 ÷ 8 bar
Ambient temperature: -10 ÷ 75°C
Fluid temperature: 50°C
Fluid: compressed air or neutral gases.
Flow capacity at 6 bar: 300 Nl/min (version G 1/8 threaded connections) with nominal diameter 3,5 mm.
110 Nl/min (version with quick coupling 4x2) with normal diameter 2 mm.
Seals in oil-proof rubber.

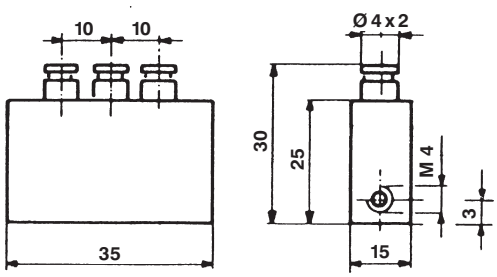
Type	Functioning principle	Connections	Part n°
Two pressure valve "AND"			
	 $A = P_1 \cdot P_2$ $P_1 - P_2$ = Pressure, A = Consumption	Threaded body G 1/8	**AM-5160**
		Quick couplings Ø 4x2	**AM-5161**
Selector valve "OR"			
	 $A = P + P$ P = Pressure, A = Consumption	Threaded body G 1/8	**AM-5162**
		Quick couplings Ø 4x2	**AM-5163**

Overall dimensions

Threaded connections G 1/8



Quick couplings pipe Ø 4x2



Accessories

CARATTERISTICHE TECNICHE

Corpo: tecnopolimero.
Elemento di fissaggio: in ottone nichelato con O-ring in NBR nella versione cilindrica o con rivestimento in teflon nella versione conica.
Pinza di aggraffaggio: acciaio inox.
Anello di sgancio: tecnopolimero.
Applicazioni: circuiti pneumatici.
Tubi di collegamento consigliati: Rilsan/Elastollan.
Pressione max.: 15 bar.
Pressione di lavoro: -0,99 ÷10 bar.
Temperature consentite: -20 ÷ 60°C (dipendenti dal tipo di tubo impiegato).

TECHNICAL CHARACTERISTICS

Body: technopolymer.
Fixing element: in nickel-plated brass with O-ring in NBR in parallel version or with Teflon coating in the taper version.
Clamping collet: stainless steel.
Release ring: technopolymer.
Application fields: pneumatic circuits.
Recommended hoses: Rilsan/Elastollan.
Max. pressure: 15 bar.
Working pressure: -0,99 ÷ 10 bar.
Max. temperature range: -20° ÷ 60°C
(depending on the type of tube used).

TECHNISCHE MERKMALE

Körper: Technopolymer.
Befestigungselement: aus vernickeltem Messing mit O-Ring aus NBR in zylinderförmiger Version oder mit Teflonbeschichtung in konischer Version.
Spannring: aus Edelstahl.
Auslösering: Technopolymer.
Anwendungen: Druckluftkreise.
Empfohlene Verbindungsrohre: Rilsan/Elastollan.
Druckbereich: 15 bar max.
Betriebsdruck: -0,99 ÷ 10 bar.
Zulässige Temperatur: -20° ÷ 60°C (abhängig vom verwendeten Rohrtyp).

CARACTÉRISTIQUES TECHNIQUES

Corps: technopolymère.
Elément de fixation: en laiton nickelé avec joint en NBR dans la version cylindrique ou avec revêtement en téflon dans la version conique.
Pince d'agrafage: en acier inox.
Anneau de déclenchement: technopolymère.
Tubes de raccordement conseillés: Rilsan/Elastollan.
Pression max: 15 bar.
Pression de travail: -0,99 ÷10 bar.
Température d'utilisation: -20° ÷ 60°C (en fonction du type de tube utilisé).

CARACTERISTICAS TECNICAS

Cuerpo: tecnopolímero.
Elemento de fijación: en latón niquelado con junta en NBR en la versión cilíndrica o con revestimiento de teflón en la versión cónica.
Pinzas de agarre: acero inox.
Anillo de extracción: tecnopolímero.
Aplicaciones: circuitos neumáticos.
Tubos de conexionado aconsejados: Rilsan/Elastollan.
Presión max.: 15 bar.
Presión de trabajo: -0,99 ÷10 bar.
Temperatura de trabajo: -20 ÷ 60°C (dependiendo del tipo de tubo utilizado).

ISTRUZIONI DI MONTAGGIO

- **Tagliare il tubo a 90° (servendosi della pinza tagliatubo) verificando l'assenza di bave interne ed esterne e facendo attenzione che il tubo non si presenti ovalizzato dopo il taglio.**
- **Inserire il tubo nel raccordo spingendolo fino in battuta.**
- **Estrazione del tubo: esercitare una leggera pressione sull'anello estrattore, estraendo contemporaneamente il tubo dal corpo del raccordo.**

ASSEMBLY INSTRUCTIONS

- Cut the tube square (by means of a hose cutter) making sure that no burrs inside and outside are left and that the tube does not have an oval shape.
- Insert the tube into the fitting until it bottoms.
- Tube release: while slightly pressing on the release ring, pull out the tube from the body of the fitting.

MONTAGEANWEISUNGEN

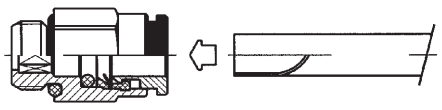
- ***das Rohr auf 90° schneiden (unter Verwendung der Rohrschneidezange), wobei zu kontrollieren ist, ob innen oder aussen eine Gratbildung stattgefunden hat und darauf geachtet werden muss, dass das Rohr nach dem Schnitt keinen ovalen Charakter hat.***
- ***das Rohr bis zum Anschlag in die Verschraubung schieben.***
- ***Herausziehen des Rohres: einen leichten Druck auf den Ausziehring ausüben, und gleichzeitig das Rohr aus dem Verschraubungskörper herausziehen.***

INSTRUCTIONS DE MONTAGE

- *Couper le tube à 90° (en se servant de la pince coupe-tube) et vérifier l'absence de bavures intérieures et extérieures en faisant attention que le tube ne se présente pas ovalisé après la coupe.*
- *Introduire le tube dans le raccord en le poussant jusqu'à la butée.*
- *Extraction du tube : exercer une légère pression sur l'anneau extracteur en retirant en même temps le tube du corps du raccord.*

ISTRUCCIONES DE MONTAJE

- **Cortar el tubo a 90° (utilizando el útil cortatubos) verificando la ausencia de rebabas internas y externas y comprobando que el tubo no se ha ovalado tras el corte.**
- **Insertar el tubo en el racor empujandolo hasta el tope.**
- **Extracción del tubo: ejercer una ligera presión sobre el anillo extractor, extrayendo al mismo tiempo el tubo del cuerpo del racor.**



HA01 ....

Diritto corpo liscio maschio conico
Straight, smooth body, taper male
Gerade, glatter Körper Aussengewinde konisch
Droit corps lisse mâle conique
Recto exágono interior macho cónico

Ø	D1	UNIVER
4	G1/8	**HA010418**
6	G1/8	**HA010618**
8	G1/8	**HA010818**
4	G1/4	**HA010414**
6	G1/4	**HA010614**
8	G1/4	**HA010814**
10	G1/4	**HA011014**
8	G3/8	**HA010838**
10	G3/8	**HA011038**
12	G3/8	**HA011238**
10	G1/2	**HA011012**
12	G1/2	**HA011212**

HA02 ....

Diritto corpo liscio maschio cilindrico
Straight, smooth body, parallel male
Gerade, glatter Körper Aussengewinde zylindrisch
Droit corps lisse mâle cylindrique
Recto exágono interior macho cilíndrico

Ø	D1	UNIVER
4	M5	**HA0204M5**
6	M5	**HA0206M5**
4	G1/8	**HA020418**
6	G1/8	**HA020618**
8	G1/8	**HA020818**
4	G1/4	**HA020414**
6	G1/4	**HA020614**
8	G1/4	**HA020814**
10	G1/4	**HA021014**
8	G3/8	**HA020838**
10	G3/8	**HA021038**
12	G3/8	**HA021238**
10	G1/2	**HA021012**
12	G1/2	**HA021212**

HA03 ....

Diritto maschio conico
Straight, taper male
Gerade Aussengewinde konisch
Droit mâle conique
Recto macho cónico

Ø	D1	UNIVER
4	G1/8	**HA030418**
6	G1/8	**HA030618**
8	G1/8	**HA030818**
4	G1/4	**HA030414**
6	G1/4	**HA030614**
8	G1/4	**HA030814**
10	G1/4	**HA031014**
8	G3/8	**HA030838**
10	G3/8	**HA031038**
12	G3/8	**HA031238**
10	G1/2	**HA031012**
12	G1/2	**HA031212**

HA04 ....

Diritto maschio cilindrico
Straight, parallel male
Gerade, Aussengewinde zylindrisch
Droit mâle cylindrique
Recto macho cilíndrico

Ø	D1	UNIVER
4	M5	**HA0404M5**
6	M5	**HA0406M5**
4	G1/8	**HA040418**
6	G1/8	**HA040618**
8	G1/8	**HA040818**
4	G1/4	**HA040414**
6	G1/4	**HA040614**
8	G1/4	**HA040814**
10	G1/4	**HA041014**
8	G3/8	**HA040838**
10	G3/8	**HA041038**
12	G3/8	**HA041238**
10	G1/2	**HA041012**
12	G1/2	**HA041212**

HA05 ....

Diritto plastica maschio conico
Straight plastic taper male
Gerade, Aussengewinde konisch, Kunststoff
Droit, mâle conique, plastique
Recto plástico macho cónico

Ø	D1	UNIVER
6	G1/4	**HA050614**
6	G1/8	**HA050618**
8	G1/4	**HA050814**
8	G1/8	**HA050818**
8	G3/8	**HA050838**
10	G1/2	**HA051012**
10	G1/4	**HA051014**
10	G3/8	**HA051038**
12	G1/2	**HA051212**
12	G3/8	**HA051238**

HA06 ....

Diritto plastica maschio cilindrico
Straight plastic parallel male
Gerade, Aussengewinde zylindrisch, Kunststoff
Droit, mâle cylindrique, plastique
Recto plástico macho cilíndrico

Ø	D1	UNIVER
6	G1/4	**HA060614**
6	G1/8	**HA060618**
8	G1/4	**HA060814**
8	G1/8	**HA060818**
8	G3/8	**HA060838**
10	G1/2	**HA061012**
10	G1/4	**HA061014**
10	G3/8	**HA061038**
12	G1/2	**HA061212**
12	G3/8	**HA061238**

HA07 ....

Diritto femmina
Straight female
Gerade, Aufschraubanschluss
Droit femelle
Recto hembra

Ø	D1	UNIVER
4	G1/8	**HA070418**
6	G1/8	**HA070618**
8	G1/8	**HA070818**
6	G1/4	**HA070614**
8	G1/4	**HA070814**
10	G1/4	**HA071014**
8	G3/8	**HA070838**
10	G3/8	**HA071038**
12	G3/8	**HA071238**
12	G1/2	**HA071212**

HA08 ....

Gomito girevole femmina
Swivel elbow female
Winkel-Aufschraubanschluss, drehbar
Coude tournant femelle
Codo orientable hembra

Ø	D1	UNIVER
4	G1/8	**HA080418**
6	G1/8	**HA080618**
8	G1/8	**HA080818**
6	G1/4	**HA080614**
8	G1/4	**HA080814**
10	G1/4	**HA081014**
8	G3/8	**HA080838**
10	G3/8	**HA081038**
12	G3/8	**HA081238**
12	G1/2	**HA081212**

HA09 ....

Gomito girevole maschio conico
Swivel elbow taper male
Winklig, drehbar, Aussengewinde konisch
Coude tournant mâle conique
Codo orientable macho cónico

Ø	D1	UNIVER
4	G1/8	**HA090418**
6	G1/8	**HA090618**
8	G1/8	**HA090818**
4	G1/4	**HA090414**
6	G1/4	**HA090614**
8	G1/4	**HA090814**
10	G1/4	**HA091014**
8	G3/8	**HA090838**
10	G3/8	**HA091038**
12	G3/8	**HA091238**
10	G1/2	**HA091012**
12	G1/2	**HA091212**

HA10 ....

Gomito girevole maschio cilindrico
Swivel elbow parallel male
Winklig, drehbar, Aussengewinde zylindrisch
Coude tournant mâle cylindrique
Codo orientable macho cilíndrico

Ø	D1	UNIVER
4	M5	**HA1004M5**
6	M5	**HA1006M5**
4	G1/8	**HA100418**
6	G1/8	**HA100618**
8	G1/8	**HA100818**
4	G1/4	**HA100414**
6	G1/4	**HA100614**
8	G1/4	**HA100814**
10	G1/4	**HA101014**
8	G3/8	**HA100838**
10	G3/8	**HA101038**
12	G3/8	**HA101238**
10	G1/2	**HA101012**
12	G1/2	**HA101212**

HA11 ....

Gomito girevole prolungato maschio conico
Swivel elbow extended taper male
Winklig, drehbar, verlängert, Aussengewinde konisch
Coude tournant prolongé mâle conique
Codo orientable elevado macho cónico

Ø	D1	UNIVER
4	G1/8	**HA110418**
6	G1/8	**HA110618**
8	G1/8	**HA110818**
4	G1/4	**HA110414**
6	G1/4	**HA110614**
8	G1/4	**HA110814**
10	G1/4	**HA111014**
6	G3/8	**HA110638**
8	G3/8	**HA110838**
10	G3/8	**HA111038**
12	G3/8	**HA111238**
10	G1/2	**HA111012**
12	G1/2	**HA111212**

HA12 ....

Gomito girevole prolungato maschio cilindrico
Swivel elbow extended parallel male
Winklig, drehbar, verlängert, Aussengewinde zylindrisch
Coude tournant prolongé mâle cylindrique
Codo orientable elevado macho cilíndrico

Ø	D1	UNIVER
4	M5	**HA1204M5**
6	M5	**HA1206M5**
4	G1/8	**HA120418**
6	G1/8	**HA120618**
8	G1/8	**HA120818**
4	G1/4	**HA120414**
6	G1/4	**HA120614**
8	G1/4	**HA120814**
10	G1/4	**HA121014**
6	G3/8	**HA120638**
8	G3/8	**HA120838**
10	G3/8	**HA121038**
12	G3/8	**HA121238**
10	G1/2	**HA121012**
12	G1/2	**HA121212**

HA13 ....

T laterale maschio conico
Tee lateral taper male
T-förmig, seitlich, Aussengewinde konisch
T latéral mâle conique
Te rosca lateral macho cónica

Ø	D1	UNIVER
4	G1/8	**HA130418**
6	G1/8	**HA130618**
8	G1/8	**HA130818**
6	G1/4	**HA130614**
8	G1/4	**HA130814**
10	G1/4	**HA131014**
8	G3/8	**HA130838**
10	G3/8	**HA131038**
12	G3/8	**HA131238**
10	G1/2	**HA131012**
12	G1/2	**HA131212**

HA14 ....

T laterale maschio cilindrico
Tee lateral parallel male
T-förmig, seitlich, Aussengewinde zylindrisch
T latéral mâle cylindrique
Te rosca lateral macho cilíndrica

Ø	D1	UNIVER
4	M5	**HA1404M5**
6	M5	**HA1406M5**
4	G1/8	**HA140418**
6	G1/8	**HA140618**
8	G1/8	**HA140818**
6	G1/4	**HA140614**
8	G1/4	**HA140814**
10	G1/4	**HA141014**
8	G3/8	**HA140838**
10	G3/8	**HA141038**
12	G3/8	**HA141238**
10	G1/2	**HA141012**
12	G1/2	**HA141212**

HA15 ....

T centrale maschio conico
Tee central taper male
T-förmig zentral, Aussengewinde konisch
T central mâle conique
Te rosca central macho cónica

Ø	D1	UNIVER
4	G1/8	**HA150418**
6	G1/8	**HA150618**
8	G1/8	**HA150818**
6	G1/4	**HA150614**
8	G1/4	**HA150814**
10	G1/4	**HA151014**
8	G3/8	**HA150838**
10	G3/8	**HA151038**
12	G3/8	**HA151238**
10	G1/2	**HA151012**
12	G1/2	**HA151212**

HA16 ....

T centrale maschio cilindrico
Tee central parallel male
T-förmig zentral, Aussengewinde zylindrisch
T central mâle cylindrique
Te rosca central macho cilíndrica

Ø	D1	UNIVER
4	M5	**HA1604M5**
6	M5	**HA1606M5**
4	G1/8	**HA160418**
6	G1/8	**HA160618**
8	G1/8	**HA160818**
6	G1/4	**HA160614**
8	G1/4	**HA160814**
10	G1/4	**HA161014**
8	G3/8	**HA160838**
10	G3/8	**HA161038**
12	G3/8	**HA161238**
10	G1/2	**HA161012**
12	G1/2	**HA161212**

HA17 ....

Y maschio conico
Y taper male
Y-förmig, Aussengewinde konisch
Y mâle conique
Y rosca macho cónica

Ø	D1	UNIVER
4	G1/8	**HA170418**
6	G1/8	**HA170618**
8	G1/8	**HA170818**
6	G1/4	**HA170614**
8	G1/4	**HA170814**
10	G1/4	**HA171014**
8	G3/8	**HA170838**
10	G3/8	**HA171038**
12	G3/8	**HA171238**
10	G1/2	**HA171012**
12	G1/2	**HA171212**

HA18 ....

Y maschio cilindrico
Y parallel male
Y-förmig, Aussengewinde zylindrisch
Y mâle cylindrique
***Y* rosca macho cilíndrica**

Ø	D1	UNIVER
4	M5	**HA1804M5**
6	M5	**HA1806M5**
4	G1/8	**HA180418**
6	G1/8	**HA180618**
8	G1/8	**HA180818**
6	G1/4	**HA180614**
8	G1/4	**HA180814**
10	G1/4	**HA181014**
8	G3/8	**HA180838**
10	G3/8	**HA181038**
12	G3/8	**HA181238**
10	G1/2	**HA181012**
12	G1/2	**HA181212**

HA19 ....

Diritto intermedio
Straight connector
Gerade, Verbinder
Union droite égale
Unión intermedia

Ø1	Ø2	UNIVER
4	4	**HA190400**
6	6	**HA190600**
8	8	**HA190800**
10	10	**HA191000**
12	12	**HA191200**
6	4	**HA190604**
8	6	**HA190806**
10	8	**HA191008**
12	10	**HA191210**

HA20 ....

Intermedio a L
Elbow
L-förmig, Verbinder
Raccord coudé égal
Codo intermedio

Ø	UNIVER
4	**HA200400**
6	**HA200600**
8	**HA200800**
10	**HA201000**
12	**HA201200**

HA21 ....

Intermedio a T
Equal Tee
T-förmig, Verbinder
Intermédiaire à forme de T
Te intermedia

Ø	UNIVER
4	**HA210400**
6	**HA210600**
8	**HA210800**
10	**HA211000**
12	**HA211200**

HA22 ....

Intermedio a croce
Cross
kreuzförmig, Verbinder
Raccord croix égal
Cruz intermedia

Ø	UNIVER
4	**HA220400**
6	**HA220600**
8	**HA220800**
10	**HA221000**
12	**HA221200**

HA23 ....

Intermedio a Y
Y connector
Y-förmig, Verbinder
Raccord Y égal
Y intermedia

Ø1	Ø2	UNIVER
4	4	**HA230404**
6	6	**HA230606**
8	8	**HA230808**
10	10	**HA231010**
12	12	**HA231212**
6	4	**HA230604**
8	6	**HA230806**
10	8	**HA231008**
12	10	**HA231210**

HA24 ....

Riduzione
Reducing stem
Reduzierstück
Réduction
Reducción

D1	Ø	UNIVER
4	6	**HA240406**
4	8	**HA240408**
6	8	**HA240608**
6	10	**HA240610**
8	10	**HA240810**
8	12	**HA240812**
10	12	**HA241012**

HA25 ....

Intermedio a Y con codolo innestabile
Y connector with male stem
Y-förmig, Verbinder mit schaltbarem Schaft
Prolongateur Y
Y enclavable

Ø	UNIVER
4	**HA250400**
6	**HA250600**
8	**HA250800**
10	**HA251000**
12	**HA251200**

HA26 ....

Tappo
Plug
Stöpsel
Bouchon
Tapón

Ø	UNIVER
4	**HA260400**
6	**HA260600**
8	**HA260800**
10	**HA261000**
12	**HA261200**

HA27 ....

Gomito girevole maschio cilindrico testa chiave esagonale
Swivel elbow (parallel male thread) with hexagon wrench
Winklig, drehbar, Aussengewinde zylindrisch Kopf mit Sechskantschlüssel
Coude tournant mâle cylindrique a vis hexagonale
Orientable macho cilíndrico cabeza exagonal

Ø	D1	UNIVER
4	M5	**HA2704M5**
6	M5	**HA2706M5**
4	G1/8	**HA270418**
6	G1/8	**HA270618**
8	G1/8	**HA270818**
6	G1/4	**HA270614**
8	G1/4	**HA270814**
8	G3/8	**HA270838**
10	G1/4	**HA271014**
10	G3/8	**HA271038**
12	G3/8	**HA271238**
10	G1/2	**HA271012**
12	G1/2	**HA271212**

HA28 ....

Gomito girevole cilindr. maschio-femmina
Swivel elbow (parallel male-female)
Winklig, drehbar, Aussengewinde-Aufnahmestück zylindrisch
Coude tournant cylindrique mâle-femelle
Orientable macho/hembra cilíndrico

Ø	D1	UNIVER
4	M5	**HA2804M5**
6	M5	**HA2806M5**
4	G1/8	**HA280418**
6	G1/8	**HA280618**
8	G1/8	**HA280818**
6	G1/4	**HA280614**
8	G1/4	**HA280814**
8	G3/8	**HA280838**
10	G1/4	**HA281014**
10	G3/8	**HA281038**
12	G3/8	**HA281238**
10	G1/2	**HA281012**
12	G1/2	**HA281212**

HA29 ....

Multi TEE pari
Multi branch TEE
Multi TEE gleichmässig
Multi TEE
Multi te igual

Ø	UNIVER
4	**HA290400**
6	**HA290600**
8	**HA290800**

HA30 ....

Multi TEE ridotto
Reduced multi branch TEE
Multi TEE reduziert
Multi TEE réduit
Multi te desigual

Ø1	Ø2	UNIVER
6	4	**HA300604**
8	4	**HA300804**
8	6	**HA300806**
10	6	**HA301006**
10	8	**HA301008**

HA31 ....

Multi TEE ridotto maschio cilindrico
Reduced multi branch TEE (parallel male thread)
Multi TEE reduziert, Aussengewinde zylindrisch
Multi TEE réduit mâle cylindrique
Multi te desigual rosca macho cilíndrica

Ø1	Ø2	D1	UNIVER
4	6	G1/8	**HA314618**
4	8	G1/4	**HA314814**
6	8	G1/4	**HA316814**
8	10	G3/8	**HA318138**
8	10	G1/2	**HA318112**

HA32 ....

Multi TEE pari maschio cilindrico
Multi branch TEE (parallel male thread)
Multi TEE gleichmässig, Aussengewinde zylindrisch
Multi TEE mâle cylindrique
Multi te igual rosca macho cilíndrica

Ø	D1	UNIVER
4	G1/8	**HA320418**
4	G1/4	**HA320414**
6	G1/8	**HA320618**
6	G1/4	**HA320614**
6	G3/8	**HA320638**
8	G1/8	**HA320818**
8	G1/4	**HA320814**
8	G3/8	**HA320838**

HA33 ....

Passaparete
Bulkhead connector
Schottverbinder
Traversée de cloison
Pasatabiques

Ø	UNIVER
4	**HA330004**
6	**HA330006**
8	**HA330008**
10	**HA330010**
12	**HA330012**

HA34 ....

Passaparete con connessione filettata
Bulkhead connector with threaded connection
Aufschraub-Schottverbinder
Traversée de cloison avec connexion filetée
Pasatabiques conexión roscada

Ø	D1	UNIVER
4	G1/4	**HA340414**
4	G1/8	**HA340418**
6	G1/4	**HA340614**
6	G1/8	**HA340618**
8	G1/4	**HA340814**
8	G1/8	**HA340818**
8	G3/8	**HA340838**
10	G1/2	**HA341012**
10	G1/4	**HA341014**
10	G3/8	**HA341038**
12	G1/2	**HA341212**
12	G3/8	**HA341238**

HA35 ....

Passaparete con raccordo a gomito
Bulkhead connector with elbow fitting
Winkel-Schottverbinder
Traversée de cloison avec raccord à coude
Pasatabiques en codo

Ø	UNIVER
4	**HA350004**
6	**HA350006**
8	**HA350008**
10	**HA350010**
12	**HA350012**

HA36 ....

Gomito girevole 135° maschio cilindrico
Swivel elbow 135° (parallel male)
Winklig, drehbar 135° Aussengewinde zylindrisch
Coude tournant 135° mâle cylindrique
Orientable 135° macho cilíndrico

Ø	D1	UNIVER
4	G1/4	**HA360414**
4	G1/8	**HA360418**
4	M5	**HA3604M5**
6	G1/4	**HA360614**
6	G1/8	**HA360618**
6	M5	**HA3606M5**
8	G1/4	**HA360814**
8	G1/8	**HA360818**
8	G3/8	**HA360838**
10	G1/2	**HA361012**
10	G1/4	**HA361014**
10	G3/8	**HA361038**
12	G1/2	**HA361212**
12	G3/8	**HA361238**

HA37 ....

Gomito 135° innestabile
Stem elbow 135°
Winklig 135° schaltbar
Coude 135° encliquetable
Codo 135° enclavable

Ø	UNIVER
4	**HA370400**
6	**HA370600**
8	**HA370800**
10	**HA371000**
12	**HA371200**

HA38 ....

Gomito innestabile
Stem elbow
Winklig schaltbar
Coude encliquetable
Codo enclavable

Ø	UNIVER
4	**HA380400**
6	**HA380600**
8	**HA380800**
10	**HA381000**
12	**HA381200**

CARATTERISTICHE TECNICHE

Corpo: ottone nichelato.
Elemento di fissaggio: in ottone nichelato con O-ring in NBR nella versione cilindrica.
Pinza di aggraffaggio: acciaio inox AISI 316.
Anello di sgancio: ottone nichelato.
Applicazioni: circuiti pneumatici.
Tubi di collegamento consigliati: Rilsan/Elastollan.
Pressione max.: 16 bar.
Pressione di lavoro: -0,99 ÷12 bar.
Temperature consentite: -20 ÷ 70°C (dipendenti dal tipo di tubo impiegato).

TECHNICAL CHARACTERISTICS

Body: nickel-plated brass.
Fixing element: nickel-plated brass with O-ring in NBR in parallel version.
Clamping collet: stainless steel AISI 316.
Release ring: nickel-plated brass.
Application fields: pneumatic circuits.
Recommended hoses: Rilsan/Elastollan.
Max. pressure: 16 bar.
Working pressure: -0,99 ÷ 12 bar.
Max. temperature range: -20° ÷ 70°C.
(depending on the type of tube used).

TECHNISCHE MERKMALE

Körper: vernickeltes Messing.
Befestigungselement: aus vernickeltem Messing mit O-Ring aus NBR in zylinderförmiger Version.
Spannring: aus Edelstahl AISI 316.
Auslösering: vernickeltes Messing.
Anwendungen: Druckluftkreise.
Empfohlene Verbindungsrohre: Rilsan/Elastollan.
Druckbereich: 16 bar max.
Betriebsdruck: -0,99 ÷ 12 bar.
Zulässige Temperatur: -20° ÷ 70°C (abhängig vom verwendeten Rohrtyp).

CARACTÉRISTIQUES TECHNIQUES

Corps: laiton nickelé
Elément de fixation: en laiton nickelé avec joint en NBR dans la version cylindrique.
Pince d'agrafage: en acier inox AISI 316.
Anneau de déclenchement: laiton nickelé.
Applications: circuits pneumatiques.
Tubes de raccordement conseillés: Rilsan/Elastollan.
Pression max: 16 bar.
Pression de travail: -0,99 ÷ 12 bar.
Température d'utilisation: -20° ÷ 70°C (en fonction du type de tube utilisé).

CARACTERISTICAS TECNICAS

Cuerpo: latón niquelado.
Elemento de fijación: en latón niquelado con junta en NBR en la versión cilíndrica.
Pinzas de agarre: acero inox AISI 316.
Anillo de extracción: latón niquelado.
Aplicaciones: circuitos neumáticos.
Tubos de conexionado aconsejados: Rilsan/Elastollan.
Presión max.: 16 bar.
Presión de trabajo: -0,99 ÷10 bar.
Temperatura de trabajo: -20 ÷ 70°C (dependiendo del tipo de tubo utilizado).

ISTRUZIONI DI MONTAGGIO

- **Tagliare il tubo a 90° (servendosi della pinza tagliatubo) verificando l'assenza di bave interne ed esterne e facendo attenzione che il tubo non si presenti ovalizzato dopo il taglio.**
- **Inserire il tubo nel raccordo spingendolo fino in battuta.**
- **Estrazione del tubo: esercitare una leggera pressione sull'anello estrattore, estraendo contemporaneamente il tubo dal corpo del raccordo.**

ASSEMBLY INSTRUCTIONS

- Cut the tube square (by means of a hose cutter) making sure that no burrs inside and outside are left and that the tube does not have an oval shape.
- Insert the tube into the fitting until it bottoms.
- Tube release: while slightly pressing on the release ring, pull out the tube from the body of the fitting.

MONTAGEANWEISUNGEN

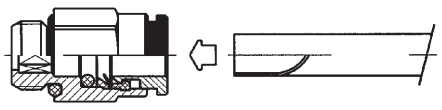
- ***das Rohr auf 90° schneiden (unter Verwendung der Rohrschneidezange), wobei zu kontrollieren ist, ob innen oder aussen eine Gratbildung stattgefunden hat und darauf geachtet werden muss, dass das Rohr nach dem Schnitt keinen ovalen Charakter hat.***
- ***das Rohr bis zum Anschlag in die Verschraubung schieben.***
- ***Herausziehen des Rohres: einen leichten Druck auf den Ausziehring ausüben, und gleichzeitig das Rohr aus dem Verschraubungskörper herausziehen.***

INSTRUCTIONS DE MONTAGE

- *Couper le tube à 90° (en se servant de la pince coupe-tube) et vérifier l'absence de bavures intérieures et extérieures en faisant attention que le tube ne se présente pas ovalisé après la coupe.*
- *Introduire le tube dans le raccord en le poussant jusqu'à la butée.*
- *Extraction du tube: exercer une légère pression sur l'anneau extracteur en retirant en même temps le tube du corps du raccord.*

ISTRUCCIONES DE MONTAJE

- **Cortar el tubo a 90° (utilizando el útil cortatubos) verificando la ausencia de rebabas internas y externas y comprobando que el tubo no se ha ovalado tras el corte.**
- **Insertar el tubo en el racor empujandolo hasta el tope.**
- **Extracción del tubo: ejercer una ligera presión sobre el anillo extractor, extrayendo al mismo tiempo el tubo del cuerpo del racor.**



HB04 ....

Diritto maschio cilindrico
Male stud coupling (parallel thread)
Gerade, Aussengewinde zylindrisch
Droit mâle cylindrique
Recto macho cilíndrico

Ø	D1	UNIVER
3	M3	**HB0403M3**
3	M5	**HB0403M5**
4	M5	**HB0404M5**
4	G1/8	**HB040418**
4	G1/4	**HB040414**
5	M5	**HB0405M5**
5	G1/8	**HB040518**
5	G1/4	**HB040514**
6	M5	**HB0406M5**
6	G1/8	**HB040618**

Ø	D1	UNIVER
6	G1/4	**HB040614**
6	G3/8	**HB040638**
8	G1/8	**HB040818**
8	G1/4	**HB040814**
8	G3/8	**HB040838**
8	G1/2	**HB040812**
10	G1/8	**HB041018**
10	G1/4	**HB041014**
10	G3/8	**HB041038**
10	G1/2	**HB041012**
12	G1/4	**HB041214**
12	G3/8	**HB041238**
12	G1/2	**HB041212**
14	G3/8	**HB041438**
14	G1/2	**HB041412**

HB07 ....

Diritto femmina
Female stud (parallel thread)
Gerade, Aufnahmestück
Droit femelle
Recto hembra

Ø	D1	UNIVER
4	M5	**HB0704M5**
4	G1/8	**HB070418**
4	G1/4	**HB070414**
5	G1/8	**HB070518**
5	G1/4	**HB070514**
6	G1/8	**HB070618**
6	G1/4	**HB070614**
8	G1/8	**HB070818**
8	G1/4	**HB070814**
10	G1/4	**HB071014**
10	G3/8	**HB071038**

HB08 ....

Gomito girevole femmina
Swivel elbow (female thread)
Winklig, drehbarer Aufschraubanschluss
Coude tournant femelle
Codo orientable hembra

Ø	D1	UNIVER
4	G1/8	**HB080418**
4	G1/4	**HB080414**
6	G1/8	**HB080618**
6	G1/4	**HB080614**
8	G1/8	**HB080818**
8	G1/4	**HB080814**

HB09 ....

Gomito girevole maschio conico
Swivel elbow (taper male)
Winklig, drehbar, Aussengewinde konisch
Coude tournant, mâle conique
Codo orientable macho cónico

Ø	D1	UNIVER
4	G1/4	**HB090414**
4	G1/8	**HB090418**
6	G1/4	**HB090614**
6	G1/8	**HB090618**
8	G1/4	**HB090814**
8	G1/8	**HB090818**
8	G3/8	**HB090838**
10	G1/4	**HB091014**
10	G3/8	**HB091038**
12	G1/2	**HB091212**
12	G3/8	**HB091238**
14	G1/2	**HB091412**
14	G3/8	**HB091438**

HB10 ....

Gomito girevole maschio cilindrico
Swivel elbow (parallel male)
Winklig, drehbar, Aussengewinde zylindrisch
Coude tournant mâle cylindrique
Codo orientable macho cilíndrico

Ø	D1	UNIVER
4	M5	**HB1004M5**
4	G1/8	**HB100418**
4	G1/4	**HB100414**
5	M5	**HB1005M5**
5	G1/8	**HB100518**
5	G1/4	**HB100514**

Ø	D1	UNIVER
6	M5	**HB1006M5**
6	G1/8	**HB100618**
6	G1/4	**HB100614**
6	G3/8	**HB100638**
8	G1/8	**HB100818**
8	G1/4	**HB100814**
8	G3/8	**HB100838**
10	G1/4	**HB101014**
10	G3/8	**HB101038**
10	G1/2	**HB101012**
12	G1/4	**HB101214**
12	G3/8	**HB101238**
12	G1/2	**HB101212**
14	G3/8	**HB101438**
14	G1/2	**HB101412**

HB12 ....

Gomito girevole prolungato maschio cilindrico
Swivel elbow (extended male parallel thread)
Winklig, drehbar, verlängert, Aussengewinde zylindrisch
Coude tournant prolongé mâle cylindrique
Codo orientable elevado macho cilíndrico

Ø	D1	UNIVER
4	M5	**HB1204M5**
4	G1/8	**HB120418**
4	G1/4	**HB120414**
6	M5	**HB1206M5**
6	G1/8	**HB120618**
6	G1/4	**HB120614**
8	G1/8	**HB120818**
8	G1/4	**HB120814**
8	G3/8	**HB120838**
10	G1/4	**HB121014**
10	G3/8	**HB121038**

HB14 ....

T laterale maschio cilindrico
Lateral Tee (parallel thread)
T-förmig seitlich, Aussengewinde zylindrisch
T latéral mâle cylindrique
Te rosca lateral macho cilíndrica

Ø	D1	UNIVER
4	M5	**HB1404M5**
4	G1/8	**HB140418**
4	G1/4	**HB140414**
6	G1/8	**HB140618**
6	G1/4	**HB140614**
8	G1/8	**HB140818**
8	G1/4	**HB140814**
8	G3/8	**HB140838**
10	G1/4	**HB141014**
10	G3/8	**HB141038**
12	G1/4	**HB141214**
12	G3/8	**HB141238**
14	G1/2	**HB141412**

HB16 ....

T centrale maschio cilindrico
Male Tee (parallel thread)
T-förmig, zentral, Aussengewinde zylindrisch
T central mâle cylindrique
Te rosca central macho cilíndrica

Ø	D1	UNIVER
4	M5	**HB1604M5**
4	G1/8	**HB160418**
4	G1/4	**HB160414**
6	G1/8	**HB160618**
6	G1/4	**HB160614**
8	G1/8	**HB160818**
8	G1/4	**HB160814**
8	G3/8	**HB160838**
10	G1/4	**HB161014**
10	G3/8	**HB161038**
12	G1/4	**HB161214**
12	G3/8	**HB161238**
14	G1/2	**HB161412**

HB19 ....

Diritto intermedio
Straight connector
Gerade, Zwischenstück, Verbinder
Droit intermédiaire
Unión intermedia

Ø1	Ø2	UNIVER
3	3	**HB190303**
4	4	**HB190404**
5	5	**HB190505**
6	4	**HB190604**
6	6	**HB190606**
8	6	**HB190806**
8	8	**HB190808**
10	8	**HB191008**
10	10	**HB191010**
12	10	**HB191210**
12	12	**HB191212**
14	12	**HB191412**
14	14	**HB191414**

HB20 ....

Intermedio a L
Equal elbow
L-förmig, Zwischenstück
Coude en L
Codo intermedio

Ø	UNIVER
3	**HB200300**
4	**HB200400**
5	**HB200500**
6	**HB200600**
8	**HB200800**
10	**HB201000**
12	**HB201200**
14	**HB201400**

HB21 ....

Intermedio a T
Equal Tee
T-förmig, Zwischenstück
Raccord en té
Te intermedia

Ø *	Ø **	UNIVER
3	3	**HB210300**
4	4	**HB210400**
5	5	**HB210500**
6	6	**HB210600**
6	4	**HB210604**
8	8	**HB210800**
8	6	**HB210806**
10	10	**HB211000**
10	8	**HB211008**
12	12	**HB211200**
14	14	**HB211400**

* **Laterale /** Lateral **/** ***Lateral /*** *Lateral* **/ Lateral**
** **Centrale /** Central **/** ***Zentral /*** *Central* **/ Central**

HB24 ....

Riduzione
Reducer
Reduzierstück
Réduction
Reducción

Ø	D1	UNIVER
4	5	**HB240405**
4	6	**HB240406**
4	8	**HB240408**
4	12	**HB240412**
4	14	**HB240414**
5	6	**HB240506**
5	8	**HB240508**
6	4	**HB240604**
6	8	**HB240608**
6	10	**HB240610**
6	12	**HB240612**
6	14	**HB240614**
8	6	**HB240806**
8	10	**HB240810**
8	12	**HB240812**
8	14	**HB240814**
10	12	**HB241012**
10	14	**HB241014**
12	14	**HB241214**

HB26 ....

Tappo
Plug
Stöpsel
Bouchon
Tapón

Ø	UNIVER
4	**HB260400**
5	**HB260500**
6	**HB260600**
8	**HB260800**
10	**HB261000**
12	**HB261200**
14	**HB261400**

HB27 ....

Gomito girevole maschio cilindrico testa con attacco chiave incassato
Banjo swivel elbow (parallel male thread)
Winklig, drehbar, Aussengewinde zylindrisch Kopf mit eingelassenem Schlüsselanschluss
Coude tournant mâle cylindrique tête avec empreinte hexagonale
Orientable macho cilíndrico cabeza allen

Ø	D1	UNIVER
3	M3	**HB2703M3**
3	M5	**HB2703M5**
4	M5	**HB2704M5**
4	G1/8	**HB270418**

Ø	D1	UNIVER
5	M5	**HB2705M5**
5	G1/8	**HB270518**
6	G1/8	**HB270618**
6	G1/4	**HB270614**
8	G1/8	**HB270818**
8	G1/4	**HB270814**
8	G3/8	**HB270838**
10	G1/4	**HB271014**
10	G3/8	**HB271038**
12	G1/4	**HB271214**
12	G3/8	**HB271238**

HB33 ....

Passaparete
Bulkhead connector
Schottverbinder
Traversée de cloison
Pasatabiques

Ø	UNIVER
4	**HB330004**
5	**HB330005**
6	**HB330006**
8	**HB330008**
10	**HB330010**
12	**HB330012**
14	**HB330014**

HB34 ....

Passaparete con connessione filettata
Bulkhead connector with threaded connection
Aufschraub-Schottverbinder
Traversée de cloison avec connexion filetée
Pasatabiques conexión roscada

Ø	D1	UNIVER
4	G1/8	**HB340418**
6	G1/8	**HB340618**
6	G1/4	**HB340614**
8	G1/8	**HB340818**
8	G1/4	**HB340814**

HB35 ....

Passaparete con raccordo a gomito
Bulkhead connector with union elbow
Winkel-Schottverbinder
Traversée de cloison avec raccord à coude
Pasatabiques en codo

Ø	UNIVER
4	**HB350004**
6	**HB350006**
8	**HB350008**
10	**HB350010**

HB38 ....

Gomito innestabile
Stem elbow
Winklig schaltbar
Coude encliquetage
Codo enclavable

Ø	D1	UNIVER
4	4	**HB380400**
4	6	**HB380406**
6	6	**HB380600**
6	8	**HB380608**
8	8	**HB380800**
10	10	**HB381000**
12	12	**HB381200**

HB39 ....

Gomito innestabile alto
Extended stem elbow
Winklig hoch schaltbar
Coude encliquetage prolongé
Codo enclavable elevado

Ø	D1	UNIVER
4	4	**HB390400**
4	6	**HB390406**
6	6	**HB390600**
6	8	**HB390608**
8	8	**HB390800**

HB40 ....

Anello singolo
Single banjo elbow (without bolt)
einfacher Ringanschluss
Banjo simple
Orientable simple

Ø	D1	UNIVER
4	M5	**HB4004M5**
4	G1/8	**HB400418**
5	M5	**HB4005M5**
5	G1/8	**HB400518**
6	M5	**HB4006M5**
6	G1/8	**HB400618**
6	G1/4	**HB400614**
8	G1/8	**HB400818**
8	G1/4	**HB400814**
8	G3/8	**HB400838**
10	G1/4	**HB401014**
10	G3/8	**HB401038**
12	G1/4	**HB401214**
12	G3/8	**HB401238**

HB41 ....

Anello doppio
Double banjo elbow (without bolt)
doppelter Ringanschluss
Banjo double
Orientable doble

Ø	D1	UNIVER
4	M5	**HB4104M5**
4	G1/8	**HB410418**
5	M5	**HB4105M5**
5	G1/8	**HB410518**
6	G1/8	**HB410618**
6	G1/4	**HB410614**
8	G1/8	**HB410818**
8	G1/4	**HB410814**
8	G3/8	**HB410838**
10	G1/4	**HB411014**
10	G3/8	**HB411038**
12	G3/8	**HB411238**

HB42 ....

Asta singola
Single banjo bolt
einfache Hohlschraube
Vis banjo
Tornillo simple

D1	UNIVER
M5	**HB4200M5**
G1/8	**HB420018**
G1/4	**HB420014**
G3/8	**HB420038**

HB43 ....

Asta doppia
Double banjo bolt
doppelte Hohlschraube
Vis banjo double
Tornillo doble

D1	UNIVER
G1/8	**HB430018**
G1/4	**HB430014**
G3/8	**HB430038**

HB44 ....

Asta tripla
Triple banjo bolt
dreifache Hohlschraube
Vis banjo triple
Tornillo triple

D1	UNIVER
G1/8	**HB440018**
G1/4	**HB440014**
G3/8	**HB440038**

HB45 ....

T centrale girevole maschio cilindrico testa con attacco chiave incassato
Parallel banjo Tee male (with allen key fixing) connection
T-förmig, zentral, drehbar, Aussengewinde zylindrisch mit eingelassenem Schlüsselanschluss
Té banjo avec empreinte hexagonale
Orientable en te macho cilíndrico cabeza allen

Ø	D1	UNIVER
4	M5	**HB4504M5**
4	G1/8	**HB450418**
5	M5	**HB4505M5**
5	G1/8	**HB450518**
6	G1/8	**HB450618**
6	G1/4	**HB450614**
8	G1/8	**HB450818**
8	G1/4	**HB450814**
8	G3/8	**HB450838**
10	G1/4	**HB451014**
10	G3/8	**HB451038**
12	G3/8	**HB451238**

HB46 ....

T centrale femmina cilindrico
Threaded female Tee
T-förmig, zentral, Aufschraubstück
T central femelle cylindrique
Te rosca central hembra cilíndrica

Ø	D1	UNIVER
4	G1/4	**HB460414**
4	G1/8	**HB460418**
6	G1/4	**HB460614**
6	G1/8	**HB460618**
8	G1/4	**HB460814**
8	G1/8	**HB460818**

HB47 ....

Doppio gomito girevole maschio cilindrico testa con attacco chiave incassato
Double swivel banjo elbow (parallel thread) wrench connection
Zweifach, winklig, drehbar, Aussengewinde zylindrisch Kopf mit eingelassenem Schlüsselanschluss
Double coude tournant mâle cylindrique avec empreinte hexagonale
Orientable doble macho cilíndrico cabeza allen

Ø	D1	UNIVER
4	G1/8	**HB470418**
6	G1/8	**HB470618**
6	G1/4	**HB470614**
8	G1/8	**HB470818**
8	G1/4	**HB470814**
10	G1/4	**HB471014**
12	G1/4	**HB471214**

HB48....

Triplo gomito girevole maschio cilindrico testa con attacco chiave incassato
Triple swivel banjo elbow (parallel thread) connection
Dreifach, winklig, drehbar, Aussengewinde zylindrisch Kopf mit eingelassenem Schlüsselanschluss
Triple coude tournant mâle cylindrique tête avec attaque clé encastrée
Orientable triple macho cilíndrico cabeza allen

Ø	D1	UNIVER
4	G1/8	**HB480418**
6	G1/8	**HB480618**
6	G1/4	**HB480614**
8	G1/8	**HB480818**
8	G1/4	**HB480814**
10	G1/4	**HB481014**
12	G1/4	**HB481214**

HB49 ....

Giunzione doppia
Double stem
Verbindungsstück zweifach
Jonction double
Adaptador doble

Ø	UNIVER
4	**HB490400**
5	**HB490500**
6	**HB490600**
8	**HB490800**
10	**HB491000**
12	**HB491200**
14	**HB491400**

HB50 ....

Giunzione per tubo in gomma
Hose stem commector
Verbindungsstück für Gummirohr
Jonction pour tuyau en caoutchouc
Adaptador con espiga tubo de goma

Ø	D1	UNIVER
6	6	**HB500606**
8	6	**HB500806**
8	8	**HB500808**
12	13	**HB501213**
14	14	**HB501414**

HB51 ....

Adattatore maschio cilindrico
Threaded stem connector (male)
Adapter, Aussengewinde zylindrisch
Adaptateur mâle cylindrique
Adaptador macho cilíndrico

Ø	D1	UNIVER
4	M5	**HB5104M5**
4	G1/8	**HB510418**
4	G1/4	**HB510414**
5	M5	**HB5105M5**
5	G1/8	**HB510518**
5	G1/4	**HB510514**

Ø	D1	UNIVER
6	M5	**HB5106M5**
6	G1/8	**HB510618**
6	G1/4	**HB510614**
8	G1/8	**HB510818**
8	G1/4	**HB510814**
8	G3/8	**HB510838**
10	G1/8	**HB511018**
10	G1/4	**HB511014**
10	G3/8	**HB511038**
12	G1/4	**HB511214**
12	G3/8	**HB511238**
12	G1/2	**HB511212**
14	G3/8	**HB511438**
14	G1/2	**HB511412**

HB52 ....

Adattatore maschio cilindrico prolungato
Extended adaptor (male thread)
Adapter, Aussengewinde zylindrisch verlängert
Adaptateur mâle cylindrique prolongé
Adaptador prolongado macho cilíndrico

Ø	D1	UNIVER
4	G1/8	**HB520418**
6	G1/8	**HB520618**
6	G1/4	**HB520614**
8	G1/8	**HB520818**
8	G1/4	**HB520814**
10	G1/4	**HB521014**

HB53 ....

Gomito fisso maschio conico
Fix elbow (male taper thread)
Winklig, fest, Aussengewinde konisch
Coude fixe mâle conique
Codo fijo macho cónico

Ø	D1	UNIVER
4	G1/8	**HB530418**
5	G1/8	**HB530518**
6	G1/8	**HB530618**
6	G1/4	**HB530614**
8	G1/8	**HB530818**
8	G1/4	**HB530814**
10	G1/4	**HB531014**

CARATTERISTICHE TECNICHE

Corpo: tecnopolimero e/o ottone nichelato.
Elemento di fissaggio: in ottone nichelato e, dove previsto, con O-ring in NBR nella versione cilindrica, o con rivestimento in teflon nella versione conica.
Pinza di aggraffaggio: acciaio inox dove previsto.
Anello di sgancio: tecnopolimero o ottone nichelato dove previsto.
Applicazioni: circuiti pneumatici.
Tubi di collegamento consigliati: Rilsan/Elastollan.
Pressione max.: 15 bar.
Pressione di lavoro: -0,99 ÷ 10 bar.
Temperature consentite: -20 ÷ 60°C (dipendenti dal tipo di tubo impiegato).

TECHNICAL CHARACTERISTICS

Body: technopolymer and/or nickel-plated brass.
Fixing element: nickel-plated brass and, where foreseen, with O-ring in NBR in parallel version or with Teflon coating in taper version.
Clamping collet: stainless steel, where foreseen.
Release ring: technopolymer or nickel-plated brass, where foreseen.
Application fields: pneumatic circuits.
Recommended hoses: Rilsan/Elastollan.
Max. pressure: 15 bar.
Working pressure: -0,99 ÷ 10 bar.
Max. temperature range: -20° ÷ 60°C
(depending on the type of tube used).

TECHNISCHE MERKMALE

Körper: Technopolymer und/oder vernickeltes Messing.
Befestigungselement: vernickeltes Messing und, wo vorgesehen, mit O-Ring aus NBR in der zylinderförmigen Version oder mit Teflonbeschichtung in konischer Version.
Spannring: aus Edelstahl, wo vorgesehen.
Auslösering: Technopolymer oder vernickeltes Messing, wo vorgesehen.
Anwendungen: Druckluftkreise.
Empfohlene Verbindungsrohre: Rilsan/Elastollan.
Druckbereich: 15 bar max.
Betriebsdruck: -0,99 ÷ 10 bar.
Zulässige Temperatur: -20° ÷ 60°C (abhängig vom verwendeten Rohrtyp).

CARACTÉRISTIQUES TECHNIQUES

Corps: technopolymère et/ou laiton nickelé.
Elément de fixation: en laiton nickelé et, où prévu, avec joint en NBR dans la version cylindrique ou avec revêtement en téflon dans la version conique.
Pince d'agrafage: en acier inox, où prévu.
Anneau de déclenchement: technopolymère ou laiton nickelé, où prévu.
Applications: circuits pneumatiques.
Tubes de raccordement conseillés: Rilsan/Elastollan.
Pression max: 15 bar.
Pression de travail: -0,99 ÷ 10 bar.
Température d'utilisation: -20° ÷ 60°C (en fonction du type de tube utilisé).

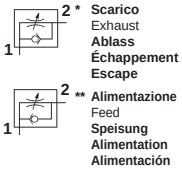
CARACTERISTICAS TECNICAS

Cuerpo: tecnopolímero y/o latón niquelado.
Elemento de fijación: en latón niquelado, y según modelo, con junta en NBR en la versión cilindrica, o con revestimiento de teflón en la versión cónica.
Pinzas de agarre: acero inox según modelo.
Anillo de extracción: tecnopolímero o latón niquelado según modelo.
Aplicaciones: circuitos neumáticos.
Tubos de conexionado aconsejados: Rilsan/Elastollan.
Presión max.: 15 bar.
Presión de trabajo: -0,99 ÷10 bar.
Temperatura de trabajo: -20 ÷ 60°C (dependiendo del tipo de tubo utilizado).

HC01 .... HC02 ....

Regolatore di flusso gomito girevole
Banjo flow control valve
Drosselventil winklig drehbar
Régulateur de flux orientable
Regulador de flujo orientable

Unidirezionale
Unidirectional
Unidirektional
Unidirectionnel
Unidireccional



Ø	D1	UNIVER *	UNIVER **
4	M5	**HC0104M5**	**HC0204M5**
4	G1/8	**HC010418**	**HC020418**
4	G1/4	**HC010414**	**HC020414**
6	M5	**HC0106M5**	**HC0206M5**
6	G1/8	**HC010618**	**HC020618**
6	G1/4	**HC010614**	**HC020614**
8	G1/8	**HC010818**	**HC020818**
8	G1/4	**HC010814**	**HC020814**
8	G3/8	**HC010838**	**HC020838**
10	G1/4	**HC011014**	**HC021014**
10	G3/8	**HC011038**	**HC021038**
10	G1/2	**HC011012**	**HC021012**
12	G3/8	**HC011238**	**HC021238**
12	G1/2	**HC011212**	**HC021212**

HC04 ....

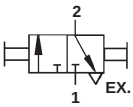
Regolatore di flusso intermedio
In-line flow control valve
Mittleres Drosselventil
Régulateur de flux en ligne
Regulador de flujo intermedio

Unidirezionale
Unidirectional
Unidirektional
Unidirectionnel
Unidireccional

Ø	D1	UNIVER
4	4	**HC040404**
6	6	**HC040606**
8	8	**HC040808**
10	10	**HC041010**
12	12	**HC041212**

HC05 ....

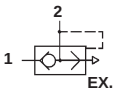
Valvola a corsoio
Slide valve
Schieberventil
Vanne coulissante
Válvula de descarga



D	UNIVER
M5	**HC0500M5**
G1/8	**HC050018**
G1/4	**HC050014**
G3/8	**HC050038**
G1/2	**HC050012**
G3/4	**HC050034**

HC06 ....

Valvola a scarico rapido
Quick exhaust valve
Schnellentlüftungsventil
Vanne d'echappement rapide
Válvula de escape rápido



D1	UNIVER
M5	**HC0600M5**
G1/8	**HC060018**
G1/4	**HC060014**
G3/8	**HC060038**
G1/2	**HC060012**
G3/4	**HC060034**
G1	**HC060001**

HC07 ....

Rubinetto a sfera F-F
Ball valve F-F
Kugelhahn Innengewinde
Robinet sphérique F-F
Grifo de bola H-H

D	UNIVER
G1/8	**HC070018**
G1/4	**HC070014**
G3/8	**HC070038**
G1/2	**HC070012**
G3/4	**HC070034**

HC08 ....

Rubinetto a sfera M-F
Ball valve M-F
Kugelhahn Innengewinde-Aussengewinde
Robinet sphérique M-F
Grifo de bola M-H

D	UNIVER
G1/8	**HC080018**
G1/4	**HC080014**
G3/8	**HC080038**
G1/2	**HC080012**
G3/4	**HC080034**

HC09 ....

Mini rubinetto a sfera F-F (fornito di serie con volantino nero)
Miniature ball valve F-F (standard supplied with black handle)
Miniatur-Kugelhahn Innengewinde (serienmässig mit schwarzem Handgriff)
Mini robinet sphérique F-F (fourni de série avec poignée noire)
Mini grifo de bola H-H (fabricado de serie con pomo negro)

D	UNIVER
G1/8	**HC090018**
G1/4	**HC090014**

Volantino colorato (da ordinarsi separatamente)
Coloured handle (upon request)
Farbiger Handgriff (gesondert zu bestellen)
Poignée de couleur (à commander à part)
Pomo en color (pedir por separado)

Colore/Colour ***Farben/Couleur/Color***	UNIVER
Rosso/Red/***Rot***/*Rouge*/**Rojo**	**HCP00ROS**
Verde/Green/***Grün***/*Vert*/**Verde**	**HCP00VER**
Giallo/Yellow/***Gelb***/*Jaune*/**Amarillo**	**HCP00GIA**
Blu/Blue/***Blau***/*Bleu*/**Azul**	**HCP00BLU**
Bianco/White/***Weiss***/*Blanc*/**Blanco**	**HCP00BIA**
Nero/Black/***Schwarz***/*Noir*/**Negro**	**HCP00NER**

HC10 ....

Mini rubinetto a sfera M-F (fornito di serie con volantino nero)
Miniature ball valve M-F (standard supplied with black handle)
Miniatur-Kugelhahn Innen-Aussengewinde (serienmässig mit schwarzem Handgriff)
Mini robinet sphérique M-F (fourni de série avec poignée noire)
Mini grifo de bola M-H (fabricado de serie con pomo negro)

D	UNIVER
G1/8	**HC100018**
G1/4	**HC100014**

Volantino colorato (da ordinarsi separatamente)
Coloured handle (upon request)
Farbiger Handgriff (gesondert zu bestellen)
Poignée de couleur (à commander à part)
Pomo en color (pedir por separado)

Colore/Colour ***Farben/Couleur/Color***	UNIVER
Rosso/Red/***Rot***/*Rouge*/**Rojo**	**HCP00ROS**
Verde/Green/***Grün***/*Vert*/**Verde**	**HCP00VER**
Giallo/Yellow/***Gelb***/*Jaune*/**Amarillo**	**HCP00GIA**
Blu/Blue/***Blau***/*Bleu*/**Azul**	**HCP00BLU**
Bianco/White/***Weiss***/*Blanc*/**Blanco**	**HCP00BIA**
Nero/Black/***Schwarz***/*Noir*/**Negro**	**HCP00NER**

HC11 ....

Mini-valvola manuale 2/2
Manual minivalve 2/2
Manuelles Miniaturventil 2/2
Minivanne manuelle 2/2
Mini válvula manual 2/2

Ø	UNIVER
6	**HC110606**
8	**HC110808**
10	**HC111010**
12	**HC111212**

HC12 ....

Mini-valvola manuale 2/3
Manual minivalve 2/3
Manuelles Miniaturventil 2/3
Minivanne manuelle 2/3
Mini válvula manual 2/3

Ø	UNIVER
6	**HC120606**
8	**HC120808**
10	**HC121010**
12	**HC121212**

HC13 ....

Valvola di non ritorno F-F
Non-return valve F-F
Rückschlagventil Innengewinde
Clapet anti-retour F-F
Válvula antiretorno H-H

D	UNIVER
M5	**HC1300M5**
G1/8	**HC130018**
G1/4	**HC130014**
G3/8	**HC130038**
G1/2	**HC130012**

HC14 ....

Valvola di non ritorno F-M
Non-return valve F-M
Rückschlagventil Innen-Aussengewinde
Clapet anti-retour F-M
Válvula antiretorno H-M

D	UNIVER
G1/8	**HC140018**
G1/4	**HC140014**

HC15 ....

Valvola di non ritorno con raccordi automatici
Non-return valve with push-in fittings
Rückschlagventil mit automatischen Verschraubungen
Clapet anti-retour avec raccords automatiques
Válvula antiretorno con conexión automática

Ø	UNIVER
4	**HC150004**
6	**HC150006**
8	**HC150008**

HC21 .... HC22 ....

Regolatore di flusso gomito girevole
Banjo flow control valve (male thread)
Drosselventil winklig drehbar
Régulateur de débit à coude tournant
Regulador de flujo orientable

Ø	D1	UNIVER *	UNIVER **
4	M5	**HC2104M5**	**HC2204M5**
4	G1/8	**HC210418**	**HC220418**
4	G1/4	**HC210414**	**HC220414**
6	G1/8	**HC210618**	**HC220618**
6	G1/4	**HC210614**	**HC220614**
8	G1/8	**HC210818**	**HC220818**
8	G1/4	**HC210814**	**HC220814**
8	G3/8	**HC210838**	**HC220838**
10	G1/4	**HC211014**	**HC221014**
10	G3/8	**HC211038**	**HC221038**

* **Scarico**
Cylinder mounted
Ablass
Échappement
Escape

** **Alimentazione**
Valve mounted
Speisung
Alimentation
Alimentación

HC23 .... HC24 ....

Regolatore di flusso gomito innestabile
Flow control valve (stem type)
Drosselventil winklig schaltbar
Régulateur de débit encliquetable
Regulador de flujo enclavable

Ø1	Ø2	UNIVER *	UNIVER **
6	6	**HC230606**	**HC240606**
8	8	**HC230808**	**HC240808**

* **Scarico**
Cylinder mounted
Ablass
Échappement
Escape

** **Alimentazione**
Valve mounted
Speisung
Alimentation
Alimentación

HC25 .... HC26 ....

Regolatore di flusso gomito innestabile prolungato
Extended flow control valve (stem type)
Drosselventil winklig schaltbar hoch
Régulateur de débit avec tube prolungé encliquetable
Regulador de flujo enclavable elevado

Ø1	Ø2	UNIVER *	UNIVER **
6	6	**HC250606**	**HC260606**
8	8	**HC250808**	**HC260808**

* **Scarico**
Cylinder mounted
Ablass
Échappement
Escape

** **Alimentazione**
Valve mounted
Speisung
Alimentation
Alimentación

HC27 .... HC28 ....

Regolatore di flusso gomito maschio-femmina filettato
Threaded flow regulator elbow male-female
Drosselventil winklig Aussengewinde-Aufnahmestück
Régulateur de débit orientable M-F fileté
Regulador de flujo orientable rosca macho-hembra

D1	UNIVER *	UNIVER **
M5	**HC27M5M5**	**HC28M5M5**
G1/8	**HC271818**	**HC281818**
G1/4	**HC271414**	**HC281414**
G3/8	**HC273838**	**HC283838**
G1/2	**HC271212**	**HC281212**

* **Scarico**
Cylinder mounted
Ablass
Échappement
Escape

** **Alimentazione**
Valve mounted
Speisung
Alimentation
Alimentación

HC51 ....

Silenziatore piatto in bronzo sinterizzato
Flat silencer in sintered bronze
Schalldämpfer flach aus Sinterbronze
Silencieux plat en bronze fritté
Silenciador plano en bronce sinterizado

D	UNIVER
M5	**HC5100M5**
G1/8	**HC510018**
G1/4	**HC510014**
G3/8	**HC510038**
G1/2	**HC510012**
G3/4	**HC510034**
G1	**HC510001**

HC52 ....

Silenziatore a tronco di cono in bronzo sinterizzato
Cone silencer in sintered bronze
Kegelstumpf-Schalldämpfer aus Sinterbronze
Silencieux à tronc de cône en bronze fritté
Silenciador en bronce sinterizado

D	UNIVER
M5	**HC5200M5**
G1/8	**HC520018**
G1/4	**HC520014**
G3/8	**HC520038**
G1/2	**HC520012**
G3/4	**HC520034**
G1	**HC520001**

HC53 ....

Silenziatore a tronco di cono in bronzo sinterizzato con chiave in testa
Cone silencer in sintered bronze (with square wrench head)
Kegelstumpf-Schalldämpfer aus Sinterbronze mit Schlüsselansatz oben
Silencieux à tronc de cône en bronze fritté avec clé en tête
Silenciador en bronce sinterizado cabeza cuadrada

D	UNIVER
M5	**HC5300M5**
G1/8	**HC530018**
G1/4	**HC530014**
G3/8	**HC530038**
G1/2	**HC530012**
G3/4	**HC530034**
G1	**HC530001**

HC54 ....

Regolatore di scarico silenziato fine
Silencer with exhaust flow regulator
Ablassventil mit Schalldämpfer fein
Régulateur d'échappement fin avec silencieux
Silenciador regulable

D	UNIVER
M5	**HC5400M5**
G1/8	**HC540018**
G1/4	**HC540014**
G3/8	**HC540038**
G1/2	**HC540012**
G3/4	**HC540034**
G1	**HC540001**

HC55 ....

Regolatore di scarico silenziato
Silencer with exhaust flow regulator
Ablassventil mit Schalldämpfer
Silencieux à tronc de cone en bronze fritté avec carré
Silenciador regulable reducido

D	UNIVER
M5	**HC5500M5**
G1/8	**HC550018**
G1/4	**HC550014**
G3/8	**HC550038**
G1/2	**HC550012**
G3/4	**HC550034**
G1	**HC550001**

HC56 ....

Silenziatore in tecnopolimero dinamico
Self cleaning silencer (technopolymer)
Schalldämpfer Technopolymer dynamisch
Silencieux en technopolymère dynamique
Silenciador en tecnopolímero dinámico

D	UNIVER
M5	**HC5600M5**
G1/8	**HC560018**
G1/4	**HC560014**
G3/8	**HC560038**
G1/2	**HC560012**
G3/4	**HC560034**
G1	**HC560001**