



Cylinders  
High-Tech  
Valves  
Air treatment  
Accessories  
Power Clamps  
GR8 Tooling



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BUSINESS PROFILE

PRODUCT HISTORY

PNEUMATIC PRODUCT NEWS

AUTOMOTIVE PRODUCT NEWS

SALES NETWORK

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1

Cylinders



2

High-Tech



3

Valves



4

Air Treatment



5

Accessories



6

Power clamps



7

GR8 Tooling



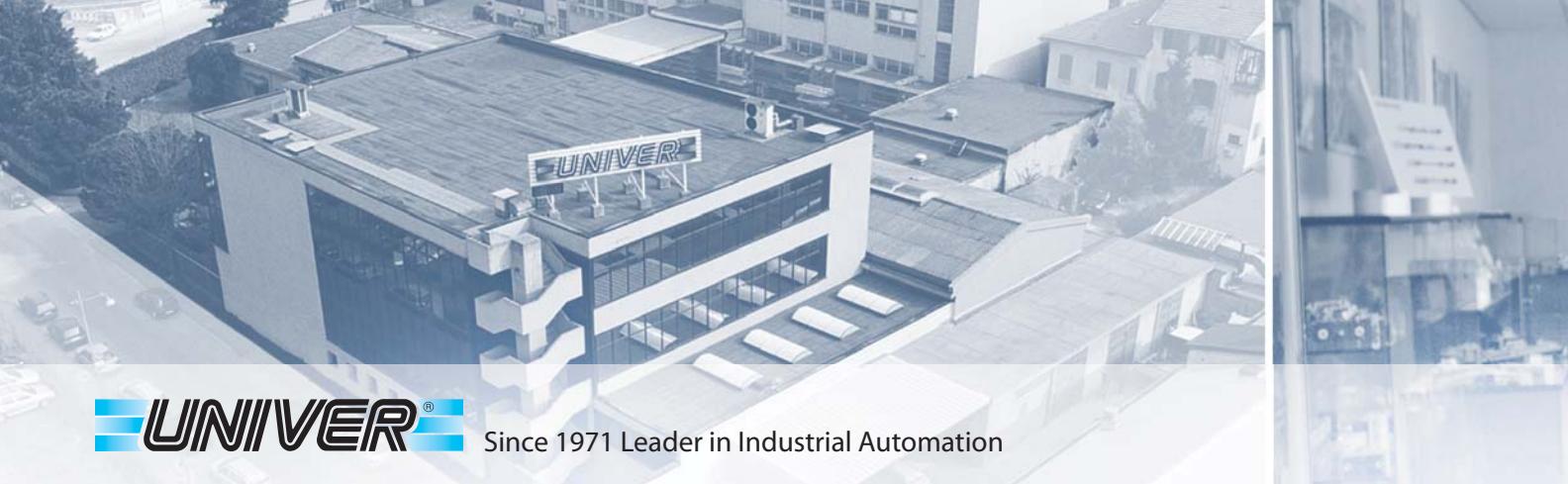
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In light of technical updates, Univer S.p.A. reserves the right to modify technical features of their products with no obligation to issue prior notice.

Information contained in the present catalogue is pure indication, for further details about product technical features and related parameter values to be respected for a proper functioning, please refer to the datasheets available at:

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**UNIVER**®

Since 1971 Leader in Industrial Automation



## Early stages



UNIVER has started its activity in the field of industrial automation during the 1970s, with the production of its first series of pneumatic valves and poppet valves for vacuum.

## Pneumatic



In the following decades, the widening range of technologically advanced and original pneumatic components has allowed the continuous growth and development of the company, which has become one of the major Italian businesses in the production of industrial automation equipment.

## Automotive



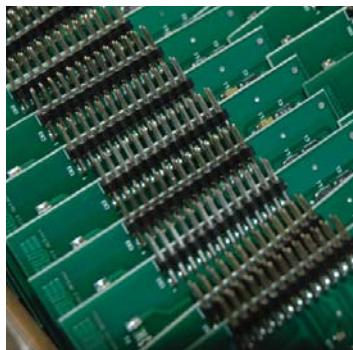
In 2000, after many years of experience in the supply of pneumatic components to the automotive market, the Automotive Division was created, thus developing numbers of solutions for BIW in the automotive industry.

## Some of our customers





# BUSINESS PROFILE



## Electronic



The Electronic Division, supporting both Pneumatic Automation and Automotive divisions, is specialized in the study, design and manufacturing of the electric and electronic devices which are integrated in UNIVER products.



## Univer Service



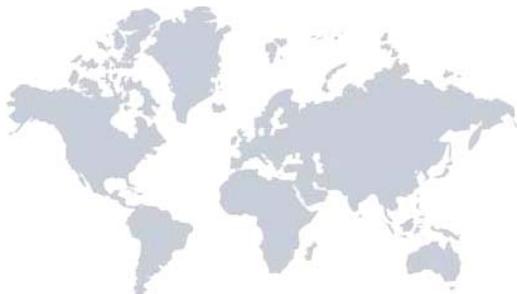
In Italy, the commercial company UNIVER SERVICE S.r.l. controls the domestic market and guarantees a quick and efficient service, thanks to different operational offices and distributors in the whole country.



## Univer Group



The UNIVER Group has many direct branches and an active distribution network covering the most important industrialized areas.



Innovation  
Research and Development  
Quality  
Training  
Communication

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Since 1971 Leader in Industrial Automation



First valve series



ISO 6431 Pneumatic Cylinders



10 mm Nanovalve



2/3 stage Telescopic Pneumatic Cylinders

1970

1980

1990



**1971** Foundation of UNIVER company

**1973** Poppet valves for compressed air and vacuum

**1980** Valves according to ISO 5599 (Industry Award)

**1982** UNIVERSAL series valves

**1986** Cylinders and mounting elements according to ISO 6431 (first cylinders on the market with extruded aluminium profile)

**1988** Cylinders with antirotation piston and octagonal tube  
Electrically actuated microvalves  
Rodless cylinders (patented)

**1989** Rotating cylinders (patented)  
Short-stroke cylinders

**1991** 10 mm Nanovalve  
G6 - G7 - G8 series valves

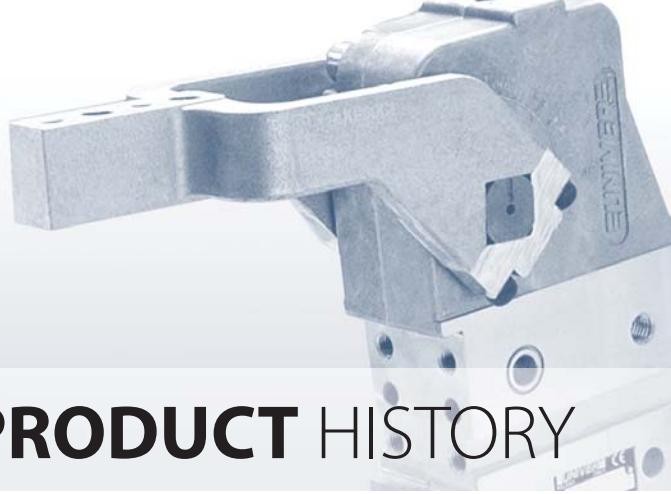
**1992** Slide units in extruded aluminium profile

**1993** Cybrain programmable actuators (patented)

**1997** Telescopic cylinders (patented)

**1998** Locking units (patented)

**1999** Compact cylinders with supplied adjustable cushioning standard (patented)



## PRODUCT HISTORY



Pneumatic and Electric Power Clamps



COMPACT Valves



ISO 15552 Pneumatic Cylinders



Modular Tooling System

2000

2010

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

- 2010** KL Cylinders according to ISO 15552
- 2011** Compact cylinders Ø 80-100 according to ISO 21287  
HZE Air treatment system  
ISO 15552 Pneumatic cylinders
- 2012** 10 mm bistable Nanovalves  
Marking unit
- 2013** P15E 15 mm COMPACT Valves  
GR8 Modular Tooling System



Since 1971 Leader in Industrial Automation



## KL

Ø 32 ÷ 125 mm Pneumatic Cylinders

### Clean profile

Easier to clean

### Quick installation

Sensors and connections on one side

### UNIVER Technology

Strong and Reliable

### ISO 15552

Interchangeability



## P15E

15 mm COMPACT Valves

G1/8 - Threaded body and for sub-base mounting

### High flow rate

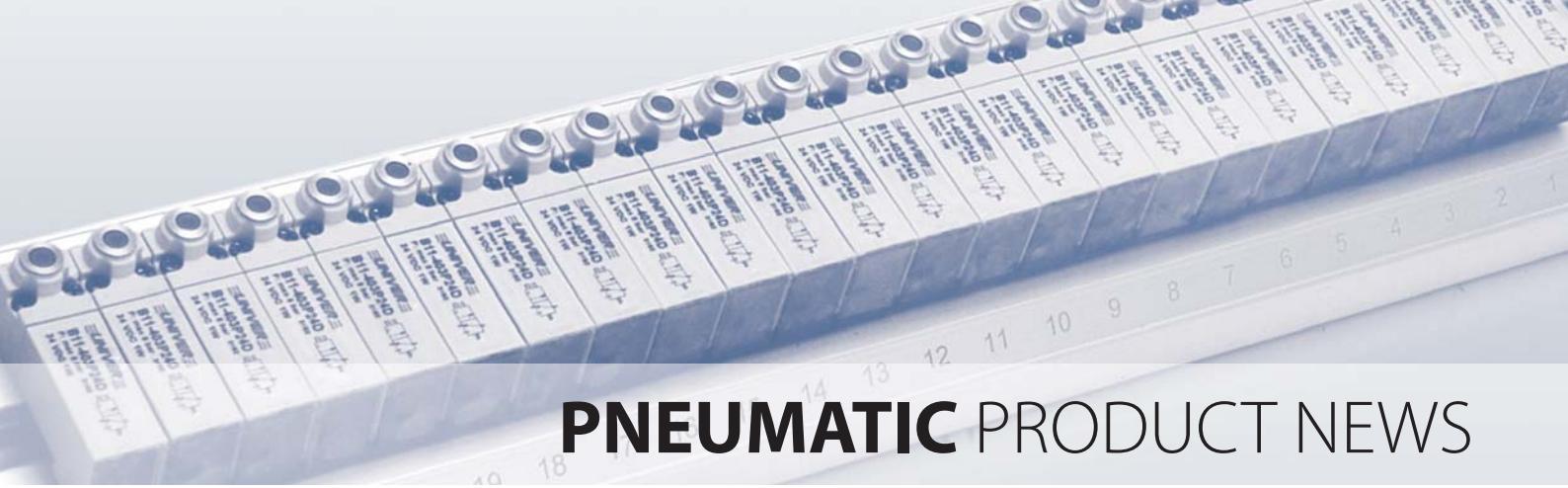
Flow rate higher than 800 NL/min

### Reduced dimensions

Body width 15 mm

### Complete solution

Versions available 5/2 - 5/3 - 3/2+3/2



# PNEUMATIC PRODUCT NEWS



**LATCHING**  
Magnetic memory

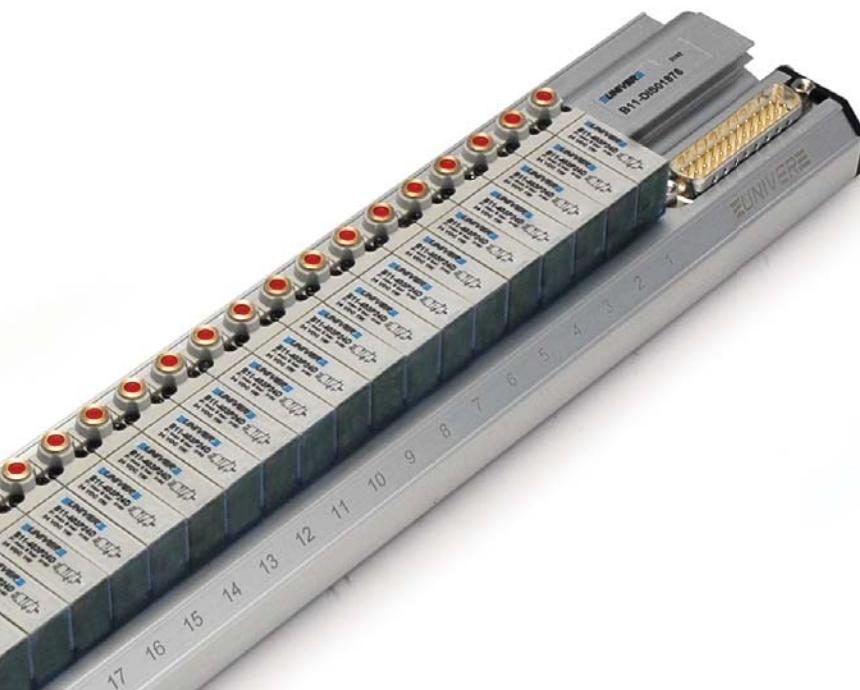
## B10/B11/B12

ISO 15218 10 mm Nanovalves

**Low consumption** B10

**Standard** B11

**High flow rate** B12



## B11

Multipolar Sub-base

**Compact**

For 10 mm Nanovalves - ISO 15218

**Multiple Sub-bases**

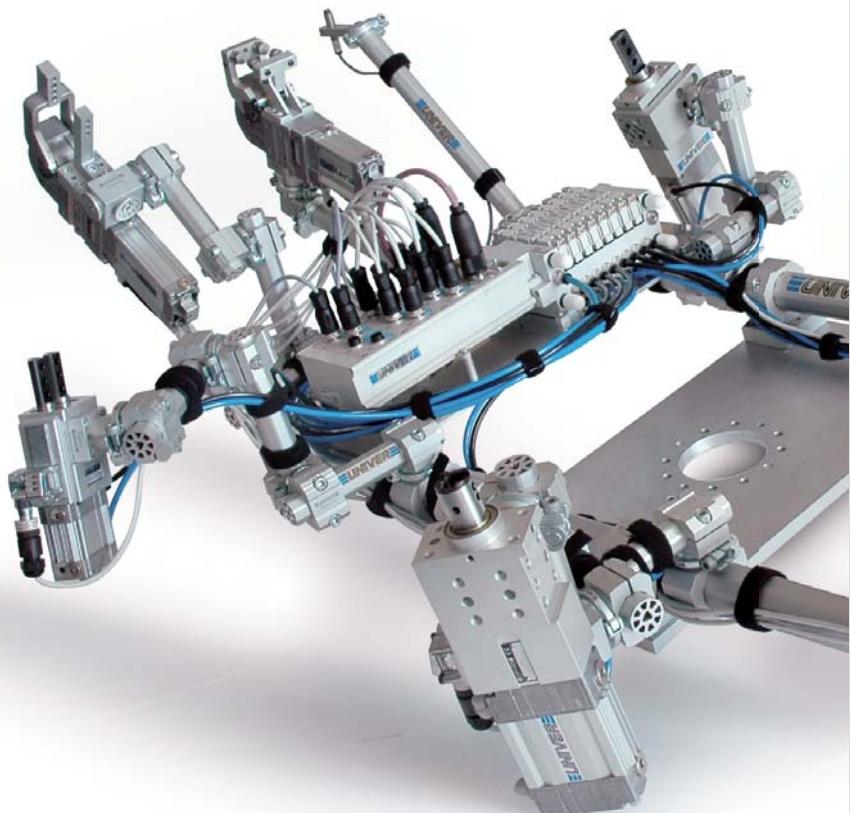
Up to 24 valve places

**Serial Communication System**

TC series Connection



Since 1971 Leader in Industrial Automation



## GR8

Modular Tooling System

### High precision

High level of positional repeatability;  
low deflection

### Modular components

Considerable reduction of mounting components

### Quick installation and set up

No welding or doweling required, easily  
replaceable components

### Fully adjustable

Unlimited orientation in space and free  
configurations

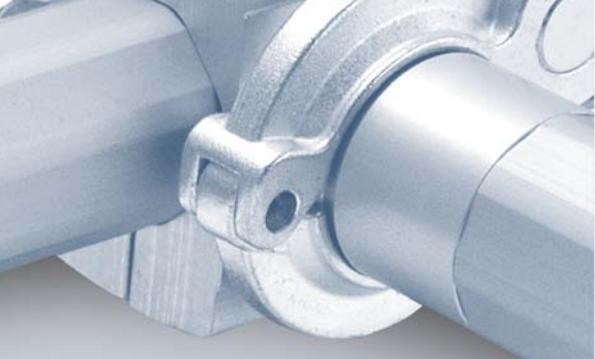
### FULLY CUSTOMIZABLE

Multiple configurations

### EFFICIENT SYSTEM

A small range of standardized mounting elements  
facilitates the sizing and the design of the tooling

PATENT PENDING



# AUTOMOTIVE PRODUCT NEWS

NEW



## LGP

Pneumatic Gripper

**Stepless adjustable opening angle**

From 0° to 160°

**Toggle joint mechanism**

Irreversible movement- without air supply

**Two-sided sensor mounting position**

Left and right side

**360° Unlimited orbital mounting adjustment**

**Integrated shock absorber dampening system**

- Limited air consumption
- UNIVER original electronic sensor with M12 swivel connector
- Easily field adjustable sans opening
- No maintenance required



Since 1971 Leader in Industrial Automation

## Univer Service



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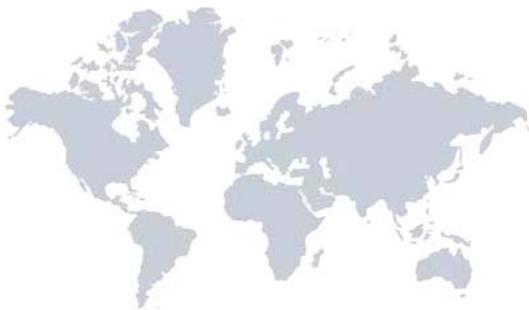


# SALES NETWORK

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# 1

## Cylinders



	Standards-based Cylinders	M KL KE KD K	2 4 6 7 8/9
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	Standards-based Compact Cylinders	RP RM RO RN RS RQ	11 12 13 14 16 17
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	Oval Cylinders	OV	19
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	Short-stroke Cylinders	W	20
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	Rotary Cylinders	R YR2 YR3	21 22 23
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	Rodless Cylinders	S1 S5 VL1	25 26 27
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	Guided Cylinders	J JL JT/JX	29 32 33
---	------------------	------------------	----------------

	Shock Absorbers	YDA/YDR	34
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	Assembly Kits	M/K RP/RM RO/RN RS/RQ S1/S5/VL1	35 36 36 36 37
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## 1 CHARACTERISTICS

Ambient temperature	-20 ÷ 80 °C
Fluid	filtered air, with or without lubrication
Working pressure	1,5 ÷ 10 bar
End-caps	aluminium, crimped on barrel
Barrel	stainless steel
Piston	brass (Ø8÷16), aluminium (Ø20-25)
Guide slide	acetalic resin
Piston rod	stainless steel
Piston seal	NBR
Guide bush for piston rod	standard supplied
Shock absorber seals	NBR
Cushionings	pneumatic adjustable (Ø16÷25)



## 2 CODIFICATION KEY

M	1	0	0	0	2	5	0	0	5	0	
1	2	3	4	5	6	7					

1 Series	2 Type	3 Version	4 Bore (mm)	5 Stroke (mm)	6 Option	7 Magnetic
M = Ø8÷25 mm - ISO 6432 Microcylinders	1 = Stainless steel piston rod (standard version) 2 = Chromium-plated steel piston rod (to be used only with locking unit) 3 = Reduced version with stainless steel piston rod	00 = D.A. Standard version 01 = D.A. Through piston rod 50 = D.A. With adjustable cushionings (Ø16÷25)	51 = D.A. Through piston rod with adjustable cushionings (Ø16÷25) 60 = S.A. Retracted piston rod (Ø10÷25), Max stroke 50 mm 70 = S.A. Extended piston rod (Ø16÷25), Max stroke 25 mm			
		D.A. = Double acting S.A. = Single acting				
008 = Ø8	0010 = 10	0080 = 80	0250 = 250	F = Preset for locking unit reduced protrusion	M = Magnetic version (Ø10-25)	
010 = Ø10	0020 = 20	0100 = 100	0300 = 300			
012 = Ø12	0025 = 25	0125 = 125	0320 = 320			
016 = Ø16	0030 = 30	0150 = 150	0400 = 400			
020 = Ø20	0040 = 40	0160 = 160	0500 = 500			
025 = Ø25	0050 = 50	0175 = 175				
	0075 = 75	0200 = 200				

M190 version with high temperature seals (Max 120°C) available upon request

## 3 FIXING ELEMENTS AND ACCESSORIES

Ø	Female fork with clips	Articulated self-lubricating fork	Fork with axially mounted articulated pin	Fork with angle mounted articulated pin	Floating joint	Female rear hinge	Angle bracket	Flange	Nut for end-cap	Holder for DF sensor	DF sensor
8											
10	MF-15008	MF-17008	-	-	-	MF-21008	MF-13008	MF-12008	MF-20008	-	
12	MF-15008	MF-17008	-	-	-	MF-21008	MF-13008	MF-12008	MF-20008	MF-20008	DH-M10DF
16	MF-15012	MF-17012	MF-22016	MF-23012	MF-24012	MF-21012	MF-13012	MF-12012	MF-20012	MF-20012	DH-M12DF
20	MF-15020	MF-17020	MF-22020	MF-23020	MF-24020	MF-21016	MF-13012	MF-12012	MF-20012	MF-20012	DH-M16DF
25	KF-15032	KF-17032	KF-22025	KF-23025	KF-24032	MF-21020	MF-13020	MF-12020	MF-20020	MF-20020	DH-M20DF

Ø	Holder for DH sensor	DH sensor	Through piston rod	Reduced version with adjustable cushionings
8				
10	-			
12	DH-M10			
16	DH-M12			
20	DH-M16			
25	DH-M20			
	DH-M25	DH		

**K**

ISO 15552 Cylinders

**KL NEW****CLEAN PROFILE**

Easier to clean

**QUICK INSTALLATION**

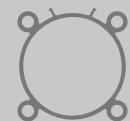
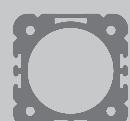
Sensors and connections on one side

**UNIVER TECHNOLOGY**

Strong and Reliable

**ISO 15552**

Interchangeability

**KE** $\varnothing 32 \div 125$  mm**KL** $\varnothing 32 \div 125$  mm**NEW CLEAN PROFILE****KD** $\varnothing 32 \div 125$  mm**K 160/200** $\varnothing 160 - 200$  mm**KIT** Assembly Kit  
available for all series

**CHARACTERISTICS**

Ambient temperature	-20 ÷ 80 °C
Fluid	filtered air, with or without lubrication
Working pressure	1,5 ÷ 10 bar
End-caps	die-cast aluminium
Barrel	anodized aluminium
Piston	die-cast aluminium
Guide slide	acetalic resin
Piston rod	chromium-plated steel, stainless steel upon request
Piston seal	NBR
Guide bush for piston rod	UNIVER Original self-lubricating and self-aligning
Shock absorber seals	NBR
Cushionings	pneumatic adjustable
Other available versions	tandem, two-position tandem, opposed, with common piston rod


**CODIFICATION KEY**

K	L	2	0	0	0	3	2	0	0	5	0	M
1	2	3	4			5		6	7			

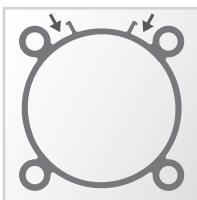
1 Series	2 Type	3 Version	4 Bore (mm)
KL = Ø 32÷125 mm - ISO 15552	1 = Stainless steel piston rod	00 = D.A. Standard version	032 = Ø32    080 = Ø80
Pneumatic Cylinders	2 = Chromium-plated steel piston rod	01 = D.A. Through piston rod	040 = Ø40    100 = Ø100
		60 = S.A. Retracted piston rod Max stroke 50 mm	050 = Ø50    125 = Ø125
		70 = S.A. Extended piston rod Max stroke 50 mm	063 = Ø63
		D.A. = Double acting	
		S.A. = Single acting	
5 Stroke (mm)	6 Option	7 Magnetic	
0025 = 25    0150 = 150    0320 = 320    0700 = 700	F = Preset for locking unit reduced protrusion	M = Magnetic version standard supplied	
0050 = 50    0160 = 160    0350 = 350    0800 = 800	G = Preset for locking unit ISO protrusion		
0075 = 75    0175 = 175    0400 = 400    0900 = 900			
0080 = 80    0200 = 200    0450 = 450    1000 = 1000			
0100 = 100    0250 = 250    0500 = 500    0600 = 600			
0125 = 125    0300 = 300    0600 = 600			

KL190 and KL290 versions with high temperature seals (Max 120°C) and version with low temperature seals (Max -40°C) available upon request

**FIXING ELEMENTS AND ACCESSORIES**

Ø	Female fork with clips	Articulated self-lubricating fork	Fork with axially mounted articulated pin	Fork with angle mounted articulated pin	Floating joint	Female rear hinge with pin	Counter hinge 90° (CETOP)	Counter hinge 90°	Counter hinge 90° (CNOMO)	Narrow female hinge with pin	Articulated counter hinge
32											
40	KF-15032	KF-17032	KF-22032	KF-23032	KF-24032	KF-10032A	KF-19032CTA	KF-19032	KF-19032CN	KF-10032AS	KF-19032SC
40	KF-15040	KF-17040	KF-22040	KF-23040	KF-24040	KF-10040A	KF-19040CTA	KF-19040	KF-19040050CN	KF-10040AS	KF-19040SC
50	KF-15050	KF-17050	KF-22050	KF-23050	KF-24050	KF-10050A	KF-19050CTA	KF-19050	KF-19040050CN	KF-10050AS	KF-19050SC
63	KF-15050	KF-17050	KF-22050	KF-23050	KF-24050	KF-10063A	KF-19063CTA	KF-19063	KF-19063080CN	KF-10063AS	KF-19063SC
80	KF-15080	KF-17080	KF-22080	KF-23080	KF-24080	KF-10080A	KF-19080CTA	KF-19080	KF-19063080CN	KF-10080AS	KF-19080SC
100	KF-15080	KF-17080	KF-22080	KF-23080	KF-24080	KF-10100A	KF-19100CTA	KF-19100	KF-19100125CN	KF-10100AS	KF-19100SC
125	KF-15125	KF-17125	-	-	-	KF-10125A	KF-19125CTA	-	KF-19100125CN	KF-10125AS	KF-19125SC
Ø	Articulated rear male hinge	Rear male hinge	Front/rear flange	Angle bracket	Front/rear hinge with floating pin	Hinge support	ISO intermediate hinge	DF sensor and DHF covering strip			
32											
32	KF-11032S	KF-11032	KF-12032	KF-13032	KF-14032AP	KF-41032	KLF-14032				
40	KF-11040S	KF-11040	KF-12040	KF-13040	KF-14040AP	KF-41040050	KLF-14040				
50	KF-11050S	KF-11050	KF-12050	KF-13050	KF-14050AP	KF-41040050	KLF-14050				
63	KF-11063S	KF-11063	KF-12063	KF-13063	KF-14063AP	KF-41063080	KLF-14063				
80	KF-11080S	KF-11080	KF-12080	KF-13080	KF-14080AP	KF-41063080	KLF-14080				
100	KF-11100S	KF-11100	KF-12100	KF-13100	KF-14100AP	KF-41100125	KLF-14100				
125	KF-11125S	KF-11125	KF-12125	KF-13125	KF-14125AP	KF-41100125	KLF-14125				

DF  
DHF-0020100



Tube profile with integrated  
sensor grooves  
**UNIVER Original** since 2005



Recessed sensor  
DF series



Magnetic piston  
standard supplied



Fixing screws integrated in  
the end-cap profile



Sensor grooves available  
in different positions



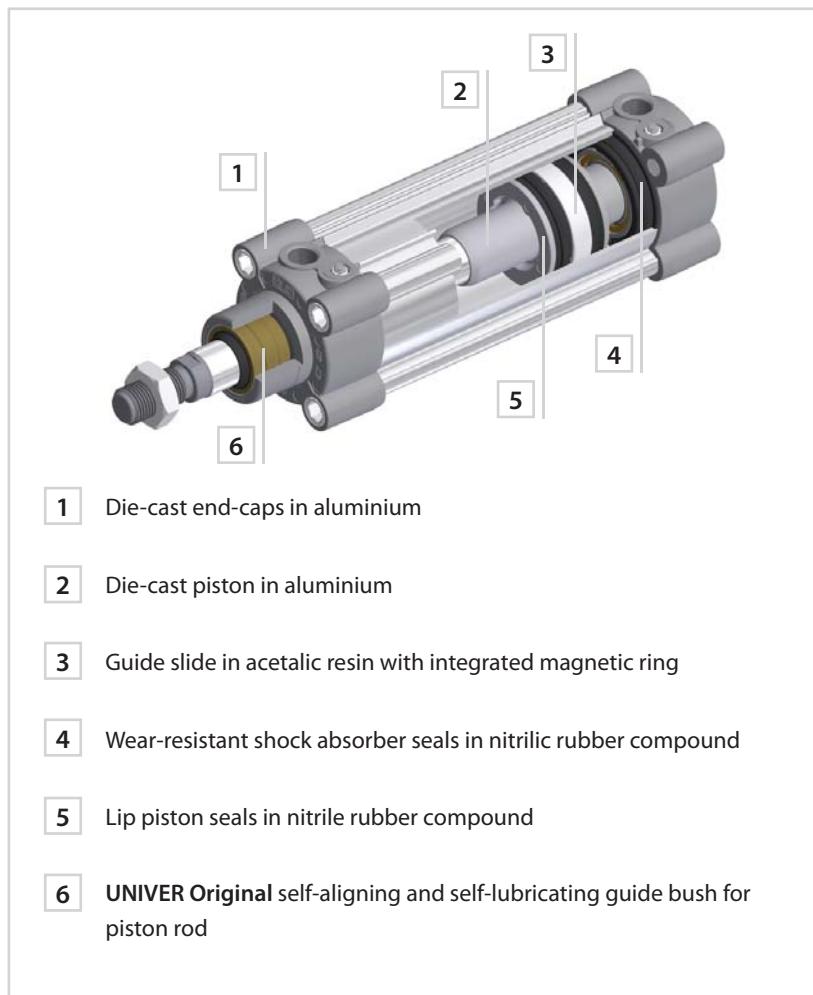
Possibility to mount DH  
sensors with brackets



Intermediate hinge with locking  
system guaranteed by UNIVER  
AUTOMOTIVE expertise

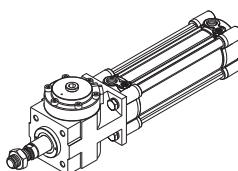


Standard fixing elements  
**UNIVER Original**

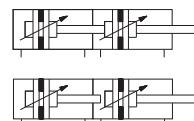
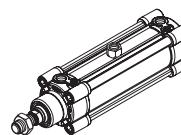


#### Further available versions

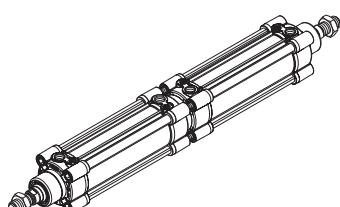
■ Cylinder with L1-N locking unit



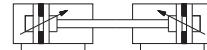
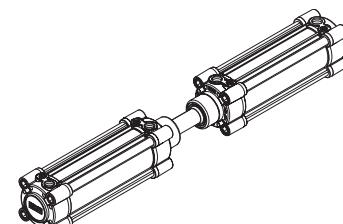
■ Tandem cylinder  
Two-position tandem cylinder



■ Opposed cylinders



■ Cylinders with common piston rod



**CHARACTERISTICS**

Ambient temperature	-20 ÷ 80 °C
Fluid	filtered air, with or without lubrication
Working pressure	1,5 ÷ 10 bar
End-caps	die-cast aluminium
Barrel	anodized aluminium
Piston	die-cast aluminium
Guide slide	acetalic resin
Piston rod	chromium-plated steel, stainless steel upon request
Piston seal	NBR
Guide bush for piston rod	UNIVER Original self-lubricating and self-aligning
Shock absorber seals	NBR
Cushionings	pneumatic adjustable
Other available versions	tandem, two-position tandem, opposed, with common piston rod


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1	2	3	4			5	6	7				

1 Series	2 Type	3 Version	4 Bore (mm)
KE = Ø 32÷125 mm - ISO 15552 Pneumatic Cylinders	1 = Stainless steel piston rod 2 = Chromium-plated steel piston rod	00 = D.A. Standard version 01 = D.A. Through piston rod 60 = S.A. Retracted piston rod Max stroke 50 mm 70 = S.A. Extended piston rod Max stroke 50 mm	032 = Ø32 080 = Ø80 040 = Ø40 100 = Ø100 050 = Ø50 125 = Ø125 063 = Ø63
K = Ø 32÷125 mm - ISO 15552 Pneumatic Cylinders (former ISO 6431 VDMA 24562) (available upon request)		D.A. = Double acting S.A. = Single acting	
5 Stroke (mm)	6 Option	7 Magnetic	
0025 = 25    0150 = 150    0320 = 320    0700 = 700 0050 = 50    0160 = 160    0350 = 350    0800 = 800 0075 = 75    0175 = 175    0400 = 400    0900 = 900 0080 = 80    0200 = 200    0450 = 450    1000 = 1000 0100 = 100    0250 = 250    0500 = 500 0125 = 125    0300 = 300    0600 = 600	F = Preset for locking unit reduced protrusion G = Preset for locking unit ISO protrusion	M = Magnetic version	

**KE190 and KE290 versions with high temperature seals (Max 120°C) available upon request**
**FIXING ELEMENTS AND ACCESSORIES**

Ø	Female fork with clips	Articulated self-lubricating fork	Fork with axially mounted articulated pin	Fork with angle mounted articulated pin	Floating joint	Female rear hinge with pin	Counter hinge 90° (CETOP)	Counter hinge 90°	Counter hinge 90° (CNOMO)	Narrow female hinge with pin	Articulated counter hinge
32											
40	KF-15032	KF-17032	KF-22032	KF-23032	KF-24032	KF-10032A	KF-19032CTA	KF-19032	KF-19032CN	KF-10032AS	KF-19032SC
50	KF-15040	KF-17040	KF-22040	KF-23040	KF-24040	KF-10040A	KF-19040CTA	KF-19040	KF-19040050CN	KF-10040AS	KF-19040SC
63	KF-15050	KF-17050	KF-22050	KF-23050	KF-24050	KF-10050A	KF-19050CTA	KF-19050	KF-19040050CN	KF-10050AS	KF-19050SC
80	KF-15080	KF-17080	KF-22080	KF-23080	KF-24080	KF-10080A	KF-19080CTA	KF-19080	KF-19063080CN	KF-10080AS	KF-19080SC
100	KF-15080	KF-17080	KF-22080	KF-23080	KF-24080	KF-10100A	KF-19100CTA	KF-19100	KF-19100125CN	KF-10100AS	KF-19100SC
125	KF-15125	KF-17125	-	-	-	KF-10125A	KF-19125CTA	-	KF-19100125CN	KF-10125AS	KF-19125SC

Ø	Articulated rear male hinge	Rear male hinge	Front / rear flange	Angle bracket	Front / rear hinge with floating pin	Hinge support	ISO Intermediate hinge	ISO Intermediate hinge	DF sensor and DHF covering strip	DH sensor	Mounting bracket for DH sensor
32								*			
40	KF-11032S	KF-11032	KF-12032	KF-13032	KF-14032AP	KF-41032	KLF-14032	KF-14032			
50	KF-11040S	KF-11040	KF-12040	KF-13040	KF-14040AP	KF-41040050	KLF-14040	KF-14040			
63	KF-11050S	KF-11050	KF-12050	KF-13050	KF-14050AP	KF-41040050	KLF-14050	KF-14050			
80	KF-11063S	KF-11063	KF-12063	KF-13063	KF-14063AP	KF-41063080	KLF-14063	KF-14063			
100	KF-11080S	KF-11080	KF-12080	KF-13080	KF-14080AP	KF-41063080	KLF-14080	KF-14080			
125	KF-11100S	KF-11100	KF-12100	KF-13100	KF-14100AP	KF-41100125	KLF-14100	KF-14100			

\* = Fixing elements and accessories for K series

## CHARACTERISTICS

Ambient temperature	-20 ÷ 80 °C
Fluid	filtered air, with or without lubrication
Working pressure	1,5 ÷ 10 bar
End-caps	die-cast aluminium
Barrel	anodized aluminium
Piston	die-cast aluminium
Guide slide	acetalic resin
Piston rod	chromium-plated steel, stainless steel upon request
Piston seal	NBR
Guide bush for piston rod	UNIVER Original self-lubricating and self-aligning
Shock absorber seals	NBR
Cushionings	pneumatic adjustable
Other available versions	tandem, two-position tandem, opposed, with common piston rod



## CODIFICATION KEY

K	D	2	0	0	0	3	2	0	0	5	0	M
1	2	3	4	5	6	7						

1 Series	2 Type	3 Version	4 Bore (mm)
<b>KD = Ø 32÷125 mm - ISO 15552</b> Pneumatic Cylinders (former ISO 6431 and VDMA 24562)	<b>1</b> = Stainless steel piston rod <b>2</b> = Chromium-plated steel piston rod	<b>00</b> = D.A. Standard version <b>01</b> = D.A. Through piston rod <b>60</b> = S.A. Retracted piston rod Max stroke 50 mm <b>70</b> = S.A. Extended piston rod Max stroke 50 mm	<b>032</b> = Ø32 <b>080</b> = Ø80 <b>040</b> = Ø40 <b>100</b> = Ø100 <b>050</b> = Ø50 <b>125</b> = Ø125 <b>063</b> = Ø63
Magnetic version standard supplied		<b>D.A.</b> = Double acting <b>S.A.</b> = Single acting	
5 Stroke (mm)	6 Option	7 Magnetic	
0025 = 25    0150 = 150    0320 = 320    0700 = 700 0050 = 50    0160 = 160    0350 = 350    0800 = 800 0075 = 75    0175 = 175    0400 = 400    0900 = 900 0080 = 80    0200 = 200    0450 = 450    1000 = 1000 0100 = 100    0250 = 250    0500 = 500 0125 = 125    0300 = 300    0600 = 600	F = Preset for locking unit reduced protrusion G = Preset for locking unit ISO protrusion	M = Magnetic version standard supplied	

**KD190 and KD290 versions with high temperature seals (max 120°C) available upon request**

## FIXING ELEMENTS AND ACCESSORIES

Ø	Female fork with clips	Articulated self-lubricating fork	Fork with axially mounted articulated pin	Fork with angle mounted articulated pin	Floating joint	Female rear hinge with pin	Counter hinge 90° (CETOP)	Counter hinge 90°	Counter hinge 90° (CNOMO)	Narrow female hinge with pin	Articulated counter hinge
32											
40	KF-15032	KF-17032	KF-22032	KF-23032	KF-24032	KF-10032A	KF-19032CTA	KF-19032	KF-19032CN	KF-10032AS	KF-19032SC
50	KF-15040	KF-17040	KF-22040	KF-23040	KF-24040	KF-10040A	KF-19040CTA	KF-19040	KF-19040050CN	KF-10040AS	KF-19040SC
63	KF-15050	KF-17050	KF-22050	KF-23050	KF-24050	KF-10050A	KF-19050CTA	KF-19050	KF-19040050CN	KF-10050AS	KF-19050SC
80	KF-15080	KF-17080	KF-22080	KF-23080	KF-24080	KF-10080A	KF-19080CTA	KF-19080	KF-19063080CN	KF-10080AS	KF-19080SC
100	KF-15080	KF-17080	KF-22080	KF-23080	KF-24080	KF-10100A	KF-19100CTA	KF-19100	KF-19100125CN	KF-10100AS	KF-19100SC
125	KF-15125	KF-17125	-	-	-	KF-10125A	KF-19125CTA	-	KF-19100125CN	KF-10125AS	KF-19125SC

Ø	Articulated rear male hinge	Rear male hinge	Front / rear flange	Angle bracket	Front / rear hinge with floating pin	Hinge support	ISO Intermediate hinge	DF sensor and DHF covering strip	Cable clamping for DF sensor
32									
40	KF-11032S	KF-11032	KF-12032	KF-13032	KF-14032AP	KF-41032	KDF-14032		
50	KF-11040S	KF-11040	KF-12040	KF-13040	KF-14040AP	KF-41040050	KDF-14040		
63	KF-11050S	KF-11050	KF-12050	KF-13050	KF-14050AP	KF-41040050	KDF-14050		
80	KF-11063S	KF-11063	KF-12063	KF-13063	KF-14063AP	KF-41063080	KDF-14063		
100	KF-11080S	KF-11080	KF-12080	KF-13080	KF-14080AP	KF-41063080	KDF-14080		
125	KF-11100S	KF-11100	KF-12100	KF-13100	KF-14100AP	KF-41100125	KDF-14100		

DF DHF-0020100 DF-001

## 1 CHARACTERISTICS

Ambient temperature	-20 ÷ 80 °C
Fluid	filtered air, with or without lubrication
Working pressure	1,5 ÷ 10 bar
End-caps	die-cast aluminium
Barrel	anodized aluminium
Tie-rods	zinc-plated steel
Piston	die-cast aluminium
Guide slide	acetalic resin
Piston rod	chromium-plated steel, stainless steel upon request
Piston rod scraper seals	NBR
Piston seals	NBR
Cushionings	pneumatic adjustable
Other available versions	tandem, two-position tandem, opposed, with common piston rod



## CODIFICATION KEY

K	2	0	0	1	6	0	0	0	8	0	
1	2	3	4			5			6		

1 Series	2 Type	3 Version	4 Bore (mm)
K = Ø 160/200 mm - ISO 15552 Pneumatic Cylinders	1 = Stainless steel piston rod 2 = Chromium-plated steel piston rod	00 = D.A. Standard version 01 = D.A. Through piston rod	160 = Ø160 200 = Ø200

D.A. = Double acting

5 Stroke (mm)	6 Magnetic									
0025 = 25    0150 = 150    0320 = 320    0700 = 700	M = Magnetic version									
0050 = 50    0160 = 160    0350 = 350    0800 = 800										
0075 = 75    0175 = 175    0400 = 400    0900 = 900										
0080 = 80    0200 = 200    0450 = 450    1000 = 1000										
0100 = 100    0250 = 250    0500 = 500    0600 = 600										
0125 = 125    0300 = 300    0600 = 600										

**K190 and K290 versions with high temperature seals (Max 120°C) available upon request**

## FIXING ELEMENTS AND ACCESSORIES

Ø	Female fork with clips	Articulated self-lubricating fork	Female rear hinge with pin	Counter hinge 90° (CETOP)	Counter hinge 90° (CNOMO)	Narrow female hinge with pin	Articulated rear male hinge	Rear male hinge	Front/rear flange	Angle bracket	Front / rear hinge with floating pin
160											
200	KF-15160	KF-17160	KF-10160A	KF-19160CTA	KF-19160200CN	KF-10160AS	KF-11160S	KF-11160	KF-12160	KF-13160	KF-14160AP

Ø	Hinge support	ISO intermediate hinge	DH sensor	Mounting bracket for DH sensor
160				
200	KF-41160200	KF-14160	DH	DH-K160200 DH-K160200

■ Ø160/200 Cylinder with profiled tube  
(version available upon request)



## CHARACTERISTICS

Ambient temperature	-20 ÷ 80 °C
Fluid	filtered air, with or without lubrication
Working pressure	1,5 ÷ 10 bar
End-caps	die-cast aluminium
Barrel	anodized aluminium
Tie-rods	zinc-plated steel
Piston	aluminium
Guide slide	acetalic resin
Piston rod	chromium-plated steel, stainless steel upon request
Piston rod scraper seals	NBR
Piston seals	NBR
Cushionings	pneumatic adjustable



## CODIFICATION KEY

K	2	0	0	2	5	0	0	0	8	0	
1	2	3	4			5		6			

1 Series	2 Type	3 Version	4 Bore (mm)
K = Ø 250/320 mm - ISO 15552 Pneumatic Cylinders	1 = Stainless steel piston rod 2 = Chromium-plated steel piston rod	00 = D.A. Standard version 01 = D.A. Through piston rod	250 = Ø250 320 = Ø320

D.A. = Double acting

5 Stroke (mm)	6 Magnetic							
0025 = 25	0150 = 150	0320 = 320	0700 = 700					M = Magnetic version
0050 = 50	0160 = 160	0350 = 350	0800 = 800					
0075 = 75	0175 = 175	0400 = 400	0900 = 900					
0080 = 80	0200 = 200	0450 = 450	1000 = 1000					
0100 = 100	0250 = 250	0500 = 500						
0125 = 125	0300 = 300	0600 = 600						

## FIXING ELEMENTS AND ACCESSORIES

Ø	Female fork with clips	Articulated self-lubricating fork	Female rear hinge with pin	Rear male hinge	Front/rear flange	Angle bracket	Hinge support	ISO intermediate hinge
250								
320	KF-15250 KF-15320	KF-17250 KF-17320	KF-10250AC KF-10320AC	KF-11250C KF-11320C	KF-12250 KF-12320	KF-13250 KF-13320	KF-41250 KF-41320	KF-14250 KF-14320

Magnetic sensors upon request



## Adjustable pneumatic cushioning

UNIVER Original since 1999

- No change in dimensions comparing to an equivalent cylinder without cushionings
- Standard supplied for all models

## STANDARDS-BASED

Available in compliance with UNITOP and ISO 21287 standards

## STANDARD AND OCTAGONAL TUBE

Available in standard version and non-rotating version with UNIVER Original octagonal tube



Standard



Octagonal



## RP/RM



**RP** (UNITOP RU-2/7)  
Ø 16 ÷ 63 mm



**RM** (ISO 21287)  
Ø 16 ÷ 100 mm



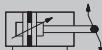
## RP210



With anti-rotation guides  
Ø 16 ÷ 63 mm



## RO/RN



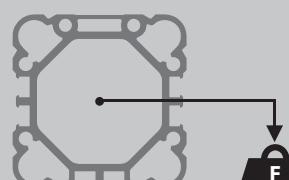
**RO** (UNITOP RU-2/7)  
Ø 16 ÷ 63 mm



**RN** (ISO 21287)  
Ø 16 ÷ 63 mm



Non-rotating (octagonal tube) version  
Max load (Nm)



Ø	Nm
16	0,5
20	0,8
25	1
32	2
40	3
50	5
63	8

## KIT

Assembly Kit  
available for all series



**CHARACTERISTICS**

Ambient temperature	-20 ÷ 80 °C
Fluid	filtered air, with or without lubrication
Working pressure	1,5 ÷ 10 bar
End-caps	die-cast aluminium
Barrel	anodized aluminium
Piston	aluminium
Guide slide	acetalic resin
Piston rod	chromium-plated steel, stainless steel upon request
Piston seal	NBR
Guide bush for piston rod	acetalic resin
Shock absorber seals	NBR
Cushionings	pneumatic adjustable (UNIVER Original standard supplied)
Magnet	standard supplied
Other available versions	tandem, two-position tandem, opposed, with common piston rod (upon request)


**CODIFICATION KEY**

R	P	2	0	0	0	3	2	0	0	2	5	
1	2	3	4			5			6			

1 Series	2 Type	3 Version
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**RP** = Ø 16÷63 mm UNITOP  
Compact Cylinders

**1** = Stainless steel female piston rod  
**2** = Chromium-plated steel female piston rod

**00** = D.A. Standard version  
**01** = D.A. Through piston rod

**Upon request**  
**3** = Stainless steel male piston rod (Ø40÷63)  
**4** = Chromium-plated steel male piston rod (Ø40÷63)

**10** = D.A. Non-rotating guided piston rod  
**11** = D.A. Non-rotating guided through piston rod

**20** = D.A. Long piston (Ø32÷63)

**60** = S.A. Retracted piston rod

**70** = S.A. Extended piston rod

**D.A.** = Double acting

**S.A.** = Single acting

4 Bore (mm)	5 Stroke (mm)	6 Option
<b>016</b> = Ø16 <b>040</b> = Ø40	<b>Single acting</b>	<b>Max standard stroke</b>
<b>020</b> = Ø20 <b>050</b> = Ø50	<b>0005 - 0010</b> (Ø16÷25)	<b>0040</b> (Ø16)
<b>025</b> = Ø25 <b>063</b> = Ø63	<b>0005 - 0010 - 0015 - 0020 - 0025</b> (Ø32÷63)	<b>0050</b> (Ø20-25)
<b>032</b> = Ø32	<b>Double acting</b>	<b>0080</b> (Ø32÷63)
	<b>0005 - 0010 - 0015 - 0020 - 0025 - 0030 - 0040</b>	<b>Max stroke with non-rotating guided piston rod (upon request)</b>
	<b>0050 - 0060 - 0080</b>	<b>0100</b> (Ø16) <b>0200</b> (Ø20-25) <b>0400</b> (Ø32-40) <b>0500</b> (Ø50-63)

For high temperature applications please contact our Sales Office

**FIXING ELEMENTS AND ACCESSORIES**

Ø	Flange for female piston rod	Rear male hinge	Rear female hinge with pin	Counter hinge 90°	Front/rear flange	Angle bracket	Intermediate hinge	Centering adaptor ring	Hinge support	DF sensor and DHF covering strip	Cable clamping for DF sensor
16											
	RPF-28016	RPF-11016	-	-	RPF-12016	RPF-13016	-	-	-		
	RPF-28020	RPF-11020	-	-	RPF-12020	RPF-13020	-	-	-		
	RPF-28025	RPF-11025	-	-	RPF-12025	RPF-13025	-	-	-		
	RPF-28032	-	KF-10032A	KF-19032	KF-12032	KF-13032	KDF-14032	RSF-09032	KF-41032		
	RPF-28040	-	RPF-10040A	KF-19040	RPF-12040	RPF-13040	RPF-14040	RSF-09040	KF-41040050		
	RPF-28050	-	RPF-10050A	KF-19050	RPF-12050	RPF-13050	RPF-14050	RSF-09050	KF-41040050		
20	RPF-28063	-	RPF-10063A	KF-19063	RPF-12063	RPF-13063	RPF-14063	RSF-09063	KF-41063080		
25											
32											
40											
50											
63											

DF-001

## CHARACTERISTICS

Ambient temperature	-20 ÷ 80 °C
Fluid	filtered air, with or without lubrication
Working pressure	1,5 ÷ 10 bar
End-caps	die-cast aluminium
Barrel	anodized aluminium
Piston	aluminium
Guide slide	acetalic resin
Piston rod	chromium-plated steel, stainless steel upon request
Piston seal	NBR
Guide bush for piston rod	acetalic resin
Shock absorber seals	NBR
Cushionings	pneumatic adjustable (UNIVER Original standard supplied)
Magnet	standard supplied
Other available versions	tandem, two-position tandem, opposed tandem, with common piston rod (upon request)



## CODIFICATION KEY

R	M	3	0	0	0	3	2	0	0	2	5	
1	2	3	4			5			6			

1 Series	2 Type	3 Version
RM = Ø 16÷100 mm - ISO 21287 Compact Cylinders	3 = Stainless steel male piston rod 4 = Chromium-plated steel male piston rod  Upon request 1 = Stainless steel female piston rod (Ø40÷100) 2 = Chromium-plated steel female piston rod (Ø 40÷100)	00 = D.A. Standard version 01 = D.A. Through piston rod 20 = D.A. Long piston (Ø32÷63) 60 = S.A. Retracted piston rod 70 = S.A. Extended piston rod
		D.A. = Double acting S.A. = Single acting
4 Bore (mm)	5 Stroke (mm)	6 Option
016 = Ø16    050 = Ø50 020 = Ø20    063 = Ø63 025 = Ø25    080 = Ø80 032 = Ø32    100 = Ø100 040 = Ø40	Single acting 0005 - 0010 (Ø16÷25) 0005 - 0010 - 0015 - 0020 - 0025 (Ø32÷100)  Double acting 0005 - 0010 - 0015 - 0020 - 0025 - 0030 - 0040 0050 - 0060 - 0080	Max standard stroke 0040 (Ø16) 0050 (Ø20-25) 0080 (Ø32÷63)  H = Hollow piston rod only for through piston rod versions without flange

For high temperature applications please contact our Sales Office

## FIXING ELEMENTS AND ACCESSORIES

Ø	Female fork with clips	Articulated self-lubricating fork	Fork with axially mounted articulated pin	Fork with angle mounted articulated pin	Floating joint	Centering adaptor ring	Female rear hinge with pin	Counter hinge 90° (CETOP)	Counter hinge 90°	Counter hinge 90° (CNOMO)	Narrow female hinge with pin
16											
20	MF-15012	MF-17012	MF-22016	MF-23012	MF-24012	-	-	-	-	-	-
25	MF-15020	MF-17020	MF-22020	MF-23020	MF-24020	-	-	-	-	-	-
32	KF-15032	KF-17032	KF-22032	KF-23032	KF-24032	RSF-09032	KF-10032A	KF-19032CTA	KF-19032	KF-19032CN	KF-10032AS
40	KF-15032	KF-17032	KF-22032	KF-23032	KF-24032	RSF-09040	KF-10040A	KF-19040CTA	KF-19040	KF-19040050CN	KF-10040AS
50	KF-15040	KF-17040	KF-22040	KF-23040	KF-24040	RSF-09050	KF-10050A	KF-19050CTA	KF-19050	KF-19040050CN	KF-10050AS
63	KF-15040	KF-17040	KF-22040	KF-23040	KF-24040	RSF-09063	KF-10063A	KF-19063CTA	KF-19063	KF-19063080CN	KF-10063AS
80	KF-15080	KF-17080	KF-22080	KF-23080	KF-24080	RSF-09080	KF-10080A	KF-19080CTA	KF-19080	KF-19063080CN	KF-10080AS
100	KF-15080	KF-17080	KF-22080	KF-23080	KF-24080	RSF-09100	KF-10100A	KF-19100CTA	KF-19100	KF-19100125CN	KF-10100AS
Ø	Articulated counter hinge	Articulated rear male hinge	Rear male hinge	Front/rear flange	Angle bracket	Front/rear hinge with floating pin	Hinge support	ISO intermediate hinge	DF sensor and DHF covering strip	Cable clamping for DF sensor	
16											
20	-	-	-	-	-	-	-	-			
25	-	-	-	-	-	-	-	-			
32	KF-19032SC	KF-11032S	KF-11032	KF-12032	KF-13032	KF-14032AP	KF-41032	KDF-14032			
40	KF-19040SC	KF-11040S	KF-11040	KF-12040	KF-13040	KF-14040AP	KF-41040050	RPF-14040			
50	KF-19050SC	KF-11050S	KF-11050	KF-12050	KF-13050	KF-14050AP	KF-41040050	RPF-14050			
63	KF-19063SC	KF-11063S	KF-11063	KF-12063	KF-13063	KF-14063AP	KF-41063080	RPF-14063			
80	KF-19080SC	KF-11080S	KF-11080	KF-12080	KF-13080	KF-14080AP	KF-41063080	KDF-14080			
100	KF-19100SC	KF-11100S	KF-11100	KF-12100	KF-13100	KF-14100AP	KF-41100125	KDF-14100			

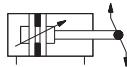
## CHARACTERISTICS

Ambient temperature	-20 ÷ 80 °C
Fluid	filtered air, with or without lubrication
Working pressure	1,5 ÷ 10 bar
End-caps	die-cast zamak (Ø 16 ÷ 25 mm) die-cast aluminium (Ø 32 ÷ 63 mm)
Barrel	anodized aluminium
Piston	aluminium
Guide slide	acetalic resin
Piston rod	chromium-plated steel, stainless steel upon request
Piston seal	NBR
Guide bush for piston rod	acetalic resin
Shock absorber seals	NBR
Cushionings	pneumatic adjustable (UNIVER Original standard supplied)
Magnet	standard supplied
Other available versions	tandem, two-position tandem, opposed tandem, with common piston rod (upon request)



## CODIFICATION KEY

R	O	2	0	0	0	3	2	0	0	2	5	
1	2	3	4			5			6			

1 Series	2 Type	3 Version
RO = Ø 16÷63 mm UNITOP Compact Cylinders octagonal tube	1 = Stainless steel female piston rod 2 = Chromium-plated steel female piston rod  Male piston rod upon request	00 = D.A. Standard version 01 = D.A. Through piston rod 20 = D.A. Long piston (Ø32÷63)
		D.A. = Double acting
4 Bore (mm)	5 Stroke (mm)	6 Option
016 = Ø16    040 = Ø40 020 = Ø20    050 = Ø50 025 = Ø25    063 = Ø63 032 = Ø32	0005 - 0010 - 0015 - 0020 - 0025 - 0030 - 0040 0050 - 0060 - 0080  Max standard stroke 0040 (Ø16) 0050 (Ø20-25) 0080 (Ø32÷63)	H = Hollow piston rod only for through piston rod versions without flange

## FIXING ELEMENTS AND ACCESSORIES

Ø	Rear male hinge	Rear female hinge with pin	Counter hinge 90°	Front/rear flange	Angle bracket	Intermediate hinge	Centering adaptor ring	Hinge support	DF sensor and DHF covering strip	Cable clamping for DF sensor
16										
20	RPF-11016	-	-	RPF-12016	RPF-13016	-	-	-		
25	RPF-11020	-	-	RPF-12020	RPF-13020	-	-	-		
32	RPF-11025	-	-	RPF-12025	RPF-13025	-	-	-		
40	-	KF-10032A	KF-19032	KF-12032	KF-13032	KDF-14032	RSF-09032	KF-41032		
50	-	RPF-10040A	KF-19040	RPF-12040	RPF-13040	RPF-14040	RSF-09040	KF-41040050		
63	-	RPF-10050A	KF-19050	RPF-12050	RPF-13050	RPF-14050	RSF-09050	KF-41040050		
	-	RPF-10063A	KF-19063	RPF-12063	RPF-13063	RPF-14063	RSF-09063	KF-41063080		

DF DHF-0020100      DF-001

## CHARACTERISTICS

Ambient temperature	-20 ÷ 80 °C
Fluid	filtered air, with or without lubrication
Working pressure	1,5 ÷ 10 bar
End-caps	die-cast zamak (Ø16÷25) die-cast aluminium (Ø32÷63)
Barrel	anodized aluminium
Piston	aluminium
Guide slide	acetalic resin
Piston rod	chromium-plated steel, stainless steel upon request
Piston seal	NBR
Guide bush for piston rod	acetalic resin
Shock absorber seals	NBR
Cushionings	pneumatic adjustable (UNIVER Original standard supplied)
Magnet	standard supplied
Other available versions	tandem, two-position tandem, opposed tandem, with common piston rod (upon request)



## CODIFICATION KEY

R	N	3	0	0	0	3	2	0	0	2	5	
1	2	3	4			5			6			

1 Series	2 Type	3 Version
RN = Ø 16÷63 mm - ISO 21287 Compact Cylinders octagonal tube	3 = Stainless steel male piston rod 4 = Chromium-plated steel male piston rod  Female piston rod upon request	00 = D.A. Standard version 01 = D.A. Through piston rod 20 = D.A. Long piston (Ø32÷63)
		D.A. = Double acting
4 Bore (mm)	5 Stroke (mm)	6 Option
016 = Ø16    040 = Ø40 020 = Ø20    050 = Ø50 025 = Ø25    063 = Ø63 032 = Ø32	0005 - 0010 - 0015 - 0020 - 0025 - 0030 - 0040 0050 - 0060 - 0080  Max standard stroke 0040 (Ø16) 0050 (Ø20-25) 0080 (Ø32÷63)	H = Hollow piston rod only for through piston rod versions without flange

## FIXING ELEMENTS AND ACCESSORIES

Ø	Female fork with clips	Articulated self-lubricating fork	Fork with axially mounted articulated pin	Fork with angle mounted articulated pin	Floating joint	Centering adaptor ring	Rear female hinge with pin	Counter hinge 90° (CETOP)	Counter hinge 90°	Counter hinge 90° (CNOMO)	Narrow female hinge with pin
16											
20	MF-15012	MF-17012	MF-22016	MF-23012	MF-24012	-	-	-	-	-	-
25	MF-15020	MF-17020	MF-22020	MF-23020	MF-24020	-	-	-	-	-	-
32	KF-15032	KF-17032	KF-22032	KF-23032	KF-24032	RSF-09032	KF-10032A	KF-19032CTA	KF-19032	KF-19032CN	KF-10032AS
40	KF-15032	KF-17032	KF-22032	KF-23032	KF-24032	RSF-09040	KF-10040A	KF-19040CTA	KF-19040	KF-19040050CN	KF-10040AS
50	KF-15040	KF-17040	KF-22040	KF-23040	KF-24040	RSF-09050	KF-10050A	KF-19050CTA	KF-19050	KF-19040050CN	KF-10050AS
63	KF-15040	KF-17040	KF-22040	KF-23040	KF-24040	RSF-09063	KF-10063A	KF-19063CTA	KF-19063	KF-19063080CN	KF-10063AS

Ø	Articulated counter hinge	Articulated rear male hinge	Rear male hinge	Front/rear flange	Angle bracket	Front/rear hinge	Hinge support	ISO Intermediate hinge	DF sensor and DHF covering strip	Cable clamping for DF sensor
16										
20	-	-	-	-	-	-	-	-		
25	-	-	-	-	-	-	-	-		
32	KF-19032SC	KF-11032S	KF-11032	KF-12032	KF-13032	KF-14032AP	KF-41032	KDF-14032		
40	KF-19040SC	KF-11040S	KF-11040	KF-12040	KF-13040	KF-14040AP	KF-41040050	KDF-14040		
50	KF-19050SC	KF-11050S	KF-11050	KF-12050	KF-13050	KF-14050AP	KF-41040050	KDF-14050		
63	KF-19063SC	KF-11063S	KF-11063	KF-12063	KF-13063	KF-14063AP	KF-41063080	KDF-14063		

DF DHF-0020100 DF-001



## Adjustable pneumatic cushioning

UNIVER Original since 1999

- No change in dimensions comparing to an equivalent cylinder without cushionings
- Standard supplied for all models

## STRONG

Oversized guide and piston rods

## ISO 15552

Interaxes, centering diameters and piston rods complying with ISO 15552 standards



## RS



$\varnothing 32 \div 100$  mm



## RQ



$\varnothing 32 \div 63$  mm



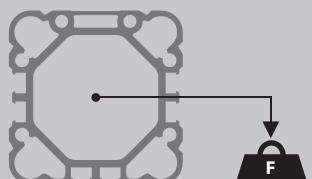
## RS210



With anti-rotation guides  $\varnothing 32 \div 100$  mm



Non-rotating version (octagonal tube)  
Max load (Nm)



$\varnothing$	Nm
32	2
40	3
50	5
63	8



Assembly Kit  
available for all series



## CHARACTERISTICS

Ambient temperature	-20 ÷ 80 °C
Fluid	filtered air, with or without lubrication
Working pressure	1,5 ÷ 10 bar
End-caps	die-cast aluminium
Barrel	anodized aluminium
Piston	aluminium
Guide slide	acetalic resin
Piston rod	chromium-plated steel, stainless steel upon request
Piston seal	NBR
Guide bush for piston rod	acetalic resin
Shock absorber seals	NBR
Cushionings	pneumatic adjustable (UNIVER Original standard supplied)
Magnet	standard supplied
Other versions available	tandem, two-position tandem, opposed tandem, with common piston rod (upon request)



## CODIFICATION KEY

R	S	2	0	0	3	2	0	0	2	5	
1	2	3	4		5		6				

1 Series	2 Type	3 Version	For type 1 - 2	For type 3 - 4
RS = Ø 32÷100 mm - STRONG Compact Cylinders	1 = Stainless steel female piston rod 2 = Chromium-plated steel female piston rod 3 = Stainless steel male piston rod 4 = Chromium-plated steel male piston rod	00 = D.A. Standard version 01 = D.A. Through piston rod 10 = D.A. Non-rotating guided piston rod (Ø32÷63) 11 = D.A. Non-rotating guided through piston rod (Ø32÷63) 20 = D.A. Long piston (Ø32÷63) 60 = S.A. Retracted piston rod 70 = S.A. Extended piston rod	00 = D.A. Standard version 01 = D.A. Through piston rod 10 = D.A. Non-rotating guided piston rod (Ø32÷63) 11 = D.A. Non-rotating guided through piston rod (Ø32÷63) 20 = D.A. Long piston (Ø32÷63) 60 = S.A. Retracted piston rod 70 = S.A. Extended piston rod	00 = D.A. Standard version 01 = D.A. Through piston rod 20 = D.A. Long piston (Ø32÷63) 60 = S.A. Retracted piston rod 70 = S.A. Extended piston rod
				D.A. = Double acting S.A. = Single acting

4 Bore (mm)	5 Stroke (mm)	6 Option
032 = Ø32	Single acting	Max stroke with long piston (upon request)
040 = Ø40	0005 - 0010 - 0015 - 0020 - 0025	0800 (Ø32-40) 1000 (Ø50÷63)
050 = Ø50	Double acting	Max stroke with non-rotating guided piston rod (upon request)
063 = Ø63	0005 - 0010 - 0015 - 0020 - 0025	0400 (Ø32-40) 0800 (Ø63)
080 = Ø80	0030 - 0040 - 0050 - 0060 - 0080	0500 (Ø50) 1000 (Ø80-100)
100 = Ø100	Max standard stroke 0080 (Ø32÷100)	
		H = Hollow piston rod only for through piston rod versions without flange G = Preset for locking unit only for D.A. cylinders with chromium-plated steel piston rod C = With flange for versions: 100-101-120-160-170 200-201-220-260-270

For high temperature applications please contact our Sales Office

## FIXING ELEMENTS AND ACCESSORIES

Ø	Female fork with clips	Articulated self-lubricating fork	Fork with axially mounted articulated pin	Fork with angle mounted articulated pin	Floating joint	Flange for female piston rod	Centering adaptor ring	Female rear hinge with pin	Counter hinge 90° (CETOP)	Counter hinge 90°	Counter hinge 90° (CNOMO)
32											
40	KF-15032	KF-17032	KF-22032	KF-23032	KF-24032	RPF-28032	RSF-09032	KF-10032A	KF-19032CTA	KF-19032	KF-19032CN
50	KF-15040	KF-17040	KF-22040	KF-23040	KF-24040	RPF-28040	RSF-09040	KF-10040A	KF-19040CTA	KF-19040	KF-19040050CN
50	KF-15050	KF-17050	KF-22050	KF-23050	KF-24050	RPF-28050	RSF-09050	KF-10050A	KF-19050CTA	KF-19050	KF-19040050CN
63	KF-15050	KF-17050	KF-22050	KF-23050	KF-24050	RPF-28063	RSF-09063	KF-10063A	KF-19063CTA	KF-19063	KF-19063080CN
80	KF-15080	KF-17080	KF-22080	KF-23080	KF-24080	-	RSF-09080	KF-10080A	KF-19080CTA	KF-19080	KF-19063080CN
100	KF-15080	KF-17080	KF-22080	KF-23080	KF-24080	-	RSF-09100	KF-10100A	KF-19100CTA	KF-19100	KF-19100125CN
Ø	Narrow female hinge with pin	Articulated counter hinge	Articulated rear male hinge	Rear male hinge	Front/rear flange	Angle bracket	Front/rear hinge with floating pin	Hinge support	ISO Intermediate hinge	DF sensor and DHF covering strip	Cable clamping for DF sensor
32											
40	KF-10032AS	KF-19032SC	KF-11032S	KF-11032	KF-12032	KF-13032	KF-14032AP	KF-41032	KDF-14032		
40	KF-10040AS	KF-19040SC	KF-11040S	KF-11040	KF-12040	KF-13040	KF-14040AP	KF-41040050	RPF-14040		
50	KF-10050AS	KF-19050SC	KF-11050S	KF-11050	KF-12050	KF-13050	KF-14050AP	KF-41040050	RPF-14050		
63	KF-10063AS	KF-19063SC	KF-11063S	KF-11063	KF-12063	KF-13063	KF-14063AP	KF-41063080	RPF-14063		
80	KF-10080AS	KF-19080SC	KF-11080S	KF-11080	KF-12080	KF-13080	KF-14080AP	KF-41063080	KDF-14080		
100	KF-10100AS	KF-19100SC	KF-11100S	KF-11100	KF-12100	KF-13100	KF-14100AP	KF-41100125	KDF-14100		
										DF DHF-0020100	DF-001

## CHARACTERISTICS

Ambient temperature	-20 ÷ 80 °C
Fluid	filtered air, with or without lubrication
Working pressure	1,5 ÷ 10 bar
End-caps	die-cast aluminium
Barrel	anodized aluminium
Piston	aluminium
Guide slide	acetalic resin
Piston rod	chromium-plated steel, stainless steel upon request
Piston seal	NBR
Guide bush for piston rod	acetalic resin
Shock absorber seals	NBR
Cushionings	pneumatic adjustable (UNIVER Original standard supplied)
Magnet	standard supplied
Other available versions	tandem, two-position tandem, opposed tandem, with common piston rod (upon request)

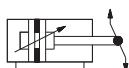


## CODIFICATION KEY

R	Q	2	0	0	0	3	2	0	0	2	5	
1	2	3	4			5			6			

### 1 Series

**RQ** = Ø 32÷63 mm - STRONG  
 Compact Cylinders octagonal tube



### 2 Type

- 1 = Stainless steel female piston rod with flange
- 2 = Chromium-plated steel female piston rod with flange
- 3 = Stainless steel male piston rod
- 4 = Chromium-plated steel male piston rod

### 3 Version

- 00 = D.A. Standard version
- 01 = D.A. Through piston rod
- 20 = D.A. Long piston

**D.A.** = Double acting

### 4 Bore (mm)

- 032 = Ø32
- 040 = Ø40
- 050 = Ø50
- 063 = Ø63

### 5 Stroke (mm)

- Double acting**
- 0005 - 0010 - 0015 - 0020 - 0025
- 0030 - 0040 - 0050 - 0060 - 0080
- Max standard stroke**
- 0080
- Max stroke with long piston (upon request)**
- 0400 (Ø32-40)
- 1000 (Ø50-63)

### 6 Option

- H = Hollow piston rod only for through piston rod versions without flange
- G = Preset for locking unit only with chromium-plated steel piston rod

## FIXING ELEMENTS AND ACCESSORIES

Ø	Female fork with clips	Articulated self-lubricating fork	Fork with axially mounted articulated pin	Fork with angle mounted articulated pin	Floating joint	Centering adaptor ring	Female rear hinge with pin	Counter hinge 90° (CETOP)	Counter hinge 90°	Counter hinge 90° (CNOMO)	Narrow female hinge with pin
32											
40	KF-15032	KF-17032	KF-22032	KF-23032	KF-24032	RSF-09032	KF-10032A	KF-19032CTA	KF-19032	KF-19032CN	KF-10032AS
50	KF-15040	KF-17040	KF-22040	KF-23040	KF-24040	RSF-09040	KF-10040A	KF-19040CTA	KF-19040	KF-19040050CN	KF-10040AS
63	KF-15050	KF-17050	KF-22050	KF-23050	KF-24050	RSF-09050	KF-10050A	KF-19050CTA	KF-19050	KF-19040050CN	KF-10050AS

Ø	Articulated counter hinge	Articulated rear male hinge	Rear male hinge	Front, rear flange	Angle bracket	Front / rear hinge	Hinge support	ISO Intermediate hinge	DF sensor and DHF covering strip	Cable clamping for DF sensor
32										
40	KF-19032SC	KF-11032S	KF-11032	KF-12032	KF-13032	KF-14032AP	KF-41032	KDF-14032		
50	KF-19040SC	KF-11040S	KF-11040	KF-12040	KF-13040	KF-14040AP	KF-41040050	RPF-14040		
63	KF-19050SC	KF-11050S	KF-11050	KF-12050	KF-13050	KF-14050AP	KF-41040050	RPF-14050		

DF  
 DHF-0020100  
 DF-001

## COMPACT

Up to **40%** width reduction if compared to standard cylinders

## ANTI-ROTATION

Piston rod max rotation from 0,3° to 0,9°

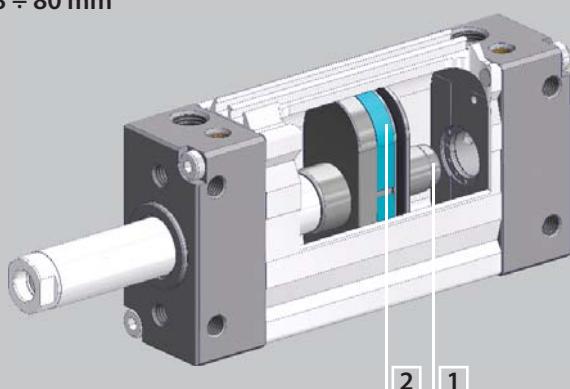
## CUSHIONING

Standard supplied Ø18 ÷ 80 mm  
(adjustable pneumatic cushionings)

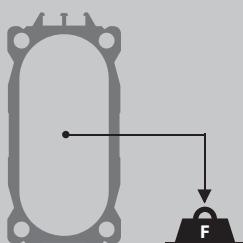


## OV

Ø18 ÷ 80 mm



Max applicable torque (Nm) and related Max rotation



Ø	F (Nm)	Degrees
18	0,80	0,90
25	1,00	0,80
32	1,40	0,60
40	1,70	0,40
50	2,00	0,35
63	2,30	0,30
80	2,60	0,30

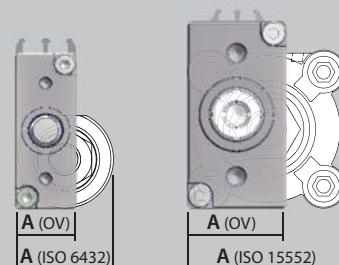
### 1 Adjustable pneumatic cushioning

- Standard supplied
- No variation in dimensions comparing to an equivalent cylinder without cushionings

### 2 Oversized piston guide and UNIVER original seal

- Suitable for heavy loads (F)
- Piston rod rotation highly reduced

Comparison of A dimension: OV cylinder vs ISO standard cylinder



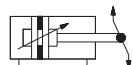
Ø	A (OV)	A (ISO)	Reduction
18	16	46,5	-42%
25	20	52	-35%
32	24,5	64,5	-45%
40	38	76,5	-30%
50	40	95	-40%
63	50	114	-35%
80	60	140	-38%

**CHARACTERISTICS**

Ambient temperature	-20 ÷ 80 °C
Fluid	filtered air, with or without lubrication
Working pressure	1,5 ÷ 10 bar
End-caps	anodized aluminium
Barrel	anodized aluminium
Piston	aluminium
Guide slide	technopolymer
Piston rod	stainless steel (Ø18-25), chromium-plated steel (Ø32÷80)
Piston seal	NBR
Guide bush for piston rod	standard supplied
Piston rod scraper seals	polyurethane
Cushionings	pneumatic adjustable (standard supplied)
Magnet	standard supplied


**CODIFICATION KEY**

O	V	2	0	0	0	3	2	0	0	5	0
1	2	3	4	5							

**1 Series**
**OV** = Ø 18÷80 mm - Oval Cylinders

**2 Type**

- 1 = Stainless steel female piston rod (Ø18÷80)
- 2 = Chromium-plated steel female piston rod (Ø32÷80)
- 3 = Stainless steel male piston rod (Ø18÷80)
- 4 = Chromium-plated steel male piston rod (Ø32÷80)

**3 Version**

- 00 = D.A. Standard version
- 01 = D.A. Through piston rod
- 02 = D.A. Hollow through piston rod

**D.A.** = Double acting

**4 Bore (mm)**
**5 Stroke (mm)**

018 = Ø18	050 = Ø50
025 = Ø25	063 = Ø63
032 = Ø32	080 = Ø80
040 = Ø40	

0010 - 0025 - 0040 - 0050 - 0080 - 0100 - 0125 - 0160 - 0200 (Ø18-25)
0010 - 0025 - 0040 - 0050 - 0080 - 0100 - 0125 - 0160 - 0200 - 0250 - 0320 (Ø 32÷80)

**Theoretical forces (N) developed at working pressure (bar)**

Ø	Working pressure					Working pressure					Cushioning length	
	bar					bar						
	Thrust					Traction						
Ø	2	4	6	8	10	2	4	6	8	10		
18	54	108	162	216	270	41	82	122	163	204	8	
25	98	196	295	393	491	82	165	247	330	412	10	
32	161	322	483	643	804	138	276	415	553	691	10	
40	251	502	754	1005	1256	221	422	633	844	1055	14	
50	393	785	1178	1570	1963	330	660	990	1320	1650	Front 11/Back 14	
63	623	1246	1870	2493	3116	560	1120	1682	2240	2800	Front 11/Back 14	
80	1005	2010	3015	4019	5024	942	1884	2826	3770	4711	Front 20/Back 27	

**FIXING ELEMENTS AND ACCESSORIES**

Ø	Female fork with clips	Articulated self-lubricating fork	Fork with axially mounted articulated pin	Fork with angle mounted articulated pin	Floating joint	Angle bracket	Male hinge	Flange	DF sensor and DHF covering strip	Cable clamping for DF sensor
18									 DF DHF-0020100	 DF-001
	KF-15020	KF-17020	KF-22020	KF-23020	KF-24020	OVF-13018	OVF-11018	OVF-12018		
	KF-15032	KF-17032	KF-22032	KF-23032	KF-24032	OVF-13025	OVF-11025	OVF-12025		
	KF-15032	KF-17032	KF-22032	KF-23032	KF-24032	OVF-13032	OVF-11032	OVF-12032		
	KF-15040	KF-17040	KF-22040	KF-23040	KF-24040	OVF-13040	OVF-11040	OVF-12040		
	KF-15050	KF-17050	KF-22050	KF-23050	KF-24050	OVF-13050	OVF-11050	OVF-12050		
	KF-15050	KF-17050	KF-22050	KF-23050	KF-24050	OVF-13063	OVF-11063	OVF-12063		
	KF-15050	KF-17050	KF-22050	KF-23050	KF-24050	OVF-13080	OVF-11080	OVF-12080		

## CHARACTERISTICS

Ambient temperature	-20 ÷ 80 °C
Fluid	filtered air, with or without lubrication
Working pressure	1,5 ÷ 10 bar
End-caps	aluminium
Barrel	aluminium
Piston	aluminium
Guide slide	technopolymer
Piston rod	stainless steel
Piston seal	NBR
Guide bush for piston rod	standard supplied
Piston rod scraper seal	Polyurethane
Shock absorber seals	NBR (standard supplied)



## CODIFICATION KEY

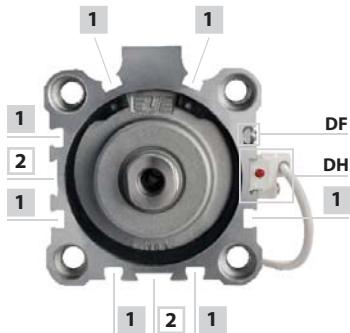
W	1	0	0	0	3	2	0	0	5	0	
1	2	3			4		5		6	7	

1 Series	2 Type	3 Version	4 Bore (mm)	5 Stroke (mm)	6 Option	7 Magnetic
W = Ø 12÷100 mm Short Stroke Cylinders	1 = Stainless steel piston rod 7 = Stainless steel piston rod with male rear hinge, versions 60 and 70 (except for bore Ø12)	00 = D.A. Standard version 01 = D.A. Through piston rod 10 = D.A. Non-rotating piston rod (except for Ø 12) 11 = D.A. Non-rotating through piston rod (except for Ø 12) 31 = D.A. Hollow through piston rod (except for Ø 12-16) 60 = S.A. Retracted piston rod 70 = S.A. Extended piston rod				D.A. = Double acting S.A. = Single acting
012 = Ø12    040 = Ø40 016 = Ø16    050 = Ø50 020 = Ø20    063 = Ø63 025 = Ø25    080 = Ø80 032 = Ø32    100 = Ø100	Single acting 0005 - 0010 (Ø12÷25) 0005 - 0010 - 0025 (Ø32÷100) Double acting 0005 - 0010 - 0020 - 0025 0030 - 0040 - 0050 (Ø12-16) 0005 - 0010 - 0020 - 0025 0030 - 0040 - 0050 - 0075 (Ø20÷100)	S = Safety distance (only for versions 10 and 11)			M = Magnetic version (except for Ø 12)	

## FIXING ELEMENTS AND ACCESSORIES

Ø	Nipple	DF sensor and DHF covering strip	Cable clamping for DF sensor	DH sensor
12	WF-50012			
16	WF-50012			
20	WF-50020			
25	WF-50020			
32	WF-50032			
40	WF-50040			
50	WF-50050			
63	WF-50063			
80	WF-50080			
100	WF-50080			

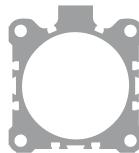
New tube



Traditional tube



1 Groove for DF series recessed sensor  
2 Groove for DH series traditional sensor



Ø 12 mm

Ø 16-20 mm

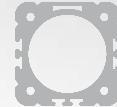
Ø 25-32 mm

Ø 40 mm

Ø 50-63-80-100 mm

**CHARACTERISTICS**

Ambient temperature	-20 ÷ 80 °C
Fluid	filtered air, with or without lubrication
Working pressure	1,5 ÷ 10 bar
End-caps	aluminium
Barrel	aluminium
Piston	die-cast aluminium
Guide slide	acetalic resin
Rack	stainless steel
Piston seal	NBR
Pinion	nitrided steel
Shock absorber seals	NBR
Cushionings	pneumatic adjustable (standard supplied)

**CODIFICATION KEY**

R	1	1	0	3	2	1	8	0	
1	2		3		4		5		

1 Series	2 Type	3 Bore (mm)	4 Angle of rotation	5 Magnetic
R = Ø 32÷125 mm Pneumatic rotary actuators	11 = Male pinion without adjustment (degree of accuracy ± 3°) 12 = Male pinion with adjustment ± 5° 13 = Female pinion without adjustment (degree of accuracy ± 3°) 14 = Female pinion with adjustment ± 5°	032 = Ø32 040 = Ø40 050 = Ø50 063 = Ø63 080 = Ø80 100 = Ø100 125 = Ø125	090 = 90° 180 = 180° 270 = 270° 360 = 360°	M = Magnetic version

**ACCESSORIES**

Ø	DF sensor and DHF covering strip	Cable clamping for DF sensor
32		
40		
50		
63		
80		
100		
125		
	DF DHF-0020100	DF-001

## 1 CHARACTERISTICS

Ambient temperature	-20° ÷ 80 °C
Fluid	filtered air, with or without lubrication, neutral gases
Working pressure	3 ÷ 8 bar (single acting) 2 ÷ 8 bar (double acting)
Connections	NAMUR interface (G1/4)
Rotation	0-90°±3° (external adjustment)
Max pressure	10 bar
End-caps	die-cast aluminium
Piston	die-cast aluminium
Guide slide	acetalic resin
Seals	NBR
Body	hard anodized aluminium extrusion
Pinion	nickel-plated steel
Screws and nuts	stainless steel

Connections: bottom hole for ball valve installation in compliance with ISO 5211/DIN 3337 standards.

Solenoid valve interface, shaft top-end and top hole for accessory fixing in compliance with

VDI/VDE 3845 NAMUR standards.



## CODIFICATION KEY

Y	R	2	0	1	D	A	0
1		2		3			

### 1 Series

**YR2** = Rotary Actuators for Process Automation

### 2 Size (mm)

00 = 32 (DA0 only)	45 = 115
01 = 50	05 = 125
2A = 63 (F04)	55 = 145
2B = 63 (F05)	06 = 160
03 = 75	08 = 200
35 = 85	10 = 250
04 = 100	

### 3 Version

**DA0** = Double acting

**S12** = Single acting - 12 springs standard  
(different number of springs upon request)

### Torque - double acting version (P = 6 bar)

Part No.	Torque (Nm)
YR200DAO	7,3
YR201DAO	17,7
YR22ADA0-YR22BDA0	28,2
YR203DAO	60
YR235DAO	102
YR204DAO	142
YR245DAO	261,6
YR205DAO	333
YR255DAO	473
YR206DAO	680
YR208DAO	1276
YR210DAO	3234

### Torque - single acting version (P = 6 bar)

Part No.	Torque (Nm)	
	0°	90°
YR201S12	10,5	7,2
YR22AS12-YR22BS12	16,8	11,4
YR203S12	36	24
YR235S12	64	39
YR204S12	87	56
YR245S12	159,6	101,6
YR205S12	203	130
YR255S12	303	173
YR206S12	429	260
YR208S12	796	520
YR210S12	1909	1254

■ YR series ball valve



■ AC-N series NAMUR valves



■ AC-N series valves with actuator



## YR3



Ambient temperature: 0 ÷ 50 °C

Working pressure: 1,5 ÷ 7 bar

Rotation angle: 0° ÷ 180°

Version upon request: with shock absorbers Ø 15 ÷ 63  
(add suffix D to part no. e.g. YR3010D)

Part. No.	Ø	Torque (Nm)*	Kinetic energy (J)	Sensor
YR3003	10	0,3	0,002	DF-T
YR3007	12	0,6	0,006	
YR3010	15	1,5	0,006	
YR3020	18	2,2	0,025	
YR3030	20	3,2	0,048	
YR3050	25	5,5	0,080	
YR3070	28	7,5	0,24	
YR3100	32	9,8	0,32	
YR3200	40	19	0,56	
YR3300	50	31	1	
YR3500	63	45	1,5	

\* = Theoretical torque at 5 bar

## Examples of CYLINDER - VALVE assembly

### RV - STRONG cylinder with integrated VDMA valve

STRONG cylinder with integrated 5/2-5/3 VDMA solenoid valve, side 18 or 26 mm.

Supply and exhaust occur directly from the connection plate between valve and cylinder and exhausts are adjustable.

Electrical connection M12 can be operated also from a PLC.



### RW - Telescopic cylinder with integrated VDMA valve

Telescopic cylinder with integrated 5/2-5/3 VDMA solenoid valve, side 18 or 26 mm.

Supply and exhaust occur directly from the connection plate between valve and cylinder and exhausts are adjustable.

Electrical connection M12 can be operated also from a PLC.



### KD series ISO 15552 cylinder with integrated valve

Valve mounting by means of a proper plate embedded in one of tube sensor grooves.



### RS series STRONG cylinder with integrated valve

Valve mounting by means of a proper plate embedded in one of tube sensor grooves.



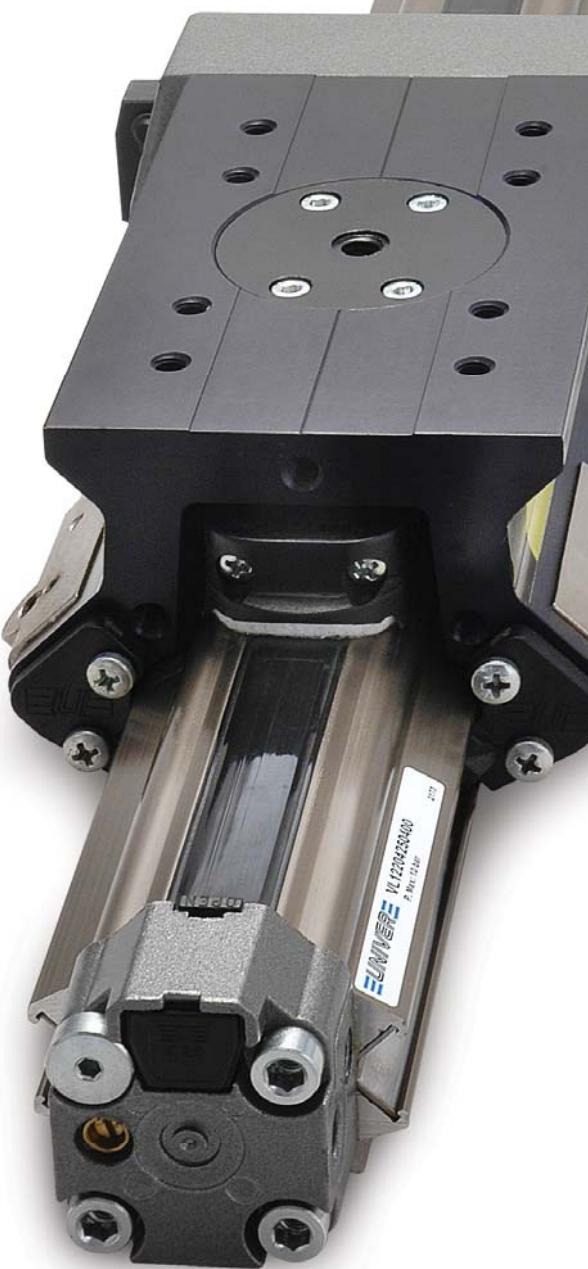
### Plate for mounting valve on sensor groove



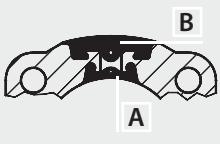
DF-003 (M3)  
DF-004 (M4)

## S1-S5-VL1

Rodless Cylinders



**UNIVER Original since 1988**



- A** - Internal strip (seal)
- B** - External strip (protection) made of reinforced elastomer with Kevlar fiber



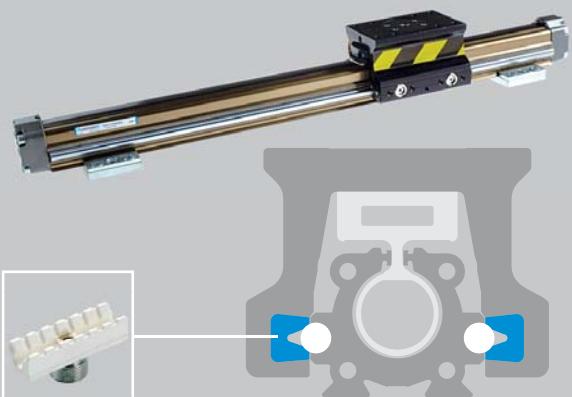
### S1

$\varnothing 16 \div 50 \text{ mm}$  - Standard version



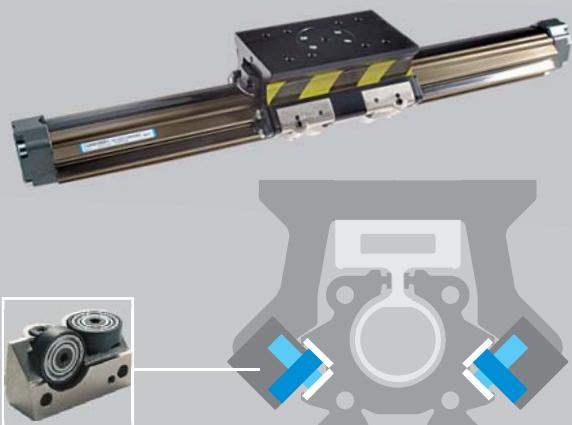
### S5

$\varnothing 25 \div 50 \text{ mm}$  - Version with integrated guides  
Technopolymer sliding guide



### VL1

$\varnothing 25 \div 50 \text{ mm}$  - Version with 90° integrated guides  
Sliding on ball bearings



**Assembly Kit**  
available for all series



## CHARACTERISTICS

Ambient temperature	-20 ÷ 80 °C
Fluid	filtered air, with or without lubrication
Working pressure	3 ÷ 10 bar
End-caps	die-cast light alloy
Barrel	anodized aluminium
Piston	aluminium
Guide slide	acetalic resin
Piston seal	NBR
Shock absorber seals	mechanical
Cushionings	pneumatic adjustable (standard supplied)
Magnet	upon request



## CODIFICATION KEY

S	1	0	1	1	2	5	0	8	5	0	
1	2	3	4	5		6		7			

### 1 Series

**S1** = Ø 16÷50 mm - Rodless Cylinders  
standard version

### 2 Carriage type

0 = Standard carriage  
2 = Medium carriage (except for Ø16)  
3 = Long carriage (except for Ø16)

### 3 Left end-cap supply port

0 = No supply port (both chambers are supplied from the right end-cap)  
1 = Side supply port (except for Ø16)  
2 = Bottom supply port (except for Ø16)  
3 = Rear supply port (except for Ø16)

### 4 Right end-cap supply port

- 1 = Side supply port (except for Ø16)
- 2 = Bottom supply port (except for Ø16)
- 3 = Rear supply port (except for Ø16)
- 4 = Rear supply ports for both chambers on the right end-cap
- 5 = Side supply ports for both chambers on the right end-cap (only for Ø16)

### 5 Bore (mm)

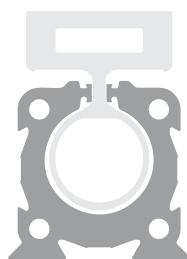
- 16 = Ø18
- 25 = Ø25
- 32 = Ø32
- 40 = Ø40
- 50 = Ø50

### 6 Stroke (mm)

- Up to 5000 (Ø 16)  
Up to 6000 (Ø 25÷50)

### 7 Magnetic

M = Magnetic version standard supplied (Ø 16)  
upon request (Ø 25÷50)



## S1

- Extruded aluminium profile Ø 16 ÷ 50 mm
- Stroke up to 6 m
- Different supply port configurations available
- Different carriage types
- High translation speed 1 ÷ 3 m/s

## FIXING ELEMENTS AND ACCESSORIES

Ø	Bracket for Ø16	Angle bracket for Ø25 ÷ 50	Fixing plate	Oscillating bracket	Female threaded connection	Male threaded pin	Female connection without thread	DF sensor and DHF covering strip	Cable clamping for DF sensor	DH sensor	Bracket for DH sensor
16	SF-13016	-	SF-12016	SF-24016	SF-26016	SF-27016	SF-28016	DF	DF-001	-	DH
25	-	SF-13025	SF-12025	SF-24025	SF-26025	SF-27025	SF-28025	-	-		
32	-	SF-13032	SF-12032	SF-24032	SF-26032	SF-27032	SF-28032	-	-		
40	-	SF-13040	SF-12040	SF-24032	SF-26032	SF-27032	SF-28032	-	-		
50	-	SF-13050	SF-12050	-	-	-	-	-	-		

## CHARACTERISTICS

Ambient temperature	-20 ÷ 80 °C
Fluid	filtered air, with or without lubrication
Working pressure	3 ÷ 10 bar
End-caps	die-cast light alloy
Barrel	anodized aluminium
Piston	aluminium
Guide slide	acetalic resin
Piston seal	NBR
Shock absorber seals	mechanical
Cushionings	pneumatic adjustable (standard supplied)



## CODIFICATION KEY

S	5	0	1	1	2	5	0	8	5	0
1	2	3	4	5		6				

**1 Series**

**S5** = Ø 25÷50 mm - Rodless Cylinders  
with integrated guides  
Technopolymer sliding guide

**2 Carriage type**

**0** = Standard carriage (except Ø 40-50)  
**2** = Medium carriage  
**3** = Long carriage

**3 Left end-cap supply port**

**0** = No supply port (both chambers are supplied from the right end-cap)  
**1** = Side supply port  
**2** = Bottom supply port  
**3** = Rear supply port

**4 Right end-cap supply port**

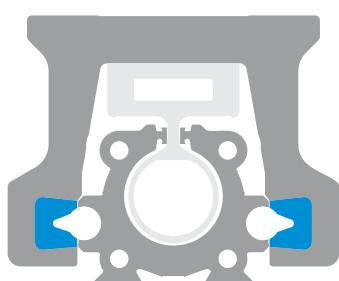
**1** = Side supply port  
**2** = Bottom supply port  
**3** = Rear supply port  
**4** = Rear supply ports for both chambers on the right end-cap

**5 Bore (mm)**

**25** = Ø25  
**32** = Ø32  
**40** = Ø40  
**50** = Ø50

**6 Stroke (mm)**

Up to **6000**


**S5**

- Extruded aluminium profile Ø 25 ÷ 50 mm
- Stroke up to 6 m
- Flexible guide system
- Sliding of the carriage with plastic slide on steel shafts
- Translation speed 0,2 ÷ 1,5 m/sec.
- Version with locking unit available

## FIXING ELEMENTS

Ø	Angle bracket	Fixing plate
25		
32		
40		
50		

**S5 with L6 locking unit**


## CHARACTERISTICS

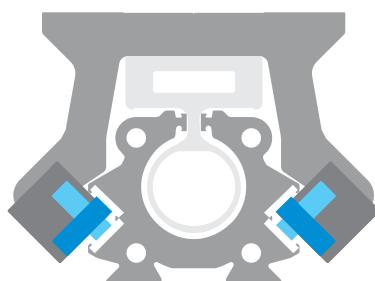
Ambient temperature	-20 ÷ 80 °C
Fluid	filtered air, with or without lubrication
Working pressure	3 ÷ 10 bar
End-caps	die-cast light alloy
Barrel	anodized aluminium
Piston	aluminium
Guide slide	acetalic resin
Piston seals	NBR
Shock absorber seals	mechanical
Cushionings	pneumatic adjustable (standard supplied)



## CODIFICATION KEY

V	L	1	2	2	1	1	3	2	0	8	5	0
1	2	3	4	5	6	7						

1 Series	2 Carriage type	3 No. of ball bearing pairs standard supplied
VL1 = Ø 25÷50 mm - Rodless Cylinders with 90° integrated guides Sliding on ball bearings	2 = Medium carriage 3 = Long carriage	Medium carriage   Long carriage 2 = Ø 25÷40      3 = Ø 25÷40 3 = Ø 50            4 = Ø 50
4 Left end-cap supply port	5 Right end-cap supply port	6 Bore (mm)      7 Stroke (mm)
0 = No supply port (both chambers are supplied from the right end-cap) 1 = Side supply port 2 = Bottom supply port 3 = Rear supply port	1 = Side supply port 2 = Bottom supply port 3 = Rear supply port 4 = Rear supply ports for both chambers on the right end-cap	25 = Ø25      Up to 6000 32 = Ø32 40 = Ø40 50 = Ø50



## VL1

- Extruded aluminium profile Ø 25 ÷ 50 mm
- Stroke up to 6 m
- Heavy duty precision series
- Rigid guide system
- Sliding of the carriage on ball bearings
- Translation speed 0,2 ÷ 2 m/sec.
- Version with locking unit available

## FIXING ELEMENTS

Ø	Angle bracket	Fixing plate
25		
32		
40		
50		



**J** | Slide Units**STRONG**

Extruded aluminium profile structure  
UNIVER Original

**STURDY**

Oversized hollow guiding shafts  
made of chromium-plated steel

**SMOOTH SLIDING**

Self-lubricating guiding bushes  
made of special steel

**STANDARD**

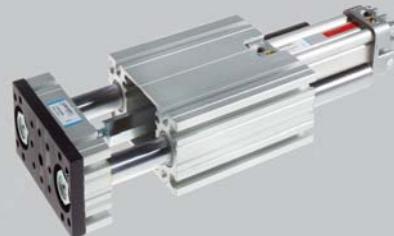
Wide range of standard solutions  
for any application requirement

**J1**

ISO 6432 Cylinders



ISO 15552 Cylinders

**J3**

Rodless Cylinders

**J64RS**

STRONG Cylinders

**J64RT2**

Telescopic Cylinders



Assembly Kit  
available for all series



**CHARACTERISTICS**

Ambient temperature	-20 ÷ 80 °C
Fluid	filtered air, with or without lubrication
Working pressure	2 ÷ 10 bar
Barrel	extruded anodized aluminium
Guide bush for piston rod	special steel
Shafts	chromium-plated steel
Shaft scraper seals	polyurethane
Flange	steel

**Slide Units for M, KE/K, KD series cylinders****J1****CODIFICATION KEY**

J	1	0	A	5	5	0	0	5	0	A
1	2	3	4	5		6		7		

**1 Series**

J = Slide Unit

**2 Type**

- 10 = Protruding shafts and short housing (recommended for strokes up to 50 mm)
- 11 = Protruding shafts and medium housing
- 12 = Protruding shafts and long housing
- 14 = Fully protected cylinder
- 16 = Central mounting (semi-external cylinder)
- 17 = Central mounting (fully protected cylinder)
- 18 = Medium moving housing (external cylinder)
- 19 = Long moving housing (external cylinder)

**3 Accessories**

A = Shaft scrapers standard supplied

**4 Slide unit size**

- 0 = 16 for Ø16 cylinders
- 2 = 25 for Ø25 cylinders
- 3 = 32 for Ø32 cylinders
- 4 = 40 for Ø40 cylinders
- 5 = 50 for Ø50 cylinders
- 6 = 63 for Ø63 cylinders
- 7 = 80 for Ø80 cylinders
- 8 = 100 for Ø100 cylinders

**5 Cylinder bore (mm)**

- 0 = Ø16
- 2 = Ø25
- 3 = Ø32
- 4 = Ø40
- 5 = Ø50
- 6 = Ø63
- 7 = Ø80
- 8 = Ø100

**6 Cylinder stroke (mm)**

- M  
0025 - 0030 - 0040 - 0050 - 0075  
0100 - 0125 - 0150 - 0160 - 0175  
0200 - 0250 - 0300 - 0400 - 0500
- KD - KE/K  
0025 - 0050 - 0075 - 0080 - 0100  
0125 - 0150 - 0160 - 0175 - 0200  
0250 - 0300 - 0320 - 0400 - 0450  
0500 - 0600 - 0700 - 0800 - 0900  
1000

**7 Cylinder option**

- A = M150 series Ø16÷25 microcylinders  
K200 series Ø32÷100 cylinders
- B = M250 series Ø16÷25 microcylinders with locking unit  
K200 series Ø32÷100 cylinders with locking unit  
(only for J12, J14, J16, J17)
- C = KE200 series Ø 32÷100 cylinders
- D = KE200 series Ø 32÷100 cylinders with locking unit (only for J12, J14, J16, J17)
- E = KD200 series Ø32÷100 cylinders (except for J14 and J17)
- F = KD200 series Ø32÷100 cylinders with locking unit (only for J12 and J16)

**Slide units are supplied with integrated cylinder**

## Slide Units for S1 series rodless cylinders

**J3**

## CODIFICATION KEY

J	3	0	A	5	3	0	1	0	0	A
1	2	3	4	5		6		7		

**1 Series**

J = Slide Unit

**2 Type**

30 = Fully protected cylinder (2 bearings - standard carriage)

31 = Fully protected cylinder (2 bearings - long carriage)

**3 Accessories**

A = Shaft scrapers standard supplied

**4 Slide unit size**

- 4 = 40 for Ø25 cylinders  
 5 = 50 for Ø32 cylinders  
 6 = 63 for Ø40 cylinders  
 7 = 80 for Ø50 cylinders

**5 Cylinder bore (mm)**

- 2 = Ø25  
 3 = Ø32  
 4 = Ø40  
 5 = Ø50

**6 Slide unit stroke (mm)**

Up to 0800

**7 Supply port option**

- A = Supply ports on both end-caps  
 B = Supply ports on the right end-cap only

## Slide Units for RS series STRONG compact cylinders

**J64RS**

## CODIFICATION KEY

J	6	4	R	S	3	3	0	0	5	0	B
1	2		3	4	5		6		7		

**1 Series**

- J = Slide Unit - Shaft scrapers standard supplied

**2 Slide unit type**

- 64 = Fully protected cylinder (stroke longer than 50 mm)  
 65 = Fully protected cylinder, through opening  
 66 = Fully protected cylinder, through opening, two plates  
 67 = Fully protected cylinder, two plates (stroke longer than 50 mm)

**3 Cylinder type**

- RS = STRONG cylinder (RS22J... series) with long piston and tube with sensor grooves on the same side as supply ports to allow mounting of magnetic sensors

**4 Slide unit size**

- 3 = 32 for Ø32 cylinders  
 4 = 40 for Ø40 cylinders  
 5 = 50 for Ø50 cylinders  
 6 = 63 for Ø63 cylinders

**5 Cylinder bore (mm)**

- 3 = Ø32  
 4 = Ø40  
 5 = Ø50  
 6 = Ø63

**6 Slide unit stroke (mm)**

0015 ÷ 0800

**7 Cylinder option**

- A = Cylinder with long piston  
 B = Cylinder with long piston and locking unit

Slide units are supplied with integrated cylinder

## Slide Units for RT2 series telescopic cylinders

## ■ J64RT2



## CODIFICATION KEY

J	6	4	R	T	2	4	4	0	8	0	0	A
1	2	3	4	5	6	7						

## 1 Series

J = Slide Unit - Shaft scrapers  
standard supplied

## 2 Slide unit type

64 = Fully protected telescopic cylinder

## 3 Cylinder type

RT2 = 2 stage telescopic cylinders

## 4 Slide unit size

3 = 32 for Ø32 cylinders  
4 = 40 for Ø40 cylinders  
5 = 50 for Ø50 cylinders  
6 = 63 for Ø63 cylinders

## 5 Cylinder bore (mm)

3 = Ø32  
4 = Ø40  
5 = Ø50  
6 = Ø63

## 6 Slide unit stroke (mm)

Standard stroke  
0120 - 0160 - 0180 - 0200 - 0300 - 0400 - 0500  
0600 - 0700 - 0800 - 0900 - 1000 - 1100 - 1200

## 7 Cylinder option

A = 2 stage telescopic cylinders

Min - Max stroke  
0160 ÷ 0400 (Ø32)  
0160 ÷ 0600 (Ø40)  
0120 ÷ 0900 (Ø50)  
0120 ÷ 1200 (Ø63)

## Slide Units for RP series compact cylinders

## ■ J65



## CODIFICATION KEY

J	6	5	R	P	2	2	0	0	5	0	A
1	2	3	4	5	6	7					

## 1 Series

J = Slide Unit - Shaft scrapers  
standard supplied

## 2 Slide unit type

65 = Fully protected cylinder, through opening

## 3 Cylinder type

RP = UNITOP Ø25 mm compact cylinder

## 4 Slide unit size

2 = 25 for Ø25 cylinders

## 5 Cylinder bore (mm)

2 = Ø25

## 6 Slide unit stroke (mm)

0050 ÷ 0200

## 7 Cylinder option

A = Cylinder with long piston

Slide units are supplied with integrated cylinder

**CHARACTERISTICS**

Ambient temperature	-5 ÷ +60 °C
Fluid	filtered air, with or without lubrication
Working pressure	1 ÷ 10 bar
Body	aluminium alloy
Shafts	chromium-plated steel (JLS) hardened and chromium-plated steel (JLV)
Piston	aluminium alloy
Piston rod	chromium-plated stainless steel AISI 303 (Ø12-16-20) chromium-plated steel C45 (Ø25-32-40-50-63)
Guide bearing	bearings (JLS) ball bushing (JLV)
Piston seal	NBR
Cushion seals	NBR
Magnet	standard supplied
Flange	steel

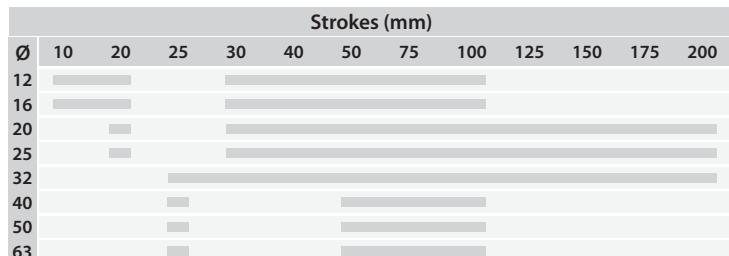
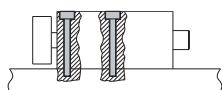
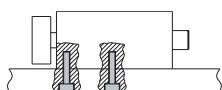
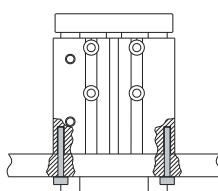
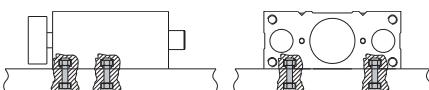
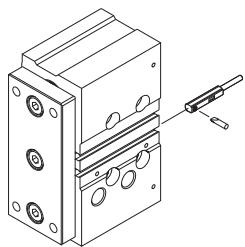

**CODIFICATION KEY**

J	L	S	0	1	2	0	0	3	0
1	2	3			4				

**1 Series**
**JL** = Guided Compact Cylinders

**2 Guide bearing**
**S** = Bearings  
**V** = Ball bushing

**3 Bore (mm)**
**012** = Ø12    **032** = Ø32  
**016** = Ø16    **040** = Ø40  
**020** = Ø20    **050** = Ø50  
**025** = Ø25    **063** = Ø63

**4 Stroke (mm)**
**0010** = 10    **0075** = 75  
**0020** = 20    **0100** = 100  
**0025** = 25    **0125** = 125  
**0030** = 30    **0150** = 150  
**0040** = 40    **0175** = 175  
**0050** = 50    **0200** = 200

**Fixing schemes**
**Top fixing**

**Bottom fixing**

**Rear fixing**

**T-slot fixing**

**DF-R magnetic sensor**
**DF-R200L02**  
**DF-R200M08**
**Mounting scheme**

**Upon request**
**Version with metallic piston rod scraper**


## Ø 6 ÷ 32 mm - Twin Rod Guided Cylinder

JT



Ambient temperature: -5 ÷ 60 °C

Stroke adjustment: 0 ÷ 5 mm

Part No.	Ø	Working pressure (bar)	Theoretical thrust force (N)*		Standard stroke (mm)	Max stroke (mm)	Sensor
			Thrust	Traction			
JTS006 JTV006	6	1,5 - 7	28	15,5	10-20-30	50	DF-R200
JTS012 JTV012	12	1 - 7	113	84	10-15-20-25-30 35-40-45-50-60-70	70	
JTS016 JTV016	16	1 - 7	200	150		120	
JTS020 JTV020	20	0,5 - 7	314	236		130	
JTS025 JTV025	25	0,5 - 7	490	378		150	
JTS032 JTV032	32	0,5 - 7	802	603		150	

S = Bearings

V = Ball bushing

\* = Theoretical thrust force at 5 bar

## Ø 6 ÷ 20 mm - Pneumatic Mini Slide Unit

JX1



Part No.	Ø	Working pressure (bar)	Theoretical thrust force (N)*		Standard stroke (mm)	Sensor
			Thrust	Traction		
JX1006	6	1,2 - 7	14,2	10,6	5-10-15-20-25 30-40-50-60	DF-R200
JX1010	10	0,6 - 7	39,3	33		
JX1016	16	0,6 - 7	101	86		
JX1020	20	0,5 - 7	157	132		

\* = Theoretical thrust force at 5 bar

Ambient temperature: -5 ÷ 60 °C

Embodied linear guide

## Ø 8 ÷ 25 mm - Slide Table Actuator

JX2



Part No.	Ø	Working pressure (bar)	Theoretical thrust force (N)*		Standard stroke (mm)	Sensor
			Thrust	Traction		
JX2006	6	1,5 ÷ 7	25	20	10-20-30-40-50	DF-T200
JX2008	8		51	38	10-20-30-40-50-75	
JX2012	12		113	85	10-20-30-40-50-75-100	
JX2016	16		201	151	10-20-30-40-50-75-100-125	
JX2020	20		314	236	10-20-30-40-50-75-100-125-150	
JX2025	25		491	380	10-20-30-40-50-75-100-125-150	

\* = Theoretical thrust force at 5 bar

Ambient temperature: 0 ÷ 60 °C

Versions upon request:

with stroke adjusting screw (add suffix R to part no. e.g. JX2008R)

with hydraulic shock absorbers Ø 8 ÷ 25 (add suffix D to part no. e.g. JX2008D)

## 1 Self-compensating

### ■ YDA



Part No.	Thread	Stroke (mm)	Max energy per cycle (Nm)	Max energy per hour (Nm)	Max effective mass (Kg)	Max impact speed (m/s)	Stop collar
YDA0806	M8 x 1	6	3	7000	6	0,3-2,5	YDG08
YDA1007	M10 x 1	7	6	12400	12	0,3-3,5	YDG10
YDA1210	M12 x 1	10	12	22500	22	0,3-4	YDG12
YDA1412	M14 x 1,5	12	20	33000	40	0,3-5	YDG14
YDA2015	M20 x 1,5	15	59	38000	120	0,3-5	YDG20
YDA2525	M25 x 1,5	25	80	60000	180	0,3-5	YDG25
YDA2725	M27 x 1,5	25	147	72000	270	0,3-5	YDG27

Special strokes upon request

Ambient temperature: -10 ÷ 80 °C

Body: steel

Piston rod: chromium-plated carbon steel

Piston: carbon steel

## Adjustable

### ■ YDR



Part No.	Thread	Stroke (mm)	Max energy per cycle (Nm)	Max energy per hour (Nm)	Max effective mass (Kg)	Max impact speed (m/s)	Stop collars
YDR1415	M14 x 1,5	15	22	26400	80	3	YDG14
YDR2025	M20 x 1,5	25	39	30000	312	3,5	YDG20
YDR2525	M25 x 1,5	25	85	54000	400	3,5	YDG25
YDR2540	M25 x 1,5	40	40	80000	700	3,5	YDG25L
YDR3625	M36 x 1,5	25	25	81000	1400	3,5	YDG36
YDR3650	M36 x 1,5	50	50	100000	1400	3,5	YDG36

Special strokes upon request

Ambient temperature: -10 ÷ 80 °C

Body: steel

Piston rod: chromium-plated carbon steel

Piston: carbon steel

## ISO 6432

**M**

Ø 8 ÷ 25 mm Microcylinders



## ISO 15552

**KL**

Ø 32 ÷ 125 mm Pneumatic Cylinders


**K/KE/KD**

Ø 32 ÷ 125 mm Pneumatic Cylinders


**K Ø 160-200**

Ø 160 - 200 mm Pneumatic Cylinders



## ISO 21287

**RP-RM** $\varnothing 16 \div 100$  mm Compact Cylinders**RO-RN** $\varnothing 16 \div 63$  mm Compact Cylinders**RS** $\varnothing 32 \div 100$  mm STRONG Cylinders**RQ** $\varnothing 32 \div 63$  mm STRONG Cylinders

## Rodless cylinders

**S1**

Ø 16 ÷ 50 mm Rodless Cylinders  
standard version

**S5**

Ø 25 ÷ 50 mm Rodless Cylinders with integrated guides  
technopolymer sliding guide

**VL1**

Ø 25 ÷ 50 mm Rodless Cylinders with integrated guides 90°  
sliding on ball bearings





## 2

## High-Tech



Locking Units

L1-N  
L63  
4

Telescopic Cylinders

RT

6



Pneumatic Actuators

NTZ  
NQZ  
NFZ8  
8  
9

Pneumatic Grippers

YMA  
YMP10/11  
10/11

**ORIGINAL**

Locking system UNIVER Original since 1998

**STATIC/DYNAMIC**

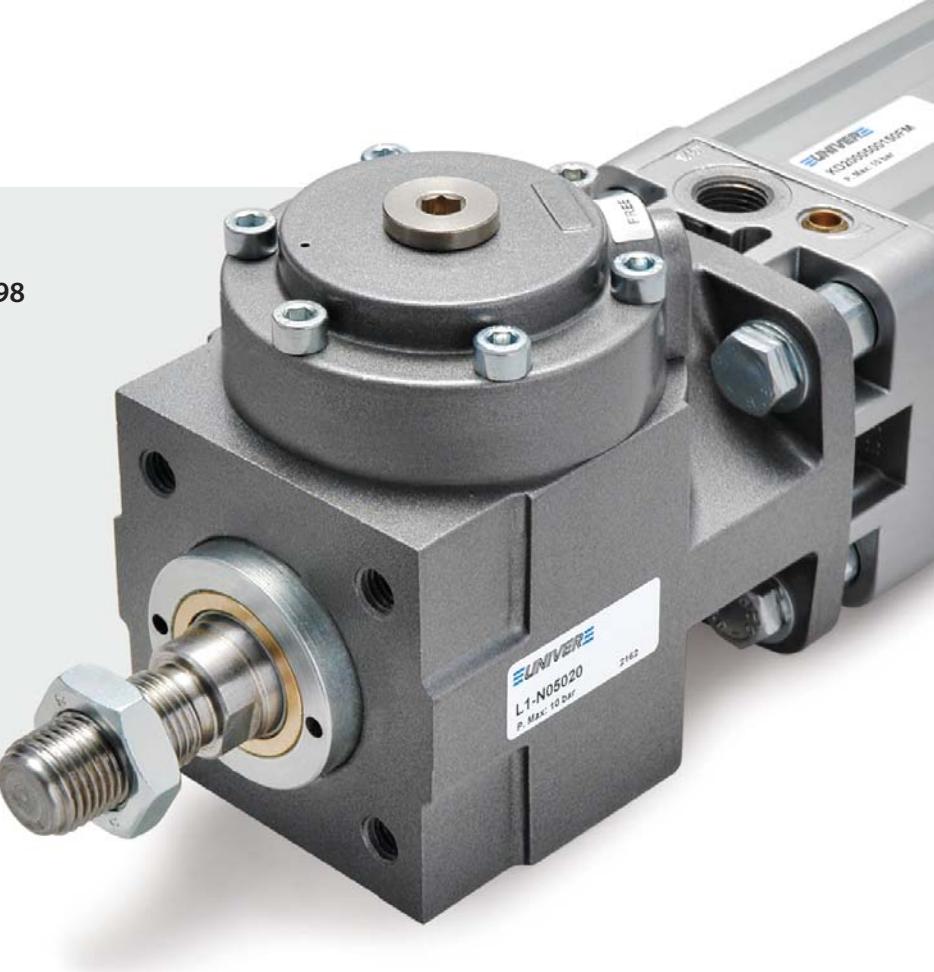
Static locking and dynamic braking in a single device

**POWERFUL**

The highest locking force among market equivalent devices

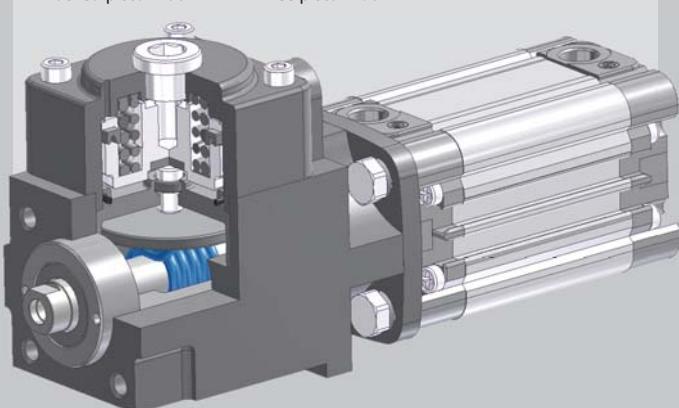
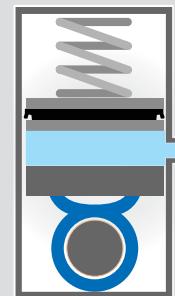
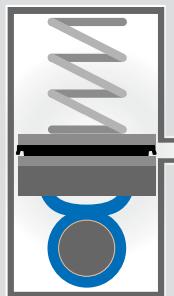
**SAFE**

No rod slipping even if affected by oil and grease

**L1-N**

For cylinders Ø 16 ÷ 125 mm

For piston rods Ø 6 ÷ 32 mm

**M****KL****KE/K****KD****RS****Working principle**

**CHARACTERISTICS**

Ambient temperature	-20 ÷ 30 °C
Fluid	filtered air, with or without lubrication
Working pressure	4 ÷ 10 bar
Body	die-cast aluminium
Cover	die-cast aluminium
Piston	aluminium
Seals	NBR
Springs	special steel

M, KL, KE/K, KD, RS series cylinders


**CODIFICATION KEY**

L	1	-	N	0	6	3	2	0	
1			2		3		4		

1 Series	2 Cylinder bore (mm)	3 Piston rod bore (mm)	4 Option
L1-N = Locking unit for cylinders and piston rods	016 = Ø16    050 = Ø50 020 = Ø20    063 = Ø63 025 = Ø25    080 = Ø80 032 = Ø32    100 = Ø100 040 = Ø40    125 = Ø125	06 = Ø6    16 = Ø16 08 = Ø8    20 = Ø20 10 = Ø10    25 = Ø25 12 = Ø12    32 = Ø32	K = Metallic piston rod scraper upon request

## Core features and performance

Ø	Ø rod (mm)	Static locking force	Pressure on the equivalent cylinder	Dynamic braking force	Response time at 6 bar	Stopping point repeatability	Vibration resistance	Shock resistance	Minimum release pressure
		N	bar	at 1m/s	ms		J	bar	
16	6	200	10	40% of the static locking force	12	< 1 mm at 1 m/s 10 g (10-55 Hz) for 30 minutes on each axis	10 g (10-55 Hz) for 30 minutes on each axis	2	4
20	8	314			12			3	
25	10	490			15			4	
32	12	800			20			5	
40	16	1260			20			8	
50	20	2000			25			11	
63	20	3100			25			15	
80	25	5000			30			21	
100	25	7850			30			29	
125	32	12300			40			40	

## ■ NFZ 160/200

ISO 15552 cylinders with integrated locking unit



## ■ Locking unit with optical positional device



## CHARACTERISTICS

Ambient temperature	-20 ÷ +80 °C
Fluid	filtered air, with or without lubrication
Working pressure	4,5÷10 bar
Body	die-cast aluminium
Seals	NBR
Internal parts	brass/aluminium

UNIVER Locking Units for rodless cylinders perform the function of keeping the carriage in any intended point of its stroke and allow high locking accuracy.

They can be mounted on both sides of the carriage and the mechanical braking force can be further increased by means of an additional pneumatic override.



## CODIFICATION KEY

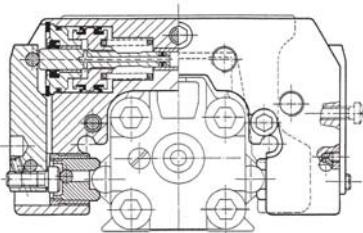
L	6	-	S	5	0	3	2
1			2				

**1 Series**

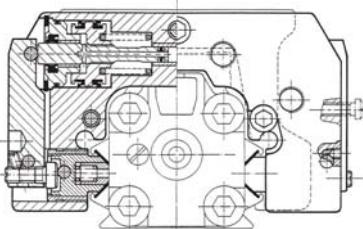
**L6-S5** = Locking Units for S5 series rodless cylinder  
**L6-V1** = Locking Units for VL1 series rodless cylinder

**2 Cylinder bore (mm)**

**025** = Ø25  
**032** = Ø32  
**040** = Ø40  
**050** = Ø50

**S5 series with locking unit**


- Min. release pressure: 4,5 bar
- Able to keep the carriage in position in both directions
- Easy to be mounted on both sides of the carriage
- Permanent manual release by means of 2 screws M5
- Locking performed by mechanical springs in absence of air
- Preset for additional pneumatic override to increase locking force

**VL1 series with locking unit**


## RT Telescopic Cylinders

### ORIGINAL

UNIVER Original design and technology

### INDUSTRIALIZED

Industrialized components and advanced technology

### REDUCED DIMENSIONS

60% less than standard cylinders

### NON-ROTATING

Anti-rotation octagonal tube standard supplied



### RT2

2 stages Ø 25 ÷ 63 mm

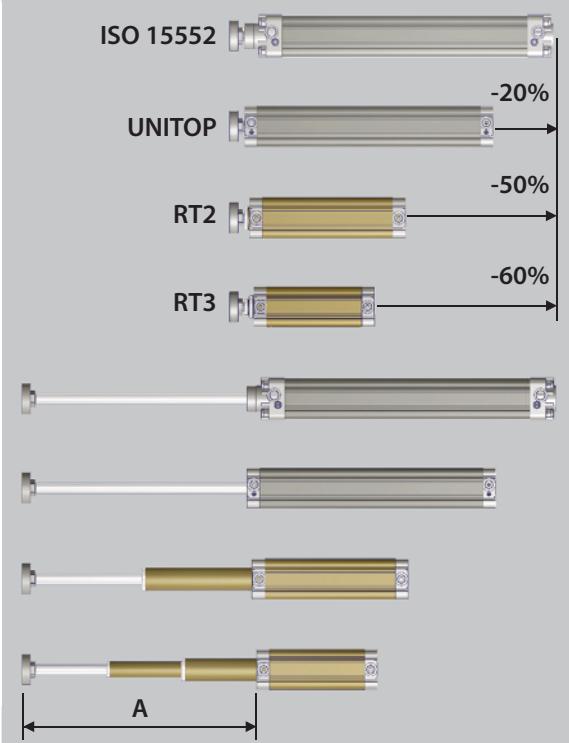


### RT3

3 stages Ø 40 ÷ 63 mm



Comparison of overall dimensions  
stroke 300 mm (A)



## CHARACTERISTICS

Ambient temperature	-20 ÷ +80 °C
Fluid	filtered air, with or without lubrication
Working pressure	1,5 ÷ 10 bar
End-caps	die-cast aluminium
Barrel	internally/externally anodized aluminium
Piston	aluminium
Guide slide	acetalic resin
Piston rod	non-rotating, chromium-plated steel, with flange (female piston rod) stainless steel upon request
Piston seals	NBR
Guide bush for piston rod	acetalic resin
Shock absorber seals	NBR
Magnet	standard supplied (stage 1)



Telescopic cylinders work under optimal conditions when the load is in axial position, i.e. when the cylinder is placed vertically, working either upward or downward. They can obviously work also horizontally and cantilevered, but in this case it is needed to:

- Reduce the maximum stroke by 50% compared to nominal maximum strokes
- Request cylinders with slide units
- Support the radial load by means of other devices such as carriages, slides or sliding guides

## CODIFICATION KEY

R	T	2	2	0	0	3	2	0	6	0	0	
1	2	3	4	5		6		7				

1 Series	2 Rod	3 Stages	4 Type
RT = Ø 25÷63 mm - 2/3 Stage Telescopic Pneumatic Cylinders (with non-rotating piston rod and elastic shock absorber seals)	1 = Stainless steel piston rod 2 = Chromium-plated steel piston rod	2 = 2 stages 3 = 3 stages	0 = D.A. Female piston rod with flange 3 = D.A. Male piston rod
			D.A. = Double acting
5 Bore (mm)	6 Stroke (mm)	7 Option	
2 stages      3 stages	2 stages 0100 - 0120 - 0160 - 0180 - 0200 - 0300 - 0400 0500 - 0600 - 0700 - 0800 - 0900 - 1000 - 1100 - 1200 Max stroke: 0300 (Ø25)      0900 (Ø50) 0400 (Ø32)      1200 (Ø63) 0600 (Ø40)	I = Without flange (only for female piston rod) L = Freely rotating piston rod M = With telescopic magnetic shaft (stage 2-3) except for Ø 25, only for female piston rod	
025 = Ø25      040 = Ø40 032 = Ø32      050 = Ø50 040 = Ø40      063 = Ø63	3 stages 0150 - 0180 - 0210 - 0240 - 0270 - 0300 - 0360 - 0450 0600 - 0750 - 0900 - 1000 - 1100 - 1200 Max stroke: 1200 (Ø40) 1500 (Ø50) 1800 (Ø63)		

Nominal tolerance on stroke (**mm**) and  
maximum applicable torque (**Nm**) for  
non-rotating piston rod

Theoretical forces at 6 bar (**N**)  
**(2 stages)**

Theoretical forces at 6 bar (**N**)  
**(3 stages)**

Ø	Tolerances		Applicable torque	
	mm		Nm	
	2 stages	3 stages	2 stages	3 stages
25	+2/0	+4/0	0,5	-
32	+3,2/0	+4/0	0,8	-
40	+3,2/0	+4/0	1	0,5
50	+3,2/0	+4/0	2	0,8
63	+3,2/0	+4/0	3	1

Ø	Available surface		Working pressure	
	mm <sup>2</sup>		bar	
	thrust	traction	thrust	traction
25	201	111	123	65
32	314	201	192	123
40	490	377	300	231
50	804	603	492	369
63	1256	1055	769	649

Ø	Available surface		Working pressure	
	mm <sup>2</sup>		bar	
	thrust	traction	thrust	traction
40	201	111	123	65
50	314	201	192	123
63	490	377	300	231

## FIXING ELEMENTS AND ACCESSORIES

Ø	Female hinge with pin	Counter hinge 90° (CETOP)	Male articulated hinge	Rear male hinge	Front / rear flange	Angle bracket	DF sensor and DHF covering strip	Cable clamping for DF sensor
25								
32	-	-	-	RPF-11025	RTF-12025	RTF-13025		
40	KF-10032A	KF-19032	KF-11032S	KF-11032	KF-12032	KF-13032		
50	KF-10040A	KF-19040	KF-11040S	KF-11040	KF-12040	KF-13040		
63	KF-10050A	KF-19050	KF-11050S	KF-11050	RTF-12050	RTF-13050		
	KF-10063A	KF-19063	KF-11063S	KF-11063	RTF-12063	RTF-13063		
							DF DHF-0020100	DF-001

## NTZ-NQZ-NFZ

Intelligent Pneumatic  
Actuators



## NTZ

Pneumatic actuator with integrated digital  
measuring detector and safety locking device  
 $\varnothing 32 \div 63 \text{ mm}$



## NQZ

Pneumatic actuator with digital measuring  
system  
 $\varnothing 32 \div 63 \text{ mm}$



## NFZ

Pneumatic actuator with integrated safety  
locking device  
 $\varnothing 32 \div 63 \text{ mm}$



## Pneumatic actuator with integrated digital measuring system and safety locking device

2

### NTZ



The system does not need to be connected to the moving part of the mechanism, as movement is generated by an internal piston with bidirectional pneumatic function. Such piston, operated by a 5-way valve, moves autonomously until it meets the obstacle, thus measuring the stopping position. Position detection is obtained by the transformation of the translation movement of the piston rod into the rotary movement of the screw, by means of screw-female screw coupling. Then the encoder turns the rotation into a sequence of electrical impulses.

The piston and the encoder body need to be fixed, i.e. must not move regardless of screw rotation. This is the reason why the cylinder has been designed with octagonal piston and properly modified non-rotating piston rod.

The speed of the impact against the obstacle is limited by proper calibrated reducers which are embodied in the actuator, while the translation speed can be suitably controlled by means of a standard flow regulator.

For the indicated repeatability of reading to be guaranteed, the translation speed needs to be kept as constant as possible.

Main application fields are: mechanisation, palletization and automation of operating machines.

Max speed: 1 m/s

Repeatability accuracy: ± 0,3 mm

### CODIFICATION KEY

N	T	Z	0	3	2	0	3	5	0
1			2			3			

#### 1 Series

**NTZ** = Ø 32÷63 mm - Pneumatic actuator with integrated digital measuring system and safety locking device

#### 2 Bore (mm)

**032** = Ø32  
**040** = Ø40  
**050** = Ø50  
**063** = Ø63

#### 3 Max stroke (mm)

**0350** (Ø32)  
**0450** (Ø40)  
**0600** (Ø50)  
**0750** (Ø63)

## Pneumatic actuator with digital measuring system

### NQZ



Pneumatic actuators with digital measuring system are particularly suitable for:

- Detection of stopping position
- Anti-collision control in critical sequencing cycles
- Level control in palletization / de-palletization of piled objects
- Identification, classification and dimensional selection of objects (tolerances and rejects)
- Certification stations of machined pieces or tool breaking on machines for chip removal

The device can be used as both digital measuring detector and pneumatic actuator with digital measuring system

Max speed: 0,2 m/s (detector) 0,8 m/s (actuator)

Repeatability accuracy: ± 0,02 mm

### CODIFICATION KEY

N	Q	Z	0	3	2	0	3	5	0
1			2			3			

#### 1 Series

**NQZ** = Ø 32÷63 mm - Pneumatic actuator with integrated digital measuring system

#### 2 Bore (mm)

**032** = Ø32  
**040** = Ø40  
**050** = Ø50  
**063** = Ø63

#### 3 Max stroke (mm)

**0350** (Ø32)  
**0450** (Ø40)  
**0600** (Ø50)  
**0750** (Ø63)

## Pneumatic actuator with integrated safety locking device

### NFZ



Locking device embodied in the cylinder rear part in axial position.  
High repeatability and intervention speed (16 m/s).

#### Recommended application:

Emergency braking intervention at the speed allowed by the cylinder; for repeated functioning, as locking unit or braking intervention  $\leq 50$  mm/s.

Piston rod holding force (without axial backlash):  $\geq$  3 times the thrust of a cylinder supplied at 6 bar.

Locking force independent from ambient conditions or piston rod maintenance.

Locking device passive functioning, in absence of signal and/or air supply.

Minimum pressure:  $\geq$  3 bar

## CODIFICATION KEY

N	F	Z	0	3	2	0	3	5	0
1			2			3			

### 1 Series

**NFZ** =  $\emptyset$  32÷63 mm - Pneumatic actuator with integrated safety locking device

### 2 Bore (mm)

**032** =  $\emptyset$  32  
**040** =  $\emptyset$  40  
**050** =  $\emptyset$  50  
**063** =  $\emptyset$  63

### 3 Max stroke (mm)

**0350** ( $\emptyset$  32)  
**0450** ( $\emptyset$  40)  
**0600** ( $\emptyset$  50)  
**0750** ( $\emptyset$  63)

## Angular Pneumatic Gripper

2

### ■ YMA10



Part No.	$\emptyset$	Gripping force (Nm)*		Max arm length L (mm)	Sensor
		Opening	Closing		
YMA10-12	12	0,25	0,2	30	DF-R 200
YMA10-16	16	0,6	0,45	40	
YMA10-20	20	1,15	0,85	60	
YMA10-25	25	2,25	1,7	70	
YMA10-32	32	4,05	3,05	85	

\* = Gripping force at 5 bar

L = Gripping point 30 mm

**Working pressure:** 1,5 ÷ 7 bar  
**Ambient temperature:** -5 ÷ 60 °C  
**Max frequency (cycles/min):** 180  
**Opening angle:** +30° -10°

## Parallel Pneumatic Gripper

### ■ YMP10



Part No.	$\emptyset$	Gripping force (N)*		Max arm length L (mm)	Stroke open/close (mm)	Sensor
		Opening	Closing			
YMP10-12	12	8	5	30	6	DF-R 200
YMP10-16	16	24	17	40	8	
YMP10-20	20	46	33	60	12	
YMP10-25	25	73	57	70	14	
YMP10-32	32	98	81	85	16	

\* = Gripping force at 5 bar

L = Gripping point 30 mm

**Working pressure:** 1,5 ÷ 7 bar  
**Ambient temperature:** -5 ÷ 60 °C  
**Max frequency (cycles/min):** 180

## 180° Angular Pneumatic Gripper

### ■ YMA20



Part No.	$\emptyset$	Gripping force (N)*	Max arm length L (mm)	Sensor
YMA20-10	10	6	60	DF-T 200
YMA20-16	16	20	70	
YMA20-20	20	36	80	
YMA20-25	25	78	90	

\* = Gripping force at 5 bar

L = Gripping point 30 mm

**Working pressure:** 1 ÷ 6 bar  
**Ambient temperature:** -10 ÷ 60 °C  
**Max frequency (cycles/min):** 60  
**Repeatability:** ± 0,2  
**Opening angle:** +180°~182° / -3°

## Parallel Pneumatic Gripper with Linear Guide

## ■ YMP20



Part No.	$\emptyset$	Pressure (bar)	Max frequency (cycles/min)	Repeatability (mm)	Gripping force (N)*		Stroke open/close (mm)	Sensor
					Opening	Closing		
YMP20-10	10	2 ÷ 7	180	0,01	11	16	4	DF-T 200
YMP20-16	16	1 ÷ 7	180	0,01	32	44	6	
YMP20-20	20	1 ÷ 7	180	0,01	42	65	10	
YMP20-25	25	1 ÷ 7	180	0,01	67	110	14	
YMP20-32	32	1 ÷ 7	60	0,02	160	228	22	
YMP20-40	40	1 ÷ 7	60	0,02	260	318	30	

\* = Gripping force at 5 bar, gripping point 30 mm

Ambient temperature: -10 ÷ 60 °C

## Low Profile Parallel Pneumatic Gripper with Linear Guide

## ■ YMP30



Part No.	$\emptyset$	Max frequency (cycles/min)	Gripping force (N)*		Stroke (mm)	Sensor
			Opening	Closing		
YMP30008	8	180	19	19	8-16-32	DF-T200
YMP30012	12		48	48	12-24-48	
YMP30016	16		91	91	16-32-64	
YMP30020	20		138	138	20-40-80	

\* = Gripping force at 5 bar, gripping point 30 mm (for version 15 mm YMP30008)

Working pressure: 1,5 ÷ 7 bar

Ambient temperature: -5 ÷ 60 °C

## Wide-type Parallel Pneumatic Gripper

## ■ YMP40



Part No.	$\emptyset$	Max frequency (cycles/min)	Gripping force (N)*		Stroke (mm)	Sensor
			Opening	Closing		
YMP40010	10	40	14	14	20-40-60	DF-...
YMP40016	16		44	44	30-60-80	
YMP40020	20		77	77	40-80-100	
YMP40025	25		128	128	50-100-120	
YMP40032	32		227	227	70-120-160	

\* = Gripping force at 5 bar, gripping point 30 mm

Working pressure: 1 ÷ 6,1 bar

Ambient temperature: -10 ÷ 60 °C

Repeatability: ±0,1

## Self-centering 3 Jaw Pneumatic Gripper

## ■ YMP50



Part No.	$\emptyset$	Pressure (Bar)	Max frequency cycles/min	Gripping force (N)*		Stroke (mm)	Sensor
				Opening	Closing		
YMP50-16	16	2 - 6	120	14	16	4	DF-...
YMP50-25	25	2 - 6	120	41	46	6	
YMP50-32	32	1 - 6	60	73	81	8	
YMP50-40	40	1 - 6	60	117	127	8	
YMP50-50	50	1 - 6	60	180	204	12	
YMP50-63	63	1 - 6	60	332	359	16	
YMP50-80	80	1 - 6	30	495	520	20	
YMP50-100	100	1 - 6	30	745	775	24	
YMP50-125	125	1 - 6	30	1265	1310	32	

\* = Gripping force at 5 bar, gripping point 20 mm ( $\emptyset$ 16-25) 30 mm ( $\emptyset$  32-63) 50 mm ( $\emptyset$  80-125)

Ambient temperature: -10 ÷ 60 °C

Repeatability: ±0,01



# 3

## Valves



Electropilots	B11 B10 B12 B A AA AB	3 4 5 7 8 9 10
---------------	---	----------------------------------



Standards-based Valves	BE/BE12 AE BD AC-N	12 15 17 22
------------------------	-----------------------------	----------------------



Spool Valves	CL/CM E F G6/GL6 G7 PS	23 30 33 34/37 41 43
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Poppet Valves	AC CH AF/AG AI AI-JET AI-JET2 AM	48 50 52/54 56 57 59 60
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COMPACT Valves	P10 P15 P15E	62 71 80
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Serial Connections	TC	84
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Accessories	COILS OPERATORS	86 88
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Complementary Valves	YR AP/AM HZ9N YF YG-6300	90 92 94 95 96
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**Standard**
**B11**

1 w

15 NI/min


**Low consumption**
**B10**

0,3 w

15 NI/min


**High flow rate**
**B12**

0,6 w

30 NI/min



Special version

40 NI/min

**Magnetic memory**
**LATCHING**

Energizing through short impulse,  
de-energizing through the same  
impulse with inverted polarity.



## B11 / B10 / B12

**ISO 15218 Nanovalves**

**NEW**

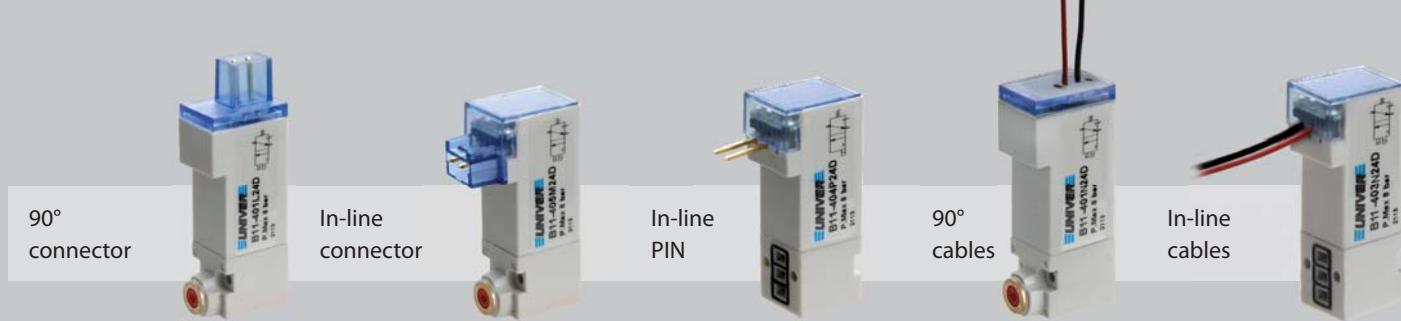
 Sub-base with  
integrated electrical  
connection

 Manual override  
(standard)

 ISO 15218  
interface

 No manual override  
(upon request)


LED



**CHARACTERISTICS**

Ambient temperature	-5 ÷ +50 °C
Fluid	10 µm filtered air, with or without lubrication
Max pressure	9 bar
Operating frequency	5 Hz
Fixing	2 screws M1,6
Connections	ISO 15218 interface
Nominal bore (mm)	0,8 (3/2 NC) 1,3 (3/2 NO)
Nominal flow rate (NL/min)	15
Valve body	self-extinguishing technopolymer
Seals	NBR
Voltage	24 V DC (12V DC upon request)
Power consumption	1 W
Electrical connection	D-535U40 (IP65), solder pin (IP00), Molex
Led	yellow (standard)
Manual override	monostable button


**CODIFICATION KEY**

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

**1 Series**

B11 = ISO 15218 - 10 mm Nanovalves - 1 W standard

**2 Model**

4 = Monostable

**3 Type**

0 = 3/2 NC Ø 0,7 mm (1 W)  
1 = 3/2 NO Ø 1,3 mm (1 W)

**4 Function**

- 1 = Manual override, in-line PIN
- 2 = No manual override, in-line PIN
- 3 = Manual override, PIN on interface side
- 4 = No manual override, PIN on interface side
- 5 = Manual override, PIN opposed to the interface
- 6 = No manual override, PIN opposed to the interface

**5 Variant**

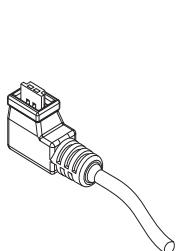
- L = 90° Connector (protected PIN)
- M = In-line connector (protected PIN, Molex connection)
- P = In-line PIN (suitable for mounting on circuit boards)

**6 Voltage**

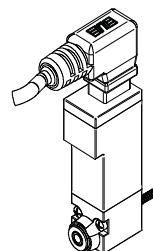
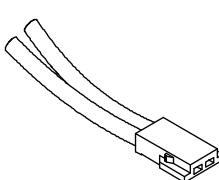
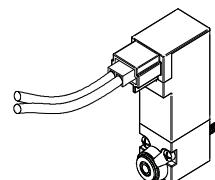
24D = 24 V DC  
12D = 12 V DC (upon request)

**Fixing screws standard supplied. Max tightening torque 0,15 Nm**  
**Other versions upon request: in-line cables and 90° cables**
**Connector**
**Pin**

■ 90° Connector	■ In-line connector NEW	■ In-line PIN
B11-401L24D B11-411L24D	B11-405M24D B11-415M24D	B11-403P24D B11-413P24D

**D-535U40300/500**
**D-530-30/50/200**


Single connector with wire


D-535U40300 = wire length 300 mm  
D-535U40500 = wire length 500 mm

Miniature connector with loose cables  
D-530-30 = wire length 300 mm  
D-530-50 = wire length 500 mm  
D-530-200 = wire length 2000 mm


**CHARACTERISTICS**

Ambient temperature	-5 ÷ +50 °C
Fluid	10 µm filtered air, with or without lubrication
Max pressure	7 bar
Operating frequency	5 Hz
Assembly	2 screws M1,6
Connections	ISO 15218 interface
Nominal bore (mm)	0,8
Nominal flow rate (NL/min)	15
Valve body	self-extinguishing technopolymer
Seals	NBR
Voltage	24 V DC (12V DC upon request)
Power consumption	0,3 W (speed-up 1 W)
Electrical connection	D-535U40 (IP65), solder pin (IP00), Molex yellow (standard)
Led	
Manual override	monostable button


**CODIFICATION KEY**

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

**1 Series**

B10 = ISO 15218 - 10 mm Nanovalves - low power consumption

**2 Model**

4 = Monostable

**3 Type**

0 = 3/2 NC Ø 0,7 mm (0,3 W)

**4 Function**

- 1 = Manual override, in-line PIN
- 2 = No manual override , in-line PIN
- 3 = Manual override, PIN on interface side
- 4 = No manual override, PIN on interface side
- 5 = Manual override, PIN opposed to the interface
- 6 = No manual override, PIN opposed to the interface

**5 Variant**

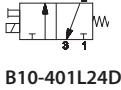
- L = 90° Connector (protected PIN)
- M = In-line connector (protected PIN, Molex connection)
- P = In-line PIN (suitable for mounting on circuit boards)

**6 Voltage**

- 24D = 24 V DC
- 12D = 12 V DC (upon request)

**Fixing screws standard supplied. Max tightening torque 0,15 Nm**
**Other versions upon request: in-line cables and 90° cables, nominal flow rate 40 NL/min**
**Connector**
**PIN**

## ■ 90° Connector



B10-401L24D

■ In-line connector  
**NEW**


B10-405M24D

## ■ In-line PIN

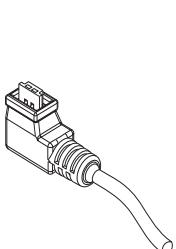


B10-403P24D

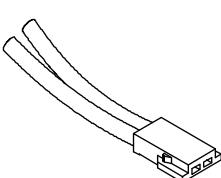
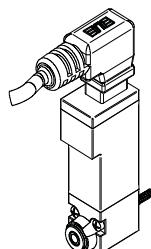
■ Latching in-line PIN  
(with magnetic memory)


This version is energized by an electrical impulse and de-energized by a similar impulse with inverted polarity.

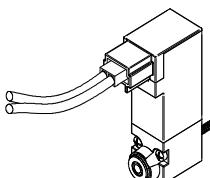
For further information please contact our Sales Office

**D-535U40300/500**
**D-530-30/50/200**


Single connector with wire

D-535U40300 = wire length 300 mm  
D-535U40500 = wire length 500 mm


Miniature connector with loose cables

D-530-30 = wire length 300 mm  
D-530-50 = wire length 500 mm  
D-530-200 = wire length 2000 mm


**CHARACTERISTICS**

Ambient temperature	-5 ÷ +50 °C
Fluid	10 µm filtered air, with or without lubrication
Max pressure	7 bar
Operating frequency	5 Hz
Fixing	2 screws M1,6
Connections	ISO 15218 interface
Nominal bore (mm)	1,3
Nominal flow rate (NL/min)	30
Valve body	self-extinguishing technopolymer
Seals	NBR
Voltage	24 V DC (12 V DC upon request)
Power consumption	0,6 W (speed-up 1 W)
Electrical connection	D-535U40 (IP65), solder pin (IP00), Molex yellow (standard)
Led	
Manual override	monostable button


**CODIFICATION KEY**

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

**1 Series**

B12 = ISO 15218 - 10 mm Nanovalves - high flow rate

**2 Model**

4 = Monostable

**3 Type**

0 = 3/2 NC Ø 1,3 mm (0,6 W)

**4 Function**

- 1 = Manual override, in-line PIN
- 2 = No manual override, in-line PIN
- 3 = Manual override, PIN on interface side
- 4 = No manual override, PIN on interface side
- 5 = Manual override, PIN opposed to the interface
- 6 = No manual override, PIN opposed to the interface

**5 Variant**

- L = 90° connector (protected PIN)
- M = In-line connector (protected PIN, Molex connection)
- P = In-line PIN (suitable for mounting on circuit boards)

**6 Voltage**

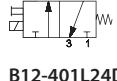
- 24D = 24 V DC
- 12D = 12 V DC (upon request)

**Fixing screws standard supplied. Max tightening torque 0,15 Nm**
**Other versions (upon request): In-line cables and 90° cables, nominal flow rate 40 NL/min**
**Connector**
**PIN**

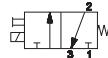
## ■ 90° Connector

## ■ In-line connector

## ■ In-line PIN



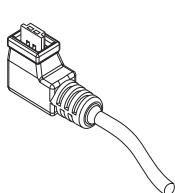
B12-401L24D



B12-405M24D



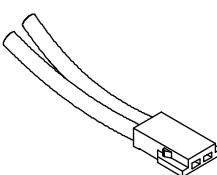
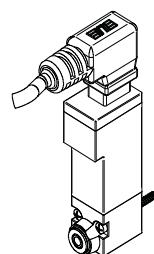
B12-403P24D

**D-535U40300/500**
**D-530-30/50/200**


Single connector with wire

D-535U40300 = wire length 300 mm

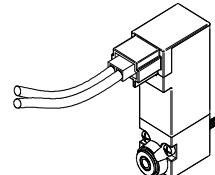
D-535U40500 = wire length 500 mm



Miniature connector with loose cables

D-530-30 = wire length 300 mm

D-530-50 = wire length 500 mm



D-530-200 = wire length 2000 mm

**B 10 mm**

1,2 W

12 NL/min


 NEW  
0,5 W

**A 15 mm**

2 W

38 NL/min


**DETENT SYSTEM UNIVER Original since 1988**
**B 10 mm**

3/2 NC - NO


 Revolving coil  
180° x 180°

 Manual  
override

 Atmosphere  
exhaust

 Conveyed  
exhaust

**A 15 mm**

2/2 NC - NO, 3/2 NC - NO


 Revolving coil  
90° x 90°

 Manual  
override

 ISO 15218  
interface


90° connector



In-line connector



Loose cables



Faston



90° connector



In-line connector



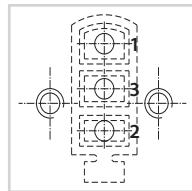
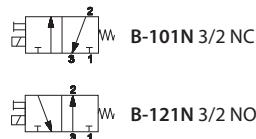
Loose cables

## CHARACTERISTICS

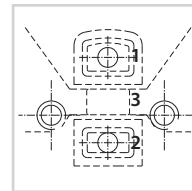
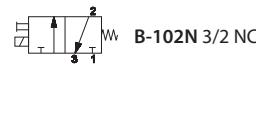
Ambient temperature	-5 ÷ +50 °C
Fluid	10 µm filtered air, with or without lubrication
Commutation system	poppet
Max pressure	8 bar
Fixing	2 screws M1,6
Connections	on sub-base
Nominal bore (mm)	0,5   0,6
Nominal flow rate (NL/min)	9   12
Max frequency	2300 ÷ 3000 cycles/min
Valve body	technopolymer (aluminium external cover)
Seals	NBR
Power consumption	1,2 W (1,35 W with LED) - 0,5 W (speed-up 1,2 W)
Electrical connection	Molex bipolar connector or loose cables
Voltage	12 V DC - 24 V DC
Manual override	recessed button - 1 position



## Valves with conveyed exhaust



## Valves with atmosphere exhaust



Revolving coil 180°x180°

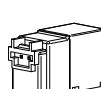
## Coils



DE-352 24 V DC 1,2 W

DE-452 24 V DC 1,35 W

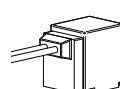
DE-355 24 V DC 0,5 W  
**NEW**



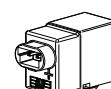
DE-552 24 V DC 1,2 W

DE-652 24 V DC 1,35 W

DE-555 24 V DC 0,5 W  
**NEW**



DE-052L030 24 V DC 1,2 W



DE-642I 12 V DC 1,35 W

DE-652I 24 V DC 1,35 W

DE-655I 24 V DC 0,5 W  
**NEW**

Coil with 90° upward connector  
12 V DC upon request

Coil with integrated in-line connector  
12 V DC upon request

Coil with loose cables  
12 V DC upon request

Coil with in-line connector with protection  
for a complete tightness

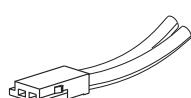
D-500

D-530-30/50/200

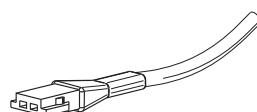
DE-535-30/50/200



Miniature connector  
without wires



Miniature connector with loose cables  
D-530-30 = wire length 300 mm  
D-530-50 = wire length 500 mm  
D-530-200 = wire length 2000 mm



Miniature connector with cables  
D-535-30 = wire length 300 mm  
D-535-50 = wire length 500 mm  
D-535-200 = wire length 2000 mm

**NEW**

**0,5 W**

Low power  
consumption



Nanovalves are supplied without coil and connector

## CHARACTERISTICS

Ambient temperature	-5 ÷ +50 °C
Fluid	10 µm filtered air, with or without lubrication
Commutation system	poppet
Max pressure	9 bar
Fixing	nr. 2 screws M3
Connections	ISO 15218 interface
Nominal bore (mm)	1,2   1,5
Nominal flow rate (NL/min)	26   38
Max frequency	2700 cycles/min
Valve body	technopolymer (aluminium external cover)
Seals	NBR
Power consumption	2 W DC / 2 VA AC (Ø 1,2) - 2,5 W DC / 3,5 VA AC (Ø 1,5)
Electrical connection	15 mm connector - Molex bipolar connector or loose cables
Voltage	24 V DC - 12 V DC - 24 V AC - 110 V AC - 230 V AC
Manual override	recessed button - 1 position (other manual overrides upon request)
Protection degree with connector	IP65



## 15 mm Microvalves

■ NC



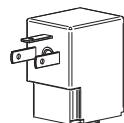
∅ Ø			Voltage
A-141N	1,2	2 W DC	
A-142N	1,5	2,5 W DC	
A-151N	1,2	V DC/AC 2W/2 VA	
A-101N	1,2	2 W DC	
A-102N	1,5	2,5 W DC	
A-111N	1,2	V DC/AC 2W/2 VA	
A-112N	1,5	V DC/AC 2,5W/3,5 VA	

■ NO

∅ Ø			Voltage
A-161N	1,2	2 W DC	
A-162N	1,5	2,5 W DC	
A-171N	1,2	V DC/AC 2W/2 VA	
A-121N	1,2	2 W DC	
A-122N	1,5	2,5 W DC	
A-131N	1,2	V DC/AC 2W/2 VA	

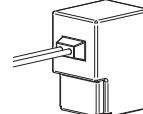
Revolving coil 90°x90°

### Coils



DD-013 220 V AC - 50/60 Hz - 3,5 VA  
 DD-040 24 V AC - 50/60 Hz - 2,3 VA  
 DD-041 12 V DC - 2 W  
 DD-042 12 V DC 2,5 W  
 DD-050 48 V AC - 50/60 Hz - 2,3 VA

DD-051 24 V DC - 2 W  
 DD-052 24 V DC - 2,5 W  
 DD-060 110 V AC - 50/60 Hz - 2,3 VA  
 DD-070 230 V AC - 50/60 Hz - 2 VA



DD-051L030 24 V DC - 2 W  
 DD-052L030 24 V DC - 2,5 W

24 V DC Faston connector  
 12 V DC upon request

24 V DC Coil with loose cables  
 12 V DC upon request

### Sub-base for external electrical connection



A - 326A - \_\_G1/8 (standard)  
 A - 326B - \_\_M5 (upon request)  
 A - 326D - \_\_tube 4 (upon request)

\_\_ = Number of positions

### Sub-base for integrated electrical connection



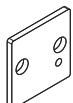
For further information please  
 contact our Sales Office

A-299-11



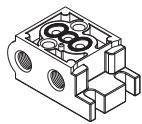
Sealing plate

A-301



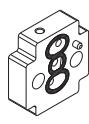
Blank end-plate

A-305



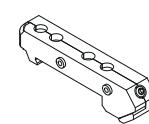
Single base

A-350



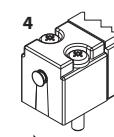
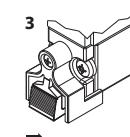
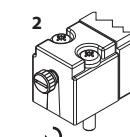
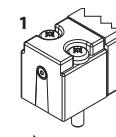
Inverter plate

A-345

46277/3  
(EN50022) DIN  
rail adaptor

### Manual override

- 1 = Recessed button - 1 position (standard supplied)
- 2 = Impulse screw - 1-2 positions (upon request)
- 3 = Front button - 1 position (upon request)
- 4 = Key button - 1 position (upon request)



## CHARACTERISTICS

Ambient temperature	-10 ÷ +50 °C		
Fluid	50 µm filtered air, with or without lubrication; neutral gases (versions for different fluids available upon request)		
Commutation system	direct intervention poppet with cushioned seals		
Pressure	0 ÷ 10 bar (2/2, 3/2 NC), 3 ÷ 10 bar (3/2 NO)		
Connections	on sub-base / threaded on the body		
	sub-base	G 1/8	M5
Nominal bore (mm)	1,2 ÷ 1,5	1 ÷ 1,5	1 ÷ 1,5
Nominal flow rate (NL/min)	30 ÷ 60	28 ÷ 60	30 ÷ 60
Power consumption	3,5 W (DC) - 5 VA (AC)	2,5 W (DC) - 3,3 VA (AC)	
Connector	AM-5110		
Sleeve	U1		
Coil	DA - DC		
Voltage	12 V DC - 24 V DC - 24 V AC - 110 V AC - 230 V AC		
Protection degree	IP65		



## U1 Sleeves - with moving core



AA-0150 3/2 NO  
AA-0157 3/2 NC  
AA-0170 2/2 NC

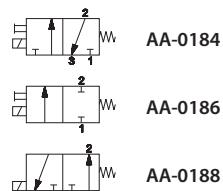
## Coil-sleeve locking nuts



AM-5213A 3/2 NO  
AM-5211A 3/2 NC  
AM-5211B 2/2 NC

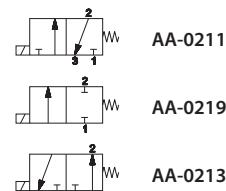
## 2/2 - 3/2 U1 Electropilot

For mounting on U1 G1/8 sub-base



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

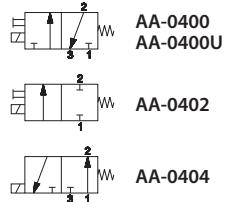
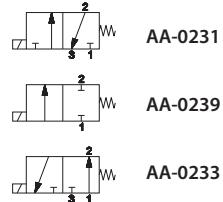
For mounting on U1 G1/8 sub-base



## 2/2 - 3/2 U1 Electropilot M5

## 2/2 - 3/2 U1 CNOMO Electropilot

For mounting on U2 G1/8 SPEED sub-base



## SPEED Series modular sub-base

For mounting on U1 G1/8 sub-base



AA-0450



2/2 - 3/2  
U1 Electropilot

For mounting on U2 G1/8 SPEED sub-base



AB-0900



2/2 - 3/2  
U1 CNOMO Electropilot

## Manual override:

Impulse screw – 2 positions (standard supplied). Recessed button - 1 position, Impulse screw - 1-2 positions, Locking nut with button – 1 position (upon request)

**CHARACTERISTICS**

Ambient temperature	-10 ÷ +50 °C			
Fluid	10 µm filtered air, with or without lubrication; neutral gases (versions for different fluids available upon request)			
Commutation system	direct intervention poppet with cushioned seals			
Pressure	0 ÷ 10 bar (2/2, 3/2 NC), 3 ÷ 10 bar (3/2 NO)			
Connections	sub-base	G 1/8	G 1/4	CNOMO
Nominal bore (mm)	2,1 ÷ 2,4	2,1 ÷ 2,4	1,6 ÷ 6	2,1 ÷ 2,4
Nominal flow rate (NL/min)	92 ÷ 150	100 ÷ 155	95 ÷ 650	92 ÷ 110
Power consumption	11W (DC) - 10 VA (AC)			
Connector	AM-5111			
Sleeve	U2			
Coil	DB			
Voltage	12 V DC - 24 V DC - 24 V AC - 110 V AC - 230 V AC			
Protection degree	IP65			


**U2 Sleeves - with moving core**


AB-0600 3/2 NO  
AB-0613 3/2 NC  
AB-0640 2/2 NC<sup>(a)</sup>  
AB-0643 2/2 NC

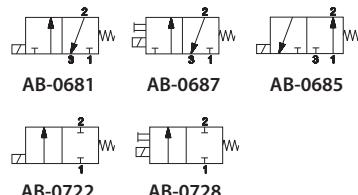
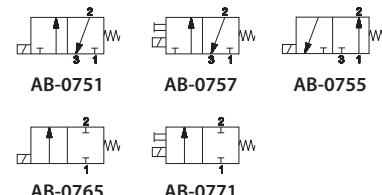
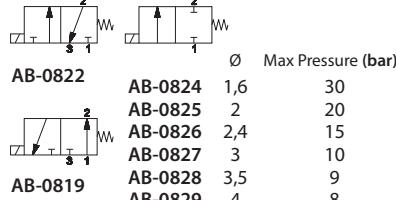
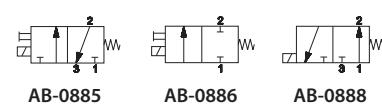
(a) = Suitable for bases with diameter 3 ÷ 6 mm

**Coil-sleeve locking nuts**


AM-5212A 3/2 NO  
AM-5214A 3/2 NC  
AM-5212B 2/2 NC

**2/2 - 3/2 U2 Electropilot**

For mounting on U2 sub-base G1/8


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

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

**2/2 - 3/2 U2 CNOMO Electropilot**


U2 - 17 VA Coil for version 2/2

DB-0607 24V AC - 50/60 Hz  
DB-0608 110V AC - 50/60 Hz  
DB-0610 220V AC - 50/60 Hz

	Ø	Max Pressure (bar)
AB-0824	1,6	30
AB-0825	2	20
AB-0826	2,4	15
AB-0827	3	10
AB-0828	3,5	9
AB-0829	4	8
AB-0830	4,5	7
AB-0831	5	6,5
AB-0832	5,5	6
AB-0833	6	5

The bore (mm) indicated on 3/2 valves refers to the exhaust

**SPEED Series modular sub-base**

U2 G1/8 sub-base



AB-0900



2/2 - 3/2  
U2 Electropilot



2/2 - 3/2  
U2 CNOMO Electropilot

Manual override:

Impulse screw - 2 positions (standard supplied). Recessed button - 1 position, Impulse screw - 1-2 positions, Locking nut with button - 1 position (upon request)

**ORIGINAL**

Valves and sub-bases UNIVER Original since 1980

**MIXED and SPOOL SYSTEM**

Versions with either mixed or spool system available for all series

MIXED  
for heavy applicationsSPOOL  
for all applications**BE 3**

ISO 1

**1480**  
NI/min**BE 4**

ISO 2

**2300**  
NI/min**BE 5**

ISO 3

**4200**  
NI/min**BE 6**

ISO 4

**6600**  
NI/min

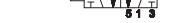
## CHARACTERISTICS

Ambient temperature	-10 ÷ +50 °C			
Fluid	50 µm filtered air (mixed system)			
	50 µm filtered air, with or without dehumidification (spool system)			
Commutation system	mixed and spool			
Max pressure	10 bar			
Connection	ISO 5599/1 interface			
	size 1	size 2	size 3	size 4
Nominal bore (mm)	8	10	15	19
Nominal flow rate (NL/min)	1480	2300	4200	6600
Valve body	acetalic resin with zamak cover			
Seals	nitrile rubber and polyurethane (mixed system), NBR (spool system)			
Electropilot/Coil	AA series/U3			
Power consumption	2,5 W (DC) - 5 VA (AC)			
Voltage	12 V DC - 24 V DC - 24 V AC - 110 V AC - 230 V AC			
Manual override	impulse screw - 2 positions (BE), recessed button - 1 position (BE12)			

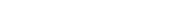
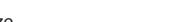


## **BE Single/double pneumatic impulse**



■ MIXED SYSTEM		size		size		size		
	BE-3100	1		BE-3150	1		BE-3170	1
	BE-4100	2		BE-4150	2		BE-4170	2
	BE-5100	3		BE-5150	3		BE-5170	3
	BE-6100	4		BE-6150	4		BE-6170	4

■ SPOOL SYSTEM		size		size		size		
	BE-3800	1		BE-3850	1		BE-3870	1
	BE-4800	2		BE-4850	2		BE-4870	2
	BE-5800	3		BE-5850	3		BE-5870	3
	BE-6800	4		BE-6850	4		BE-6870	4

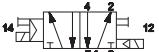
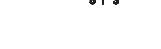
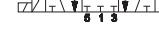
## **BE Single electrical impulse**



■ MIXED SYSTEM		size	size			
		BE-3000 BE-4000 BE-5000 BE-6000	1 2 3 4		BE-3060 BE-4060 BE-5060 BE-6060	1 2 3 4
■ SPOOL SYSTEM		size	size			
		BE-3700 BE-4700 BE-5700 BE-6700	1 2 3 4		BE-3760 BE-4760 BE-5760 BE-6760	1 2 3 4

#### **BE Double electrical impulse**

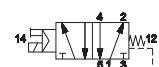


■ MIXED SYSTEM		size	
14		BE-3020	1
14		BE-4020	2
14		BE-5020	3
14		BE-6020	4
size		size	
14		BE-3200	1
14		BE-4200	2
14		BE-5200	3
14		BE-6200	4
■ SPOOL SYSTEM		size	
14		BE-3720	1
14		BE-4720	2
14		BE-5720	3
14		BE-6720	4
size		size	
14		BE-3900	1
14		BE-4900	2
14		BE-5900	3
14		BE-6900	4
size		size	
14		BE-3940	1
14		BE-4940	2
14		BE-5940	3
14		BE-6940	4

For versions with recessed button 1 position, add suffix U to part number

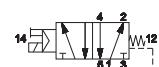
**BE12 Single electrical impulse**

## ■ MIXED SYSTEM



	size
BE12-3000	1
BE12-4000	2
BE12-5000	3

## ■ SPOOL SYSTEM



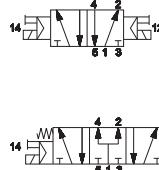
	size
BE12-3700	1
BE12-4700	2
BE12-5700	3

3

VALVES

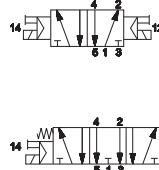
**BE12 Double electrical impulse**

## ■ MIXED SYSTEM



	size
BE12-3020	1
BE12-4020	2
BE12-5020	3

## ■ SPOOL SYSTEM



	size
BE12-3720	1
BE12-4720	2
BE12-5720	3
BE12-3900	1
BE12-4900	2
BE12-5900	3
BE12-3940	1
BE12-4940	2
BE12-5940	3

**Single sub-base, side connections**

## ■ ISO 1



BF-1060  
G1/8  
  
BF-1061  
G1/4

## ■ ISO 2



BF-1150  
G1/4  
  
BF-1151  
G3/8

## ■ ISO 3



BF-3060  
G1/2  
  
BF-3061  
G3/4

## ■ ISO 4



BF-4060  
G3/4  
  
BF-4061  
G1

**Single sub-base, bottom connections**

## ■ ISO 1



BF-1062  
G1/8  
  
BF-1063  
G1/4

Single or Manifold with separate exhausts

## ■ ISO 2



BF-1152  
G1/4  
  
BF-1153  
G3/8

## ■ ISO 3



BF-3063  
G3/4

## ■ ISO 4



BF-4062  
G3/4  
  
BF-4063  
G1

**Manifold universal system sub-base, bottom and side connections, conveyed exhaust**

## ■ ISO 1



BF-1071  
G1/8  
  
BF-1072  
G1/4  
  
BF-1075  
G1/8  
  
BF-1072S  
G1/4

## ■ ISO 2



BF-1160  
G1/4  
  
BF-1161  
G3/8

## ■ ISO 3



BF-3071  
G1/2  
  
BF-3072  
G3/4

## Manifold universal system inlet plate

## ■ ISO 1

BF-1065  
G3/8BF-1066  
G3/8BF-1068  
G3/8

## ■ ISO 2

BF-1154  
G1/2BF-1155  
G1/2

## ■ ISO 3

BF-3064  
G1

## Manifold universal system diaphragm

## ■ ISO 1



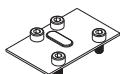
BF-1070

## ■ ISO 2

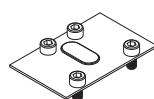


BF-1162

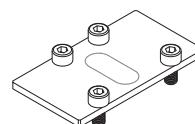
BF-1085

closing plate for  
ISO 1 sub-base

BF-1175

closing plate for  
ISO 2 sub-base 2

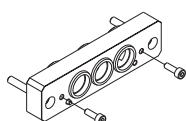
BF-3175

closing plate for  
ISO 3 sub-base 3

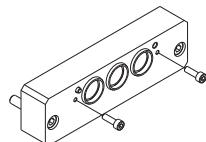
BF-3082

universal system plug for  
ISO 3 sub-base

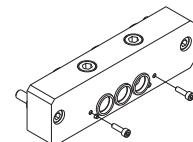
BF-1190

connecting interface for  
universal sub-bases  
size 1 - 2

BF-3190

connecting interface for  
universal sub-bases  
size 2 - 3

BF-3191

connecting interface for  
universal sub-bases  
size 1 - 3

**CHARACTERISTICS**

Ambient temperature	-10 ÷ +50 °C	
Fluid	50 µm filtered air, with or without lubrication	
Commutation system	mixed	
Max pressure	10 bar	
Connections	ISO 5599/1 interface (BF series sub-bases)	
	size 1	size 2
Nominal bore (mm)	8	10
Nominal flow rate (NL/min)	1480	2300
Valve body	acetalic resin	
Seals	NBR, polyurethane	
Electropilot/Coil	AA series/U1	
Power consumption	3,5 W (DC) - 5 VA (AC)	
Voltage	12 V DC - 24 V DC - 24 V AC - 110 V AC - 230 V AC	
Connector	AM-5110	
Manual override	impulse screw - 2 positions	


**Single/double pneumatic impulse**


size  
AE-1009 1  
AE-1120 2

size  
AE-1010 1  
AE-1121 2

**Single electrical impulse**


size  
AE-1000 1  
AE-1100 2

**Double electrical impulse**


size  
AE-1003 1  
AE-1103 2

**ISO 1 Sub-base and plate**


BF-1060  
G1/8



BF-1062  
G1/8



BF-1071  
G1/8  
BF-1072  
G1/4



BF-1065  
On top  
BF-1066  
Rear  
BF-1068  
In line  
G3/8



BF-1070

**ISO 2 Sub-base and plate**


BF-1150  
G1/4



BF-1152  
G1/4



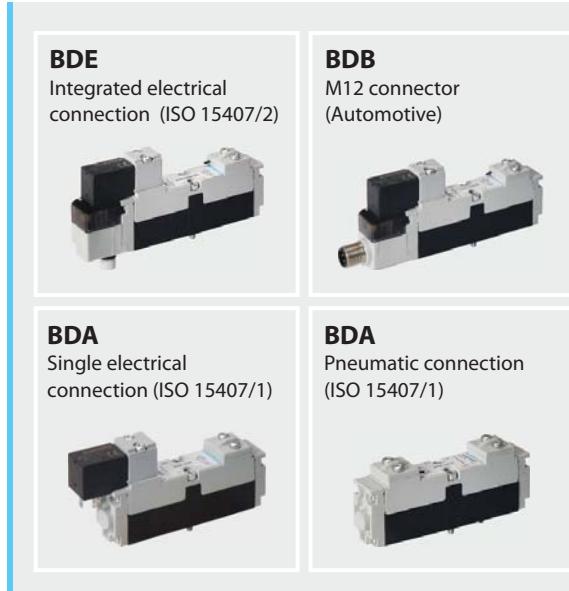
BF-1160  
G1/4



BF-1154  
In line  
BF-1155  
Rear  
G1/2



BF-1162



**CANopen** DeviceNet   
**PROFINET**   
**PROFIBUS**   
**EtherNet/IP**   
**EtherCAT**

## ISO 02

18 mm



■ ISO Interface



**620**  
NI/min

■ OVERSIZED interface  
(UNIVER original)



**800**  
NI/min

## ISO 01

26 mm



■ ISO Interface



**1250**  
NI/min

■ OVERSIZED interface  
(UNIVER original)



**1700**  
NI/min

## CHARACTERISTICS

Ambient temperature	-20 ÷ +50 °C
Fluid	50 µm filtered air, with or without lubrication
Commutation system	spool
Max pressure	9 bar (electrical) 10 bar (pneumatic)
Connections	ISO 15407-1/2 interface
Nominal bore (mm)	6 (18 mm) 8 (26 mm)
Nominal flow rate (NL/min)	see table below
Valve body	acetalic resin with aluminium cover
Seals	nitrile rubber
Spool	aluminium
Electropilot/Coil	A series/U05
Voltage	12 V DC - 24 V AC/DC - 48 V AC - 110 V AC - 230 V AC
Power consumption	2 W
Manual override	recessed button - 1 position
Protection degree	IP65



## CODIFICATION KEY

B	D	E	-	3	3	4	4	2	4	
1				2	3	4	5	6	7	

### 1 Series

**BDE** = Solenoid valves with integrated electrical connection 24 V DC

**BDB** = Solenoid valves with electrical connection 24 V DC, with connector M12

### 2 Size

**3** = 18 mm  
**4** = 26 mm

### 3 Type

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

### Coils and connectors included

4 Control 14	5 Return 12	6 Coil voltage	7 Options
4 = Electrical amplified 4 = Electrical amplified only DC 5 = Electrical amplified DC/AC	0 = Pneumomechanical spring 1 = Mechanical spring 4 = Electrical amplified 7 = Electrical not amplified	24 = 24 V DC (standard) 12 = 12 V DC (upon request)	D = External pilot supply

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

### 1 Series

**BDA** = Valves and solenoid valves

### 2 Size

**3** = 18 mm  
**4** = 26 mm

### 3 Type

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

### Coils and connectors not included, to be purchased separately

4 Control 14	5 Return 12	6 Options
3 = Pneumatic amplified 4 = Electrical amplified only DC 5 = Electrical amplified DC/AC	0 = Pneumomechanical spring 1 = Mechanical spring 2 = Pneumatic not amplified 3 = Pneumatic amplified	4 = Electrical amplified only DC 5 = Electrical amplified DC/AC 7 = Electrical not amplified only DC 8 = Electrical not amplified DC/AC

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

### U05 Coils side 15 mm

Part No.	Nominal voltage		Frequency	Power consumption				
	V DC	V AC		hold	speed-up	hold	speed-up	
	DD-040	-	24	50/60	-	-	2,3	3,2
DD-041	12	-	-	2	2	-	-	
DD-050	-	48	50/60	-	-	2,3	3,2	
DD-051	24	-	-	2	2	-	-	
DD-060	-	110	50/60	-	-	2,3	3,2	
DD-070	-	230	50/60	-	-	2,3	3,2	

### Nominal flow rate (NL/min)

BD 18 mm	VDMA-ISO			Oversized		
	Ø4	Ø6	Ø8	Ø4	Ø6	Ø8
5/2	200	440	620	200	480	800
5/3	200	440	580	200	460	720
3/2+3/2	200	440	600	200	460	720

BD 26 mm	VDMA-ISO				Oversized			
	Ø6	Ø8	Ø10	Ø12	Ø6	Ø8	Ø10	Ø12
5/2	500	950	1200	1250	500	1050	1500	1700
5/3	500	900	1100	1150	500	1050	1300	1400
3/2+3/2	500	950	1150	1250	500	1050	1450	1650

### BDE Electrical impulse - Solenoid valve with integrated electrical connection

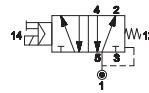
■ Single impulse



18 mm

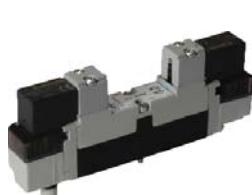


26 mm


 BDE-324024 18 mm  
 BDE-424024 26 mm

 BDE-324124 18 mm  
 BDE-424124 26 mm

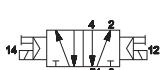
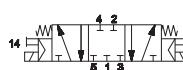
■ Double impulse

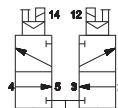
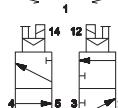
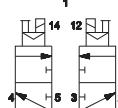


18 mm



26 mm


 BDE-324424 18 mm  
 BDE-424424 26 mm

 BDE-334424 18 mm  
 BDE-434424 26 mm

 BDE-344424 18 mm  
 BDE-444424 26 mm

 BDE-364424 18 mm  
 BDE-464424 26 mm

 BDE-374424 18 mm  
 BDE-474424 26 mm

 BDE-384424 18 mm  
 BDE-484424 26 mm

### BDB Electrical impulse - Solenoid valve with connector M12

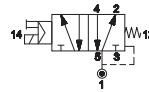
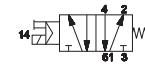
■ Single impulse



18 mm



26 mm


 BDB-324024 18 mm  
 BDB-424024 26 mm

 BDB-324124 18 mm  
 BDB-424124 26 mm

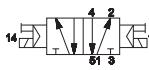
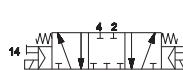
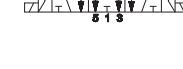
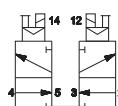
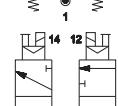
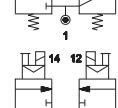
■ Double impulse



18 mm



26 mm


 BDB-324424 18 mm  
 BDB-424424 26 mm

 BDB-334424 18 mm  
 BDB-434424 26 mm

 BDB-344424 18 mm  
 BDB-444424 26 mm

 BDB-364424 18 mm  
 BDB-464424 26 mm

 BDB-374424 18 mm  
 BDB-474424 26 mm

 BDB-384424 18 mm  
 BDB-484424 26 mm

## BDA Pneumatic impulse

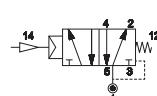
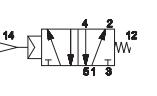
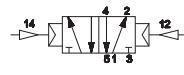
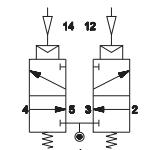
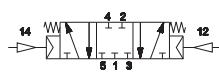
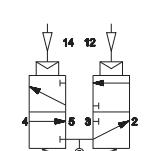
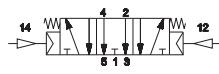
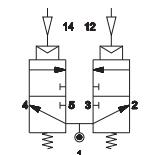
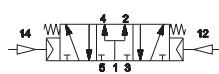
■ Single/double impulse



18 mm



26 mm

BDA-3230 18 mm  
BDA-4230 26 mmBDA-3231 18 mm  
BDA-4231 26 mmBDA-3233 18 mm  
BDA-4233 26 mmBDA-3633 18 mm  
BDA-4633 26 mmBDA-3333 18 mm  
BDA-4333 26 mmBDA-3733 18 mm  
BDA-4733 26 mmBDA-3433 18 mm  
BDA-4433 26 mmBDA-3833 18 mm  
BDA-4833 26 mmBDA-3533 18 mm  
BDA-4533 26 mm

## BDA Electrical impulse - External electrical connection

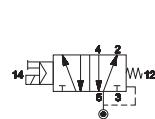
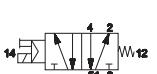
■ Single impulse



18 mm



26 mm

BDA-3240 18 mm  
BDA-4240 26 mmBDA-3241 18 mm  
BDA-4241 26 mm

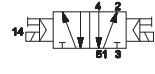
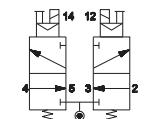
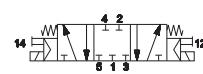
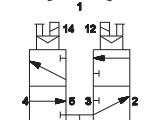
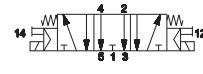
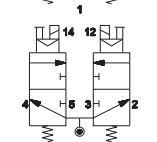
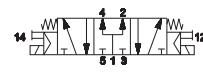
■ Double impulse



18 mm



26 mm

BDA-3244 18 mm  
BDA-4244 26 mmBDA-3644 18 mm  
BDA-4644 26 mmBDA-3344 18 mm  
BDA-4344 26 mmBDA-3744 18 mm  
BDA-4744 26 mmBDA-3444 18 mm  
BDA-4444 26 mmBDA-3844 18 mm  
BDA-4844 26 mmBDA-3544 18 mm  
BDA-4544 26 mm

DIN C (8 mm)

For further information please contact  
our Sales Office.

## BDE Manifold sub-bases - Integrated electrical connection

3

18 mm



26 mm



## 18 mm

BDF-3100	BDF-3115	BDF-3120	BDF-3140TIM	BDF-3180	BDF-3185	BDF-3190
left supply plate G3/8	right supply plate G3/8	intermediate supply plate G3/8	multipolar male connection module: 25 poles, type D	pressure separator	closing plate for unused valve place	connecting interface for valves side 18-26 mm

BDF-3210	BDF-3230(a)	BDF-3310	BDF-3330(a)	BDF-3400	GZR-100	GZR-V10004/06/08
two-place sub-base in compliance with VDMA-ISO flow rate 620 NL/min fittings Ø 4-6-8 mm	two-place sub-base in compliance with VDMA-ISO flow rate 620 NL/min fittings Ø 4-6-8 mm	two-place sub-base with increased flow rate 800 NL/min	two-place sub-base with increased flow rate 800 NL/min fittings Ø 4-6-8 mm	single one-place sub-base with increased flow rate	blanking plug	UNIVER designed fittings GZR-V10004 Ø4 mm GZR-V10006 Ø6 mm GZR-V10008 Ø8 mm

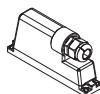
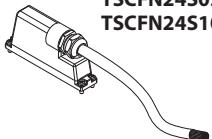
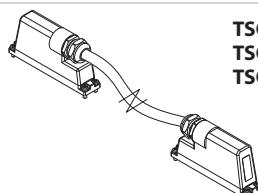
## 26 mm

BDF-4100	BDF-4115	BDF-4120	BDF-4140TIM	BDF-4180	BDF-4185
left supply plate G1/2	right supply plate G1/2	intermediate supply plate G1/2	multipolar male connection module: 25 poles, type D	plate for separating supply pressures	closing plate for unused valve place

BDF-4210/20	BDF-4230(a)	BDF-4310/20	BDF-4330/31/32(a)	BDF-4400	GZR-VV1006/08/10
one-place sub-base in compliance with VDMA-ISO flow rate 1250 NL/min BDF-4210 G1/4 connections BDF-4220 G3/8 connections	one-place sub-base in compliance with VDMA-ISO flow rate 1250 NL/min fittings Ø 6-8-10 mm	one-place sub-base with increased flow rate 1700 NL/min BDF-4310 G1/4 connections BDF-4320 G3/8 connections	one-place sub-base with increased flow rate 1700 NL/min fittings Ø 6-8-10 mm	single one-place sub-base with increased flow rate	UNIVER designed fittings GZR-VV1006 Ø6 mm GZR-VV1008 Ø8 mm GZR-VV1010 Ø10 mm

## Electrical connections

TSCFN24S000

female connector 25 poles sub-D type  
no cable - M3x8 fixing screwsTSCFN24S0300  
TSCFN24S0500  
TSCFN24S1000female connector: 25 poles, sub-D type,  
prewired for 26 coils (3-5-10m length)  
M3x8 fixing screwsTSCFN16D0300  
TSCFN16D0500  
TSCFN16D1000sub-D type male/female flying connector (upon request)  
prewired for 16 coils with cable Ø 8 mm (3-5-10 m length)  
suitable for dynamic laying - M3 x 8 fixing screws

(a) = sub-base including fixing plate for fittings (fittings excluded)

## BDA/BDB Manifold sub-bases - Electrical connection with external connector

■ 18 mm



■ 26 mm



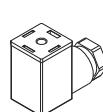
## 18 mm

BDF-3110	BDF-3115	BDF-3125	BDF-3180	BDF-3185	BDF-3191	BDF-3400
left supply plate G3/8	right supply plate G3/8	intermediate supply plate G3/8	pressure separator	closing plate for unused valve place	interface for connecting valves side 18-26 mm	single one-place sub-base with increased flow rate
BDF-3211/2 (b)	BDF-3231/2 (a) - (b)	BDF-3311/2 (b)	BDF-3331/2 (a) - (b)	GZR-100	GZR-V10004/6/8	DD-...
two-place sub-base in compliance with VDMA-ISO flow rate 620 NL/min G1/8 connections	two-place sub-base in compliance with VDMA-ISO flow rate 620 NL/min fittings Ø 4-6-8 mm	two-place sub-base with increased flow rate 800 NL/min G1/8 connections	two-place sub-base with increased flow rate 800 NL/min fittings Ø 4-6-8 mm	blanking plug	UNIVER designed fittings GZR-V10004 Ø4 mm GZR-V10006 Ø6 mm GZR-V10008 Ø8 mm	U05 coil side 15 mm

## 26 mm

BDF-4110	BDF-4115	BDF-4125	BDF-4180	BDF-4185	BDF-4400
left supply plate G1/2	right supply plate G1/2	intermediate supply plate G1/2	pressure separator	closing plate for unused valve place	single one-place sub-base with increased flow rate
BDF-4211/.. (b)	BDF-4231/2 (a) - (b)	BDF-4311/.. (b)	BDF-4331/2 (a) - (b)	GZR-VV1006/8/10	DD-...
one-place sub-base in compliance with VDMA-ISO flow rate 1250 NL/min G1/4 connect. G3/8 connect. BDF-4211 BDF-4221 BDF-4212	one-place sub-base in compliance with VDMA-ISO flow rate 1250 NL/min fittings Ø 6-8-10 mm BDF-4231 BDF-4232	one-place sub-base with increased flow rate 1700 NL/min G1/4 connect. G3/8 connect. BDF-4311 BDF-4312 BDF-4322	one-place sub-base with increased flow rate 1700 NL/min fittings Ø 6-8-10 mm BDF-4321 BDF-4322 BDF-4322	UNIVER designed fittings GZR-VV1006 Ø6 mm GZR-VV1008 Ø8 mm GZR-VV1010 Ø10 mm	U05 coil side 15 mm

## Electrical connections



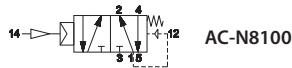
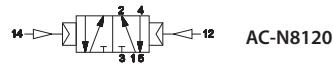
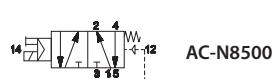
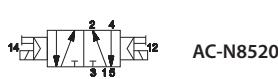
AM-5109

15 mm connector

(a) = sub-base including fixing plate for fittings (fittings excluded)  
 (b) = part no. ending: 1 = electrical non integrated 2 = only pneumatic

**CHARACTERISTICS**

Ambient temperature	-10 ÷ +45 °C
Fluid	50 µm filtered air, with or without lubrication
Commutation system	poppet mixed
Max pressure	10 bar
Connections	G1/4 (1-3-5), NAMUR interface (2-4)
Nominal bore (mm)	8
Nominal flow rate (NL/min)	1200
Valve body	zamak
Seals	NBR, polyurethane
Spool	aluminium
Electropilot/Coil	AA series/U1-U3
Power consumption	3,5 W (DC), 5 VA (AC)
Connector	AM-5110
Voltage	2 V DC - 24 V DC - 24 V AC - 110 V AC - 230 V AC
Manual override	impulse screw - 2 positions


**Pneumatic impulse**
 Single impulse

 Double impulse

**Electrical impulse**
 Single impulse

 Double impulse


Version 3/2: valves are supplied with proper flat plug for closing unused way  
Solenoid valves are supplied without coil / connector / locking nut

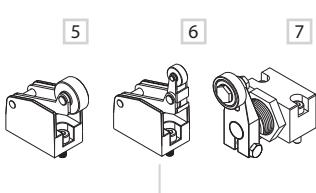
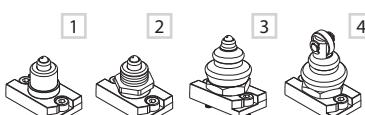
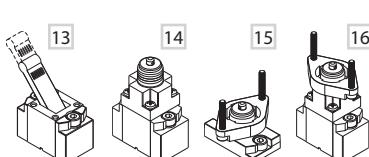
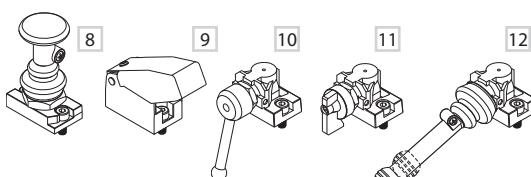
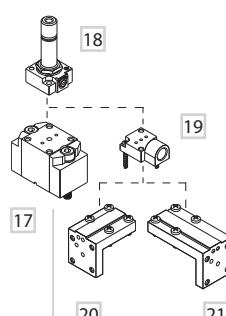
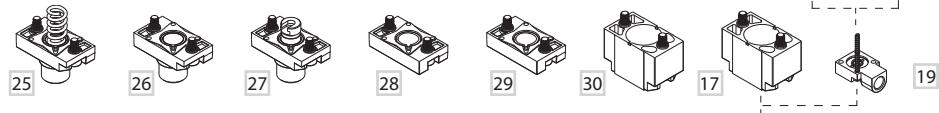
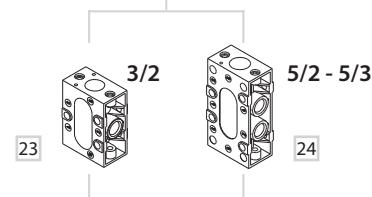
 AC-N8500 with YR2 actuator


For further information please contact our Sales Office

**CHARACTERISTICS**

Ambient temperature	-10 ÷ +45 °C	
Fluid	50 µm filtered air, with or without lubrication	
Commutation system	spool	
Max pressure	10 bar	
Connections	G1/8	G1/4
Nominal bore (mm)	6,5	8,5
Nominal flow rate (NL/min)	890	1480
Valve body	die-cast zamak (G1/8), aluminium (G1/4)	
Seals	NBR	
Spool	aluminium	
Electropilot/Coil	AA series/U1-U3	
Power consumption	3,5 W (DC) - 5 VA (AC)	
Connector	AM-5110	
Voltage	12 V DC - 24 V DC - 24 V AC - 110 V AC - 230 V AC	
Manual override	impulse screw - 2 positions	

NOTE: some versions with high temperature seals are available upon request  
(for further information please contact our Sales Office)

**UNIVERSAL Modular System**
**MECHANICAL**

**MANUAL**

**ELECTRICAL**

**PNEUMATIC**

**MECHANICAL CONTROL**

- 1 Ball push
- 2 Ball push for screw panel mounting
- 3 Ball push with dust protection
- 4 Roller with dust protection
- 5 Roller lever
- 6 One-way roller lever
- 7 Two-way side roller lever

**MANUAL CONTROL**

- 8 Push-pull
- 9 Push button
- 10 Rotating lever
- 11 Selector

**BODY**

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

**RETURN**

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

**ELECTRICAL CONTROL**

- 17 Electrical amplified
- 18 U1 electropilot
- 19 Plate for external pilot supply
- 20 Angle plate for "H" solenoid option
- 21 Angle plate for "P" solenoid option

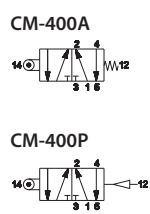
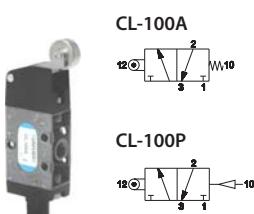
**PNEUMATIC CONTROL**

- 22 Pneumatic amplified

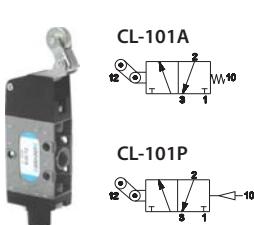


## Valves G1/8 with direct mechanical operation

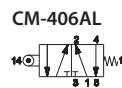
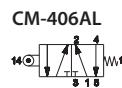
## ■ Roller lever



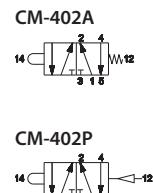
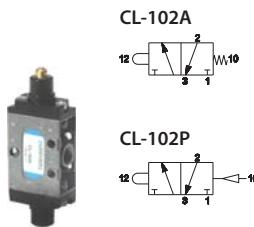
## ■ One-way roller lever



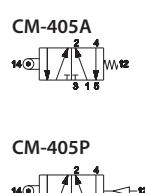
## ■ NEW - Two-way side roller lever



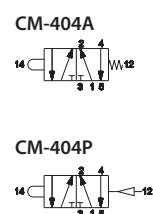
## ■ Ball-push



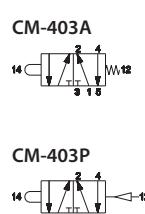
## ■ Roller with dust protection



## ■ Ball push with dust protection

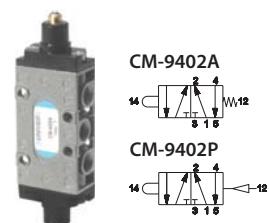


## ■ Ball push for screw panel mounting



## Valves G1/4 with direct mechanical operation

## ■ Ball push



## ■ Ball push for screw panel mounting



## Valves G1/8 - G1/4 with indirect mechanical operation for pneumatic and mechanical operators

## ■ Ball push



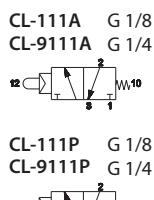
CL-110P G 1/8  
CL-9110P G 1/4

12 → 2 → 4 → 10  
14 → 3 → 1 → 8

CM-410P G 1/8  
CM-9410P G 1/4

14 → 2 → 4 → 10  
12 → 3 → 1 → 8

## ■ Sensible ball push



CM-411P G 1/8  
CM-9411P G 1/4

14 → 2 → 4 → 10  
12 → 3 → 1 → 8

CL-111P G 1/8  
CL-9111P G 1/4

12 → 2 → 4 → 10  
14 → 3 → 1 → 8

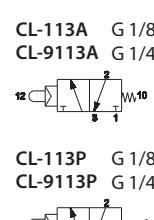
								AI-3511 ■	AI-3514 ■	AI-3515 ■	AI-3520 ■	AI-3522 ■	AI-3524 ■	AI-3525 ■	AI-3526 ■
								AI-3512 ■	AI-3516 ■	AI-3517 ■	AI-3521 ■	AI-3523 ■			
								AI-3513 ■	AI-3514D ■	AI-3519 ■					
								AI-3516D ■							

## Valves G1/8 - G1/4 with direct and indirect operation for panel operators

## ■ Ball push (direct operation)



## ■ Ball push (indirect operation)

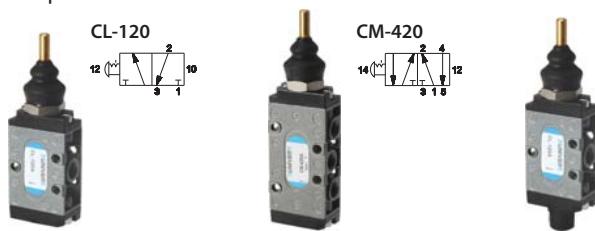


AI-3511Q ■	AI-3514Q ■	AI-3515Q ■	AI-3524Q ■
AI-3512Q ■	AI-3516Q ■	AI-3517Q ■	AI-3521Q ■

AI-3511Q ■	AI-3514Q ■	AI-3515Q ■	AI-3520Q ■	AI-3524Q ■	AI-3522Q ■	AI-3525Q ■	AI-3526Q ■
AI-3512Q ■	AI-3516Q ■	AI-3517Q ■	AI-3521Q ■			AI-3523Q ■	

## Valves G1/8 with manual operation

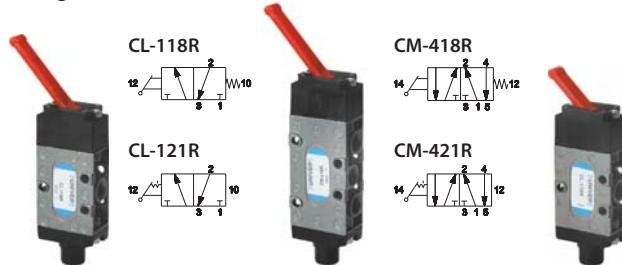
■ Push-pull



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

Valves are supplied without operator

■ Long lever

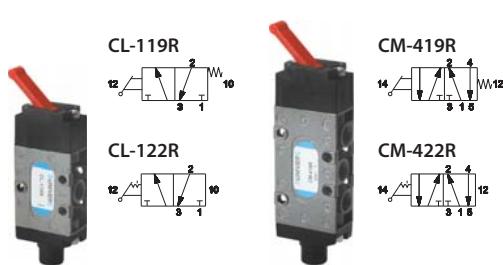


LONG LEVER

STANDARD  
■ RED

- UPON REQUEST
- YELLOW
  - BLACK

■ Short lever



SHORT LEVER

STANDARD  
■ RED

- UPON REQUEST
- YELLOW
  - BLACK
  - GREEN

■ Button

STANDARD  
■ RED

■ Rotating lever



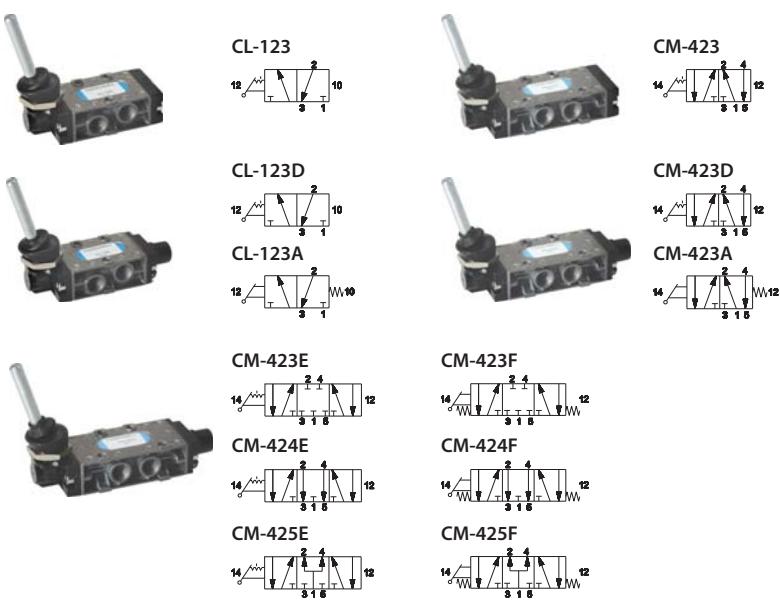
- RED CP-915R



- RED CP-916R

Valves are supplied without operator

■ 90° Lever



LONG LEVER

■ RED CP-913R

SHORT LEVER

- YELLOW CP-912G
- RED CP-912R
- BLACK CP-912N

Valves are supplied without operator

## Valves G1/4 with manual operation

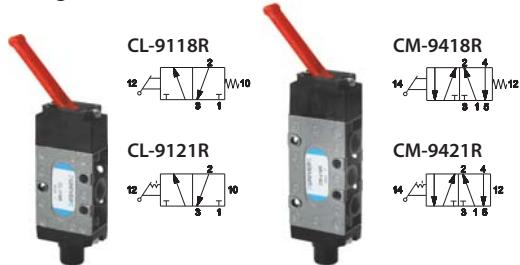
## Push-pull



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

Valves are supplied without operator

## Long lever



**STANDARD**  
■ RED

**UPON REQUEST**  
■ YELLOW  
■ BLACK

## Rotating lever



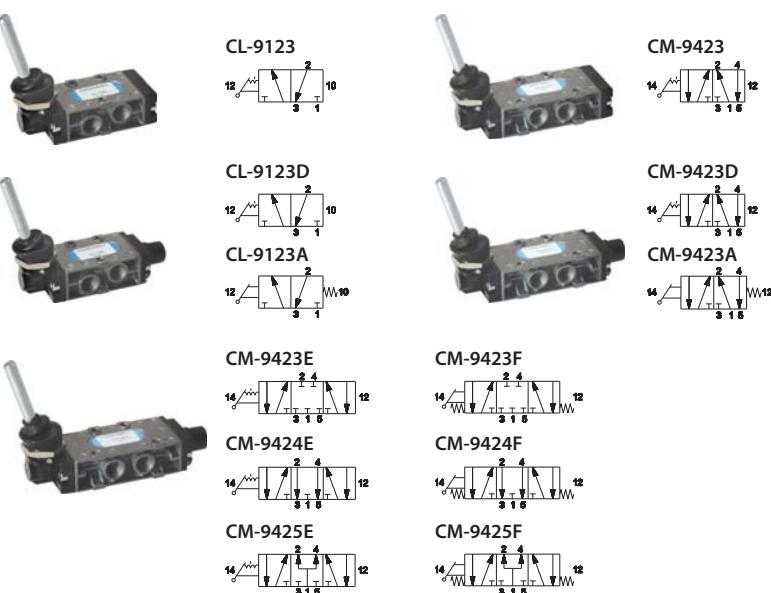
- RED CP-915R



- RED CP-916R

Valves are supplied without operator

## 90° Lever

**LONG LEVER**

- RED CP-913R

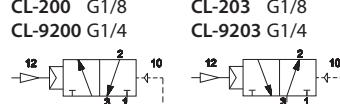
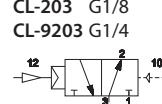
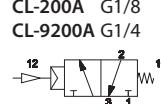
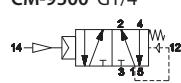
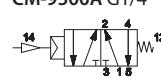
**SHORT LEVER**

- YELLOW CP-912G
- RED CP-912R
- BLACK CP-912N

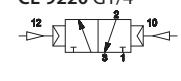
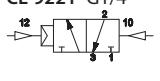
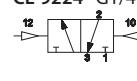
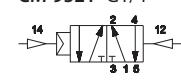
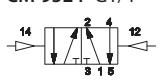
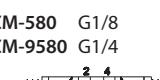
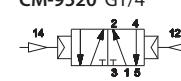
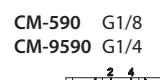
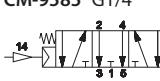
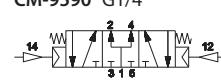
Valves are supplied without operator

## Valves G1/8 - G1/4 with pneumatic operation

## ■ Single impulse

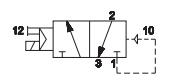
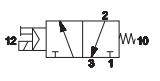
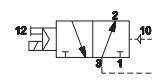
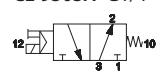
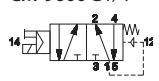
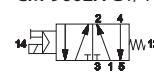
CL-200 G1/8  
CL-9200 G1/4CL-203 G1/8  
CL-9203 G1/4CL-200A G1/8  
CL-9200A G1/4CM-500 G1/8  
CM-9500 G1/4CM-500A G1/8  
CM-9500A G1/4

## ■ Double impulse

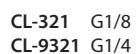
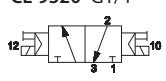
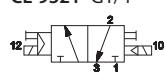
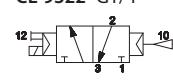
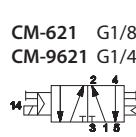
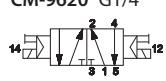
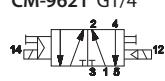
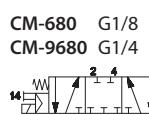
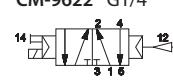
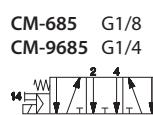
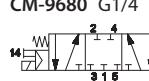
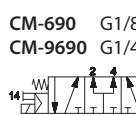
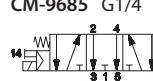
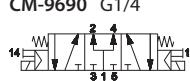
CL-220 G1/8  
CL-9220 G1/4CL-221 G1/8  
CL-9221 G1/4CL-224 G1/8  
CL-9224 G1/4CM-521 G1/8  
CM-9521 G1/4CM-524 G1/8  
CM-9524 G1/4CM-520 G1/8  
CM-9520 G1/4CM-585 G1/8  
CM-9585 G1/4CM-590 G1/8  
CM-9590 G1/4

## Valves G1/8 - G1/4 with electrical operation

## ■ Single impulse

CL-300 G1/8  
CL-9300 G1/4CL-302A G1/8  
CL-9302A G1/4CL-301 G1/8  
CL-9301 G1/4CL-303A G1/8  
CL-9303A G1/4CM-600 G1/8  
CM-9600 G1/4CM-602A G1/8  
CM-9602A G1/4

## ■ Double impulse

CL-320 G1/8  
CL-9320 G1/4CL-321 G1/8  
CL-9321 G1/4CL-322 G1/8  
CL-9322 G1/4CM-620 G1/8  
CM-9620 G1/4CM-621 G1/8  
CM-9621 G1/4CM-622 G1/8  
CM-9622 G1/4CM-680 G1/8  
CM-9680 G1/4CM-685 G1/8  
CM-9685 G1/4CM-690 G1/8  
CM-9690 G1/4

Solenoid valves are supplied without coil, connector and locking nut

AM-5148

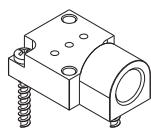
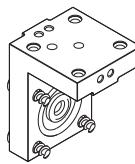


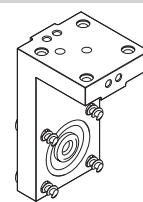
Plate for external pilot supply

AM-5151



Angle plate for "H" solenoid option

AM-5152



Angle plate for "P" solenoid option

## CLIPS Modular sub-base G1/8 - G1/4 for 3/2 - 5/2 - 5/3 valves

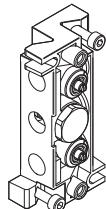


G1/8



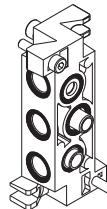
G1/4

CP-100/CP-9100



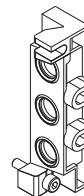
modular sub-base with adjustable and conveyed exhausts  
**CP-100** for G1/8, **CP-9100** for G1/4  
material: zamak

CP-101/CP-9101



modular sub-base without adjustable exhausts  
**CP-101** for G1/8, **CP-9101** for G1/4  
material: zamak

CP-105/CP-9105



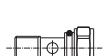
side connection inlet plate  
**CP-105** G1/4, **CP-9105** G3/8  
material: zamak

CP-106



closing plate for unused place  
material: aluminium

CP-110/CP-9110



coupling  
connections: **CP-110** G1/8, **CP-9110** G1/4  
material: brass

CP-111/CP-9111



pressure separator  
**CP-111** for G1/8, **CP-9111** for G1/4  
material: aluminium

CP-112/CP-9112



plug for 3/2 valve mounting  
**CP-112** for G1/8, **CP-9112** for G1/4  
material: aluminium

CP-113/CP-9113



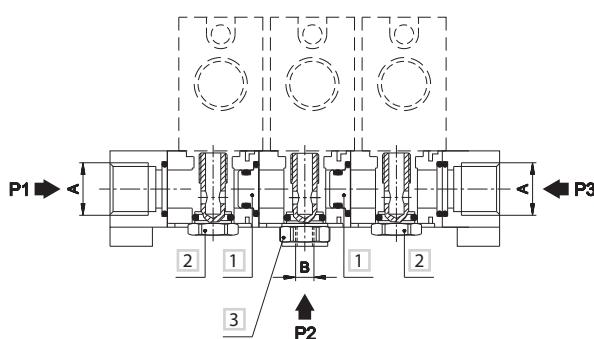
adjustment needle  
**CP-113** for G1/8, **CP-9113** for G1/4  
material: brass

For each additional pressure, one coupling and two separators are required

Plug for mounting 3/2 NC-NO valves on "CLIPS" sub-base to close unused way.  
Sub-base with adjustment screw (screwdriver slot) standard supplied.  
Upon request: adjustment needle with milled handle

## Assembly Example

Manifold supplied by three different pressures



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

- [1] Pressure separator **CP-111/CP-9111**
- [2] Fixing coupling for valve embodied in the sub-base
- [3] Coupling **CP-110/CP-9110**

**CHARACTERISTICS**

Ambient temperature	-10 ÷ +45 °C
Fluid	10 µm filtered air
Commutation system	spool
Max pressure	10 bar
Connections	M5, for sub-base
Nominal bore (mm)	2
Nominal flow rate (NL/min)	150
Valve body	zamak
Seals	NBR
Electropilot/Coil	A series/U05
Voltage	24 V DC -12 V DC - 24 V AC - 110 V AC - 230 V AC


**CODIFICATION KEY**

<b>E</b>	-	0	2	2	4
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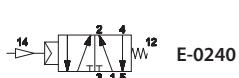
1	2	3	4
---	---	---	---

<b>1 Series</b>	<b>2 Type</b>	<b>3 Control 14</b>	<b>4 Return 12</b>
<b>E</b> = COMPA 2 Miniature Valves	<b>02</b> = 5/2 Sub-base mounting <b>04</b> = 5/2 Threaded body M5 <b>05</b> = 5/3 c.c. Sub-base mounting <b>06</b> = 5/3 o.c. Sub-base mounting <b>07</b> = 5/3 p.c. Sub-base mounting <b>08</b> = 5/3 c.c. Threaded body M5 <b>09</b> = 5/3 o.c. Threaded body M5 <b>10</b> = 5/3 p.c. Threaded body M5	<b>2</b> = Electrical DC <b>4</b> = Pneumatic <b>7</b> = Electrical DC/AC	<b>0</b> = Pneumomechanical spring <b>2</b> = Electrical DC <b>4</b> = Pneumatic impulse <b>7</b> = Electrical DC/AC

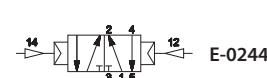
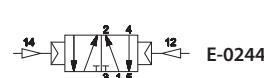
c.c. = closed centres   o.c. = open centres   p.c. = pressurized centres

**Pneumatic impulse**

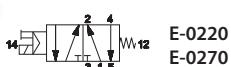
## ■ Single impulse



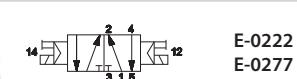
## ■ Double impulse

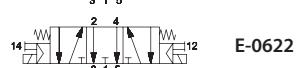
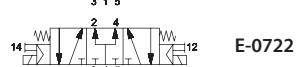

**Electrical impulse**

## ■ Single impulse



## ■ Double impulse


**E-0222  
E-0277**

**E-0522**

**E-0622**

**E-0722**
**Inlet plate G1/8**
**Manifold sub-base, side connections M5**

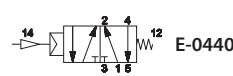
**E-4500**

**E-4505**

Solenoid valves are supplied without coil and connector

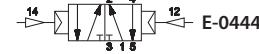
## Pneumatic impulse - 5/2 Valves M5

■ Single impulse



E-0440

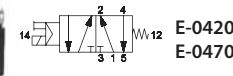
■ Double impulse



E-0444

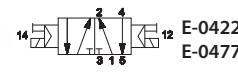
## Electrical impulse - 5/2 Valves M5

■ Single impulse



E-0420

■ Double impulse



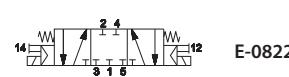
E-0422

E-0470

E-0477

## Electrical impulse - 5/3 Valves M5

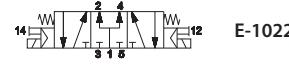
■ Double impulse



E-0822



E-0922



E-1022



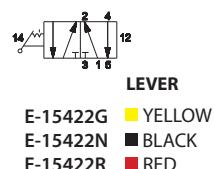
DIN C (8 mm)

For further information please  
contact our Sales Office

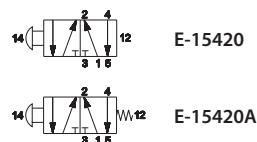
**Solenoid valves are supplied without coil and connector**

## 5/2 Valves M5 - Mechanical and manual operation

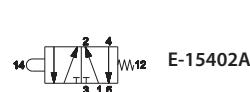
■ Lever valve



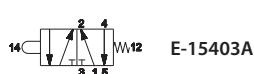
■ Push-pull valve



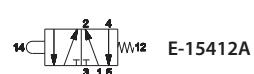
■ Ball push valve



■ Ball push valve for mechanical screw operation



■ Ball push valve for mechanical panel operation



AI-3550	AI-3551	AI-3560	AI-3562	AI-3563	AI-3570	AI-3571	AI-3572	AI-3511Q	■ AI-3514Q	■ AI-3515Q	■ AI-3520Q	■ AI-3524Q	■ AI-3522Q	■ AI-3525Q	■ AI-3526Q

AI-3511 ■	AI-3514 ■	AI-3515 ■	AI-3520 ■	■ AI-3522 ■	■ AI-3524 ■	■ AI-3525 ■	■ AI-3526 ■	■ AI-3511Q	■ AI-3514Q	■ AI-3515Q	■ AI-3520Q	■ AI-3524Q	■ AI-3522Q	■ AI-3525Q	■ AI-3526Q
AI-3512 ■	■ AI-3516 ■	■ AI-3517 ■	■ AI-3521 ■	■ AI-3523 ■				■ AI-3512Q	■ AI-3516Q	■ AI-3517Q	■ AI-3521Q				
AI-3513 ■	■ AI-3514D ■	■ AI-3519 ■	■ AI-3516D ■					■ AI-3513Q	■ AI-3514QD	■ AI-3519Q			■ AI-3523 ■		

Solenoid valves are supplied without coil and connector

**CHARACTERISTICS**

Ambient temperature	-10 ÷ +45 °C
Fluid	10 µm filtered air
Commutation system	spool
Max pressure	10 bar
Connections	for sub-base
Nominal bore (mm)	4
Nominal flow rate (NL/min)	390
Valve body	acetalic resin
Seals	NBR
Electropilot/Coil	A series/U05
Voltage	24 V DC -12 V DC - 24 V AC - 110 V AC - 230 V AC


**CODIFICATION KEY**

F	-	0	2	2	4
1		2	3	4	

**1 Series**

F = COMPA 4 Miniature Valves

**2 Type**

- 02** = 5/2 Sub-base mounting  
**05** = 5/3 c.c. Sub-base mounting  
**06** = 5/3 o.c. Sub-base mounting  
**07** = 5/3 p.c. Sub-base mounting

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

**3 Control 14**

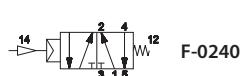
- 2** = Electrical DC  
**4** = Pneumatic  
**7** = Electrical DC/AC

**4 Return 12**

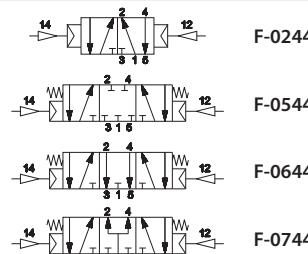
- 0** = Pneumomechanical spring  
**2** = Electrical DC  
**4** = Pneumatic impulse  
**7** = Electrical DC/AC

**Pneumatic impulse**

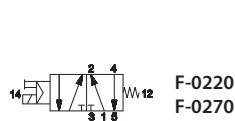
## Single impulse



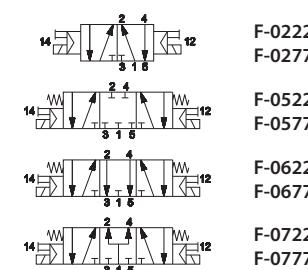
## Double impulse


**Electrical impulse**

## Single impulse



## Double impulse



DIN C (8 mm)

For further information please contact our Sales Office

**Inlet plate G1/8**


F-4500

**Manifold sub-base, threaded connections G1/8**


F-4505

Solenoid valves are supplied without coil and connector

## CHARACTERISTICS

Ambient temperature	-5 ÷ +50 °C
Fluid	50 µm filtered air, with or without lubrication
Commutation system	spool
Pressure	1,5 ÷ 9 bar
Nominal bore (mm)	5
Nominal flow rate (NL/min)	770 (5/2) 700 (5/3) 670 (3/2+3/2)
Connections	G1/8
Valve body	zamak
Seals	NBR
Spool	aluminium
Electropilot/Coil	A series/U05 - B series/U04
Voltage	24 V DC -12 V DC - 24 V AC - 110 V AC - 230 V AC (only for version with integrated electrical connection)
Power consumption	U05 = 2 W (DC) 2,3 VA (AC) U04 = 1,2 W (DC)
Manual override	recessed button - 1 position



## CODIFICATION KEY

G	-	6	6	4	4	
1	2	3	4	5		

### 1 Series

**G-6** = 20 mm - Valves and solenoid valves  
threaded body G1/8

### 2 Type

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

### 3 Control 14

**3** = Pneumatic amplified  
**4** = Electrical amplified DC  
**5** = Electrical amplified DC/AC  
**6** = Electrical amplified DC - B series 10 mm electropilot

### 4 Return 12

**0** = Pneumomechanical spring    **4** = Electrical amplified DC  
**1** = Mechanical spring            **5** = Electrical amplified DC/AC  
**3** = Pneumatic amplified        **6** = Electrical amplified DC - B series 10 mm electropilot

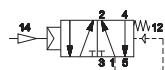
### 5 Option

**D** = External pilot supply

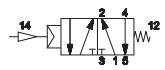
c.c. = closed centres    o.c. = open centres    p.c. = pressurized centres

## Pneumatic impulse

### Single impulse

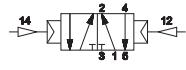


G-6230

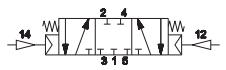


G-6231

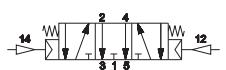
### Double impulse



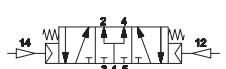
G-6233



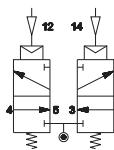
G-6333



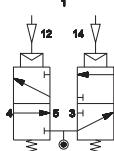
G-6433



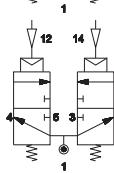
G-6533



G-6633



G-6733

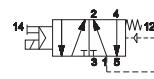


G-6833

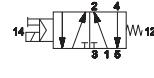
Solenoid valves are supplied without coil and connector

## Electrical impulse - A series 15 mm Electropilot

### ■ Single impulse



G-6240 DC  
G-6250 AC/DC



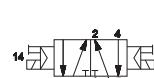
G-6241 DC  
G-6251 AC/DC



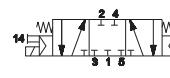
Coil with intergrated connector  
for multipolar version  
**DD-051-2C** 24 V DC  
**DD-040-2C** 24 V AC

Single/double impulse

### ■ Double impulse



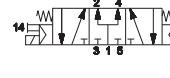
G-6244 DC  
G-6255 AC/DC



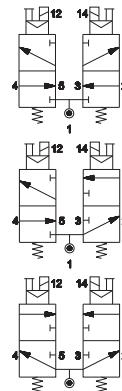
G-6344 DC  
G-6355 AC/DC



G-6444 DC  
G-6455 AC/DC



G-6544 DC  
G-6555 AC/DC



G-6644 DC  
G-6655 AC/DC

G-6744 DC  
G-6755 AC/DC

G-6844 DC  
G-6855 AC/DC

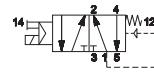


DIN C (8 mm)

For further information please  
contact our Sales Office

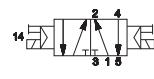
## Electrical impulse - B series 10 mm Electropilot

### ■ Single impulse

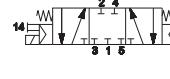


G-6260  
G-6261

### ■ Double impulse



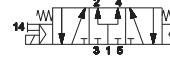
G-6266



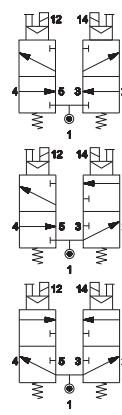
G-6366



G-6466



G-6566



G-6666

G-6766

G-6866

Solenoid valves are supplied without coil and connector

## Electrical sub-base

■ Multipolar connection

■ External connection

■ Connector with loose cables

3



GP-6100

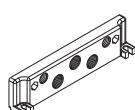


GP-611212

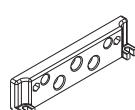


GP-6310/1/2

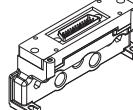
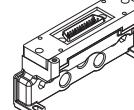
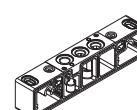
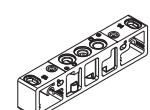
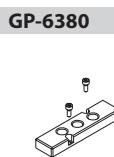
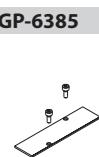
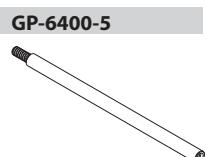
GP-6320/1/2



threaded end plate



blank end plate

threaded end plate with  
male connector  
25 poles  
12+12 coils control 12-14threaded end plate with  
male connector  
25 poles  
18 coils control 14  
6 coils control 12sub-base with  
open diaphragms  
GP-6310 without  
electrical connection  
GP-6311 monostable  
GP-6312 bistablesub-base with  
closed diaphragms  
GP-6320 without  
electrical connection  
GP-6321 monostable  
GP-6322 bistablesub-base with  
closed air supply and  
open exhausts  
GP-6330 without  
electrical connection  
GP-6331 monostable  
GP-6332 bistablesub-base with  
open air supply and  
closed exhausts  
GP-6340 without  
electrical connection  
GP-6341 monostable  
GP-6342 bistableintermediate supply plate  
(to be used only with  
GP-63... sub-base)closing plate for  
unused valve placemodular tie-rod  
1 valve placemodular tie-rod  
2 valve placesmodular tie-rod  
5 valve places**AZ4-SN004A**

No. 100 hexagonal nuts M4

**AZ4-VN0416**

No. 100 allen screws M4x16 for tie rods

GP-6512-01/..MF

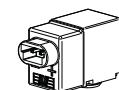
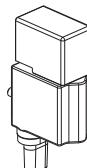
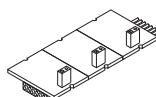
GP-6514-01/..MF

GP-651418

DD-...

DD-051-2C/DD-040-2C

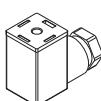
DE-6521

BUS connection card  
control side 12 with 12 pins  
GP-6512-01MF 1 place  
GP-6512-02MF 2 places  
GP-6512-03MF 3 places  
GP-6512-05MF 5 places  
GP-6512-06MF 6 placesBUS connection card  
control side 14 with 12 pins  
GP-6514-01MF 1 place  
GP-6514-02MF 2 places  
GP-6514-03MF 3 places  
GP-6514-05MF 5 places  
GP-6514-06MF 6 placesBUS connection card  
control side 14 with 18 pins  
(only 12 places)  
for manifolds with  
control 14 and more than 12  
coils (up to 18) use  
GP-651418 card 12 places  
and then GP-6514-...24 V DC 2 W coil  
for single connection24 V DC 2 W coil  
with integrated connector  
for multipolar version24 V DC 1,35 W coil  
with in-line connector  
with protection for a  
complete tightness**D-530-30/50/200**

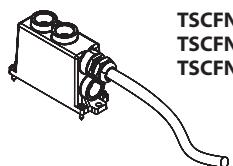
Customized solutions up to 12 places available upon request



## Electrical connections



AM-5109

TSCFN24S0300  
TSCFN24S0500  
TSCFN24S1000

15 mm connector

sub-D flying female connector in compliance with  
CEI 20-22 O.R. II prewired for 24 coils (3-5-10 length)  
M3x12 fixing screws

Miniature connector with loose cables

D-530-30 = wire length 300 mm

D-530-50 = wire length 500 mm

D-530-200 = wire length 2000 mm

## CHARACTERISTICS

Ambient temperature	-5 ÷ +50 °C
Fluid	50 µm filtered air, with or without lubrication
Commutation system	spool
Pressure	1,5 ÷ 9 bar
Connections	sub-base interface
Nominal bore (mm)	5
Nominal flow rate (NL/min)	140 ÷ 740 (depending on the type of fittings)
Valve body	zamak
Seals	NBR
Spool	aluminium
Electropilot/Coil	A series/U05 - B series/U04
Voltage	24 V DC -12 V DC - 24 V AC - 110 V AC - 230 V AC (only version with external connection)
Power consumption	U05 = 2 W (DC) 2,3 VA (AC) U04 = 1,2 W (DC)
Manual override	recessed button - 1 position



## CODIFICATION KEY

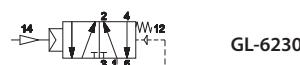
G	L	-	6	6	4	4	
1			2	3	4	5	

1 Series	2 Type	3 Control 14	4 Return 12	5 Option
GL-6 = 20 mm - Valves and Solenoid Valves for sub-base mounting	<b>2</b> = 5/2 <b>3</b> = 5/3 c.c. <b>4</b> = 5/3 o.c. <b>5</b> = 5/3 p.c. <b>6</b> = 3/2+3/2 NC-NC <b>7</b> = 3/2+3/2 NC-NO <b>8</b> = 3/2+3/2 NO-NO	<b>3</b> = Pneumatic amplified <b>4</b> = Electrical amplified DC <b>5</b> = Electrical amplified DC/AC <b>6</b> = Electrical amplified DC B series 10 mm electropilot	<b>0</b> = Pneumomechanical spring <b>1</b> = Mechanical spring <b>3</b> = Pneumatic amplified <b>4</b> = Electrical amplified DC <b>5</b> = Electrical amplified DC/AC <b>6</b> = Electrical amplified DC B series 10 mm electropilot	<b>D</b> = External pilot supply

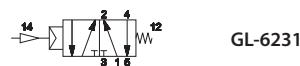
c.c. = closed centres   o.c. = open centres   p.c. = pressurized centres

## Pneumatic impulse

### Single impulse

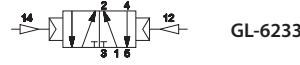


GL-6230

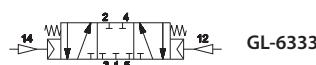


GL-6231

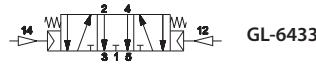
### Double impulse



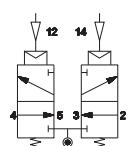
GL-6633



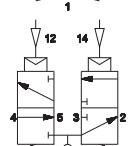
GL-6733



GL-6433



GL-6833

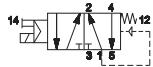


GL-6533

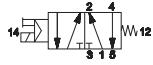
Solenoid valves are supplied without coil and connector

## Electrical impulse - A series 15 mm Electropilot

## ■ Single impulse



GL-6240 DC  
GL-6250 AC/DC



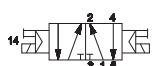
GL-6241 DC  
GL-6251 AC/DC



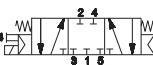
Coil with integrated connector  
for multipolar version  
DD-051-2C 24 V DC  
DD-040-2C 24 V AC

Single/double impulse

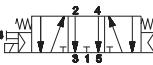
## ■ Double impulse



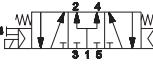
GL-6244 DC  
GL-6255 AC/DC



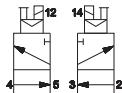
GL-6344 DC  
GL-6355 AC/DC



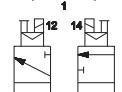
GL-6444 DC  
GL-6455 AC/DC



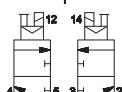
GL-6544 DC  
GL-6555 AC/DC



GL-6644 DC  
GL-6655 AC/DC



GL-6744 DC  
GL-6755 AC/DC



GL-6844 DC  
GL-6855 AC/DC



DIN C (8 mm)

For further information please  
contact our Sales Office

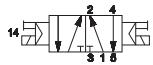
## Electrical impulse - B series 10 mm Electropilot

## ■ Single impulse

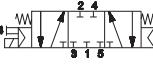


GL-6260  
GL-6261

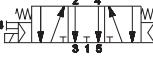
## ■ Double impulse



GL-6266



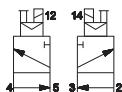
GL-6366



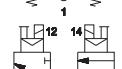
GL-6466



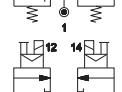
GL-6566



GL-6666



GL-6766



GL-6866

Solenoid valves are supplied without coil and connector

## Electrical sub-base

■ Multipolar connection



GP-6100

■ External connection

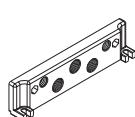


GP-611212

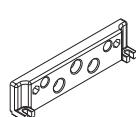
■ Connector with loose cables



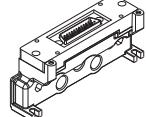
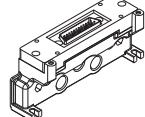
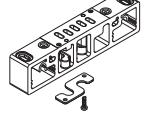
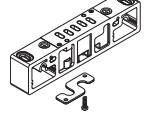
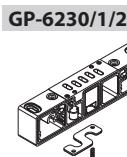
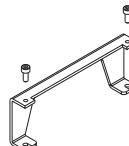
GP-6220/1/2



threaded end plate



blank end plate

threaded end plate with  
male connector  
25 poles  
12+12 coils control 12-14threaded end plate with  
male connector  
25 poles  
18 coils control 14  
6 coils control 12sub-base with  
open diaphragms  
GP-6210 without  
electrical connection  
GP-6211 monostable  
GP-6212 bistablesub-base with  
closed diaphragms  
GP-6220 without  
electrical connection  
GP-6221 monostable  
GP-6222 bistablesub-base with  
closed air supply and  
open exhausts  
GP-6230 without  
electrical connection  
GP-6231 monostable  
GP-6232 bistablesub-base with  
open air supply and  
closed exhausts  
GP-6240 without  
electrical connection  
GP-6241 monostable  
GP-6242 bistableintermediate supply plate  
(to be used only with  
GP-63... sub-bases)closing plate for  
unused valve place

lifting bracket

3 | 1 | 5

3 | 1 | 5

modular tie-rod  
1 valve placemodular tie-rod  
2 valve placesmodular tie-rod  
5 valve placesBUS connection card  
control side 12 with 12 pins  
GP-6512-01MF 1 place  
GP-6512-02MF 2 places  
GP-6512-03MF 3 places  
GP-6512-05MF 5 places  
GP-6512-06MF 6 placesBUS connection card  
control side 14 with 12 pins  
GP-6514-01MF 1 place  
GP-6514-02MF 2 places  
GP-6514-03MF 3 places  
GP-6514-05MF 5 places  
GP-6514-06MF 6 placesBUS connection card  
control side 14 with 18 pins  
(only 12 places)  
for manifolds with control 14  
with more than 12 coils  
(up to 18) use GP-651418  
card 12 places and then  
GP-6514...**AZ4-SN004A**

No. 100 nuts M4 for tie-rods

**AZ4-VN0416**

No. 100 screws M4x16 for tie-rods

customized solutions up to 12 places available upon request

GZR-100

GZR-V10004/6/8

GZR-V20004/6/8

GZR-V20L004/6/8



blanking plug

straight fitting  
GZR-V10004 tube: 4 mm  
GZR-V10006 tube: 6 mm  
GZR-V10008 tube: 8 mmlow elbow fitting  
GZR-V20004 tube: 4 mm  
GZR-V20006 tube: 6 mm  
GZR-V20008 tube: 8 mmhigh elbow fitting  
GZR-V20L004 tube: 4 mm  
GZR-V20L006 tube: 6 mm  
GZR-V20L008 tube: 8 mm

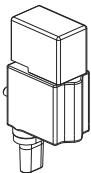
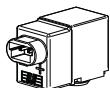
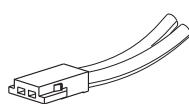
For sub-bases preset for external pilot supply, add suffix S to part number (e.g. GP-6210S)

DD-...

DD-051-2C/DD-040-2C

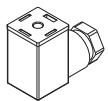
DE-652I

D-530-30/50/200

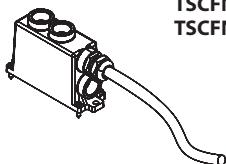
24 V DC 2 W coil  
for single connection24 V DC 2 W coil  
with integrated connector  
for multipolar version24 V DC 1,35 W coil  
with in-line connector  
with protection for a  
complete tightnessMiniature connector with loose  
cables**D-530-30** = wire length 300 mm**D-530-50** = wire length 500 mm**D-530-200** = wire length 2000 mm

### Electrical connections

AM-5109



15 mm connector

**TSCFN24S0300**  
**TSCFN24S0500**  
**TSCFN24S1000**
sub-D flying female connector in compliance with  
CEI 20-22 O.R. II prewired for 24 coils (3-5-10 m length)  
M3x12 fixing screws

### Example of panel mounting

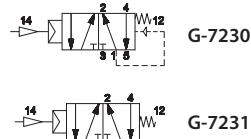


**CHARACTERISTICS**

Ambient temperature	-10 ÷ +45 °C
Fluid	50 µm filtered air, with or without lubrication
Commutation system	spool
Max pressure	10 bar
Nominal bore (mm)	6
Nominal flow rate (NL/min)	860
Connector	G1/8
Valve body	zamak
Seals	NBR
Spool	aluminium
Electropilot/Coil	AA series/U1-U3
Power consumption	3,5 W (DC), 5 VA (AC)
Connector	AM-5110
Voltage	12 V DC - 24 V DC - 24 V AC - 110 V AC - 230 V AC
Manual override	impulse screw - 2 positions

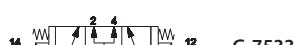
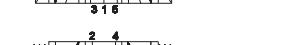

**Pneumatic impulse**

## ■ Single impulse

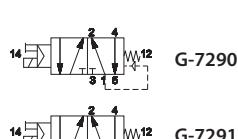


G-7231

## ■ Double impulse


**Electrical impulse**

## ■ Single impulse



G-7291

## ■ Double impulse

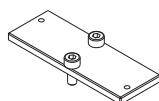


The valve is supplied with two plugs to be fixed with sealants on unused connections 2-4  
Solenoid valves are supplied without coil/connector/locking nut

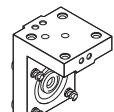
**Multiple sub-base G1/8**


	Places		Places
G-7900-02	2	G-7900-08	8
G-7900-03	3	G-7900-09	9
G-7900-04	4	G-7900-10	10
G-7900-05	5	G-7900-11	11
G-7900-06	6	G-7900-12	12
G-7900-07	7		

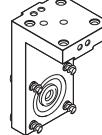
G-7885



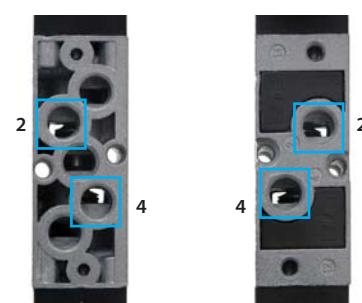
AM-5151



AM-5152



Threaded connections 2 - 4 on both sides of the valve



**PS**

COMBOBOX Valves

**INTEGRATED SUB-BASE**

MANIFOLD valve with no sub-base

**REDUCED DIMENSIONS**

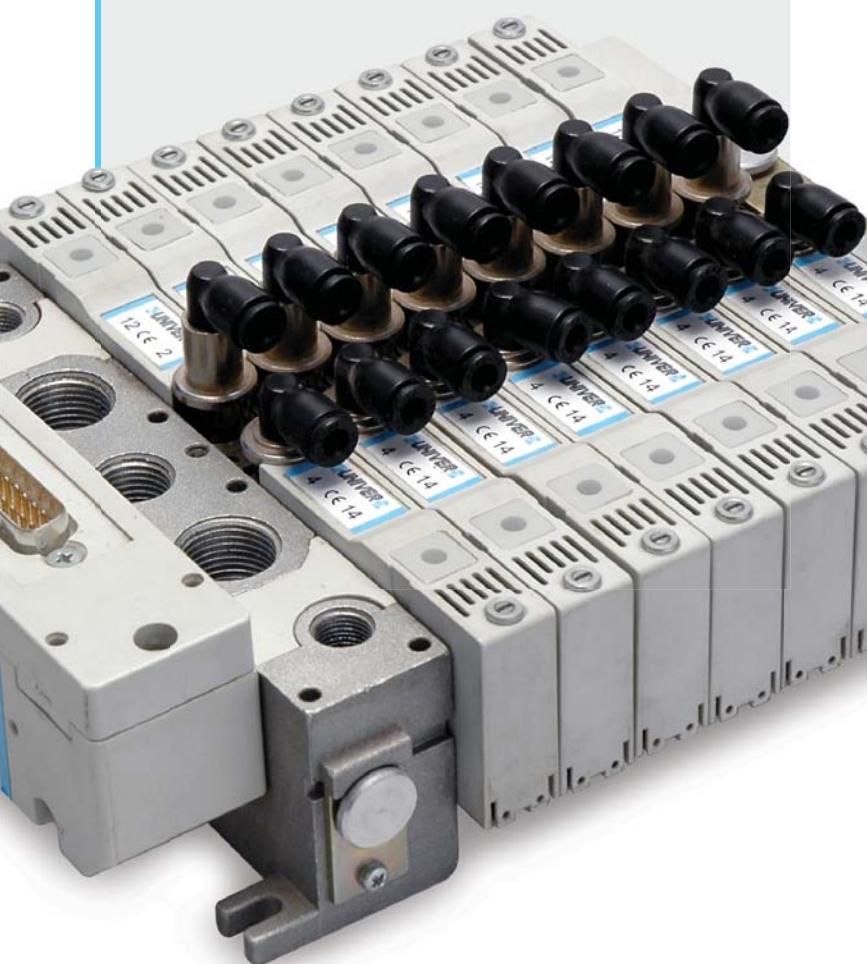
Space saving up to 30% in comparison with standard valve MANIFOLDS

**HIGH FLOW RATE**

830 NL/min spool system UNIVER Original

**READY TO USE**

Prewired configurations of 2 to 20 valves for a quick installation

**PSC**

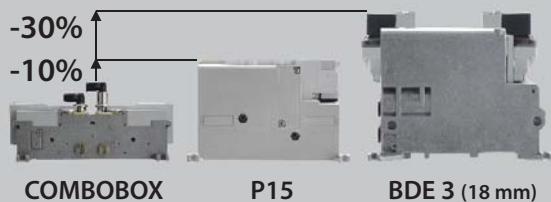
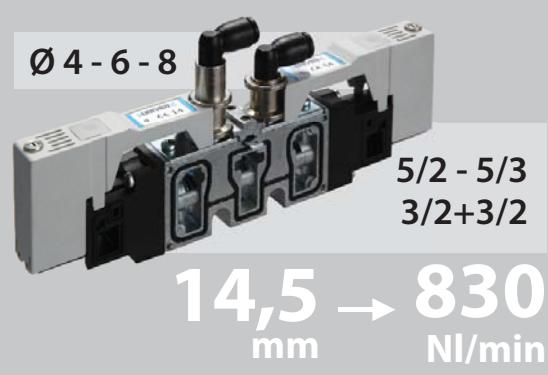
Single electrical connection

**PSP**

Multipolar connection

**PSR**

Pneumatic operation connection

**REDUCED DIMENSIONS****MANIFOLD VALVE without sub-base**

**CHARACTERISTICS**

Ambient temperature	-5 ÷ +50 °C (PSC-PSP), -15 ÷ +50 °C (PSR)
Fluid	10 µm filtered air, with or without lubrication
Commutation system	spool
Max pressure	9 bar (electrical control), 10 bar (pneumatic control)
Nominal bore (mm)	6
Nominal flow rate (NI/min)	depending on the type of fittings (see table)
Connections	tube Ø 4, 6, 8
Valve body	zamak
Seals	NBR
Spool	aluminium
Electropilot/Coil	B series/U04
Power consumption	1,35 W
Voltage	24 V DC (12 V DC upon request)
Protection degree	IP65
Manual override	recessed button - 1 position (PSC), impulse screw - 1-2 positions (PSP)


**Nominal flow rate (NI/min)**

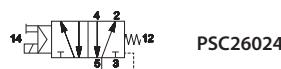
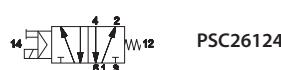
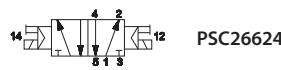
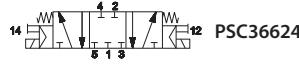
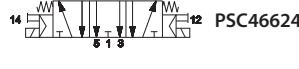
	Ø4	Ø6	Ø8
Straight fitting	200	510	830
Elbow fitting	140	370	700

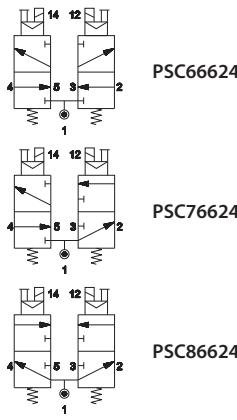
**CODIFICATION KEY**

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

1 Series	2 Type	3 Control 14	4 Return 12	5 Voltage and coil
PSC = Separate wires	2 = 5/2	2 = Pneumatic amplified	0 = Pneumatic spring	Only for PSC and PSP series, assembled coils with standard supplied led
PSP = Plug-in	3 = 5/3 c.c.	6 = Electrical amplified	1 = Mechanical spring	24 = 24 V (standard)
PSR = Pneumatic	4 = 5/3 o.c.		2 = Pneumatic amplified	12 = 12 V (upon request)
	5 = 5/3 p.c.		3 = Pneumatic not amplified	
	6 = 3/2+3/2 NC-NC		6 = Electrical amplified	
	7 = 3/2+3/2 NC-NO		7 = Electrical not amplified	
	8 = 3/2+3/2 NO-NO			

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

**PSC Electrical impulse - Electrical connection with separate wires**
**Single impulse**

**PSC26024**

**PSC26124**
**Double impulse**

**PSC26624**

**PSC36624**

**PSC46624**

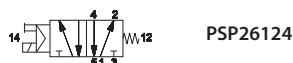
**PSC56624**


### PSP Electrical impulse - Plug-in integrated electrical connection

■ Single impulse

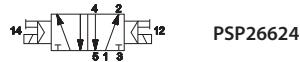


PSP26024



PSP26124

■ Double impulse



PSP26624



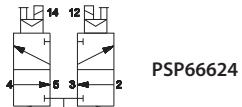
PSP36624



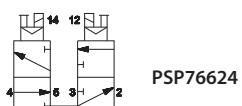
PSP46624



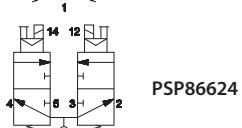
PSP56624



PSP66624



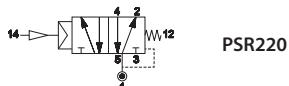
PSP76624



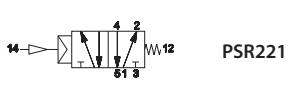
PSP86624

### PSR Pneumatic impulse - Pneumatic operation

■ Single impulse

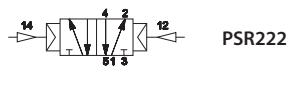


PSR220

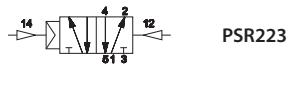


PSR221

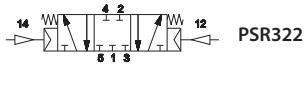
■ Double impulse



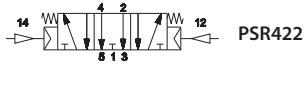
PSR222



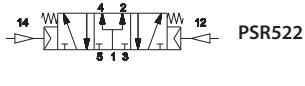
PSR223



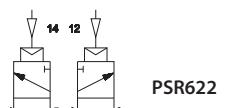
PSR322



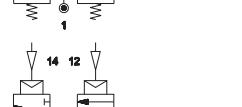
PSR422



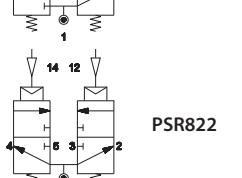
PSR522



PSR622



PSR722



PSR822

## PSC Manifold with single electrical connection

- With 26 mm inlet plate and 14,5 mm end plate with DIN rail (EN50022)



- With 14,5 mm inlet and end plate



## PSP Manifold with multipolar connection

- With 26 mm inlet plate and 14,5 mm end plate with multipolar connector



- With 26 mm inlet plate and 14,5 mm end plate with multipolar connector and intermediate plate

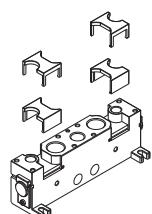


## PSR Manifold with pneumatic operation

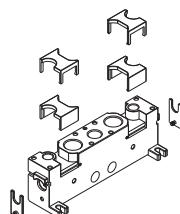
- With 26 mm inlet plate and 14,5 mm end plate



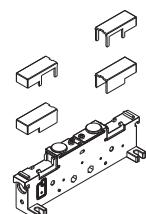
PS14100

26 mm inlet plate  
internal pilot supply

PS14200

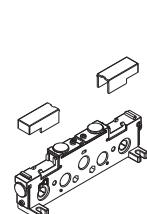
26 mm inlet plate  
external pilot supply

PS15000

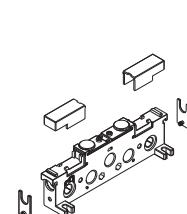


blank plate

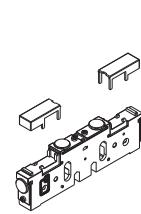
PS15100

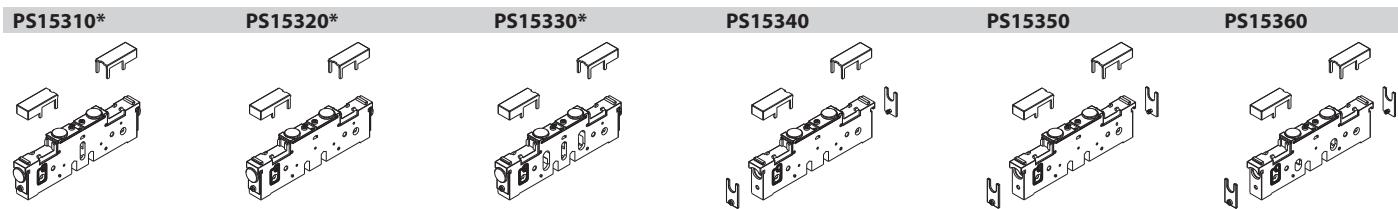
14,5 mm inlet plate  
internal pilot supply

PS15200

14,5 mm inlet plate  
external pilot supply

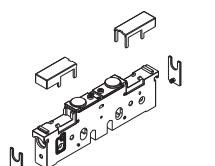
PS15300\*

14,5 mm intermediate  
plate, closed air supply,  
open exhausts



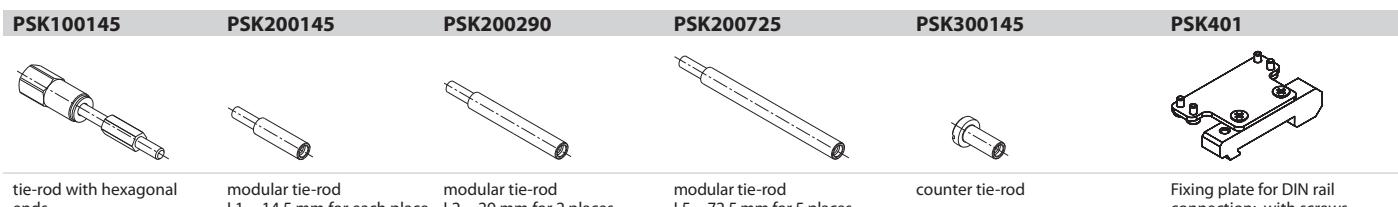
14,5 mm intermediate plate,  
open supply, closed exhausts      14,5 mm intermediate  
blank plate      14,5 mm intermediate  
open plate      intermediate supply  
plate with closed  
exhausts and internal  
pilot supply      intermediate supply  
plate with closed  
exhausts and external  
pilot supply      intermediate supply  
plate with open  
exhausts and internal  
pilot supply

#### PS15370

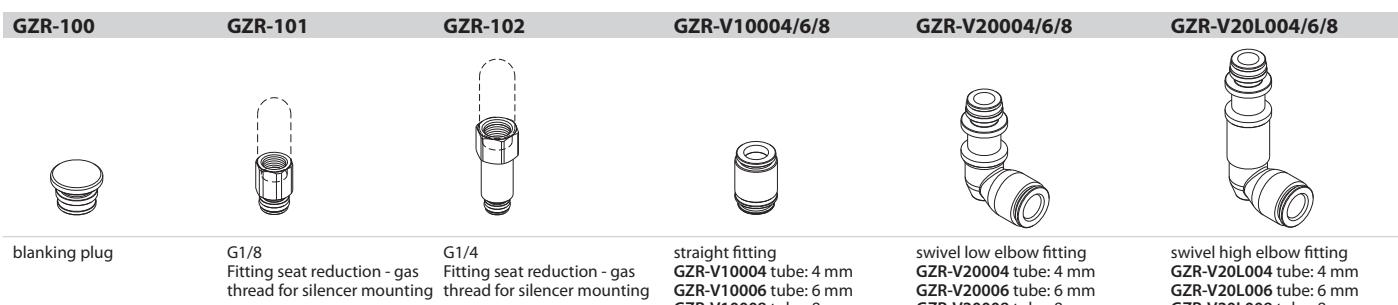


\* = For intermediate plate with closed pilot supply ports add suffix 1 to part number.  
The intermediate plate takes one valve place. This needs to be considered for a proper purchase of modular tie rods.

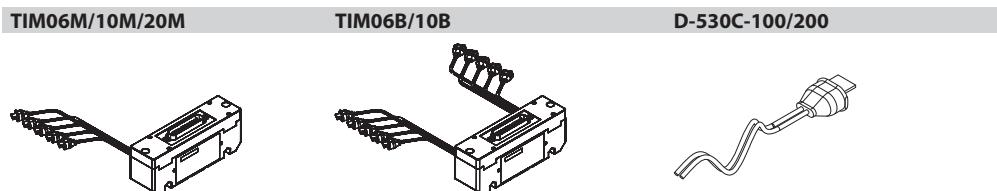
Electropilots are supplied through end plates for internal as well as external supply.  
In case two different working pressures are applied to the end plates, it is possible to supply either all pilots with one of the two pressures (in general the higher one) or the pilots of each valve group with the working pressure of the same. This is made possible by means of a proper pressure separator.  
This same principle applies also in presence of more than two different pressures: in this case it is necessary to use intermediate supply plates suitably coupled with pressure separators.



tie-rod with hexagonal ends      modular tie-rod L1 = 14,5 mm for each place      modular tie-rod L2 = 29 mm for 2 places      modular tie-rod L5 = 72,5 mm for 5 places      counter tie-rod      Fixing plate for DIN rail connection; with screws



blanking plug      G1/8 Fitting seat reduction - gas thread for silencer mounting      G1/4 Fitting seat reduction - gas thread for silencer mounting      straight fitting GZR-V10004 tube: 4 mm GZR-V10006 tube: 6 mm GZR-V10008 tube: 8 mm      swivel low elbow fitting GZR-V20004 tube: 4 mm GZR-V20006 tube: 6 mm GZR-V20008 tube: 8 mm      swivel high elbow fitting GZR-V20L004 tube: 4 mm GZR-V20L006 tube: 6 mm GZR-V20L008 tube: 8 mm

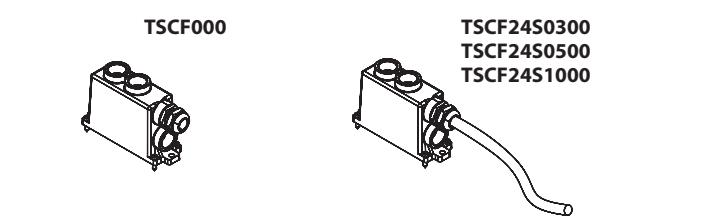


male connector 25 poles, prewired for monostable valves (M)  
TIM06M (Max 6M)  
TIM10M (Max 10M)  
TIM20M (Max 20M)

male connector 25 poles, prewired for bistable valves (B)  
TIM06B (Max 6B)  
TIM10B (Max 10B)

miniature bipolar flying connector:  
stripped and tinned for protection  
D-530C-100 (wire length 1000 mm)  
D-530C-200 (wire length 2000 mm)

#### Electrical connections



sub-D female connector  
25 poles without cable

sub-D flying female connector in compliance with  
CEI 20-22 O.R. II prewired for 24 coils (3-5-10 m length)  
M3x12 fixing screws

**MIXED SYSTEM**

For heavy applications  
Fast commutation  
Large number of cycles  
High flow rate

**AC 7**

G1/8

**1080**  
NI/min**AC 8**

G1/4

**1600**  
NI/min**AC 9**

G1/2

**4600**  
NI/minAngle plate for "H"  
solenoid optionAngle plate for "P"  
solenoid optionPlate for external pilot  
supply

## CHARACTERISTICS

Ambient temperature	-10 ÷ +45 °C		
Fluid	50 µm filtered air, with or without lubrication		
Commutation system	poppet mixed system		
Max pressure	10 bar		
Connections	G1/8	G1/4	G1/2
Nominal bore (mm)	6	8	15
Nominal flow rate (NL/min)	1080	1600	4600
Valve body	zamak	zamak	die-cast aluminium
Seals	NBR, polyurethane		
Spool	aluminium		
Electropilot	U1	U1	U2
Coil	DA	DA	DB
Power consumption	3,5 W (DC) - 5 VA (AC)	3,5 W (DC) - 5 VA (AC)	11 W (DC) - 10 VA (AC)
Connector	AM-5110	AM-5110	AM-5111
Voltage	12 V DC - 24 V DC - 24 V AC - 110 V AC - 230 V AC		
Manual override	impulse screw - 2 positions		



## Indirect mechanical operation

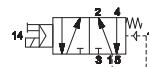
■ Preset for pneumatic, mechanical and manual operators				■ Preset for panel operators Ø22			
AC-7010 G1/8 AC-8010 G1/4 AC-9010 G1/2				AC-7013 G1/8 AC-8013 G1/4 AC-9013 G1/2			
AI-3550	AI-3551	AI-3560	AI-3562	AI-3563	AI-3570	AI-3571	AI-3572
AI-3511Q ■	AI-3514Q ■	AI-3515Q ■	AI-3516Q ■	AI-3517Q ■	AI-3518Q ■	AI-3520Q ■	AI-3522Q ■
AI-3512Q ■	AI-3514D ■	AI-3515D ■	AI-3516D ■	AI-3517D ■	AI-3518D ■	AI-3521Q ■	AI-3523Q ■
AI-3513Q ■	AI-3514D ■	AI-3515D ■	AI-3516D ■	AI-3517D ■	AI-3518D ■	AI-3514QD ■	AI-3519Q ■
						AI-3516QD ■	
AI-3511 ■ AI-3514 ■ AI-3515 ■ AI-3516 ■ AI-3517 ■ AI-3518 ■ AI-3519 ■ AI-3520 ■ AI-3521 ■ AI-3522 ■ AI-3523 ■ AI-3524 ■ AI-3525 ■ AI-3526 ■				AI-7013P G1/8 AC-8013P G1/4 AC-9013P G1/2			
AI-3511 ■	AI-3514 ■	AI-3515 ■	AI-3516 ■	AI-3517 ■	AI-3518 ■	AI-3520 ■	AI-3522 ■
AI-3512 ■	AI-3514D ■	AI-3515D ■	AI-3516D ■	AI-3517D ■	AI-3518D ■	AI-3521 ■	AI-3523 ■
AI-3513 ■	AI-3514D ■	AI-3515D ■	AI-3516D ■	AI-3517D ■	AI-3518D ■	AI-3514QD ■	AI-3519Q ■
						AI-3516QD ■	

## Pneumatic impulse

■ Single impulse				■ Double impulse			
AC-7100 G1/8 AC-8100 G1/4 AC-9100 G1/2				AC-7120 G1/8 AC-8120 G1/4 AC-9120 G1/2			
AC-7100 G1/8 AC-8100 G1/4 AC-9100 G1/2				AC-7120 G1/8 AC-8120 G1/4 AC-9120 G1/2			

## Electrical impulse

■ Single impulse



**AC-7500** G1/8  
**AC-8500** G1/4  
**AC-9500** G1/2

■ Double impulse



**AC-7520** G1/8  
**AC-8520** G1/4  
**AC-9520** G1/2

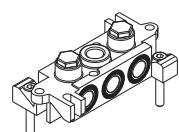
Solenoid valves are supplied without coil/connector/locking nut

## Modular sub-base

■ G1/8

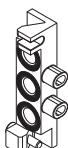


**AC-7900**



Sub-base with connections  
G1/8

**AC-7905**

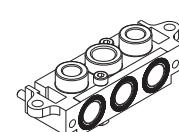


5/2 MIXED system inlet  
plate - G1/8

■ G1/4



**AC-8900**



Sub-base with threaded  
connections G1/4

Sub-bases are supplied with fixing screws

**AM-5148**

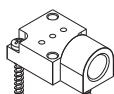
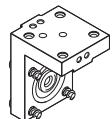


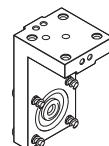
plate for external pilot supply  
G1/8 - G1/4

**AM-5151**



Angle plate for "H" solenoid  
option G1/8 - G1/4

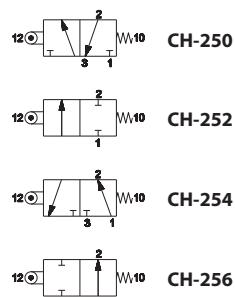
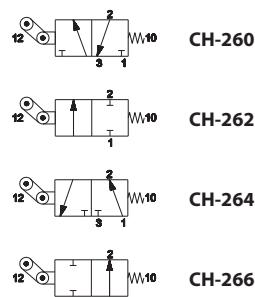
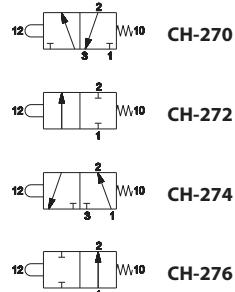
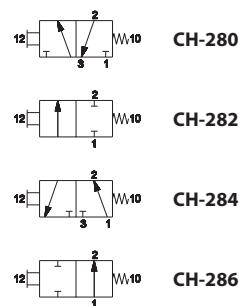
**AM-5152**



Angle plate for "P" solenoid  
option G1/8 - G1/4

**CHARACTERISTICS**

Ambient temperature	-10 ÷ +45 °C
Fluid	50 µm filtered air, with or without lubrication
Commutation system	poppet
Max pressure	10 bar
Connections	G1/8
Nominal bore (mm)	5
Nominal flow rate (NL/min)	600 (NC), 550 (NO)
Valve body	zamak
Seals	NBR
Spool	nickel-plated brass


**Roller lever - spring**

**One-way roller lever - spring**

**Ball push - spring**

**Button lever - spring**


# AF-AG

Poppet Valves G1/8 ÷ G1 1/2



## WIDE RANGE

G1/8 ÷ G1 1/2

2/2 - 3/2 NC-NO

## COMPRESSED AIR VERSION

## VACUUM VERSION

Available also with external pilot vacuum supply

## HIGH FLOW RATE

Up to 35000 Nl/min  
(G1 1/2)

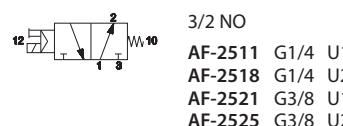
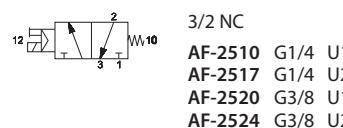
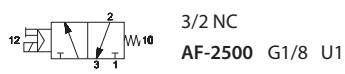
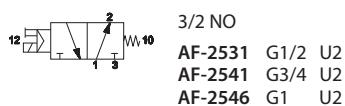
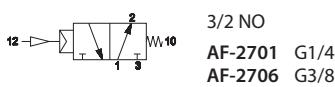
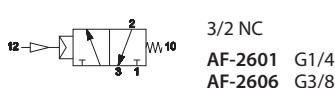
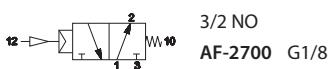
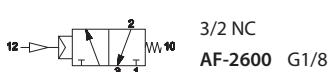
	<b>AF</b> Nl/min	<b>AG</b> m <sup>3</sup> /h
	Compressed air	Vacuum
	<b>580</b>	<b>1,5</b>
	<b>1100</b>	<b>4</b>
	<b>1500</b>	<b>10</b>
	<b>5400</b>	<b>20</b>
	<b>6500</b>	<b>35</b>
	<b>13500</b>	<b>90</b>
	<b>35000</b>	<b>180</b>

Poppet system  
UNIVER Original since 1973

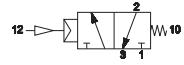


**CHARACTERISTICS**

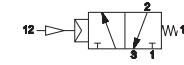
Ambient temperature	Max +50 °C													
Fluid	50 µm filtered air, with or without lubrication													
Commutation system	poppet													
Max pressure	10 bar													
Connections	G1/8	G1/4	G3/8	G1/2	G3/4	G1	G1 1/2							
Nominal bore (mm)	5,5	8	10	15	19	25	39							
Nominal flow rate (NL/min)	580	1100	1500	5400	6500	13500	35000							
Valve body	zamak (G1/8 ÷ G1), aluminium (G1 1/2)													
Seals	polyurethane conical poppets and Vulkollan diaphragm													
Spool	aluminium (G1/8 ÷ G3/8), steel + plastic (G1/2 ÷ G1 1/2)													
	G1/8 ÷ G3/8			G1/4 ÷ G1 1/2										
Electropilot	U1		U2											
Coil	DA		DB											
Power consumption	3,5 W (DC) - 5 VA (AC)			11 W (DC) - 10 VA (AC)										
Connector	AM-5110			AM-5111										
Voltage	12 V DC - 24 V DC - 24 V AC - 110 V AC - 230 V AC													
Manual override	impulse screw - 2 positions													


**Solenoid valves G1/8 ÷ G3/8**

**Solenoid valves G1/2 ÷ G1 1/2**

**Pneumatic valves with external operation G1/8 ÷ G3/8**

**Solenoid valves are supplied without coil/connector/locking nut**

## Pneumatic valves with external operation G1/2 ÷ G1 1/2

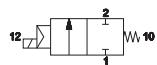


3/2 NC-NO  
AF-2603 G1/2  
AF-2610 G3/4  
AF-2615 G1

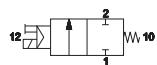


3/2 NC-NO  
AF-2620 G1 1/2

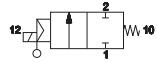
## 2/2 Solenoid valve for blowing G1



2/2 NC  
AF-2550 G1

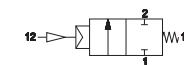


2/2 NC  
AF-2551 G1



2/2 NC  
AF-2552 G1

## 2/2 Pneumatic valve for blowing with ext. operation G1



2/2 NC  
AF-2617 G1

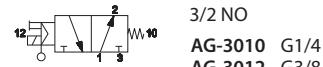
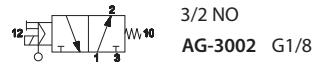
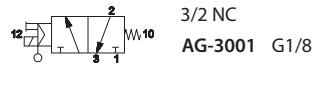
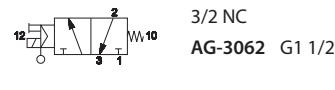
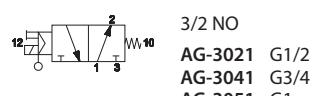
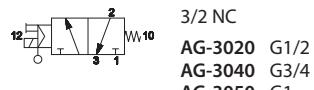
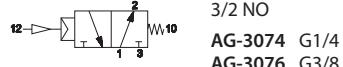
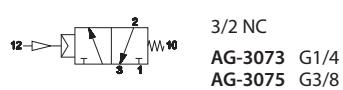
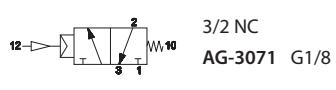
Solenoid valves are supplied without coil/connector/locking nut

**CHARACTERISTICS**

Ambient temperature	Max +50 °C										
Fluid	50 µm filtered air, with or without lubrication - vacuum										
Commutation system	poppet										
Max vacuum	759,5 mm Hg										
Connections	G1/8	G1/4	G3/8	G1/2	G3/4	G1	G1 1/2				
Nominal bore (mm)	5,5	8	10	15	19	25	39				
Valve body	zamac (G1/8 ÷ G1), aluminium (G1 1/2)										
Seals	polyurethane conical poppets and Vulkollan diaphragm <sup>(a)</sup> ; silicon poppets <sup>(b)</sup>										
Spool	aluminium (G1/8 ÷ G3/8), steel + plastic (G1/2 ÷ G1 1/2)										
	G1/8 ÷ G3/8			G1/4 ÷ G1 1/2							
Electropilot	U1										
Coil	DA										
Power consumption	3,5 W (DC) - 5 VA (AC)			11 W (DC) - 10 VA (AC)							
Connector	AM-5110										
Voltage	12 V DC - 24 V DC - 24 V AC - 110 V AC - 230 V AC										
Manual override	impulse screw - 2 positions										

(a) = valve for vacuum with external air operation

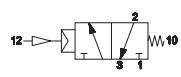
(b) = valve for direct vacuum with external vacuum operation

**3/3 Solenoid valve for vacuum with external pilot air supply G1/8 ÷ G3/8**

**3/2 Solenoid valve for vacuum with external pilot air supply G1/2 ÷ G1 1/2**

**3/2 Pneumatic valve for vacuum with external air operation G1/8 ÷ G3/8**


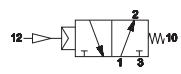
**2/2 NC-NO version available upon request**

Solenoid valves are supplied without coil/connector/locking nut

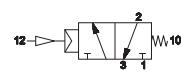
## 3/2 Pneumatic valve for vacuum with external air operation G1/2 ÷ G1 1/2



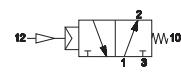
3/2 NC  
AG-3081 G1/2  
AG-3091 G3/4  
AG-3100 G1



3/2 NO  
AG-3082 G1/2  
AG-3092 G3/4  
AG-3101 G1

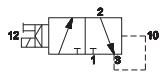


3/2 NC  
AG-3110 G1 1/2

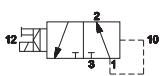


3/2 NO  
AG-3111 G1 1/2

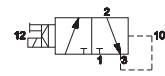
## 3/2 Solenoid valve for direct vacuum with external pilot vacuum supply G1/4 ÷ G1 1/2



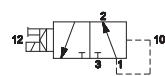
3/2 NC  
AG-3210 G1/4  
AG-3214 G3/8



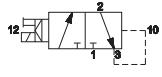
3/2 NO  
AG-3211 G1/4  
AG-3215 G3/8



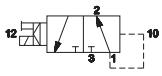
3/2 NC  
AG-3222 G1/2  
AG-3232 G3/4  
AG-3242 G1



3/2 NO  
AG-3223 G1/2  
AG-3233 G3/4  
AG-3243 G1

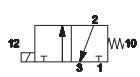


3/2 NC  
AG-3256 G1 1/2

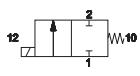


3/2 NO  
AG-3257 G1 1/2

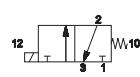
## 2/2 - 3/2 Solenoid valve for vacuum with direct operation G1/4 - G1/2



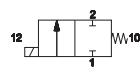
3/2 NC  
AG-3310 G1/4  
AG-3311 G1/4  
AG-3312 G1/4  
AG-3313 G1/4



2/2 NC  
AG-3300 G1/4  
AG-3301 G1/4  
AG-3302 G1/4  
AG-3303 G1/4



3/2 NC  
AG-3330 G1/2  
AG-3331 G1/2  
AG-3332 G1/2



2/2 NC  
AG-3320 G1/2  
AG-3321 G1/2  
AG-3322 G1/2

■ U2 - 17 VA coil



DB-0607 24V AC - 50/60 Hz  
DB-0608 110V AC - 50/60 Hz  
DB-0610 220V AC - 50/60 Hz

Solenoid valves are supplied without coil/connector/locking nut

**CHARACTERISTICS**

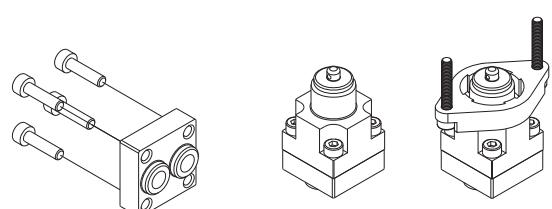
Ambient temperature	-10 ÷ +90 °C	
Fluid	50 µm filtered air, with or without lubrication	
Commutation system	poppet	
Max pressure	10 bar	
Connections	interface for sub-base	
Nominal bore (mm)	standard	sensible
Nominal flow rate (NL/min)	2,3	1,5
Force (N)	110	55
Valve body	zamak	
Seals	NBR	
Spool	nickel-plated brass	


**Mechanical push button - spring**

		AI-3500 standard AI-3500S sensible
		AI-3501 standard AI-3501S sensible
		AI-3502 standard
		AI-3503 2/2 NO Available upon request

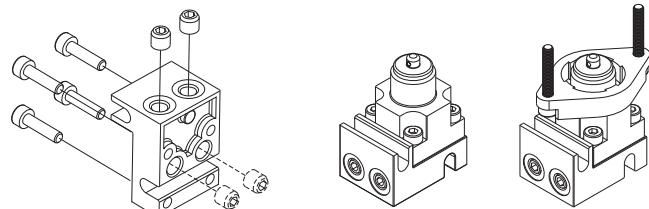
**Mechanical push button for panel operation - spring**

		AI-3500Q standard AI-3500SQ sensible
		AI-3501Q standard AI-3501SQ sensible
		AI-3502Q standard
		AI-3503Q 2/2 NO Available upon request


**AI-3610**


Sub-base with bottom connections M5

Sub-bases are supplied with M3x12 fixing screws (4 pcs) and M5x5 grub screws (2pcs) to close the unused ways.

**AI-3612**


Sub-base with side or bottom connections M5

Grub screws must be fixed with sealing loctite (243 type), being sure that loctite does not obstruct the ports or sink inside the valve.  
Grub screws must be screwed until reaching the base surface. Avoid screwing them completely.

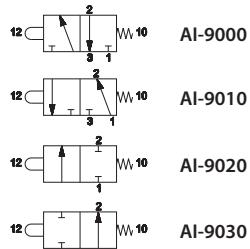
## CHARACTERISTICS

Ambient temperature	-10 ÷ +90 °C
Fluid	50 µm filtered air, with or without lubrication
Commutation system	poppet
Max pressure	10 bar
Connections	M5, tube Ø4
Nominal bore (mm)	2,5
Nominal flow rate (NL/min)	70
Valve body	zamak
Seals	NBR
Spool	nickel-plated brass

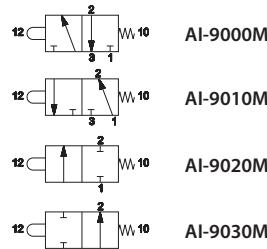


## Ball push - spring

■ Tube Ø4

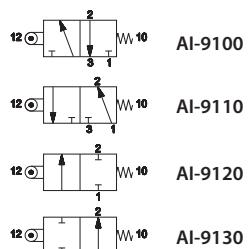


■ M5

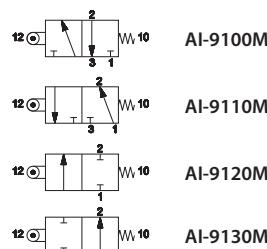


## Roller lever - spring

■ Tube Ø4

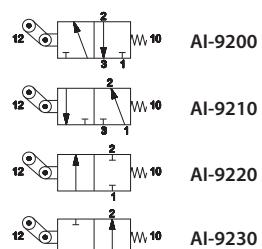


■ M5

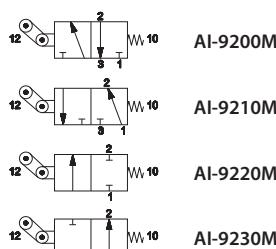


## One-way roller lever - spring

■ Tube Ø4

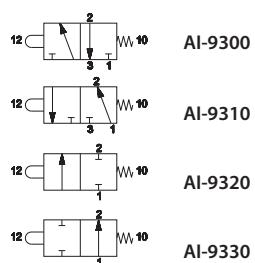


■ M5

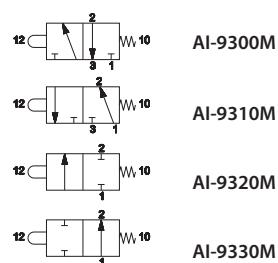


## Bulkhead mechanical push button - spring

■ Tube Ø4

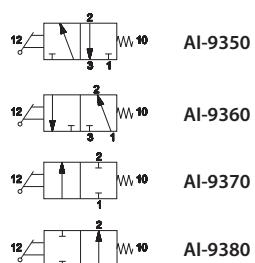


■ M5

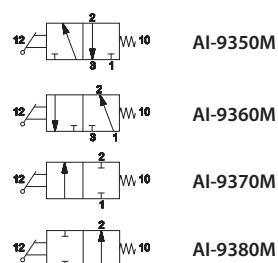


## Button lever - spring

■ Tube Ø4

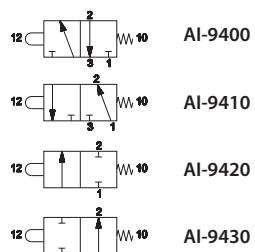


■ M5

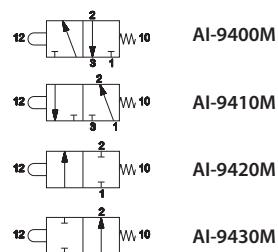


## Mechanical push button for panel operation - spring

■ Tube Ø4



■ M5



AI-3511Q ■	AI-3514Q ■	AI-3515Q ■	AI-3516Q ■	AI-3517Q ■	AI-3518Q ■	AI-3519Q ■	AI-3513Q ■	AI-3514QD ■	AI-3516QD ■
AI-3512Q ■	AI-3516Q ■	AI-3517Q ■	AI-3518Q ■	AI-3519Q ■	AI-3523Q ■				

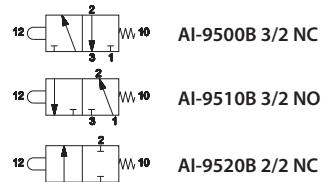
## CHARACTERISTICS

Ambient temperature	-10 ÷ +90 °C
Fluid	50 µm filtered air, with or without lubrication
Commutation system	poppet
Max pressure	10 bar
Connections	M5, tube Ø4
Nominal bore (mm)	2,5
Nominal flow rate (NL/min)	70
Valve body	zamak
Seals	NBR
Spool	nickel-plated brass

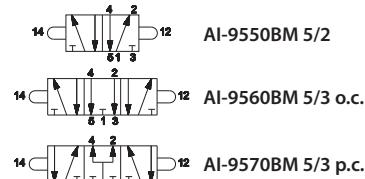
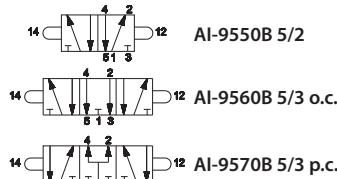
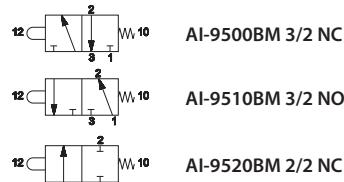


## Mechanical operation for panel mounting

Tube Ø4



M5



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

Recessed button	Protruding button	Two-position head button	Short lever selector	Long lever selector	Key selector
AI-35B10N ■ AI-35B10R ■■ AI-35B10V ■■■	AI-35B11N ■■ AI-35B11R ■■ AI-35B11V ■■■	AI-35B13N ■■ AI-35B13R ■■	AI-35B20 2 steady positions AI-35B21 3 unsteady positions AI-35B22 3 steady positions	AI-35B25 2 steady positions AI-35B26 3 unsteady positions AI-35B27 3 steady positions	AI-35B30 2 steady positions AI-35B31 3 unsteady positions AI-35B32 3 steady positions

## CHARACTERISTICS

Ambient temperature	-10 ÷ -70 °C	
Fluid	filtered air 50 µm, with or without lubrication	
Commutation system	poppet	
Max pressure	10 bar	
Connections	G1/8	G1/4
Nominal bore (mm)	2,3	8
Nominal flow rate (NL/min)	98	800
<b>PNEUMATIC FOOT VALVE:</b>		
Valve body	zamak	
Foot valve lever	aluminium	
Pedal body and protection	plastic material with reinforcing steel plate	
Seals	oil and wear resistant compound	
Spool	aluminium	
<b>SOLENOID FOOT VALVE</b>		
Valve body, foot valve lever, protection	dielectric plastic material	



## Pneumatic foot valve G1/4 with protection

	<input checked="" type="checkbox"/> Spring return	<input checked="" type="checkbox"/> Bistable	<input checked="" type="checkbox"/> With safety control
	AM-5000		AM-5003
	AM-5001		AM-5004
	AM-5002		AM-5005
<input checked="" type="checkbox"/> External operation - Spring return		<input checked="" type="checkbox"/> External operation - bistable	
	AM-5021		AM-5031
		<input checked="" type="checkbox"/> External operation with safety control	
			AM-5041

## Pneumatic foot valve G1/4 without protection

	<input checked="" type="checkbox"/> Spring return	<input checked="" type="checkbox"/> Bistable
	AM-5000A	
	AM-5001A	

## Pneumatic foot valve G1/8 with protection

	<input checked="" type="checkbox"/> Spring return		Solenoid foot valve
	AM-5043		AM-5050 No electrical microswitch
	AM-5043B		AM-5051 Electrical microswitch
	AM-5043C		AM-5052 Double electrical microswitch
	AM-5043D		
<b>Version without protection available upon request</b>			

## HIGH FLOW RATE

**310 NL/min** (UNIVER traditional spool technology)

## COMPACT SIZE: 10 mm

Highest reduction of overall dimensions

## EASY INSTALLATION

All pneumatic connections on the same side

## COMPLETE SOLUTION

Threaded body and body for sub-base mounting

**5/2 - 5/3 - 3/2+3/2**

**1 W**  
Standard

**0,3 W**  
Low consumption



P10F



P10B



## P10F

Threaded ports (M5)

Electrical connection with external connector



Integrated electrical connection



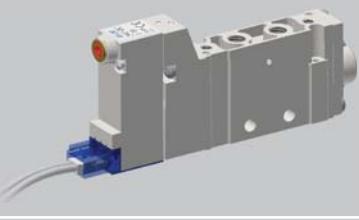
## P10B

For sub-base (M5-M7-Tube 4)

Integrated electrical connection



Version with in-line connector



## TC Series

Connection to modular serial communication system



**CHARACTERISTICS**

Ambient temperature	-5 ÷ +50 °C
Fluid	10 µm filtered air, with or without lubrication
Commutation system	spool
Max pressure	9 bar (electrical control) * 10 bar (pneumatic control)
Connections	M5 (P10F) - M5, M7, tube Ø 4 (P10B)
Nominal flow rate (NL/min)	310 (5/2) 230 (5/3) 250 (3/2+3/2)
Valve body	zamak
Seals	NBR
Electropilot	B10 (0,3W) - B11 (1 W)
Spool	aluminium
Voltage	24 V DC (± 10%)
Power consumption	B10 = 0,3 W, Speed-up 1 W (25 ms)    B11 = 1 W
Protection degree	IP65
Manual override	recessed button - 1 position

\* = At pressure higher than 7bar with B10 pilot (0.3W) it is recommended to use solenoid valves with external pilot supply


**CODIFICATION KEY**

P	1	0	F	2	4	4	2	4	
1			2	3	4	5	6		

**1 Series**

**P10F** = Threaded body  
**P10B** = Body for sub-base mounting

**2 Type**

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

**3 Control 14**

**3** = Pneumatic amplified  
**4** = Electrical amplified 90° (0,3W)  
**6** = Electrical amplified 90° (1W)

**4 Return 12**

**0** = Pneumomechanical spring  
**1** = Mechanical spring  
**3** = Pneumatic amplified  
**4** = Electrical amplified 90° (0,3W)  
**6** = Electrical amplified 90° (1W)

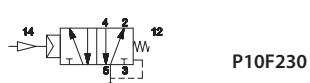
**5 Voltage**

24 = 24 V DC

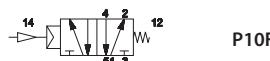
**6 Option**

D = External pilot supply on valve body (P10 = M3)

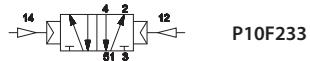
c.c. = closed centres    o.c. = open centres    p.c. = pressurized centres

**Pneumatic impulse - Threaded connections M5**
**Single impulse**


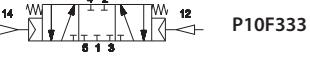
P10F230



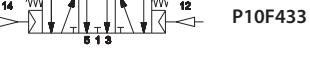
P10F231

**Double impulse**


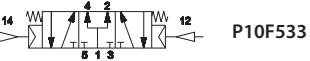
P10F233



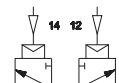
P10F333



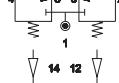
P10F433



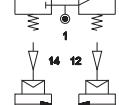
P10F533



P10F633



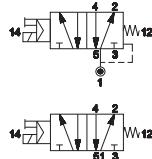
P10F733



P10F833

## Electrical impulse - Threaded connections M5

### Single impulse



P10F24024 0,3 W  
P10F26024 1 W

P10F24124 0,3 W  
P10F26124 1 W

B10



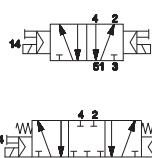
Low power consumption 0,3 W

**NEW** - B11



Standard 1 W

### Double impulse



P10F24424 0,3 W  
P10F26624 1 W

P10F34424 0,3 W

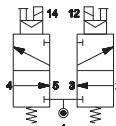
P10F36624 1 W

P10F44424 0,3 W

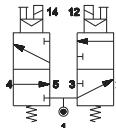
P10F46624 1 W

P10F54424 0,3 W

P10F56624 1 W

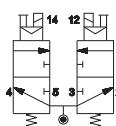


P10F64424 0,3 W  
P10F66624 1 W



P10F74424 0,3 W

P10F76624 1 W



P10F84424 0,3 W

P10F86624 1 W

## Integrated electrical connection



TIM1024

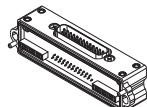
P10SF100

P10SF110

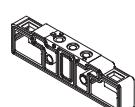
P10SF200

P10SF210

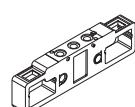
P10SF500



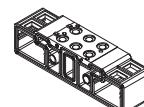
male connection module  
25 poles, type sub-D



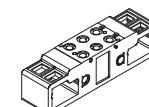
sub-base 1 place



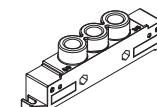
sub-base 1 place  
1-3-5 closed



sub-base 2 places



sub-base 2 places  
1-3-5 closed



left supply plate G1/8  
for TIM module

P10SF505

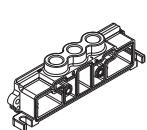
P10SF550

P10SF560

P10SF570

P10SS14\*\*M

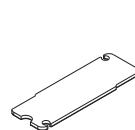
P10SS12\*\*M



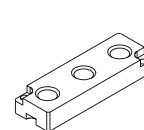
right supply plate G1/8



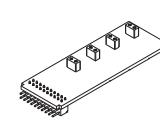
pressure separator



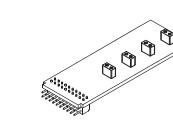
closing plate for unused  
valve place



intermediate supply plate  
for threaded version



bus connection card,  
side 14  
\*\* = 04, 06, 08, 10, 12 places



bus connection card,  
side 12  
\*\* = 04, 06, 08, 10, 12 places

P10STR01

P10STR02

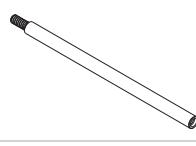
P10STR05



modular tie-rod  
1 valve place



modular tie-rod  
2 valve places



modular tie-rod  
5 valve places

AZ4-SN003A

No. 100 nuts M3 for tie-rods

AZ4-VN0310

No. 100 screws M3x10 for tie-rods

### Electrical connection with external connector

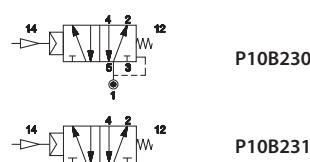
3



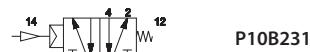
P10SF300	P10SF310	P10SF400	P10SF410	P10SF515	P10SF550
sub-base 1 place	sub-base 1 place 1-3-5 closed	sub-base 2 places	sub-base 2 places 1-3-5 closed	right/left supply place G1/8	pressure separator
closing plate for unused valve place	intermediate supply plate for threaded version	modular tie-rods 1 valve place	modular tie-rods 2 valve places	modular tie-rods 5 valve places	
					<b>AZ4-SN003A</b> No. 100 nuts M3 for tie-rods
					<b>AZ4-VN0310</b> No. 100 screws M3x10 for tie-rods

### Pneumatic impulse - Body for sub-base mounting

#### Single impulse

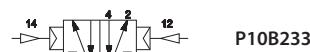


P10B230



P10B231

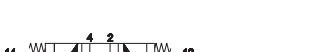
#### Double impulse



P10B233



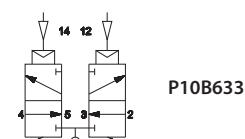
P10B333



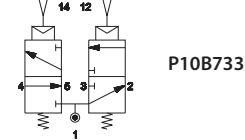
P10B433



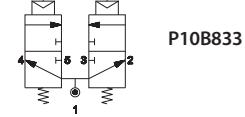
P10B533



P10B633



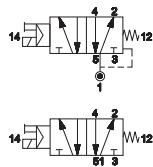
P10B733



P10B833

## Electrical impulse - Body for sub-base mounting

### Single impulse



P10B24024 0,3 W  
P10B26024 1 W

P10B24124 0,3 W  
P10B26124 1 W

B10



Low power  
consumption 0,3 W

**NEW** - B11

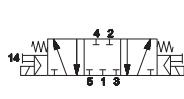


Standard 1 W

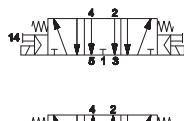
### Double impulse



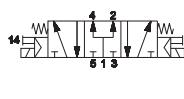
P10B24424 0,3 W  
P10B26624 1 W



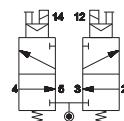
P10B34424 0,3 W  
P10B36624 1 W



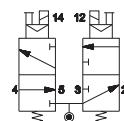
P10B44424 0,3 W  
P10B46624 1 W



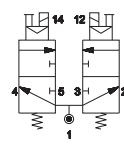
P10B54424 0,3 W  
P10B56624 1 W



P10B64424 0,3 W  
P10B66624 1 W



P10B74424 0,3 W  
P10B76624 1 W

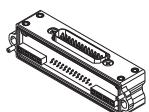


P10B84424 0,3 W  
P10B86624 1 W

## Integrated electrical connection

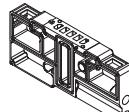


**TIM1024**



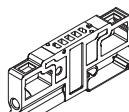
male connection module  
25 poles, type sub-D

**P10SB100/107**



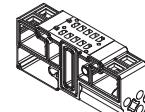
sub-base 1 place  
side outlets M5, M7

**P10SB110/117**



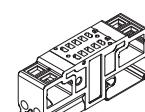
sub-base 1 place  
side outlets M5, M7  
1-3-5 closed

**P10SB200/207**



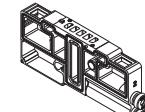
sub-base 2 places  
side outlets M5, M7  
1-3-5 closed

**P10SB210/217**



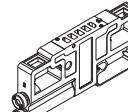
sub-base 2 places  
side outlets M5, M7  
1-3-5 closed

**P10SB304**



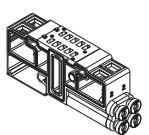
sub-base 1 place  
side outlets with push-in  
connections tube 4  
1-3-5 closed

**P10SB314**



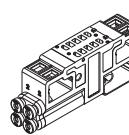
sub-base 1 place side  
outlets with push-in  
connections tube 4  
1-3-5 closed

**P10SB404**



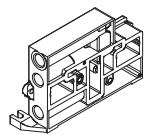
sub-base 2 places  
side outlets with  
push-in connections  
tube 4  
1-3-5 closed

**P10SB414**



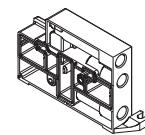
sub-base 2 places  
side outlets with push-in  
connections tube 4  
1-3-5 closed

**P10SB500**



supply plate G1/8  
for TIM module

**P10SB505**



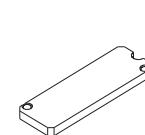
right supply plate G1/8

**P10SB550**



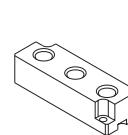
pressure separator

**P10SB560**



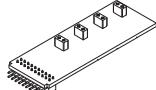
closing plate for unused  
valve place

**P10SB570**



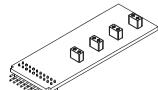
intermediate supply  
plate for sub-base  
version

**P10SS14\*\*M**



bus connection card, side 14  
\*\* = 04, 06, 08, 10, 12 places

**P10SS12\*\*M**



bus connection card, side 12  
\*\* = 04, 06, 08, 10, 12 places

**P10STR01**



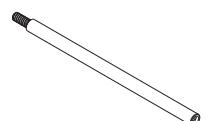
modular tie-rods  
1 valve place

**P10STR02**



modular tie-rods  
2 valve places

**P10STR05**



modular tie-rods  
5 valve places

**AZ4-SN003A**

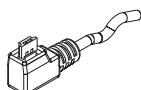
No. 100 nuts M3 for tie-rods

**AZ4-VN0310**

No. 100 screws M3x10 for tie-rods

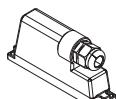
### Electrical connections

**D-535U40300  
D-535U40500**



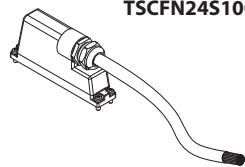
single connector cable 3-5 m

**TSCFN24S000**



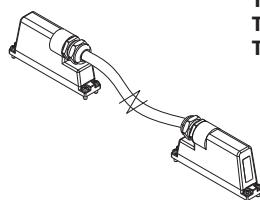
female connector  
25 poles, type sub-D, no cable  
M3x8 fixing screws

**TSCFN24S0300  
TSCFN24S0500  
TSCFN24S1000**



female connector  
25 poles, type sub-D, prewired for 24  
coils (3-5-10 m length)  
M3x8 fixing screws

**TSCFN16D0300  
TSCFN16D0500  
TSCFN16D1000**



sub-D male/female flying connector (upon request)  
prewired for 16 coils with cable Ø 8 mm (3-5-10 m length)  
suitable for dynamic laying - M3x8 fixing screws

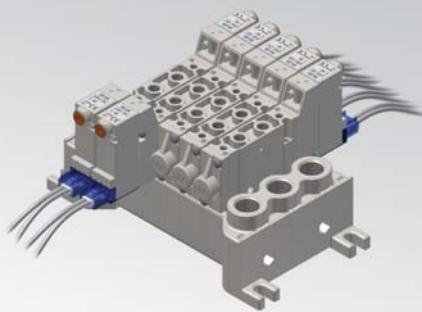
### ■ TC series Serial Communication System



**CHARACTERISTICS**

Ambient temperature	-5 ÷ +50 °C
Fluid	10 µm filtered air, with or without lubrication
Commutation system	spool
Max pressure	9 bar (electrical control) * 10 bar (pneumatic control)
Connections	M5 (P10F) - M5, M7, tube Ø 4 (P10B)
Nominal flow rate (NL/min)	310 (5/2) 230 (5/3) 250 (3/2+3/2)
Valve body	zamak
Seals	NBR
Electropilot	B10 (0,3W) - B11 (1 W)
Spool	aluminium
Voltage	24 V DC (± 10%)
Power consumption	B10 = 0,3 W, speed -up 1 W (25 ms)    B11 = 1 W
Protection degree	IP65
Manual override	recessed button - 1 position

\* = At pressure higher than 7bar with B10 pilot (0.3W) it is recommended to use solenoid valves with external pilot supply


**CODIFICATION KEY**

P	1	0	F	2	8	0	2	4	
1			2	3	4	5	6		

**1 Series**

**P10F** = Threaded body  
**P10B** = Body for sub-base mounting

**2 Type**

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

**3 Control 14**

**8** = Electrical amplified in-line (0,3W)  
**9** = Electrical amplified in-line (1W)

**4 Return 12**

**0** = Pneumomechanical spring  
**1** = Mechanical spring  
**8** = Electrical amplified in-line (0,3W)  
**9** = Electrical amplified in-line (1W)

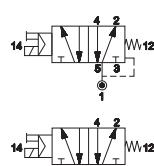
**5 Voltage**

24 = 24 V DC

**6 Option**

D = External pilot supply on valve body (P10 = M3)

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

**Electrical impulse - Threaded connections M5**
**Single impulse**


P10F28024 0,3 W

P10F29024 1 W

P10F28124 0,3 W

P10F29124 1 W

**B10**


Low power consumption 0,3 W

**NEW - B11**


Standard 1 W

**Double impulse**


P10F28824 0,3 W

P10F29924 1 W

P10F38824 0,3 W

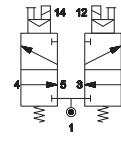
P10F39924 1 W

P10F48824 0,3 W

P10F49924 1 W

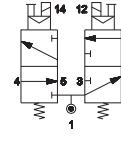
P10F58824 0,3 W

P10F59924 1 W



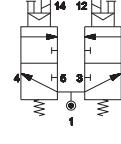
P10F68824 0,3 W

P10F69924 1 W



P10F78824 0,3 W

P10F79924 1 W

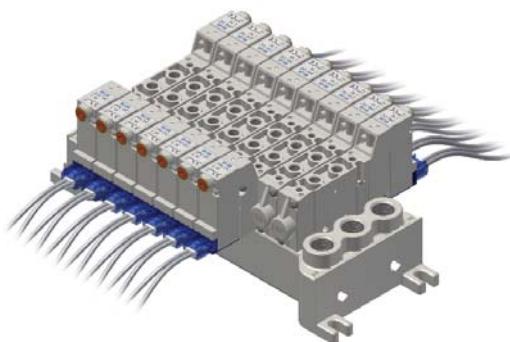


P10F88824 0,3 W

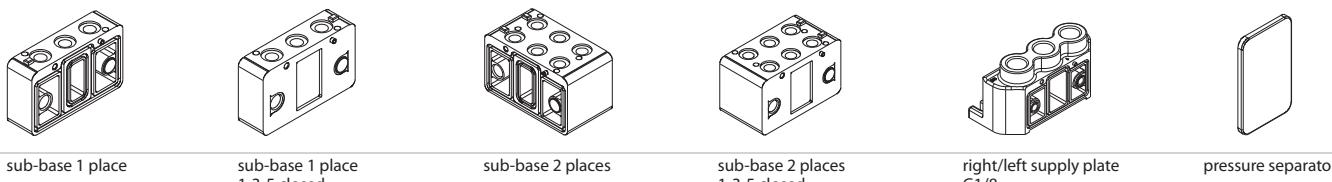
P10F89924 1 W

### Electrical connection with external connector

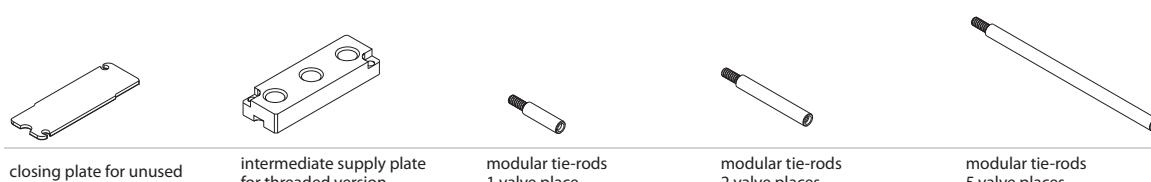
3



**P10SF300**      **P10SF310**      **P10SF400**      **P10SF410**      **P10SF515**      **P10SF550**



**P10SF560**      **P10SF570**      **P10STR01**      **P10STR02**      **P10STR05**

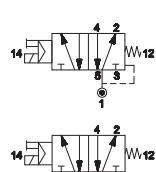
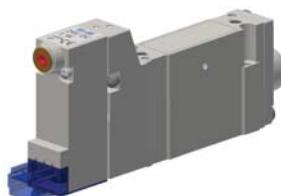


**AZ4-SN003A**  
No. 100 nuts M3  
for tie-rods

**AZ4-VN0310**  
No. 100 screws M3x10  
for tie-rods

### Electrical impulse - Body for sub-base mounting

#### Single impulse



P10B28024 0,3 W

P10B29024 1 W

P10B28124 0,3 W

P10B29124 1 W

B10



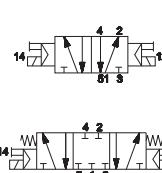
**NEW** - B11



Low power consumption 0,3 W

Standard 1 W

#### Double impulse



P10B28824 0,3 W

P10B29924 1 W

P10B38824 0,3 W

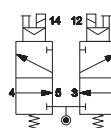
P10B39924 1 W

P10B48824 0,3 W

P10B49924 1 W

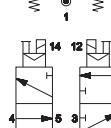
P10B58824 0,3 W

P10B59924 1 W



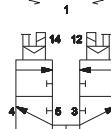
P10B68824 0,3 W

P10B69924 1 W



P10B78824 0,3 W

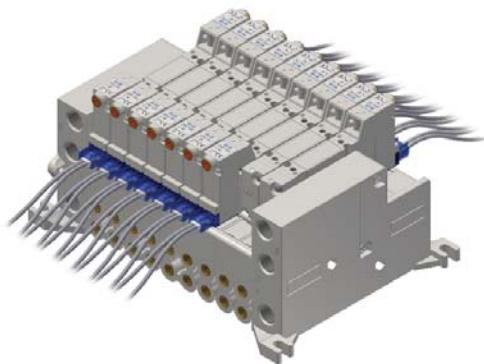
P10B79924 1 W



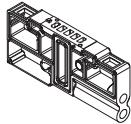
P10B88824 0,3 W

P10B89924 1 W

Electrical connection with external connector

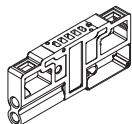


**P10SB100/107**



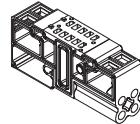
sub-base 1 place  
side outlets M5, M7

**P10SB110/117**



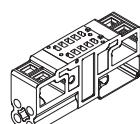
sub-base 1 place  
side outlets M5, M7  
1-3-5 closed

**P10SB200/207**



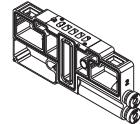
sub-base 2 places  
side outlets M5, M7

**P10SB210/217**



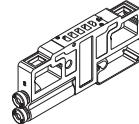
sub-base 2 places  
side outlets M5, M7  
1-3-5 closed

**P10SB304**



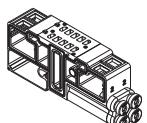
sub-base 1 place  
side outlets with push-in  
connections tube 4

**P10SB314**



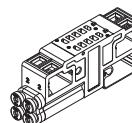
sub-base 1 place side  
outlets with push-in  
connections tube 4  
1-3-5 closed

**P10SB404**



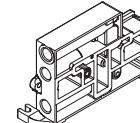
sub-base 2 places  
side outlets with push-in  
connections tube 4

**P10SB414**



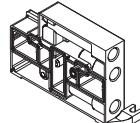
sub-base 2 places  
side outlets with push-in  
connections tube 4  
1-3-5 closed

**P10SB502**



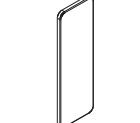
supply plate G1/8

**P10SB505**



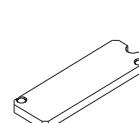
right supply plate G1/8

**P10SB550**



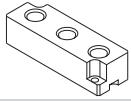
pressure separator

**P10SB560**



closing plate for unused  
valve place

**P10SB570**



intermediate supply  
plate for sub-base

**P10STR01**



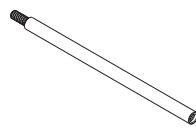
modular tie-rods  
1 valve place

**P10STR02**



modular tie-rods  
2 valve places

**P10STR05**



modular tie-rods  
5 valve places

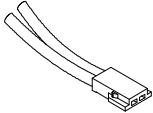
**AZ4-SN003A**

No. 100 nuts M3  
for tie-rods

**AZ4-VN0310**

No. 100 screws M3x10  
for tie-rods

**D-530-30/50/200**



Miniature connector with loose cables

D-530-30 = wire length 300 mm

D-530-50 = wire length 500 mm

D-530-200 = wire length 2000 mm

**HIGH FLOW RATE**

800 NL/min (UNIVER traditional spool technology)

**COMPACT SIZE: 15 mm**

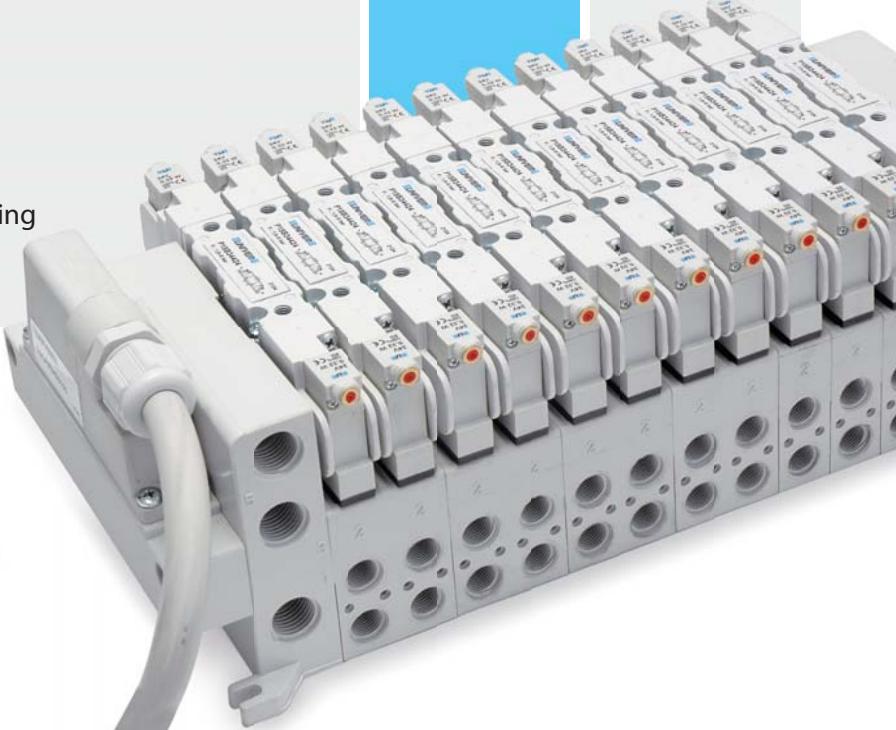
Highest reduction of overall dimensions

**EASY INSTALLATION**

All pneumatic connections on the same side

**COMPLETE SOLUTION**

Threaded body and body for sub-base mounting

**5/2 - 5/3 - 3/2+3/2****1 W**  
Standard**0,3 W**  
Low consumption**P15F****P15B****P15F**

Threaded ports (G1/8)

Electrical connection with external connector



Integrated electrical connection

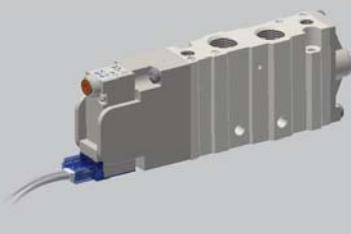
**P15B**

For sub-base (G1/8 - Tube 4-6-8)

Integrated electrical connection



Version with in-line connector


**CANopen DeviceNet** **PROFI® NET** **PROFI® BUS** **EtherNet/IP** **EtherCAT**
**TC Series**

Connection to modular serial communication system



**CHARACTERISTICS**

Ambient temperature	-5 ÷ 50 °C
Fluid	10 µm filtered air, with or without lubrication
Commutation system	spool
Max pressure	9 bar (electrical control) * 10 bar (pneumatic control)
Connections	G1/8 (P15F) - G1/8 - tube Ø 4-6-8 (P15B)
Nominal flow rate (NL/min)	800 (5/2) 720 (5/3) 720 (3/2+3/2)
Valve body	zamak
Seals	NBR
Spool	aluminium
Electropilot	B10 (0,3W) - B11 (1 W)
Voltage	24 V DC (± 10%)
Power consumption	B10 = 0,3 W, speed -up 1 W (25 ms) B11 = 1 W
Protection degree	IP65
Manual override	recessed button - 1 position



\* = At pressure higher than 7bar with B10 pilot (0.3W) it is recommended to use solenoid valves with external pilot supply

**CODIFICATION KEY**

P	1	5	F	2	4	4	2	4	
1	2	3	4	5	6				

**1 Series**

**P15F** = Threaded body  
**P15B** = Body for sub-base  
**P15D** = Threaded body  
 15 mm connector

**2 Type**

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

**3 Control 14**

**3** = Pneumatic amplified  
**4** = Electrical amplified 90° (0,3W)  
**6** = Electrical amplified 90° (1W)

**4 Return 12**

**0** = Pneumomechanical spring  
**1** = Mechanical spring  
**3** = Pneumatic amplified  
**4** = Electrical amplified 90° (0,3W)  
**6** = Electrical amplified 90° (1W)

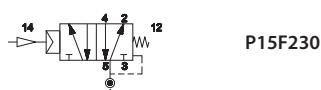
**5 Voltage**

24 = 24 V DC

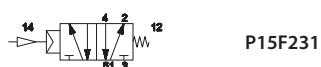
**6 Option**

D = External pilot supply on valve body (P15 = M5)

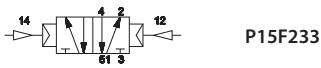
c.c. = closed centres   o.c. = open centres   p.c. = pressurized centres

**Pneumatic impulse - Threaded connections G1/8**
**Single impulse**


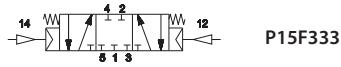
P15F230



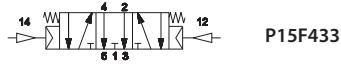
P15F231

**Double impulse**


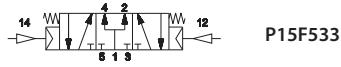
P15F233



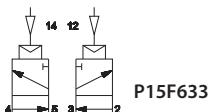
P15F333



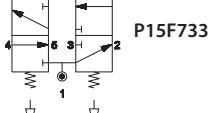
P15F433



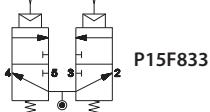
P15F533



P15F633



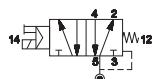
P15F733



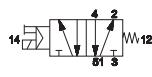
P15F833

### Electrical impulse - Threaded connections G1/8

#### ■ Single impulse



P15F24024 0,3 W  
P15F26024 1 W



P15F24124 0,3 W  
P15F26124 1 W

■ B10



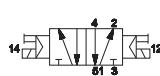
Low power consumption 0,3 W

■ NEW - B11

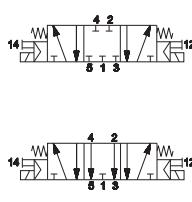


Standard 1 W

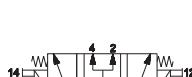
#### ■ Double impulse



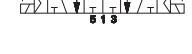
P15F24424 0,3 W  
P15F26624 1 W



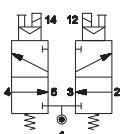
P15F34424 0,3 W  
P15F36624 1 W



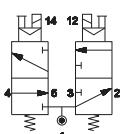
P15F44424 0,3 W  
P15F46624 1 W



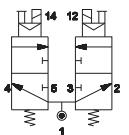
P15F54424 0,3 W  
P15F56624 1 W



P15F64424 0,3 W  
P15F66624 1 W



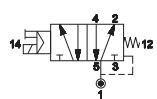
P15F74424 0,3 W  
P15F76624 1 W



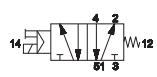
P15F84424 0,3 W  
P15F86624 1 W

### Electrical impulse - Threaded connections G1/8 - 15 mm connector

#### ■ Single impulse

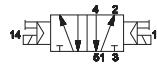


P15D24024 0,3 W  
P15D26024 1 W

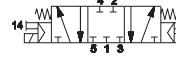


P15D24124 0,3 W  
P15D26124 1 W

#### ■ Double impulse



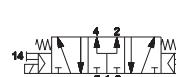
P15D24424 0,3 W  
P15D26624 1 W



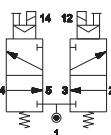
P15D34424 0,3 W  
P15D36624 1 W



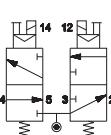
P15D44424 0,3 W  
P15D46624 1 W



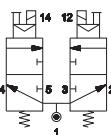
P15D54424 0,3 W  
P15D56624 1 W



P15D64424 0,3 W  
P15D66624 1 W



P15D74424 0,3 W  
P15D76624 1 W



P15D84424 0,3 W  
P15D86624 1 W

### Integrated electrical connection



TIM1524	TIM151806	TIM1536	P15SF100	P15SF110	P15SF200	P15SF210
male connection module 25 poles 12+12 coils type sub-D	male connection module 25 poles 18 coils, side 14 6 coils, side 12 type sub-D	male connection module 37 poles 16+16 coils type sub-D	sub-base 1 place	sub-base 1 place 1-3-5 closed	sub-base 2 places	sub-base 2 places 1-3-5 closed
P15SF500	P15SF505	P15SF550	P15SF560	P15SF570	P15SS**..M	
left supply plate G1/4 for TIM module	right supply plate G1/4	pressure separator	closing plate for unused valve place	intermediate supply plate for threaded version	male bus connection card, ** = side 14 or 12 .. = 04, 06, 08 places	
P15SS**08MF	P15SS**04MFP	P15SS**04MP	P15STR01	P15STR02	P15STR05	
male/female bus connection card ** = side 14 or 12 8 places	male/female bus connection card extension ** = side 14 o 12 4 places	bus card extension ** = side 14 o 12 4 places	modular tie-rods 1 valve place	modular tie-rods 2 valve places	modular tie-rods 5 valve places	
<b>AZ4-SN004A</b> No. 100 nuts M4 for tie-rods						
<b>AZ4-VN0414</b> No. 100 screws M4x14 for tie-rods						

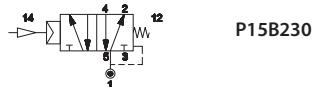
### Electrical connection with external connector



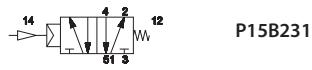
P15SF300	P15SF310	P15SF400	P15SF410	P15SF515	P15SF550	P15SF560
sub-base 1 place	sub-base 1 place 1-3-5 closed	sub-base 2 places	sub-base 2 places 1-3-5 closed	right/left supply plate G1/4	pressure separator	closing plate for unused valve place
P15SF570	P15STR01	P15STR02	P15STR05			
intermediate supply plate for threaded version	modular tie-rods 1 valve place	modular tie-rods 2 valve places	modular tie-rods 5 valve places			
<b>AZ4-SN004A</b> No. 100 nuts M4 for tie-rods						
<b>AZ4-VN0414</b> No. 100 screws M4x14 for tie-rods						

### Pneumatic impulse - Body for sub-base mounting

#### Single impulse

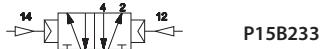


P15B230

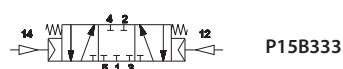


P15B231

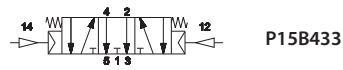
#### Double impulse



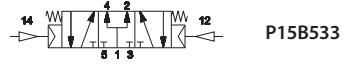
P15B233



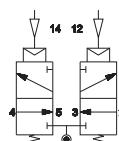
P15B333



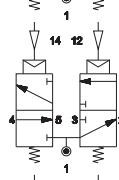
P15B433



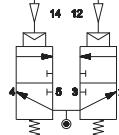
P15B533



P15B633



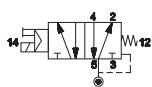
P15B733



P15B833

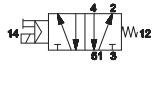
### Electrical impulse - Body for sub-base mounting

#### Single impulse



P15B24024 0,3 W

P15B26024 1 W



P15B24124 0,3 W

P15B26124 1 W

B10



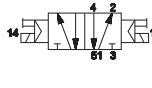
Low power  
consumption 0,3 W

NEW - B11



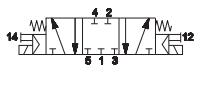
Standard 1 W

#### Double impulse



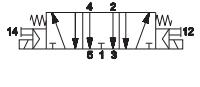
P15B24424 0,3 W

P15B26624 1 W



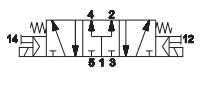
P15B34424 0,3 W

P15B36624 1 W



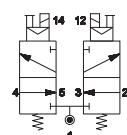
P15B44424 0,3 W

P15B46624 1 W



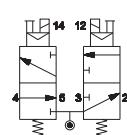
P15B54424 0,3 W

P15B56624 1 W



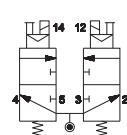
P15B64424 0,3 W

P15B66624 1 W



P15B74424 0,3 W

P15B76624 1 W

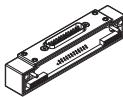
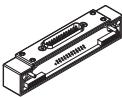
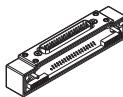
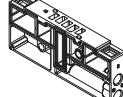
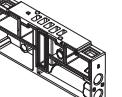
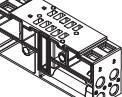
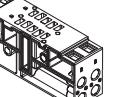
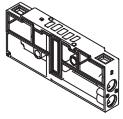
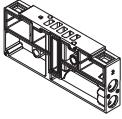
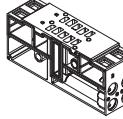
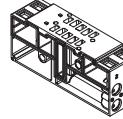
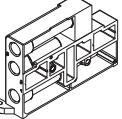
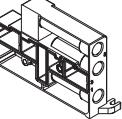
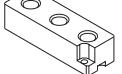
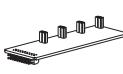
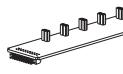
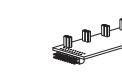


P15B84424 0,3 W

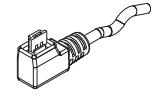
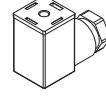
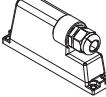
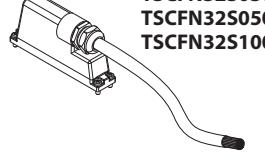
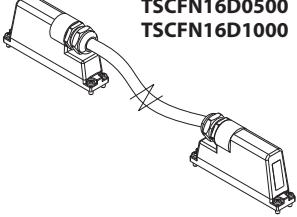
P15B86624 1 W

Integrated electrical connection



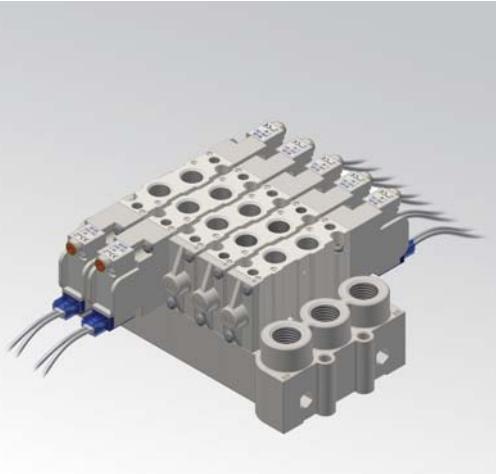
TIM1524	TIM151806	TIM1536	P15SB100	P15SB110	P15SB200	P15SB210
						
male connection module 25 poles 12+12 coils type sub-D	male connection module 25 poles 18 coils side 14 6 coils side 12 type sub-D	male connection module 37 poles 16+16 coils type sub-D	sub-base 1 place side outlets G1/8	sub-base 1 place side outlets G1/8 1-3-5 closed	sub-base 2 places side outlets G1/8	sub-base 2 places side outlets G1/8 1-3-5 closed
P15SB300	P15SB310	P15SB400	P15SB410	P15SB500	P15SB505	P15SB550
						
sub-base 1 place side outlets for push-in fittings	sub-base 1 place side outlets for push-in fittings 1-3-5 closed	sub-base 2 places side outlets for push-in fittings	sub-base 2 places side outlets for push-in fittings 1-3-5 closed	supply plate G1/4 for TIM module	right supply plate G1/4	pressure separator
P15SB560	P15SB570	P15SS**..M	P15SS**08MF	P15SS**04MFP	P15SS**04MP	
						
closing plate for unused valve place	intermediate supply plate for sub-base	male bus connection card ** = side 14 or 12 .. = 04, 06, 08 places	male/female bus connection card ** = side 14 or 12 8 places	male/female bus connection card extension ** = side 14 or 12 4 places	bus card connection extension ** = side 14 or 12 4 places	
P15STR01	P15STR02	P15STR05	GZR-V10004/06/08	AZ4-SN004A	AZ4-VN0414	
				No. 100 nuts M4 for tie-rods	No. 100 screws M4x14 for tie-rods	
modular tie-rods 1 valve place	modular tie-rods 2 valve places	modular tie-rods 5 valve places	straight fitting GZR-V10004 = tube Ø4 mm GZR-V10006 = tube Ø6 mm GZR-V10008 = tube Ø8 mm	AZ4-SN004A No. 100 nuts M4 for tie-rods	AZ4-VN0414 No. 100 screws M4x14 for tie-rods	

Electrical connections

D-535U40300 D-535U40500	AM-5109	TSCFN24S000 TSCFN36S000	TSCFN24S0300 TSCFN24S0500 TSCFN24S1000 TSCFN32S0300 TSCFN32S0500 TSCFN32S1000	TSCFN16D0300 TSCFN16D0500 TSCFN16D1000
				
single connector with cable 3-5 m	15 mm connector	female connector 25/37 poles, type sub-D, no cable M3x8 fixing screws	female connector 25/37 poles, type sub-D with cable 3-5-10 m M3x8 fixing screws	sub-D male/female flying connector prewired for 16 coils with cable Ø 8 mm (3-5-10 m length) suitable for dynamic laying M3x8 fixing screws

**CHARACTERISTICS**

Ambient temperature	-5 ÷ 50 °C
Fluid	10 µm filtered air, with or without lubrication
Commutation system	spool
Max pressure	9 bar (electrical control) * 10 bar (pneumatic control)
Connections	G1/8 (P15F) - G1/8 - tube Ø 4-6-8 (P15B)
Nominal flow rate (NL/min)	800 (5/2) 720 (5/3) 720 (3/2+3/2)
Valve body	zamak
Seals	NBR
Spool	aluminium
Electropilot	B10 (0,3W) - B11 (1W)
Voltage	24 V DC (± 10%)
Power consumption	B10 = 0,3 W, speed-up 1 W (25 ms) B11 = 1 W
Protection degree	IP65
Manual override	recessed button - 1 position



\* = At pressure higher than 7bar with B10 pilot (0.3W) it is recommended to use solenoid valves with external pilot supply

**CODIFICATION KEY**

P	1	5	F	2	8	0	2	4	
1	2	3	4	5	6				

**1 Series**

P15F = Threaded body  
P15B = Body for sub-base mounting

**2 Type**

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

**3 Control 14**

8 = Electrical amplified in-line (0,3W)  
9 = Electrical amplified in-line (1W)

**4 Return 12**

0 = Pneumomechanical spring  
1 = Mechanical spring  
8 = Electrical amplified in-line (0,3W)  
9 = Electrical amplified in-line (1W)

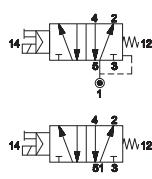
**5 Voltage**

24 = 24 V DC

**6 Option**

D = External pilot supply on valve body (P15 = M5)

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

**Electrical impulse - Threaded connections G1/8**
**Single impulse**


P15F28024 0,3 W

P15F29024 1 W

P15F28124 0,3 W

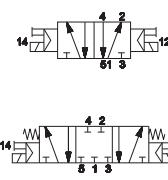
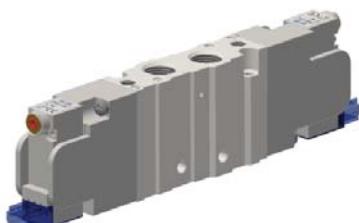
P15F29124 1 W

**B10**


Low power consumption 0,3 W

**NEW - B11**


Standard 1 W

**Double impulse**


P15F28824 0,3 W

P15F29924 1 W

P15F38824 0,3 W

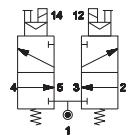
P15F39924 1 W

P15F48824 0,3 W

P15F49924 1 W

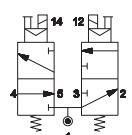
P15F58824 0,3 W

P15F59924 1 W



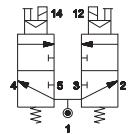
P15F68824 0,3 W

P15F69924 1 W



P15F78824 0,3 W

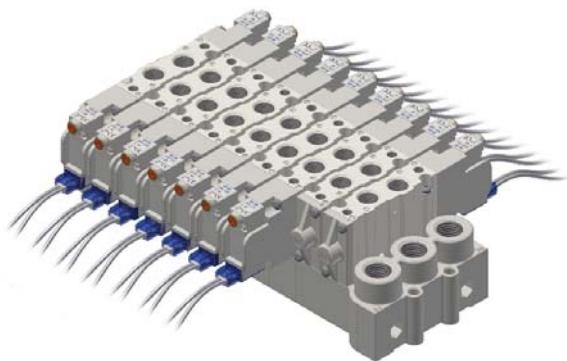
P15F79924 1 W



P15F88824 0,3 W

P15F89924 1 W

### Electrical connection with external connector



P15SF300	P15SF310	P15SF400	P15SF410	P15SF515	P15SF550	P15SF560
sub-base 1 place	sub-base 1 place 1-3-5 closed	sub-base 2 places	sub-base 2 places 1-3-5 closed	right/left supply plate G1/4	pressure separator	closing plate for unused valve place

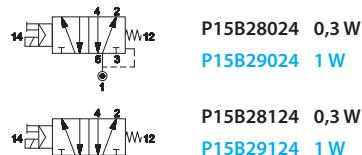
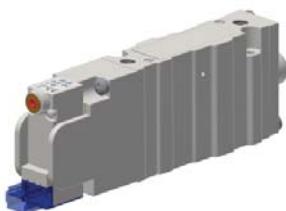
P15SF570	P15STR01	P15STR02	P15STR05

**AZ4-SN004A**  
No. 100 nuts M4 for tie-rods

**AZ4-VN0414**  
No. 100 screws M4x14 for tie-rods

### Electrical impulse - Body for sub-base mounting

#### Single impulse



P15B28024 0,3 W

P15B29024 1 W

P15B28124 0,3 W

P15B29124 1 W

**B10**



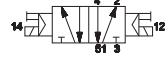
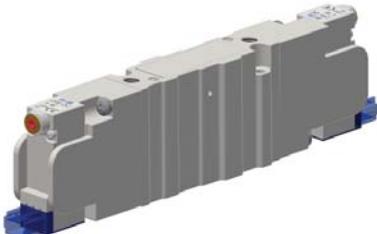
**NEW - B11**



Low power consumption 0,3 W

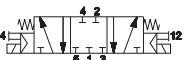
Standard 1 W

#### Double impulse



P15B28824 0,3 W

P15B29924 1 W



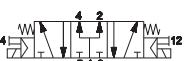
P15B38824 0,3 W

P15B39924 1 W



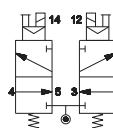
P15B48824 0,3 W

P15B49924 1 W



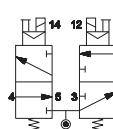
P15B58824 0,3 W

P15B59924 1 W



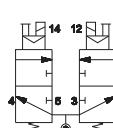
P15B68824 0,3 W

P15B69924 1 W



P15B78824 0,3 W

P15B79924 1 W



P15B88824 0,3 W

P15B89924 1 W

Electrical connection with external connector

<b>TIM1524</b>	<b>TIM151806</b>	<b>TIM1536</b>	<b>P15SB100</b>	<b>P15SB110</b>	<b>P15SB200</b>	<b>P15SB210</b>
male connection module 25 poles 12+12 coils type sub-D	male connection module 25 poles 18 coils side 14 6 coils side 12 type sub-D	male connection module 37 poles 16+16 coils type sub-D	sub-base 1 place side outlets G1/8 integrated version	sub-base 1 place side outlets G1/8 1-3-5 closed	sub-base 2 places side outlets G1/8	sub-base 2 places side outlets G1/8 1-3-5 closed
<b>P15SB300</b>	<b>P15SB310</b>	<b>P15SB400</b>	<b>P15SB410</b>	<b>P15SB504</b>	<b>P15SB505</b>	<b>P15SB550</b>
sub-base 1 place side outlets for push-in fittings integrated version	sub-base 1 place side outlets for push-in fittings 1-3-5 closed	sub-base 2 places side outlets for push-in fittings integrated version	sub-base 2 places side outlets for push-in fittings 1-3-5 closed	supply plate G1/8 for TIM module	right supply plate G1/4	pressure separator
<b>P15SB560</b>	<b>P15SB570</b>	<b>P15STR01</b>	<b>P15STR02</b>	<b>P15STR05</b>	<b>GZR-V10004/06/08</b>	
closing plate for unused valve place	intermediate supply plate for sub-base	modular tie-rods 1 valve place	modular tie-rods 2 valve places	modular tie-rods 5 valve places	straight fitting GZR-V10004 = tube Ø4 mm GZR-V10006 = tube Ø6 mm GZR-V10008 = tube Ø8 mm	

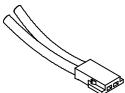
**AZ4-SN004A**

No. 100 nuts M4 for tie-rods

**AZ4-VN0414**

No. 100 screws M4x14 for tie-rods

**D-530-30/50/200**

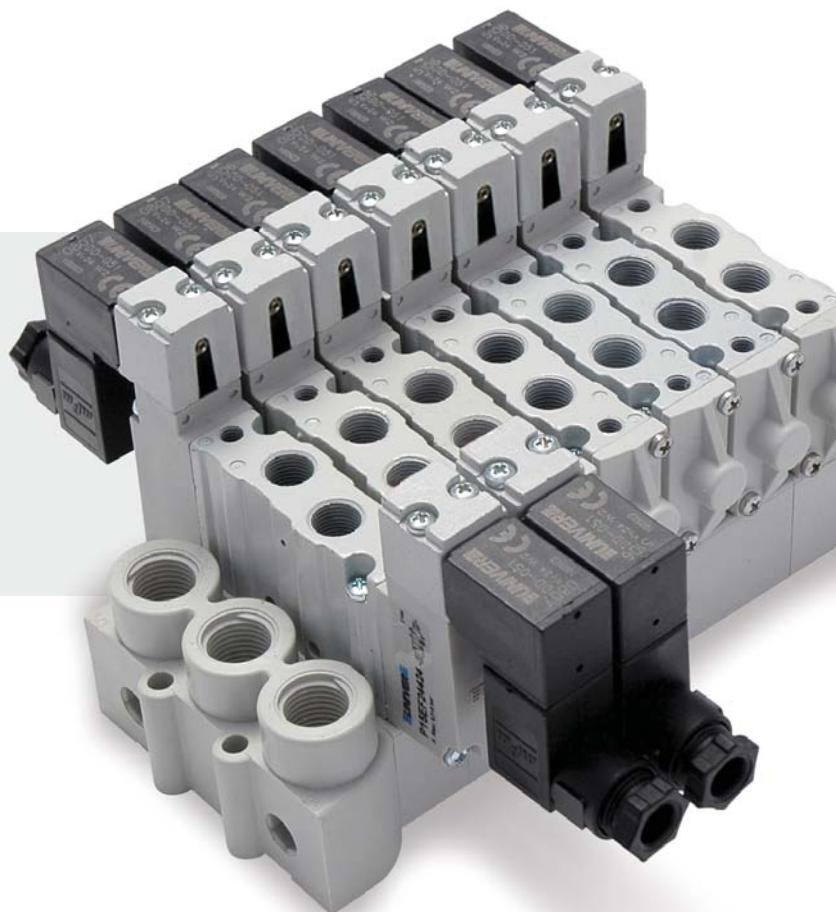


Miniature connector with loose cables

D-530-30 = cable length 300 mm

D-530-50 = cable length 500 mm

D-530-200 = cable length 2000 mm

**HIGH FLOW RATE**Flow rate higher than **800 NL/min****REDUCED DIMENSIONS**Body width **15 mm****COMPLETE SOLUTION**Versions available **5/2 - 5/3 - 3/2+3/2****P15EF****P15EB****P15EF**

Threaded ports (G1/8)

15 mm Electropilot - A series  
UNIVER OriginalInterchangeable coil - U05 type  
90° x 90° revolvable  
(12 - 24 V DC, 24 - 48 - 110 - 230 V AC)Manual override (upon request)  
Monostable + 2 positionsSub-base mounting  
Easy installation by means of 2 screwsSingle mounting  
Side holes on valve body**P15EB**

For sub-base (G1/8 - Tube 4-6-8)



## CHARACTERISTICS

Ambient temperature	-5 ÷ 50 °C
Fluid	10 µm filtered air, with or without lubrication
Commutation system	spool
Max pressure	9 bar
Connections	G1/8
Nominal flow rate (NL/min)	800 (5/2) 720 (5/3) 720 (3/2+3/2)
Valve body	zamak
Seals	NBR
Spool	aluminium
Electropilot	A series (15 mm)
Coil	U05 series
Voltage	12 V DC - 24 V DC - 24 V AC - 48 V AC - 110 V AC - 230 V AC
Power consumption	2 W (DC) 2,3 VA (AC)
Protection degree	IP65
Manual override	impulse screw - 1-2 positions



## CODIFICATION KEY

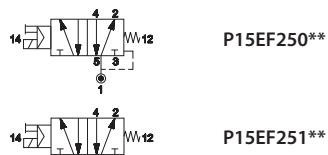
P	1	5	E	F	2	5	5	2	4	
1	2	3	4	5	6					

1 Series	2 Type	3 Control 14
P15EF = COMPACT Valves - Threaded body G1/8 A series electropilot (15 mm)	2 = 5/2      6 = 3/2+3/2 NC-NC 3 = 5/3 c.c.      7 = 3/2+3/2 NC-NO 4 = 5/3 o.c.      8 = 3/2+3/2 NO-NO 5 = 5/3 p.c.	5 = Electrical amplified 15 mm
4 Return 12	5 Voltage	6 Option
0 = Pneumomechanical spring 1 = Mechanical spring 5 = Electrical amplified 15 mm	12 = 12 V DC      48 = 48 V AC 24 = 24 V DC      11 = 110 V AC 34 = 24 V AC      23 = 230 V AC	C = 2-position manual override (upon request) D = External pilot supply

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

## Electrical impulse - Threaded connection G1/8

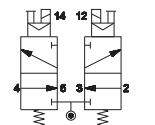
### Single impulse



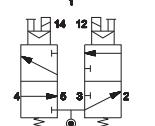
DIN C (8 mm)

For further information please contact our Sales Office

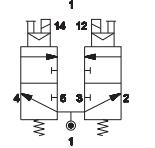
### Double impulse



P15EF655\*\*



P15EF755\*\*



P15EF855\*\*

\*\* = Voltage 12 V DC - 24 V DC - 24 V AC - 48 V AC - 110 V AC - 230 V AC (Example: P15EF25024)

Solenoid valves are supplied with coils, without connectors

## Electrical connection with external connector



P15SF300	P15SF310	P15SF400	P15SF410	P15SF515	P15SF550	P15SF560
sub-base 1 place	sub-base 1 place 1-3-5 closed	sub-base 2 places	sub-base 2 places 1-3-5 closed	right/left supply plate G1/4	pressure separator	closing plate for unused valve place
P15SF570	P15STR01	P15STR02	P15STR05			
				<b>AZ4-SN004A</b> No. 100 nuts M4 for tie-rods		
intermediate supply plate for threaded version	modular tie-rods 1 valve place	modular tie-rods 2 valve places	modular tie-rods 5 valve places	<b>AZ4-VN0414</b> No. 100 screws M4x14 for tie-rods		

## Pre-assembled sub-base



Part No.	Positions
P15SF499-02	2
P15SF499-03	3
P15SF499-04	4
P15SF499-05	5
P15SF499-06	6
P15SF499-07	7
P15SF499-08	8
P15SF499-09	9
P15SF499-10	10

Pre-assembled sub-bases include seals and screws for valve assembly

## Electrical connections



15 mm connector

## CHARACTERISTICS

Ambient temperature	-5 ÷ 50 °C
Fluid	10 µm filtered air, with or without lubrication
Commutation system	spool
Max pressure	9 bar
Connections	G1/8
Nominal flow rate (NL/min)	800 (5/2) 720 (5/3) 720 (3/2+3/2)
Valve body	zamak
Seals	NBR
Spool	aluminium
Electropilot	A series (15 mm)
Coil	U05 series
Voltage	12 V DC - 24 V DC - 24 V AC - 48 V AC - 110 V AC - 230 V AC
Power consumption	2 W (DC) 2,3 VA (AC)
Protection degree	IP65
Manual override	impulse screw - 1-2 positions



## CODIFICATION KEY

P	1	5	E	B	2	5	5	2	4	
1	2	3	4	5	6					

### 1 Series

**P15EB** = COMPACT Valves for sub-base mounting  
 A series electropilot (15 mm)

### 2 Type

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

### 3 Control 14

5 = Electrical amplified 15 mm

### 4 Return 12

0 = Pneumomechanical spring  
 1 = Mechanical spring  
 5 = Electrical amplified 15 mm

### 5 Voltage

12 = 12 V DC	48 = 48 V AC
24 = 24 V DC	11 = 110 V AC
54 = 24 V AC	23 = 230 V AC

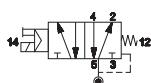
### 6 Variant

C = 2-position manual override (upon request)  
 D = External pilot supply

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

## Electrical impulse - Body for sub-base mounting - 15 mm connector

### Single impulse



P15EB250\*\*



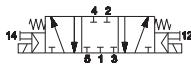
DIN C (8 mm)

For further information please contact our Sales Office

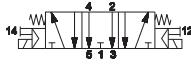
### Double impulse



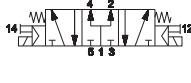
P15EB255\*\*



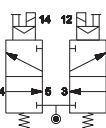
P15EB355\*\*



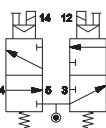
P15EB455\*\*



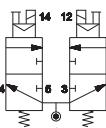
P15EB555\*\*



P15EB655\*\*



P15EB755\*\*



P15EB855\*\*

\*\* = Voltage 12 V DC - 24 V DC - 24 V AC - 48 V AC - 110 V AC - 230 V AC (Example: P15EB25024)

Solenoid valves are supplied with coils, without connectors

## Electrical connection with external connector



P15SB100	P15SB110	P15SB200	P15SB210	P15SB300	P15SB310	P15SB400
sub-base 1 place side outlets G1/8	sub-base 1 place side outlets G1/8 1-3-5 closed	sub-base 2 places side outlets G1/8	sub-base 2 places side outlets G1/8 1-3-5 closed	sub-base 1 place side outlets for GZR push-in fittings	sub-base 1 place side outlets for GZR push-in fittings 1-3-5 closed	sub-base 2 places side outlets for GZR push-in fittings
P15SB410	P15SB504	P15SB505	P15SB550	P15SB560	P15SB570	
sub-base 2 places side outlets for GZR push-in fittings 1-3-5 closed	left supply plate G1/4	right supply plate G1/4	pressure separator	closing plate for unused valve place	intermediate supply plate for sub-base	
P15STR01	P15STR02	P15STR05	GZR-V10004/06/08			
				AZ4-SN004A No. 100 nuts M4 for tie-rods	AZ4-VN0414 No. 100 screws M4x14 for tie-rods	
modular tie-rods 1 valve place	modular tie-rods 2 valve places	modular tie-rods 5 valve places	straight fitting GZR-V10004 = tube Ø4 mm GZR-V10006 = tube Ø6 mm GZR-V10008 = tube Ø8 mm			

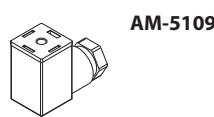
## Pre-assembled sub-base



Part No.	Positions
P15SB499-02	2
P15SB499-03	3
P15SB499-04	4
P15SB499-05	5
P15SB499-06	6
P15SB499-07	7
P15SB499-08	8
P15SB499-09	9
P15SB499-10	10

Pre-assembled sub-bases include seals and screws for valve assembly

## Electrical connections



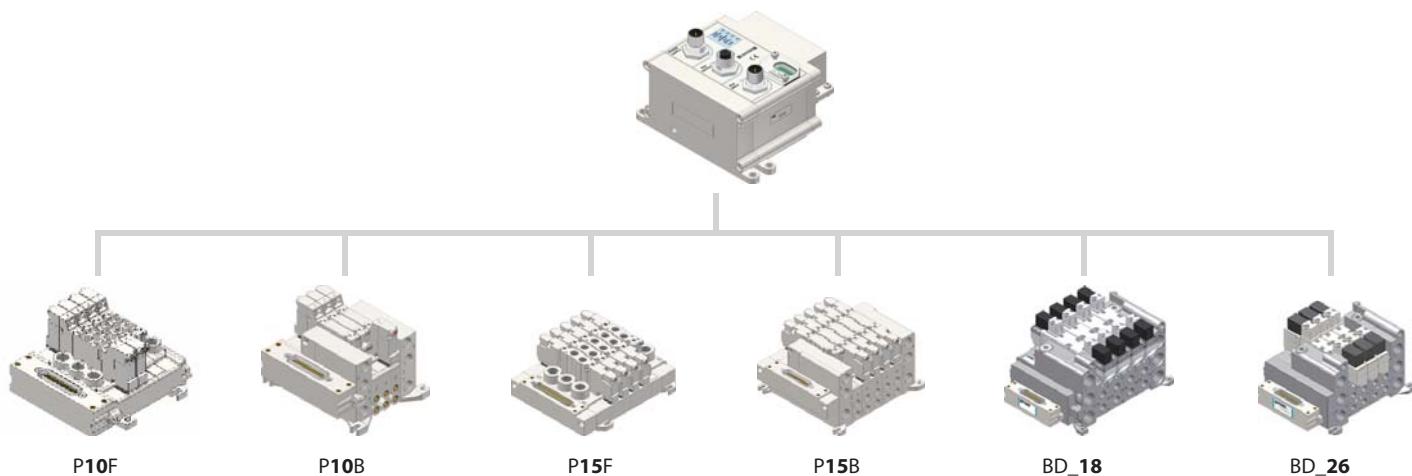
15 mm connector

## CHARACTERISTICS

Controlled devices	Manifolds, Digital input M12/M8, Output M12
Handling capacity	Max 64 inputs + 64 outputs (PROFIBUS-DP, CANopen, DeviceNet) Max 64 inputs + 88 outputs (PROFINET, EtherNet/IP, EtherCAT)
Integrated configuration	BD series (VDMA) 18 - 26 mm P10 - P15 series (COMPACT)
Distributed configuration	Remote expansion modules for valve manifolds with sub-D 25 plug-in
FieldBus protocols	CANopen, DeviceNet, PROFINET, PROFIBUS-DP, EtherNet/IP, EtherCAT



## Serial module for all manifold models



## Serial module

### CANopen



Part No.	TCXC
Auxiliary power supply	1 x M12 - 4 pins male
Fieldbus	1 x M12 - 5 pins male
Connectors	1 x M12 - 5 pins female
Diagnostics	Optical, Primary, Extended
Capacity max I/O	64 In - 40 Out 24 coils
LSS Slave	supported

### DeviceNet



Part No.	TCXD
Auxiliary power supply	1 x 7/8" - 4 pins male
Fieldbus	1 x 7/8" - 5 pins male
Connectors	1 x 7/8" - 5 pins female
Diagnostics	Optical, Primary, Extended
Capacity max I/O	64 In - 40 Out 24 coils

### PROFINET



Part No.	TCXPN
Auxiliary power supply	1 x M12 - 4 pins male
Fieldbus	2 x M12 - 4 pins female D code
Connectors	D code
Diagnostics	Optical, Primary, Extended
Capacity max I/O	64 In - 72 Out 24 coils

### PROFIBUS-DP



Part No.	TCXP
Auxiliary power supply	1 x M12 - 4 pins male
Fieldbus	1 x M12 - 4 pins male B code
Connectors	1 x M12 - 4 pins female B code
Diagnostics	Optical, Primary, Extended
Capacity max I/O	64 In - 40 Out 24 coils

### EtherNet/IP



Part No.	TCXEN
Auxiliary power supply	1 x M12 - 4 pins male
Fieldbus	2 x M12 - 4 pins female D code
Connectors	D code
Diagnostics	Optical, Primary, Extended
Capacity max I/O	64 In - 64 Out 24 coils

### EtherCAT



Part No.	TCXET
Auxiliary power supply	1 x M12 - 4 pins male
Fieldbus	2 x M12 - 4 pins female D code
Connectors	D code
Diagnostics	Optical, Primary, Extended
Capacity max I/O	64 In - 64 Out 24 coils

## Configurable expansion modules

**TZ-F4M12**

CANopen, Profibus, Profinet  
EtherNet/IP, EtherCat  
Power Supply Connector M12  
female 4 poles

**TZ-F5M12**

CanOpen  
Input Bus M12  
female 5 poles

**TZ-M5M12**

CanOpen  
Output Bus M12  
male 5 poles

**TZ-F478**

DeviceNet  
Power Supply Connector 7/8  
female 4 poles

**TZ-F578**

DeviceNet  
Input Bus 7/8  
female 5 poles

**TZ-M578/T**

TZ-M578  
DeviceNet  
Input Bus 7/8  
male 5 poles

**TZ-F5M12-B**

ProfiBus  
Input Bus M12  
female 5 poles B-code

**TZ-M5M12-B/BT**

**TZ-M5M12-B**  
ProfiBus  
Output Bus M12  
male 5 poles B-code  
**TZ-M5M12-BT**  
ProfiBus Bus,  
terminating connector M12  
male 5 poles B-code

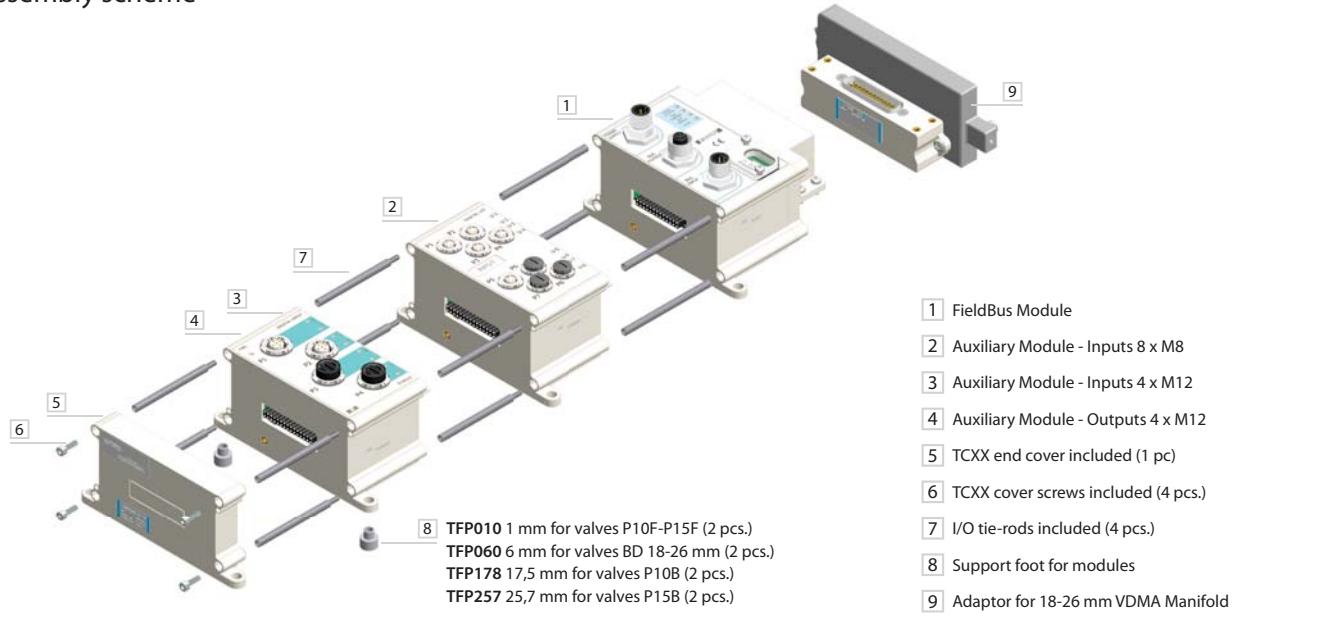
**TZ-M4M12-D**

ProfiNet, EtherNet/IP, EtherCat  
Input/Output Bus M12  
male 4 poles D-code

**TSCFN16...**

**TSCFN16D0300**  
Prewired cable, sub-D, 25 poles,  
16 signals 3 m  
**TSCFN16D0500**  
Prewired cable, sub-D 25 poles,  
16 signals 5 m  
**TSCFN16D1000**  
Prewired cable, sub-D 25 poles,  
16 signals 10 m

## Assembly scheme



MATCHING TABLE - COILS/ELECTROPILOTS - ELECTROPILOTS/SOLENOID VALVES		Electropilots						
		A (U05)	B (U04)	AA (U1)	AA (U3)		AB (U2)	
Coils	U04	10 mm						
	U05	15 mm	■					
	U1	22 mm		■				
	U2	30 mm			■	■	■	■
	U3	30 mm			■	■		
Solenoid valves	BE	ISO 1 - ISO 2 ISO 3 - ISO 4	■ (a)			■		R
	AE	ISO 1 - ISO 2		■	■			
	BD	ISO 01 26 mm ISO 02 18 mm	■					
	AC-N	Interface NAMUR		■	■			
	CL	G1/8		■	■			
	CM	G1/4		■	■			
	COMPA 2/4		■					
	G6	G1/8	■	■				
	GL6	sub-base						
	G7	G1/8	R	■	■			
	PS	tube Ø 4 tube Ø 6 tube Ø 8		■				
	AC	G1/8 - G1/4 G1/2		■	■		■	
	AF	G1/8 G1/4 - G3/8 G1/2 ÷ G1 G1 1/2		■	■		■	
	AG	G1/8 G1/4 ÷ G1 G1 1/2		■	■		■	
	P15E	G1/8	■					

■ = Standard

R = Upon request

(a) = Connector M12

### 10 mm U04 Coils for B series electropilots

■ With integrated 90° upward connector



DE-352 24 V DC 1,2 W  
DE-452 24 V DC 1,35 W  
(with led)  
  
DE-355 24 V DC 0,5 W  
**NEW**

■ With in-line connector



Connector:  
D-500  
D-530-...  
D-535-...

DE-552 24 V DC 1,2 W  
DE-652 24 V DC 1,35 W  
(with led)  
  
DE-555 24 V DC 0,5 W  
**NEW**

Connector:  
D-500  
D-530-...  
D-535-...

■ With loose cables (length 300 mm)



DE-052L030 24 V DC 1,2 W

■ With in-line connector with protecting cover for complete tightness



DE-642I 12 V DC 1,35 W  
DE-652I 24 V DC 1,35 W  
(with led)  
  
DE-655I 24 V DC 0,5 W  
**NEW**

Connector:  
D-530C-100  
D-530C-200

## 15 mm U05 Coils for A series electropilot

■ with integrated 90° upward connector      ■ with integrated 90° downward connector      ■ with in-line connector



DD-351 24 V DC 2 W

Connector:  
D-500  
D-530-...  
D-535-...



DD-151 24 V DC 2 W

Connector:  
D-500  
D-530-...  
D-535-...



DD-551 24 V DC 2 W

Connector:  
D-500  
D-530-...  
D-535-...

■ with loose cables



DD-051L030 12 V DC 2 W  
DD-052L030 24 V DC 2,5 W

■ 15 mm - Faston



DD-013 230 V AC 50/60 Hz 3,5 VA  
DD-040 24 V AC 50/60 Hz 2,3 VA  
DD-041 12 V DC 2 W  
DD-042 12 V DC 2,5 W  
DD-050 48 V AC 50/60 Hz 2,3 VA

DD-051 24 V DC 2 W  
DD-052 24 V DC 2,5 W  
DD-060 110 V AC 50/60 Hz 2,3 VA  
DD-070 230 V AC 50/60 Hz 2,3 VA

Connector:  
AM-5109

## U1 - U2 - U3 Coil

■ 22 mm (U1)



DA-0050 12 V DC 3,5 W  
DA-0051 24 V DC 3,5 W  
DA-0106 24 V AC 50/60 Hz 5 VA  
DA-0108 110 V AC 50/60 Hz 5 VA  
DA-0124 230 V AC 50/60 Hz 5 VA

■ 30 mm (U2)



DB-0501 12 V DC 11 W  
DB-0502 24 V DC 11 W  
DB-0507 24 V AC 50/60 Hz 10 VA  
DB-0509 110 V AC 50/60 Hz 10 VA  
DB-0510 230 V AC 50/60 Hz 10 VA

■ 30 mm (U3)



DC-0301 12 V DC 2,5 W  
DC-0302 24 V DC 2,5 W  
DC-0307 24 V AC 50/60 Hz 3,3 VA  
DC-0309 110 V AC 50/60 Hz 3,3 VA  
DC-0310 230 V AC 50/60 Hz 3,3 VA

 U1-U2-U3 coils are certified in compliance with CSA regulation, certificate n. LR 113373-1.

For coils certified in compliance with UL regulation, please contact our Sales Office

## Connectors

■ Miniature connector without wires



D-500

Coil:  
U04/U05

■ Miniature connector with loose cables



D-530-30  
D-530-50  
D-530-200

Coil:  
U04/U05

■ Miniature connector with cable



D-535-30  
D-535-50  
D-535-200

Coil:  
U04/U05

■ 15 mm Connector



AM-5109

Coil:  
U05

■ 20 mm Connector



AM-5110

Coil:  
U1

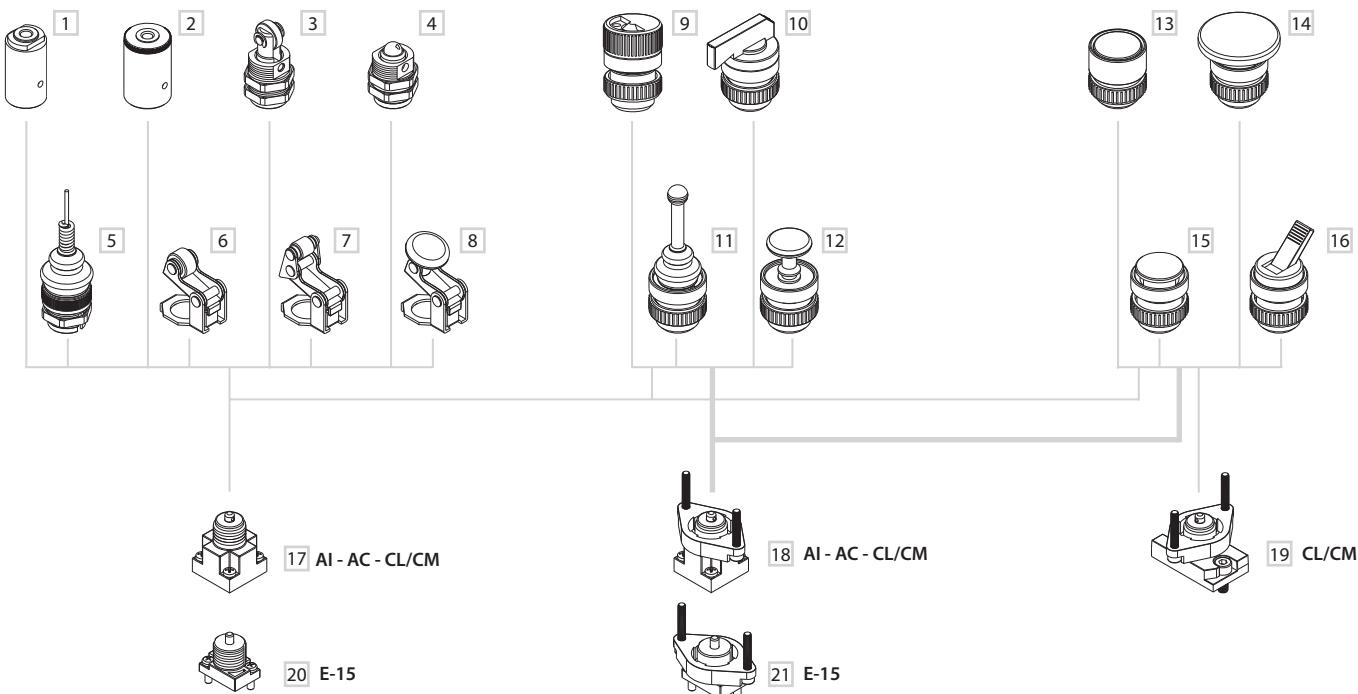
■ 30 mm Connector



AM-5111

Coil:  
U2/U3

## Operator/button modularity


**PNEUMATIC / MECHANICAL OPERATORS**

- 1** Pneumatic operator
- 2** Amplified pneumatic operator
- 3** Roller operator 1 position
- 4** Ball-push operator 1 position
- 5** Omni-directional antenna 1 position
- 6** Roller lever operator 1 position
- 7** Articulated roller lever operator 1 position
- 8** Key operator 1 position

**MANUAL OPERATORS**

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

**OVERRIDE**

- 17** Threaded indirect operation
- 18** Indirect panel operation
- 19** Direct panel operation
- 20** Ball-push direct operation
- 21** Ball-push direct panel operation

**Recessed button**
**Head button**

- 1 Position
  - AI-3511 black ■
  - AI-3512 red ■
  - AI-3513 green ■

- For panel mounting 1 Position
  - AI-3511Q black ■
  - AI-3512Q red ■
  - AI-3513Q green ■

- 1 Position
  - AI-3514 red ■
  - AI-3516 black ■

- For panel mounting 1 Position
  - AI-3514Q red ■
  - AI-3516Q black ■

- 2 Positions
  - AI-3514D red ■
  - AI-3516D black ■

- For panel mounting 2 Positions
  - AI-3514QD red ■
  - AI-3516QD black ■

**Button**
**Lever**

- 1 Position
  - AI-3515 green ■
  - AI-3517 red ■
  - AI-3519 black ■

- For panel mounting 1 Position
  - AI-3515Q green ■
  - AI-3517Q red ■
  - AI-3519Q black ■

- 2 Positions
  - AI-3524 black ■

- For panel mounting 2 Positions
  - AI-3524Q black ■

## Rotating selector for accident prevention



- With light 1 position  
 AI-3521 black ■
- For panel mounting with light 1 position  
 AI-3521Q black ■

- With light 2 positions  
 AI-3520 black ■
- For panel mounting with light 2 positions  
 AI-3520Q black ■

## Rotating lever selector



- With light 1 position  
 AI-3523 black ■
- For panel mounting with light 1 position  
 AI-3523Q black ■
- With light 2 positions  
 AI-3522 black ■
- For panel mounting with light 2 positions  
 AI-3522Q black ■

## Omni-directional lever



- With centre return 1 position  
 AI-3525 black ■
- For panel mounting with centre return 1 position  
 AI-3525Q black ■

## Push-pull operator



- 2 positions  
 AI-3526 black ■
- For panel mounting 2 positions  
 AI-3526Q black ■

## AI-3529



reducer for Ø 30,5 to Ø 22,5, to be used with AI-35..Q limit switches

## Pneumatic and mechanical operators

- |  |  |  |   |
|--|--|--|---|
| ■ Pneumatic operator<br><br>→ - [ AI-3550 ]           | ■ Roller operator with dust protection<br><br>○ - [ AI-3560 ] | ■ Omni-directional antenna 1 position with centre return<br><br>— - [ AI-3563 ] | ■ Roller lever 1 position<br><br>○ - [ AI-3570 ]                     |
| ■ Amplified pneumatic operator<br><br>□ - [ AI-3551 ] | ■ Ball operator with dust protection<br><br>○ - [ AI-3562 ]   |  | ■ Articulated one-way roller lever 1 position<br><br>○ - [ AI-3571 ] |
|  |  |  | ■ Push button 1 position<br><br>[ AI-3572 ]                          |

### YR240 Brass ball valve with rotary actuator

■ Double/single acting



**Temperature:** -20 ÷ 120 °C

**Fluid:** air, water, etc.

**Working pressure:** 16 ÷ 40 bar  
(based on working temperature)

Double acting

Part No.	Ø	DN	Part No.	Ø	DN
YR240008DA	8	G1/4	YR240008SR	8	G1/4
YR240010DA	10	G3/8	YR240010SR	10	G3/8
YR240015DA	15	G1/2	YR240015SR	15	G1/2
YR240020DA	20	G3/4	YR240020SR	20	G3/4
YR240025DA	25	G1	YR240025SR	25	G1
YR240032DA	32	G1 1/4	YR240032SR	32	G1 1/4
YR240040DA	40	G1 1/2	YR240040SR	40	G1 1/2
YR240050DA	50	G2	YR240050SR	50	G2
YR240065DA	65	G2 1/2	YR240065SR	65	G2 1/2
YR240080DA	80	G3	YR240080SR	80	G3
YR240100DA	100	G4	YR240100SR	100	G4

Single acting

### YR250 Ball valve 2/2 AISI 316 with manual lever or rotary actuator

■ With manual lever



Part No.	Ø	DN
YR250008LM	8	G1/4
YR250010LM	10	G3/8
YR250015LM	15	G1/2
YR250020LM	20	G3/4
YR250025LM	25	G1
YR250032LM	32	G1 1/4
YR250040LM	40	G1 1/2
YR250050LM	50	G2
YR250065LM	65	G2 1/2
YR250080LM	80	G3

■ Double/single acting



**Temperature:** -20 ÷ 230 °C

**Fluid:** air, water, chemical agents, etc.

**Working pressure:** Max 64 bar  
(based on working temperature)

Double acting

Part No.	Ø	DN	Part No.	Ø	DN
YR250008DA	8	G1/4	YR250008SR	8	G1/4
YR250010DA	10	G3/8	YR250010SR	10	G3/8
YR250015DA	15	G1/2	YR250015SR	15	G1/2
YR250020DA	20	G3/4	YR250020SR	20	G3/4
YR250025DA	25	G1	YR250025SR	25	G1
YR250032DA	32	G1 1/4	YR250032SR	32	G1 1/4
YR250040DA	40	G1 1/2	YR250040SR	40	G1 1/2
YR250050DA	50	G2	YR250050SR	50	G2
YR250065DA	65	G2 1/2	YR250065SR	65	G2 1/2
YR250080DA	80	G3	YR250080SR	80	G3

Single acting

### YR260 Ball valve 2/2 AISI 316 (3 pieces) with manual lever or rotary actuator

■ With manual lever



Part No.	Ø	DN
YR260008LM	8	G1/4
YR260010LM	10	G3/8
YR260015LM	15	G1/2
YR260020LM	20	G3/4
YR260025LM	25	G1
YR260032LM	32	G1 1/4
YR260040LM	40	G1 1/2
YR260050LM	50	G2
YR260065LM	65	G2 1/2
YR260080LM	80	G3

Double acting

Part No.	Ø	DN	Part No.	Ø	DN
YR260008DA	8	G1/4	YR260008SR	8	G1/4
YR260010DA	10	G3/8	YR260010SR	10	G3/8
YR260015DA	15	G1/2	YR260015SR	15	G1/2
YR260020DA	20	G3/4	YR260020SR	20	G3/4
YR260025DA	25	G1	YR260025SR	25	G1
YR260032DA	32	G1 1/4	YR260032SR	32	G1 1/4
YR260040DA	40	G1 1/2	YR260040SR	40	G1 1/2
YR260050DA	50	G2	YR260050SR	50	G2
YR260065DA	65	G2 1/2	YR260065SR	65	G2 1/2
YR260080DA	80	G3	YR260080SR	80	G3

Single acting

■ Double/single acting



**Temperature:** -20 ÷ 230 °C

**Fluid:** air, water, chemical agents, etc.

**Working pressure:** Max 64 bar  
(based on working temperature)

## YR270 L-shaped ball valve 3/2 AISI 316 with manual lever or rotary actuator

With manual lever



Part. No	Ø	DN
YR270008LM	8	G1/4
YR270010LM	10	G3/8
YR270015LM	15	G1/2
YR270020LM	20	G3/4
YR270025LM	25	G1
YR270032LM	32	G1 1/4
YR270040LM	40	G1 1/2
YR270050LM	50	G2

Double/single acting



**Temperature:** -20 ÷ 190 °C  
**Fluid:** air, water, chemical agents, etc.  
**Working pressure:** Max 63 bar  
 (based on working temperature)

Double acting			Single acting		
Part. No	Ø	DN	Part. No	Ø	DN
YR270008DA	8	G1/4	YR270008SR	8	G1/4
YR270010DA	10	G3/8	YR270010SR	10	G3/8
YR270015DA	15	G1/2	YR270015SR	15	G1/2
YR270020DA	20	G3/4	YR270020SR	20	G3/4
YR270025DA	25	G1	YR270025SR	25	G1
YR270032DA	32	G1 1/4	YR270032SR	32	G1 1/4
YR270040DA	40	G1 1/2	YR270040SR	40	G1 1/2
YR270050DA	50	G2	YR270050SR	50	G2

## YR280 Brass L-shaped ball valve 3/2 with manual lever or rotary actuator

With manual lever



Part. No	Ø	DN
YR280008LM	8	G1/4
YR280010LM	10	G3/8
YR280015LM	15	G1/2
YR280020LM	20	G3/4
YR280025LM	25	G1
YR280032LM	32	G1 1/4
YR280040LM	40	G1 1/2
YR280050LM	50	G2

Double/single acting



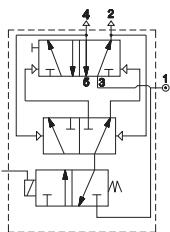
**Temperature:** -20 ÷ 160 °C  
**Fluid:** air, water, chemical agents, etc.  
**Working pressure:** DN 1/4 "÷ DN 3/4" PN30  
 DN 1" PN16 - DN 1"1/4÷DN 2" PN10

Double acting			Single acting		
Part. No	Ø	DN	Part. No	Ø	DN
YR280008DA	8	G1/4	YR280008SR	8	G1/4
YR280010DA	10	G3/8	YR280010SR	10	G3/8
YR280015DA	15	G1/2	YR280015SR	15	G1/2
YR280020DA	20	G3/4	YR280020SR	20	G3/4
YR280025DA	25	G1	YR280025SR	25	G1
YR280032DA	32	G1 1/4	YR280032SR	32	G1 1/4
YR280040DA	40	G1 1/2	YR280040SR	40	G1 1/2
YR280050DA	50	G2	YR280050SR	50	G2

### Binary Counter (Flip Flop)

#### ■ AP-500

Electrical override



Working pressure: 10 bar

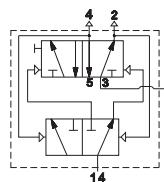
Energizing pressure: 1,5 bar

Ambient temperature: -30 ÷ +80 °C

Coil: U1 - DA series

#### ■ AP-520

Pneumatic override

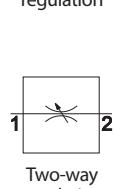
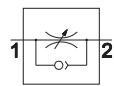


Solenoid valves are supplied without coil/connector/locking nut

### Flow control valve - metallic body

#### ■ AM-50

One-way and two-way flow control valve  
M5 - G1/8 - G1/4 - G3/8 - G1/2

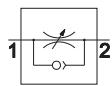


Ø mm

AM-5060	M5	1
AM-5061	G1/8	1
AM-5062	G1/8	2,25
AM-5063	G1/8	3,5
AM-5064	G1/4	5
AM-5065	G1/4	6
AM-5066	G3/8	6
AM-5067	G1/2	9
AM-5070	M5	1
AM-5071	G1/8	1
AM-5072	G1/8	2,25
AM-5074	G1/4	5
AM-5076	G3/8	6
AM-5077	G1/2	9

#### ■ AM-50

One-way flow control valve G1/2 - G3/4 - G1

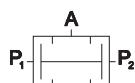


	Ø mm	
AM-5090	G1/2	9
AM-5091	G3/4	9
AM-5092	G1	12

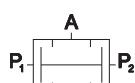
### Signal processing valve

#### ■ AM-51

Two-pressure valve "AND"



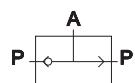
AM-5160  
threaded body G1/8



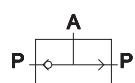
AM-5161  
push-in fittings Ø4x2

#### ■ AM-51

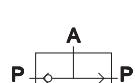
Selector valve "OR"



AM-5162  
threaded body G1/8



AM-5163  
push-in fittings Ø4x2



AM-5164  
threaded body G1/4

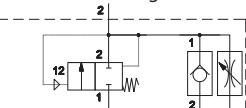
## Gradual starter

**AM-52**

Gradual starter G1/8 ÷ G1

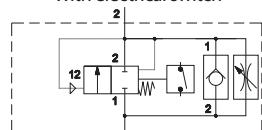


With manual regulation



	Ø mm	
AM-5240	G1/8	6,5
AM-5241	G1/4	6,5
AM-5242	G1/4	9,5
AM-5243	G3/8	9,5

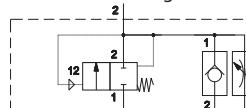
With electrical switch



	Ø mm	
AM-5242E	G1/8	9,5
AM-5243E	G3/8	9,5

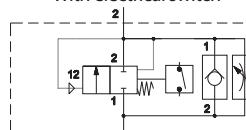


With manual regulation



	Ø mm	
AM-5254	G1/2	15
AM-5255	G3/4	15
AM-5256	G 1	24

With electrical switch

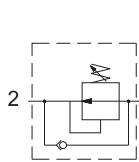


	Ø mm	
AM-5259	G1/2	15
AM-5260	G3/4	15
AM-5261	G 1	24

## Economizer

**AM-53**

Economizer G1/8 ÷ G1



	Ø mm	
AM-5350	G1/8	6,5
AM-5351	G1/4	6,5
AM-5352	G1/4	9,5
AM-5353	G3/8	9,5
AM-5354	G1/2	15
AM-5355	G3/4	15
AM-5356	G 1	24

## Check valve

**AM-54**

Check valve G1/2 - G3/4 - G1



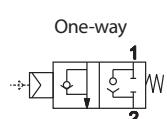
2 —○— 1

	Ø mm	
AM-5400	G1/2	15
AM-5401	G3/4	15
AM-5402	G 1	24

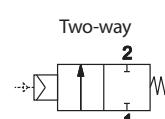
## Blocking valve

**AM-55**

Blocking valve



	Ø mm	
AM-5500	G1/8	6,5
AM-5501	G1/4	6,5
AM-5502	G1/4	9,5
AM-5503	G3/8	9,5
AM-5504	G1/2	15

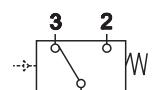


	Ø mm	
AM-5510	G1/8	6,5
AM-5511	G1/4	6,5
AM-5512	G1/4	9,5
AM-5513	G3/8	9,5
AM-5514	G1/2	15

## Transducer and pressure switch

**AM-5200**

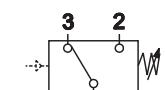
Pneumoelectrical transducer



AM-5200

**AM-5220**

Adjustable pressure switch



AM-5220

## Digital pressure switch

## ■ HZ9N ...


**Working temperature:** 0 ÷ 60 °C

**Voltage:** 12 - 24 V DC

**Repeatability:**  $\leq \pm 2\%$  F.S.  $\pm 1$  digit

**Analog output:** 1 ÷ 5 V 4 - 20 mA (upon request)

**Connection:** connector M8 and cable (upon request)

Part No.	Working pressure (bar)	Output	Min. adjustable unit (bar)	Cable length (m)	Thread
HZ9NC04	-1 +1	2xPNP	0,001	2 m	G1/8 - M5
HZ9NC02	-1 +1	2xNPN	0,001	2 m	G1/8 - M5
HZ9NP04	0 -10	2xPNP	0,01	2 m	G1/8 - M5
HZ9NP02	0 -10	2xNPN	0,01	2 m	G1/8 - M5

HZ9N1F



Adaptor for panel mounting + protection cover

HZ9N2F



Supports - 2 pcs

## Adjustable diaphragm pressure switch

## ■ HZ9N12


**Max pressure:** 80 bar

**Max temperature:** -10 ÷ 120 °C

**Max voltage:** 250 V AC

**Max current:** 0,5 A

**Body:** brass

Version with NC - NC/NO contact upon request

Part No.	Adjustable range (bar)	Tolerance 20° C (bar)	Contact	Thread
HZ9N12110060	1 - 10	$\pm 0,5$	NO	R1/8
HZ9N12110080	1 - 10	$\pm 0,5$	NO	R1/4
HZ9N12111060	0,1 - 1	$\pm 0,1$	NO	R1/8
HZ9N12111080	0,1 - 1	$\pm 0,1$	NO	R1/4

## ATEX


 ATEX version available  
 For further information please contact our Sales Office

HZ9N12A


 Protection cap  
 IP54

HZ9N12B


 Protection connector  
 IP65

HZ9N12C


 Protection connector  
 IP65 DIN

## CHARACTERISTICS

Ambient temperature	-20 ÷ +50 °C
Fluid temperature	-10 ÷ +95 °C
Fluid	water, air, non-corrosive gases
Valve body	brass
Seals	NBR
Coil	U1 U2
Power consumption	see coil section
Voltage	24 V DC, 24 V AC, 110 V AC, 220 V AC 50/60 Hz

### Other versions available upon request

- VITON, EPDM seals; EPM seals for food industry
- Nickel-plated brass or AISI 316 stainless steel body
- NO version
- G1 1/4 - G1 1/2 - G2



## 2 ways NC direct action



Part No.	Connections	Nom. bore (mm)	Pressure (bar)				Coil 24V DC*	KV (L min)
			Nominal	Min	Max AC	Max DC		
YF210061D (a)	G1/8	2	25	0	12	10	U1	1,5
YF210062D (b)	G1/8	2	25	0	22	20	U2	1,7
YF210082D (b)	G1/4	3,5	100	0	10	8	U2	5,4

## 2 ways NC servo-assisted diaphragm



Part No.	Connections	Nom. bore (mm)	Pressure (bar)				Coil 24V DC*	KV (L min)
			Nominal	Min	Max AC	Max DC		
YF210151S	G1/2	12,7	25	0,15	18	16	U1	40
YF210201S	G3/4	19	25	0,15	16	13	U1	90
YF210251S	G1	25	25	0,15	12	10	U1	176

## 3 ways NC direct action



Part No.	Connections	Nom. bore (mm)	Pressure (bar)				Coil 24V DC*	KV (L min)
			Nominal	Min	Max AC	Max DC		
YF310061D (c)	G1/8	1,5	10	0	10	10	U1	1
YF310082D (d)	G1/4	2,4	10	0	10	10	U2	2,3

## Coils



### U1

- |           |                            |
|-----------|----------------------------|
| YFDA-0224 | 24 V AC - 50/60 Hz - 8 VA  |
| YFDA-0211 | 110 V AC - 50/60 Hz - 8 VA |
| YFDA-0223 | 230 V AC - 50/60 Hz - 8 VA |
| DA-0102   | 24 V DC - 6 W              |



### U2

- |           |                             |
|-----------|-----------------------------|
| YFDB-0224 | 24 V AC - 50/60 Hz - 13 VA  |
| YFDB-0211 | 110 V AC - 50/60 Hz - 13 VA |
| YFDB-0223 | 230 V AC - 50/60 Hz - 13 VA |

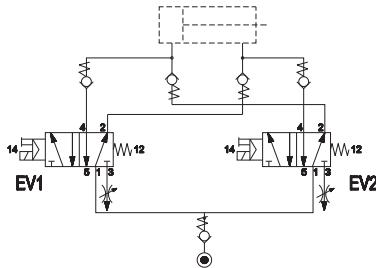
Solenoid valves are supplied with locking nut, without coil and connector

**CHARACTERISTICS**

Temperature	-20 ÷ +50 °C
Fluid	50 µm filtered air, with or without lubrication
Pressure	1,5 ÷ 9 bar
Connections	G1/4
Pace regulators	embodied
Function	it allows cylinders to stop with highly precise position repeatability
Solenoid Valves	GL series
Commutation system	spool
Electropilot/Coil	A series/U05 DD series
Voltage	24 V DC - 12 V DC - 24 V AC - 110 V AC - 230 V AC (only version with external electrical connection)
Power consumption	U05 = 2 W (DC) 2,3 VA (AC)
Manual override	recessed button - 1 position



■ Embodied pace regulators

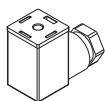


For further information please contact our Sales Office

**DD- ...**
**AM-5109**


15 mm U05 Coil - Faston

**DD-040** 24 V AC  
**DD-041** 12 V DC  
**DD-051** 24 V DC  
**DD-060** 110 V AC  
**DD-070** 230 V AC



15 mm Connectors

## 4

## Air Treatment



Air Treatment Units

HZE

3



Pressure Gauges

HZ9

10

Regulators and  
TransducersHZRP  
HZRE11  
11

Microregulators

HZRM

12

**MODULAR**

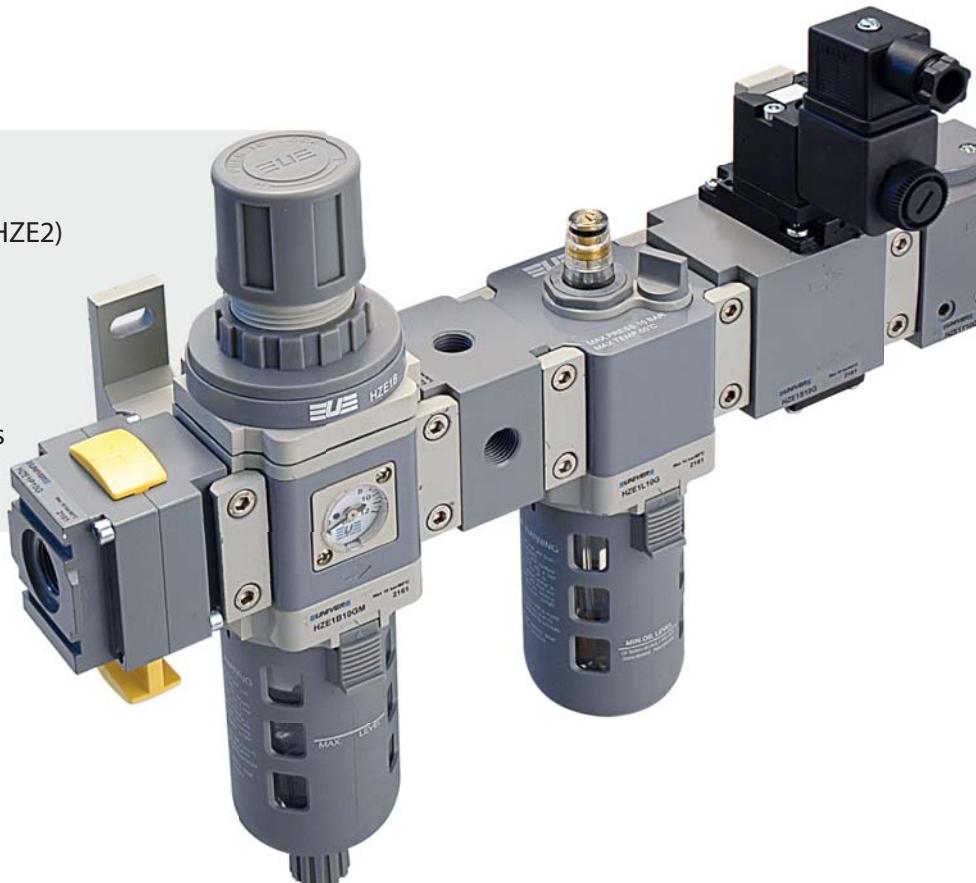
40 mm (HZE0) 63 mm (HZE1) 80 mm (HZE2)

**INTEGRATED GAUGE**

Standard supplied

**COMPLETE SOLUTION**

Possibility of assembling combinations complete with accessories

**G1/4**

Size 0



FR+L

**600**  
NI/min**G3/8 - G1/2**

Size 1

**G1/2**

Size 2



FR+L

**2800**  
NI/min

FR+L

**4300**  
NI/min**HZE-Y**  
Gradual starter**HZE-N**  
Diverter block**HZE-P**  
Lockable valve**HZE-S**  
Shut-off valve**HZE-RL**  
Lockable regulator

## CHARACTERISTICS

Ambient temperature	0 ÷ +60 °C
Fluid	filtered air, with or without lubrication
Working pressure	10 bar
Max pressure	15 bar
Size	0 - 1 - 2
Body	technopolymer with metal threaded elements (size 0) die-cast aluminium (size 1 - 2)
Knob	technopolymer
Ring nut	technopolymer
Bowl	polycarbonate
Bowl guard	technopolymer (size 1-2)
Filter element	polyethylene
Seals	NBR
Springs	steel
Diaphragm	fabric reinforced rubber



### For round gauge mounting (HZP):

Size 0 = Replace HZ9464G gauge with HZE7Z480 square adaptor G1/8, to be ordered separately

Size 1-2 = Replace HZ9464G gauge with HZE7Z480 square adaptor G1/8 placed on the rear side of the regulator or filter regulator

## CODIFICATION KEY

H	Z	E	0	B	0	8	G		M
1	2	3	4	5	6				

1 Series	2 Size	3 Model
HZE = Air treatment units with standard manual drain	0 = Small (G1/4) 1 = Medium (G3/8 - G1/2) 2 = Large (G1/2)	F = Filter R = Regulator L = Lubricator B = Filter regulator D = Filter regulator+Lubricator (FR+L) C = Filter+Regulator+Lubricator (F+R+L)
<b>4 Thread</b>	<b>5 Option</b>	<b>6 Pressure gauge</b>
08G = G1/4 (size 0) 10G = G3/8 (size 1) 15G = G1/2 (size 1-2) 20G = G3/4 (size 2) * 25G = G1 (size 2) *	A = Automatic drain (except for size 0) S = Semi-automatic drain	M = Integrated square pressure gauge (standard supplied) Square adaptor G1/8 upon request

\* = with threaded ends

## Filter



Size	0	1	2
Part No.	HZE0F08G	HZE1F10G	HZE2F15G
Connections	G1/4	G3/8	G1/2
Filtration rate ( $\mu\text{m}$ )	5	5	5
Nominal flow rate (NL/min) <sup>(A)</sup>	1100	3500	6500
Max inlet pressure (bar-MPa-psi)	10 - 1 - 145	10 - 1 - 145	10 - 1 - 145
Condensation drain capacity ( $\text{cm}^3$ )	12	45	80
Condensation drain	manual	manual	manual

(A) = Inlet pressure 7 bar,  $\Delta p$  0,5 bar

## Regulator

			
<b>Size</b>	<b>0</b>	<b>1</b>	<b>2</b>
<b>Part No.</b>	<b>HZE0R08GM</b>	<b>HZE1R10GM</b>	<b>HZE1R15GM</b>
<b>Connections</b>	<b>G1/4</b>	<b>G3/8</b>	<b>G1/2</b>
<b>Nominal flow rate (NI/min) <sup>(A)</sup></b>	<b>1000</b>	<b>2100</b>	<b>4300</b>
<b>Max inlet pressure (bar-MPa-psi)</b>	<b>10 - 1 - 145</b>	<b>10 - 1 - 145</b>	<b>10 - 1 - 145</b>
<b>Pressure adjustment-relieving version (bar)</b>	<b>0,5 ÷ 8,5</b>	<b>0,5 ÷ 8,5</b>	<b>0,5 ÷ 8,5</b>
<b>Pressure gauge (standard supplied)</b>	<b>HZ9464G</b>	<b>HZ9464G</b>	<b>HZ9464G</b>
<b>Pressure gauge adaptor</b>	<b>G1/8<sup>(B)</sup></b>	<b>G1/8<sup>(C)</sup></b>	<b>G1/8<sup>(C)</sup></b>

(A) = Inlet pressure 7 bar, outlet pressure 5 bar -  $\Delta p$  1 bar

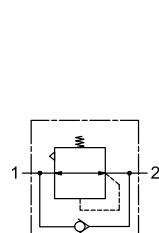
(B) = Upon request (replace HZ9464G gauge with HZE7Z480 square adaptor G1/8, to be ordered separately)

(C) = Standard supplied (replace HZ9464G gauge with HZE7Z480 square adaptor G1/8 placed on the rear side)

## Other available versions

 Without manometer size 0 Lockable knob size 1-2 Check valve size 0-1-2

The check valve inside the regulator allows to relieve downstream pressure in a quick and effective way.



Size	Part No.
0	HZE0R08G

Size	Part No.
1	HZE1RL10GM - HZE1RL15GM
2	HZE2RL15GM

Lock not included

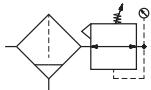
Size	Part No.
0	HZE0R08GMV
1	HZE1R10GMV-HZE1R15GMV
2	HZE2R15GMV

## Lubricator

			
<b>Size</b>	<b>0</b>	<b>1</b>	<b>2</b>
<b>Part No.</b>	<b>HZE0L08G</b>	<b>HZE1L10G</b>	<b>HZE2L15G</b>
<b>Connections</b>	<b>G1/4</b>	<b>G3/8</b>	<b>G1/2</b>
<b>Nominal flow rate (NI/min) <sup>(A)</sup></b>	<b>1400</b>	<b>4400</b>	<b>7000</b>
<b>Max inlet pressure (bar-MPa-psi)</b>	<b>10 - 1 - 145</b>	<b>10 - 1 - 145</b>	<b>10 - 1 - 145</b>
<b>Bowl capacity (cm<sup>3</sup>)</b>	<b>20</b>	<b>85</b>	<b>170</b>
<b>Recommended oil</b>	<b>ISO VG 32</b>	<b>ISO VG 32</b>	<b>ISO VG 32</b>
<b>Min. working flow rate (NI/min)</b>	<b>25</b>	<b>30</b>	<b>65</b>

(A) = Inlet pressure 7 bar -  $\Delta p$  0,5 bar

## Filter regulator

			
<b>Size</b>	<b>0</b>	<b>1</b>	<b>2</b>
<b>Part No.</b>	<b>HZE0B08GM</b>	<b>HZE1B10GM</b>	<b>HZE1B15GM</b>
<b>Connections</b>	<b>G1/4</b>	<b>G3/8</b>	<b>G1/2</b>
<b>Filtration rate (µm)</b>	<b>5</b>	<b>5</b>	<b>5</b>
<b>Nominal flow rate (NL/min) <sup>(A)</sup></b>	<b>600</b>	<b>2300</b>	<b>4500</b>
<b>Max inlet pressure (bar-MPa-psi)</b>	<b>10 - 1 - 145</b>	<b>10 - 1 - 145</b>	<b>10 - 1 - 145</b>
<b>Pressure adjustment - relieving version (bar)</b>	<b>0,5 ÷ 8,5</b>	<b>0,5 ÷ 8,5</b>	<b>0,5 ÷ 8,5</b>
<b>Pressure gauge (standard supplied)</b>	<b>HZ9464G</b>	<b>HZ9464G</b>	<b>HZ9464G</b>
<b>Pressure gauge adaptor</b>	<b>G1/8<sup>(B)</sup></b>	<b>G1/8<sup>(C)</sup></b>	<b>G1/8<sup>(C)</sup></b>
<b>Condensation drain capacity (cm<sup>3</sup>)</b>	<b>12</b>	<b>45</b>	<b>80</b>
<b>Condensation drain</b>	<b>manual</b>	<b>manual</b>	<b>manual</b>

(A) = Inlet pressure 7 bar, outlet pressure 5 bar - Δp 1 bar

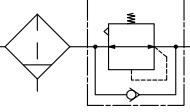
(B) = Upon request (replace HZ9464G gauge with HZE7Z480 square adaptor G1/8, to be ordered separately)

(C) = Standard supplied (replace HZ9464G gauge with HZE7Z480 square adaptor G1/8 placed on the rear side)

## Other available versions

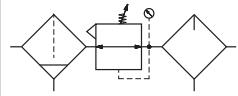
**Check valve size 0-1-2**

The check valve inside the filter regulator allows to relieve downstream pressure in a quick and effective way.

	
<b>Size</b>	<b>Part No.</b>
<b>0</b>	<b>HZE0B08GMV</b>
<b>1</b>	<b>HZE1B10GMV-HZE1B15GMV</b>
<b>2</b>	<b>HZE2B15GMV</b>

## Filter regulator + Lubricator

4



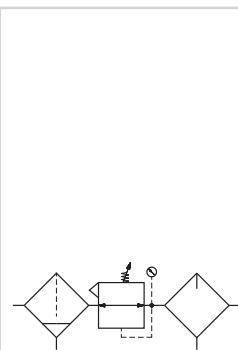
Size	0	1	2
Part No.	HZE0D08GM	HZE1D10GM	HZE1D15GM
Connections	G1/4	G3/8	G1/2
Filtration rate ( $\mu\text{m}$ )	5	5	5
Nominal flow rate (NI/min) <sup>(A)</sup>	600	2800	4300
Max inlet pressure (bar-MPa-psi)	10 - 1 - 145	10 - 1 - 145	10 - 1 - 145
Fluid	compressed air	compressed air	compressed air
Pressure adjustment - relieving version (bar)	0,5 ÷ 8,5	0,5 ÷ 8,5	0,5 ÷ 8,5
Pressure gauge (standard supplied)	HZ9464G	HZ9464G	HZ9464G
Pressure gauge adaptor	G1/8 <sup>(B)</sup>	G1/8 <sup>(C)</sup>	G1/8 <sup>(C)</sup>
Condensation drain capacity (cm <sup>3</sup> )	12	45	80
Condensation drain	manual	manual	manual
Recommended oil	ISO VG 32	ISO VG 32	ISO VG 32
Min. working flow rate (NI/min)	25	30	65

(A) = Inlet pressure 7 bar, outlet pressure 5 bar -  $\Delta p$  1 bar

(B) = Upon request (replace HZ9464G gauge with HZE7Z480 square adaptor G1/8, to be ordered separately)

(C) = Standard supplied (replace HZ9464G gauge with HZE7Z480 square adaptor G1/8 placed on the rear side)

## Filter + Regulator + Lubricator



Size	0	1	2
Part No.	HZE0C08GM	HZE1C10GM	HZE1C15GM
Connections	G1/4	G3/8	G1/2
Filtration rate ( $\mu\text{m}$ )	5	5	5
Nominal flow rate (NI/min) <sup>(A)</sup>	550	1700	2500
Max inlet pressure (bar-MPa-psi)	10 - 1 - 145	10 - 1 - 145	10 - 1 - 145
Fluid	compressed air	compressed air	compressed air
Pressure adjustment - relieving version (bar)	0,5 ÷ 8,5	0,5 ÷ 8,5	0,5 ÷ 8,5
Pressure gauge (standard supplied)	HZ9464G	HZ9464G	HZ9464G
Pressure gauge adaptor	G1/8 <sup>(B)</sup>	G1/8 <sup>(C)</sup>	G1/8 <sup>(C)</sup>
Condensation drain capacity (cm <sup>3</sup> )	12	45	80
Condensation drain	manual	manual	manual
Recommended oil	ISO VG 32	ISO VG 32	ISO VG 32
Min. working flow rate (NI/min)	25	30	65

(A) = Inlet pressure 7 bar, outlet pressure 5 bar -  $\Delta p$  1 bar

(B) = Upon request (replace HZ9464G gauge with HZE7Z480 square adaptor G1/8, to be ordered separately)

(C) = Standard supplied (replace HZ9464G gauge with HZE7Z480 square adaptor G1/8 placed on the rear side)

## Gradual Starter

<b>Size</b>	<b>0</b>	<b>1</b>
<b>Part No.</b>	<b>HZE0Y08G</b>	<b>HZE1Y10G</b>
<b>Connections</b>	<b>G1/4</b>	<b>G3/8</b>
<b>Nominal flow rate (NL/min) <sup>(A)</sup></b>	<b>900</b>	<b>2200</b>
<b>Max inlet pressure (bar-MPa-psi)</b>	<b>10 - 1 - 145</b>	<b>10 - 1 - 145</b>
<b>Min. pressure (bar)</b>	<b>2</b>	<b>3,5</b>
<b>Fluid</b>	compressed air	compressed air

(A) = Inlet pressure 7 bar, outlet pressure 5 bar -  $\Delta p$  1 bar

## Diverter Block

<b>Size</b>	<b>0</b>	<b>1</b>
<b>Part No.</b>	<b>HZE0N08G</b>	<b>HZE1N10G</b>
<b>Connections</b>	In/Out G1/4 Auxiliary G1/8	In/Out G3/8 Auxiliary G1/4
<b>Max inlet pressure (bar-MPa-psi)</b>	<b>10 - 1 - 145</b>	<b>10 - 1 - 145</b>
<b>Fluid</b>	compressed air	compressed air

Use blanking plugs to close unused ways (not included)

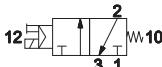
## Lockable Valve

<b>Size</b>	<b>0</b>	<b>1</b>
<b>Part No.</b>	<b>HZE0P08G</b>	<b>HZE1P10G</b>
<b>Connections</b>	<b>G1/4</b>	<b>G3/8</b>
<b>Nominal flow rate (NL/min) <sup>(A)</sup></b>	<b>900</b>	<b>5000</b>
<b>Max inlet pressure (bar-MPa-psi)</b>	<b>10 - 1 - 145</b>	<b>10 - 1 - 145</b>
<b>Fluid</b>	compressed air	compressed air

(A) = Inlet pressure 7 bar, outlet pressure 5 bar -  $\Delta p$  1 bar

## Shut-off valve

**4**



	0	1	1
<b>Size</b>	HZE0S08G	HZE1S10G	HZE1S15G
<b>Part No.</b>			
<b>Connections</b>	G1/4	G3/8	G1/2
<b>Nominal flow rate (NL/min)<sup>(A)</sup></b>	900	2800	
<b>Max inlet pressure (bar-MPa-psi)</b>	10 - 1 - 145	10 - 1 - 145	
<b>Min. pressure (bar-MPa-psi)</b>	2 - 0,16 - 23	2 - 0,2 - 29	
<b>Fluid</b>	compressed air	compressed air	
<b>Commutation system</b>	poppet	poppet	
<b>Ways/Positions</b>	3/2 NC	3/2 NC	
<b>Control</b>	indirect electropneumatic	indirect electropneumatic	
<b>Nominal diameter (mm)</b>	8	10	
<b>Electropilot</b>	U1 AA series	U1 AA series	
<b>Coil</b>	DA/DC	DA/DC	
<b>Manual Override</b>	two-position screw	two-position screw	

(A) = Inlet pressure 7 bar, outlet pressure 5 bar -  $\Delta p$  1 bar

## Coils




<b>U1</b>	<b>U3</b>
DA-0050 12 V DC DA-0051 24 V DC DA-0106 24 V AC/50-60 Hz DA-0108 110 V AC/50-60 Hz DA-0124 230 V AC/50-60 Hz	DC-0301 12 V DC DC-0302 24 V DC DC-0307 24 V AC/50-60 Hz DC-0309 110 V AC/50-60 Hz DC-0310 230 V AC/50-60 Hz

## Other available versions

<b>Size 0 U05</b>	<b>Size 1 U05</b>	<b>Size 1 U3 CNOMO</b>
		

HZE0/1Z200	HZE0/1/2Z210	HZE0/1/2Z300	HZE0/1/2Z310	HZE7Z480/90	HZE2Z500/501
				 G1/8      G1/4	

### Filter and filter regulator accessories

HZE0/1/2Z600	HZE0/1/2Z600SS	HZE7Z400	HZE0/1Z401	HZE0/1Z402
				

Standard bowl with manual drain  
Size 0 HZE0/2600  
Size 1 HZE1Z600  
Size 2 HZE2Z600

Bowl with semi-automatic drain  
Size 1 HZE1Z600SS  
Size 2 HZE2Z600SS

Automatic drain  
Size 1-2 HZE7Z400

Semi-automatic drain  
Size 0 HZE0/2401  
Size 1-2 HZE1Z401

Manual drain  
Size 0 HZE0/2402  
Size 1-2 HZE1Z402

### HZE0/1/2Z660

### HZE1/2Z670



Filter elements 5 µm  
Size 0 HZE0/2660  
Size 1 HZE1Z660  
Size 2 HZE2Z660

Coalescing filter 0,3 µm  
Size 1 HZE1Z670  
Size 2 HZE2Z670

Other filter elements upon request

### Regulator and filter regulator accessories

HZE0/1/2Z602	HZE1/2Z652/4/8	HZE0/1/2Z603	HZE0/1/2Z610/1
			

Knob  
Size 0 HZE0/2602  
Size 1 HZE1Z602  
Size 2 HZE2Z602

Regulator spring  
Size 1 Pressure adjustment  
HZE1Z652 0,5 ÷ 1,7  
HZE1Z654 0,5 ÷ 3,5  
HZE1Z658 0,5 ÷ 8,5  
Size 2  
HZE2Z652 0,5 ÷ 1,7  
HZE2Z654 0,5 ÷ 3,5  
HZE2Z658 0,5 ÷ 8,5

Ring nut for panel  
Size 0 HZE0/2603  
Size 1 HZE1Z603  
Size 2 HZE2Z603

Diaphragm kit  
Size 0 HZE0/2610 relieving  
HZE0/2611 non-relieving  
Size 1 HZE1Z610 relieving  
HZE1Z611 non-relieving  
Size 2 HZE2Z610 relieving  
HZE2Z611 non-relieving

### Lubricator accessories

HZE0/1/2Z601	HZE7Z470
	

Standard bowl  
Size 0 HZE0/2601  
Size 1 HZE1Z601  
Size 2 HZE2Z601

Lubricator transparent dome  
Size 0-1-2 HZE7Z470

## Pressure gauge

### ■ HZ9P ....



<b>Thread:</b> brass, copper alloy
<b>Body:</b> technopolymer
<b>Movement:</b> brass
<b>Indicator:</b> aluminium, black painted
<b>Dial:</b> acrylic pressure mounted
<b>Accuracy:</b> EN 837 class 1,6 - 2,5. ASME B40.1 grade B
<b>Protection:</b> IP 43

Part No.	<b>Ø</b>	Scale		Thread
		Bar	MPa	
HZ9P400318	40	0 - 2,5	0 - 0,25	R1/8
HZ9P400618	40	0 - 6	0 - 0,6	R1/8
HZ9P401018	40	0 - 10	0 - 1	R1/8
HZ9P500314	50	0 - 2,5	0 - 0,25	R1/4
HZ9P500614	50	0 - 6	0 - 0,6	R1/4
HZ9P501014	50	0 - 10	0 - 1	R1/4
HZ9P630314	63	0 - 2,5	0 - 0,25	R1/4
HZ9P630614	63	0 - 6	0 - 0,6	R1/4
HZ9P631014	63	0 - 10	0 - 1	R1/4

## Pressure gauge with flange for panel mounting

### ■ HZ9PB ....



<b>Thread:</b> brass, copper alloy
<b>Body:</b> metal, black painted
<b>Assembly:</b> chromium plated front flange with 3 holes
<b>Movement:</b> brass
<b>Indicator:</b> aluminium, black painted
<b>Dial:</b> acrylic
<b>Accuracy:</b> EN 837 class 1,6 - 2,5. ASME B40.1 grade B
<b>Protection:</b> IP 43

Part No.	<b>Ø</b>	Scale		Thread
		Bar	MPa	
HZ9PB400318	40	0 - 2,5	0 - 0,25	R1/8
HZ9PB400618	40	0 - 6	0 - 0,6	R1/8
HZ9PB401018	40	0 - 10	0 - 1	R1/8
HZ9PB500314	50	0 - 2,5	0 - 0,25	R1/4
HZ9PB500614	50	0 - 6	0 - 0,6	R1/4
HZ9PB501014	50	0 - 10	0 - 1	R1/4
HZ9PB630314	63	0 - 2,5	0 - 0,25	R1/4
HZ9PB630614	63	0 - 6	0 - 0,6	R1/4
HZ9PB631014	63	0 - 10	0 - 1	R1/4

## Pressure gauge with bracket for panel mounting

### ■ HZ9PBS ....



<b>Thread:</b> brass, copper alloy
<b>Body:</b> metal, black painted
<b>Assembly:</b> border with rear bracket
<b>Movement:</b> brass
<b>Indicator:</b> aluminium, black painted
<b>Dial:</b> acrylic
<b>Accuracy:</b> EN 837 class 1,6 - 2,5. ASME B40.1 grade B
<b>Protection:</b> IP 43

Part No.	<b>Ø</b>	Scale		Thread
		Bar	MPa	
HZ9PBS400318	40	0 - 2,5	0 - 0,25	R1/8
HZ9PBS400618	40	0 - 6	0 - 0,6	R1/8
HZ9PBS401018	40	0 - 10	0 - 1	R1/8
HZ9PBS500314	50	0 - 2,5	0 - 0,25	R1/4
HZ9PBS500614	50	0 - 6	0 - 0,6	R1/4
HZ9PBS501014	50	0 - 10	0 - 1	R1/4
HZ9PBS630314	63	0 - 2,5	0 - 0,25	R1/4
HZ9PBS630614	63	0 - 6	0 - 0,6	R1/4
HZ9PBS631014	63	0 - 10	0 - 1	R1/4

## Recessed pressure gauge

### ■ HZ9464G



<b>Body:</b> tecnopolymer
<b>Assembly:</b> HZE series regulator and filter regulator size 0-1-2
<b>Scale:</b> 0 ÷ 12 bar
<b>Dial:</b> polycarbonate
<b>Accuracy:</b> ± 3% full scale

## Precision regulators

## ■ HZRP10



## Adjusting range

HZRP1008GA 0,1 ÷ 3 bar  
 HZRP1008GB 0,1 ÷ 4 bar  
 HZRP1008GC 0,1 ÷ 8 bar

HZRP12: version with oversized exhaust

## ■ HZRP20



## Adjusting range

HZRP2008GA 0 ÷ 0,1 bar  
 HZRP2008GB 0 ÷ 1 bar  
 HZRP2008GC 0 ÷ 2 bar  
 HZRP2008GD 0 ÷ 4 bar  
 HZRP2008GE 0 ÷ 10 bar

Part No.	HZRP10	HZRP20
Fluid	filtered compressed air, not lubricated	
Connections	G1/4	
Max pressure	10 bar	17 bar
Ambient temperature	-17 ÷ +55 °C	-40 ÷ +70 °C
Nominal flow rate	420 NL/min <sup>(B)</sup>	1600 NL/min <sup>(B)</sup>
Consumption	3 NL/min	30 ÷ 375 NL/min (based on outlet pressure)
Exhaust capacity	HZRP10 = 90 NL/min HZRP12 = 330 NL/min	110 NL/min
Pressure variation	less than 0,4 mbar <sup>(A)</sup>	less than 7 mbar
Sensitivity	0,3 mbar	-
Body	zamak	die-cast aluminium
Diaphragms	NBR	NBR
Capsule and adjusting screw	stainless steel	stainless steel, brass
Knob	technopolymer	technopolymer

(A) = HZRP10 With supply pressure variation 2 bar

(A) = HZRP20 With supply pressure variation 7 bar

(B) = HZRP10 Inlet pressure 7 bar, outlet pressure 1,4 bar

(B) = HZRP20 Inlet pressure 7 bar, outlet pressure 5 bar, Δp 1 bar

HZRP1310



Fixing bracket  
for HZRP10

HZRP2310



Fixing bracket  
for HZRP20

HZ9P...



Gauges Ø50 - R1/4  
 HZ9P500314 0 - 2,5 bar  
 HZ9P500614 0 - 6 bar  
 HZ9P501014 0 - 10 bar

## Electro-pneumatic transducers



## ■ HZRE10

Adjusting range  
 0,2 ÷ 1 bar  
 0,14 ÷ 4 bar  
 0,2 ÷ 8 bar

## ■ HZRE20

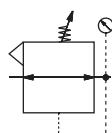
Adjusting range  
 0,2 ÷ 1 bar  
 0,14 ÷ 4 bar  
 0,14 ÷ 7 bar

Part No.	HZRE10	HZRE20
Fluid	filtered compressed air, not lubricated	
Connections	G1/4	
Max pressure	7 ÷ 10 bar	7 ÷ 9 bar
Temperature	-30 ÷ +65 °C	-40 ÷ +70 °C
Flow rate	350 ÷ 600 NL/min	
Control Signal	0-10 V	4-20 mA
Voltage	-	7-30 V DC
Control System	Piezoelectric open ring	Piezoelectric closed ring
Hysteresis	< 0,5% F.S.	± 0,10% F.S.
Repeatability		

Values of pressure and flow rate vary according to the model of transducer.

For further information please contact our Sales Office

## Microregulators for air



<b>Part No.</b>	<b>HZRM08G</b>
<b>Ambient temperature</b>	-10 ÷ 50 °C
<b>Max working pressure</b>	20 bar
<b>Fluid-relieving version</b>	filtered air, with or without lubrication, neutral gases
<b>Pressure adjustment <sup>(A)</sup></b>	0,8 ÷ 8 bar
<b>Connections</b>	G1/4
<b>Pressure gauge connections</b>	G1/8
<b>Nominal flow rate <sup>(B)</sup></b>	320 NL/min
<b>Body</b>	zamak
<b>Knob</b>	technopolymer
<b>Bonnet</b>	technopolymer
<b>Spring</b>	steel C85
<b>Diaphragm</b>	nitrile rubber (NBR)

(A) = Different adjustment range upon request

(B) = Nitrogen flow rate inlet pressure 15 bar, outlet pressure 5 bar,  $\Delta p$  1 bar

Ring nut for panel mounting not included

**HZRM603**

**HZRM310**

**HZRM652/4/8**

**HZRM610/1**

**AZ-0200**


Ring nut for panel  
**HZRM603** Technopolymer

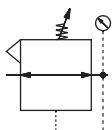
Regulator L-bracket  
**HZRM310** Nickel-plated steel

Regulator spring  
 Pressure adjustment:  
**HZRM652** 0,2÷1,5 bar  
**HZRM654** 0,3÷3 bar  
**HZRM658** 1,5÷15 bar

Diaphragm kit  
**HZRM610** relieving  
**HZRM611** non-relieving

Grub screw G1/8  
**AZ-0200**

## Microregulators for air and water



	<b>Brass</b>	<b>Stainless steel</b>
<b>Part No.</b>	Upon request	
<b>Ambient temperature</b>	-10 ÷ 50 °C	-20 ÷ 80 °C
<b>Max working pressure</b>	20 bar	30 bar
<b>Fluid relieving version</b>	filtered air, with or without lubrication, neutral gases	water and compatible fluids
<b>non-relieving version</b>		
<b>Pressure adjustment <sup>(A)</sup></b>	0,8 ÷ 8 bar	
<b>Connections</b>	G1/4	
<b>Pressure gauge connections</b>	G1/8	
<b>Nominal flow rate <sup>(B)</sup></b>	320 NL/min	
<b>Body</b>	brass	stainless steel AISI 316
<b>Knob</b>	technopolymer	-
<b>Bonnet</b>	technopolymer	stainless steel AISI 316
<b>Bonnet upon request</b>	brass	technopolymer
<b>Spring</b>	steel C85	stainless steel AISI 302
<b>Diaphragm</b>	NBR	stainless steel AISI 316

(A) = Different adjustment range upon request

(B) = Nitrogen flow rate Inlet pressure 15 bar, outlet pressure 5 bar,  $\Delta p$  1 bar

Ring nut for panel mounting not included

**HZRM603/603A**
**HZRM310/310A**


Ring nut for panel  
**HZRM603** Technopolymer  
**HZRM603A** Stainless steel AISI 316L

Regulator L-bracket  
**HZRM310** Nickel-plated steel  
**HZRM310A** Stainless steel AISI 316L

## 5

## Accessories



Push-in Fittings

HA  
HAR  
HB2  
5  
6Fittings with  
pneumatic functions

HC

9



Standard Fittings

HD

13



Push-on Fittings

HGC

16



Olive Fittings

HGO

18



Quick Couplings

HGU

19



Tubes

HE/HF

20

Magnetic and  
Electronic SensorsDF  
DH/KM  
DF-R/DF-T21  
22  
22

**CHARACTERISTICS**

Temperature	-20 ÷ 80 °C (based on the type of tube)
Fluid	compressed air, vacuum
Max pressure	15 bar
Working pressure	-0,99 ÷ 10 bar
Body	technopolymer
Fixing elements	nickel-plated brass with O-ring in NBR for parallel thread version (standard) teflon coating for taper thread version (upon request)
Clamp	stainless steel
Release ring	technopolymer
Application fields	pneumatic circuits
Recommended hoses	polyamide PA 10.12, polyurethane Sh.A98, co-polyurethane Sh.55D

<b>HA02</b> Smooth body straight parallel male	<b>HA04</b> Straight parallel male	<b>HA06</b> Plastic straight parallel male
Ø connection	Ø connection	Ø connection
HA0204M5 HA0206M5 HA020418 HA020618 HA020818 HA020414 HA020614 HA020814 HA021014 HA020838 HA021038 HA021238 HA021012 HA021212	4 M5 6 M5 4 G1/8 6 G1/8 8 G1/8 4 G1/4 6 G1/4 8 G1/4 10 G1/4 8 G3/8 10 G3/8 12 G3/8 10 G1/2 12 G1/2	4 M5 6 M5 4 G1/8 6 G1/8 8 G1/8 4 G1/4 6 G1/4 8 G1/4 10 G1/4 8 G3/8 10 G3/8 12 G3/8 10 G1/2 12 G1/2
<b>HA07</b> Straight female	<b>HA08</b> Swivel elbow female	<b>HA10B</b> Low elbow
Ø connection	Ø connection	Ø connection
HA070418 HA070618 HA070818 HA070614 HA070814 HA071014 HA070838 HA071038 HA071238 HA071212	4 G1/8 6 G1/8 8 G1/8 6 G1/4 8 G1/4 10 G1/4 8 G3/8 10 G3/8 12 G3/8 12 G1/2	4 G1/8 6 G1/8 8 G1/8 4 G1/4 8 G1/4 10 G1/4 8 G3/8 10 G3/8 12 G3/8 12 G1/2
<b>HA12</b> Extended swivel elbow parallel male	<b>HA12B</b> Extended swivel low elbow parallel male	<b>HA14</b> Lateral Tee male
Ø connection	Ø connection	Ø connection
HA1204M5 HA1206M5 HA120418 HA120618 HA120818 HA120414 HA120614 HA120814 HA121014 HA120638 HA120838 HA121038 HA121238 HA121012 HA121212	4 M5 6 M5 4 G1/8 6 G1/8 8 G1/8 4 G1/4 6 G1/4 8 G1/4 10 G1/4 6 G3/8 8 G3/8 10 G3/8 12 G3/8 10 G1/2 12 G1/2	4 M5 6 M5 4 G1/8 6 G1/8 8 G1/8 4 G1/4 6 G1/4 8 G1/4 10 G1/4 6 G3/8 8 G3/8 10 G3/8 12 G3/8 10 G1/2 12 G1/2
<b>HA14B</b> Low lateral Tee male	<b>HA16</b> Central Tee male	<b>HA16B</b> Low central Tee male
Ø connection	Ø connection	Ø connection
HA14B04M5 HA14B06M5 HA14B0418 HA14B0618 HA14B0818 HA14B0614 HA14B0814 HA14B1014 HA14B0838 HA14B1038 HA14B1238 HA14B1012 HA14B1212	4 M5 6 M5 4 G1/8 6 G1/8 8 G1/8 6 G1/4 8 G1/4 10 G1/4 8 G3/8 10 G3/8 12 G3/8 10 G1/2 12 G1/2	4 M5 6 M5 4 G1/8 6 G1/8 8 G1/8 6 G1/4 8 G1/4 10 G1/4 8 G3/8 10 G3/8 12 G3/8 10 G1/2 12 G1/2
<b>NEW</b>	<b>NEW</b>	<b>NEW</b>

**HA18**  
Y parallel male


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

**HA19**  
Intermediate straight


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

**HA20**  
Intermediate elbow


	Ø
HA200400	4
HA200600	6
HA200800	8
HA201000	10
HA201200	12

**HA21**  
Intermediate lateral Tee


	Ø
HA210400	4
HA210600	6
HA210800	8
HA211000	10
HA211200	12

**HA22**  
Intermediate cross


	Ø
HA220400	4
HA220600	6
HA220800	8
HA221000	10
HA221200	12

**HA23**  
Intermediate Y connector


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

**HA24**  
Reducing stem


	Ø1	Ø2
HA240406	4	6
HA240408	4	8
HA240608	6	8
HA240610	6	10
HA240810	8	10
HA240812	8	12
HA241012	10	12

**HA25**  
Y connector with male stem


	Ø
HA250400	4
HA250600	6
HA250800	8
HA251000	10
HA251200	12

**HA26**  
Plug


	Ø
HA260400	4
HA260600	6
HA260800	8
HA261000	10
HA261200	12

**HA27**  
Swivel banjo connector (parallel male thread)  
with wrench head


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

**HA28**  
Swivel banjo connector parallel male-female


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

**HA29**  
Triple branch lateral Tee


	Ø
HA290400	4
HA290600	6
HA290800	8

**HA30**  
Triple branch lateral Tee


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

**HA31**  
Triple branch lateral Tee male thread


	Ø1	Ø2	connection
HA314618	6	4	G1/8
HA314814	8	4	G1/4
HA316814	8	6	G1/4
HA318138	10	8	G3/8
HA318112	10	8	G1/2

**HA32**  
Triple branch lateral Tee male thread


	Ø	connection
HA320418	4	G1/8
HA320618	6	G1/8
HA320818	8	G1/8
HA320414	4	G1/4
HA320614	6	G1/4
HA320814	8	G1/4
HA320638	6	G3/8
HA320838	8	G3/8

**HA33**  
Bulkhead connector



	Ø
HA330004	4
HA330006	6
HA330008	8
HA330010	10
HA330012	12

**HA34**  
Threaded bulkhead connector



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

**HA35**  
Elbow bulkhead connector



	Ø
HA350004	4
HA350006	6
HA350008	8
HA350010	10
HA350012	12

**HA38**  
Stem elbow



	Ø
HA380400	4
HA380600	6
HA380800	8
HA381000	10
HA381200	12

**HA39**  
Intermediate double Y



	Ø2	Ø1	Ø2
HA390604	6	4	
HA390804	8	4	
HA390806	8	6	
HA390808	8	8	

NEW

**HA40**  
Double Y parallel male



	Ø	connection
HA400418	4	G1/8
HA400618	6	G1/8
HA400818	8	G1/8
HA400614	6	G1/4
HA400814	8	G1/4
HA401014	10	G1/4
HA400638	6	G3/8
HA400838	8	G3/8
HA400612	6	G1/2
HA400812	8	G1/2

NEW

**HA41**  
Swivel banjo connector (parallel thread) with allen head



	Ø	connection
HA410418	4	G1/8
HA410618	6	G1/8
HA410818	8	G1/8
HA410414	4	G1/4
HA410614	6	G1/4
HA410814	8	G1/4
HA411014	10	G1/4
HA411214	12	G1/4
HA410438	4	G3/8
HA410638	6	G3/8
HA410838	8	G3/8
HA411038	10	G3/8
HA411238	12	G3/8
HA410812	8	G1/2
HA411012	10	G1/2
HA411212	12	G1/2

NEW

**HA42**  
Double banjo connector (parallel thread) with allen head



	Ø	connection
HA420418	4	G1/8
HA420618	6	G1/8
HA420818	8	G1/8
HA420414	4	G1/4
HA420614	6	G1/4
HA420814	8	G1/4
HA421014	10	G1/4
HA421214	12	G1/4
HA420438	4	G3/8
HA420638	6	G3/8
HA420838	8	G3/8
HA421038	10	G3/8
HA421238	12	G3/8
HA420812	8	G1/2
HA421012	10	G1/2
HA421212	12	G1/2

NEW

**HA43**  
Triple banjo connector (parallel thread) with allen head



	Ø	connection
HA430418	4	G1/8
HA430618	6	G1/8
HA430818	8	G1/8
HA430414	4	G1/4
HA430614	6	G1/4
HA430814	8	G1/4
HA431014	10	G1/4
HA431214	12	G1/4
HA430438	4	G3/8
HA430638	6	G3/8
HA430838	8	G3/8
HA431038	10	G3/8
HA431238	12	G3/8
HA430812	8	G1/2
HA431012	10	G1/2
HA431212	12	G1/2

NEW

**Teflon coated taper thread**  
(available upon request  
for all HA models)



**HC01/HC02**



**HC04**



**HC01T/HC02T**



**HC01L/HC02L**



## CHARACTERISTICS

Temperature	0 ÷ 60 °C
Fluid	compressed air, vacuum
Working pressure	-0,99 ÷ 9 bar
Body	technopolymer
Fixing elements	nickel-plated brass with O-ring in NBR
Clamp	stainless steel
Release ring	technopolymer
Application fields	pneumatic circuits
Recommended hoses	polyamide PA 10.12, polyurethane Sh.A98, co-polyurethane Sh.55D

<b>HAR04</b> Miniature straight male	<b>HAR10B</b> Miniature swivel elbow male	<b>HAR12B</b> Miniature extended swivel elbow male
Ø connection HAR0403M3 3 M3 HAR0404M3 4 M3 HAR0404M5 4 M5	Ø connection HAR10B03M3 3 M3 HAR10B04M3 4 M3 HAR10B04M5 4 M5	Ø connection HAR12B03M3 3 M3 HAR12B04M3 4 M3 HAR12B04M5 4 M5
<b>HAR14</b> Miniature low lateral Tee male	<b>HAR16</b> Miniature low central Tee male	<b>HAR19</b> Miniature intermediate straight
Ø connection HAR14B03M3 3 M3 HAR14B04M3 4 M3 HAR14B04M5 4 M5	Ø connection HAR16B03M3 3 M3 HAR16B04M3 4 M3 HAR16B04M5 4 M5	Ø HAR190300 3 HAR190400 4
<b>HAR20</b> Miniature intermediate elbow	<b>HAR21</b> Miniature intermediate Tee	<b>HAR23</b> Miniature intermediate Y
Ø HAR200300 3 HAR200400 4	Ø HAR210300 3 HAR210400 4	Ø HAR230300 3 HAR230400 4

## CHARACTERISTICS

Temperature	-20 ÷ 70 °C (based on the type of tube)
Fluid	compressed air, vacuum
Max pressure	16 bar
Working pressure	-0,99 ÷ 10 bar
Body	nickel-plated brass
Fixing elements	nickel-plated brass with O-ring in NBR for parallel thread version (standard) Teflon coating for taper thread version (upon request)
Clamp	stainless steel AISI 316
Release ring	nickel-plated brass
Application fields	pneumatic circuits
Recommended hoses	polyamide PA 10.12, polyurethane Sh.A98, co-polyurethane Sh.55D

### HB04

Straight parallel male



	Ø connection		Ø connection
HB0403M3	3 M3	HB040514	5 G1/4
HB0403M5	3 M5	HB040414	4 G1/4
HB0404M5	4 M5	HB041438	14 G3/8
HB0405M5	5 M5	HB041238	12 G3/8
HB0406M5	6 M5	HB041038	10 G3/8
HB041018	10 G1/8	HB040838	8 G3/8
HB040818	8 G1/8	HB040638	6 G3/8
HB040618	6 G1/8	HB041412	14 G1/2
HB040518	5 G1/8	HB041212	12 G1/2
HB040418	4 G1/8	HB041012	10 G1/2
HB041214	12 G1/4	HB040812	8 G1/2
HB041014	10 G1/4		
HB040814	8 G1/4		
HB040614	6 G1/4		

### HB08

Swivel elbow female



#### Ø connection

HB080418	4 G1/8
HB080618	6 G1/8
HB080818	8 G1/8
HB080414	4 G1/4
HB080614	6 G1/4
HB080814	8 G1/4

### HB07

Straight female



#### Ø connection

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

### HB10

Swivel elbow male



#### Ø connection

	Ø connection		Ø connection
HB1004M5	4 M5	HB100838	8 G3/8
HB1005M5	5 M5	HB101038	10 G3/8
HB1006M5	6 M5	HB101238	12 G3/8
HB100418	4 G1/8	HB101438	14 G3/8
HB100518	5 G1/8	HB101012	10 G1/2
HB100618	6 G1/8	HB101212	12 G1/2
HB100818	8 G1/8	HB101412	14 G1/2
HB100414	4 G1/4		
HB100514	5 G1/4		
HB100614	6 G1/4		
HB100814	8 G1/4		
HB101014	10 G1/4		
HB101214	12 G1/4		
HB100638	6 G3/8		

### HB12

Extended swivel elbow male



#### Ø connection

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

### HB14

Lateral Tee parallel male



#### Ø connection

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

### HB16

Central Tee male



#### Ø connection

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

### HB19

Straight



#### Ø1 Ø2

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

**HB20**  
Intermediate elbow


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

**HB21**  
Intermediate Tee


	Ø1	Ø2
HB210300	3	3
HB210400	4	4
HB210500	5	5
HB210600	6	6
HB210604	6	4
HB210800	8	8
HB210806	8	6
HB211000	10	10
HB211008	10	8
HB211200	12	12
HB211400	14	14

**HB24**  
Reducing stem


	Ø2	Ø1	Ø2	Ø1	Ø2
HB240405	4	5	HB240612	6	12
HB240406	4	6	HB240614	6	14
HB240408	4	8	HB240806	8	6
HB240412	4	12	HB240810	8	10
HB240414	4	14	HB240812	8	12
HB240506	5	6	HB240814	8	14
HB240508	5	8	HB241012	10	12
HB240604	6	4	HB241014	10	14
HB240608	6	8	HB241214	12	14
HB240610	6	10			

**HB26**  
Plug


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

**HB27**  
Swivel banjo connector (parallel thread) with allen head


	Ø	connection		Ø	connection
HB2703M3	3	M3	HB270614	6	G1/4
HB2703M5	3	M5	HB270814	8	G1/4
HB2704M5	4	M5	HB271014	10	G1/4
HB2705M5	5	M5	HB271214	12	G1/4
HB270418	4	G1/8	HB270838	8	G3/8
HB270518	5	G1/8	HB271038	10	G3/8
HB270618	6	G1/8	HB271238	12	G3/8
HB270818	8	G1/8			

**HB33**  
Bulkhead connector


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

**HB34**  
Threaded bulkhead connector


	Ø	connection
HB340418	4	G1/8
HB340618	6	G1/8
HB340818	8	G1/8
HB340614	6	G1/4
HB340814	8	G1/4

**HB35**  
Elbow bulkhead connector


	Ø
HB350004	4
HB350006	6
HB350008	8
HB350010	10

**HB38**  
Stem elbow


	Ø1	Ø2
HB380400	4	4
HB380406	4	6
HB380600	6	6
HB380608	6	8
HB380800	8	8
HB381000	10	10
HB381200	12	12

**HB39**  
Extended stem elbow


	Ø1	Ø2
HB390400	4	4
HB390406	4	6
HB390600	6	6
HB390608	6	8
HB390800	8	8

## HB40

Single banjo (without bolt)



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

## HB41

Double banjo (without bolt)



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

## HB42

Single banjo bolt



	connection
HB4200M5	M5
HB420018	G1/8
HB420014	G1/4
HB420038	G3/8

## HB43

Double banjo bolt



	connection
HB430018	G1/8
HB430014	G1/4
HB430038	G3/8

## HB44

Triple banjo bolt



	connection
HB440018	G1/8
HB440014	G1/4
HB440038	G3/8

## HB45

Swivel banjo central Tee (parallel male) with allen head



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

## HB47

Double swivel banjo connector (male thread) with allen head



	Ø	connection
HB470418	4	G1/8
HB470618	6	G1/8
HB470818	8	G1/8
HB470614	6	G1/4
HB470814	8	G1/4
HB471014	10	G1/4
HB471214	12	G1/4

## HB48

Triple swivel banjo connector (parallel thread) with allen head



	Ø	connection
HB480418	4	G1/8
HB480618	6	G1/8
HB480818	8	G1/8
HB480614	6	G1/4
HB480814	8	G1/4
HB481014	10	G1/4
HB481214	12	G1/4

## HB49

Double stem



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

## HB51

Adaptor parallel male



	Ø	connection		Ø	connection
HB5104M5	4	M5	HB510614	6	G1/4
HB5105M5	5	M5	HB510814	8	G1/4
HB5106M5	6	M5	HB511014	10	G1/4
HB510418	4	G1/8	HB511214	12	G1/4
HB510518	5	G1/8	HB510838	8	G3/8
HB510618	6	G1/8	HB511038	10	G3/8
HB510818	8	G1/8	HB511238	12	G3/8
HB511018	10	G1/8	HB511438	14	G3/8
HB510414	4	G1/4	HB511212	12	G1/2
HB510514	5	G1/4	HB511412	14	G1/2

## HB53

Fixed elbow taper male



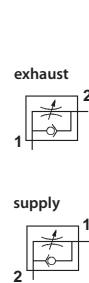
	Ø	connection
HB530418	4	R1/8
HB530518	5	R1/8
HB530618	6	R1/8
HB530818	8	R1/8
HB530614	6	R1/4
HB530814	8	R1/4
HB531014	10	R1/4

**CHARACTERISTICS**

Temperature	-20 ÷ 80 °C (based on the type of tube)
Fluid	compressed air, vacuum
Max pressure	15 bar
Working pressure	-0,99 ÷ 10 bar
Body	technopolymer
Fixing elements	nickel-plated brass with O-ring in NBR for parallel thread version (standard) Teflon coating for taper thread version (upon request)
Clamp	stainless steel
Release ring	technopolymer
Application fields	pneumatic circuits
Recommended hoses	polyamide PA 10.12, polyurethane Sh.A98, co-polyurethane Sh.55D

**Flow regulators in technopolymer**
**HC01/HC02**

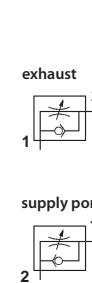
One-way banjo flow regulator



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

**HC01L /HC02L**

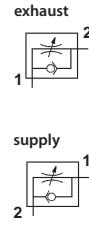
One-way in-line swivel banjo flow regulator


**NEW**


	exhaust	supply	Ø	connection
HC01L0418	HC02L0418	4	G1/8	
HC01L0618	HC02L0618	6	G1/8	
HC01L0818	HC02L0818	8	G1/8	
HC01L0414	HC02L0414	4	G1/4	
HC01L0614	HC02L0614	6	G1/4	
HC01L0814	HC02L0814	8	G1/4	
HC01L1014	HC02L1014	10	G1/4	
HC01L1214	HC02L1214	12	G1/4	
HC01L1038	HC02L1038	10	G3/8	
HC01L1238	HC02L1238	12	G3/8	

**HC01T/HC02T**

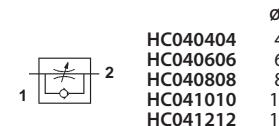
One-way swivel banjo flow regulator - screwdriver slot


**NEW**


	exhaust	supply	Ø	connection
HC01T0418	HC02T0418	4	G1/8	
HC01T0618	HC02T0618	6	G1/8	
HC01T0818	HC02T0818	8	G1/8	
HC01T1018	HC02T1018	10	G1/8	
HC01T1218	HC02T1218	12	G1/8	
HC01T0614	HC02T0614	6	G1/4	
HC01T0814	HC02T0814	8	G1/4	
HC01T1014	HC02T1014	10	G1/4	
HC01T1214	HC02T1214	12	G1/4	
HC01T0638	HC02T0638	6	G3/8	
HC01T0838	HC02T0838	8	G3/8	
HC01T1038	HC02T1038	10	G3/8	
HC01T1238	HC02T1238	12	G3/8	

**HC04**

One-way in-line intermediate flow regulator



HC040404	4
HC040606	6
HC040808	8
HC041010	10
HC041212	12

## CHARACTERISTICS

Temperature	0 ÷ 70 °C
Fluid	compressed air
Max pressure	10 bar
Working pressure	0,3 ÷ 10 bar

## Flow regulators with metallic body

### HC21/HC22

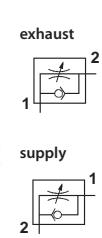
One-way banjo flow regulator



	exhaust	supply	Ø	connection
HC2104M5	HC2204M5	4	M5	
HC210418	HC220418	4	G1/8	
HC210618	HC220618	6	G1/8	
HC210818	HC220818	8	G1/8	
HC210614	HC220614	6	G1/4	
HC210814	HC220814	8	G1/4	
HC211014	HC221014	10	G1/4	

### HC18/HC19

One-way banjo flow regulator - screwdriver slot



	exhaust	supply	Ø	connection
HC1804M5	HC1904M5	4	M5	
HC180418	HC190418	4	G1/8	
HC180618	HC190618	6	G1/8	
HC180818	HC190818	8	G1/8	
HC180614	HC190614	6	G1/4	
HC180814	HC190814	8	G1/4	
HC181014	HC191014	10	G1/4	

### HC27/HC28

One-way threaded flow regulator male/female



	exhaust	supply	connection
HC27M5M5	HC28M5M5	M5	
HC271818	HC281818	G1/8	
HC271414	HC281414	G1/4	
HC273838	HC283838	G3/8	
HC271212	HC281212	G1/2	

## Non-return valve

### HC13

Non-return valve F-F



	connection
HC1300M5	M5
HC130018	G1/8
HC130014	G1/4
HC130038	G3/8
HC130012	G1/2

High temperature seals upon request

### HC14

Non-return valve F-M



	connection
HC140018	G1/8
HC140014	G1/4

High temperature seals upon request

### HC15

Non-return valve with push-in tube connections



Ø
HC150004
HC150006
HC150008

### HC16

Non-return valve with push-in tube connections



	Ø
HC160404	4
HC160606	6
HC160808	8
HC161010	10
HC161212	12

**NEW**

### HC17

Non-return valve threaded connection



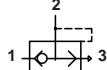
	Ø	connection
HC170418	4	G1/8
HC170618	6	G1/8
HC170818	8	G1/8
HC170614	6	G1/4
HC170814	8	G1/4
HC171038	10	G3/8
HC171238	12	G3/8
HC171012	10	G1/2
HC171212	12	G1/2

**NEW**

## Quick exhaust valves

### HC06

Quick exhaust valve



flow rate at 6 bar (NL/min)

		connection	1 → 2	2 → 3
HC0600M5	M5	M5	220	300
HC060018	G1/8	G1/8	680	1100
HC060014	G1/4	G1/4	1200	2100
HC060038	G3/8	G3/8	2300	4800
HC060012	G1/2	G1/2	3400	6100
HC060034	G3/4	G3/4	3200	8750
HC060001	G1	G1	2900	10.750

## Blocking valve

### HC34



M F flow rate at 6 bar (NL/min)

HC3418M5	G1/8	M5	400
HC341418	G1/4	M5	850
HC343818	G3/8	G1/8	1250
HC341218	G1/2	G1/8	1800

HB40 Single banjo (without bolt)

### HC35



connection flow rate at 6 bar (NL/min)

HC350018	G1/8	580
HC350014	G1/4	750

HB40 Single banjo (without bolt)

## CHARACTERISTICS

Temperature

0 ÷ 70 °C

Fluid

0 ÷ 60 °C (technopolymer HC11-12)

Max pressure

compressed air, vacuum

Working pressure

15 bar

-0,99 ÷ 10 bar

## Line manual valve

### HC05

Slide valve



connection

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

### HC07

Ball valve F-F



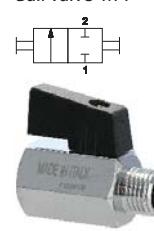
connection

connection

HC070018	G1/8
HC070014	G1/4
HC070038	G3/8
HC070012	G1/2
HC070034	G3/4

### HC08

Ball valve M-F

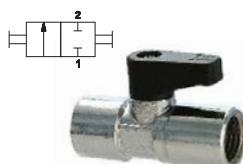


connection

HC080018	G1/8
HC080014	G1/4
HC080038	G3/8
HC080012	G1/2
HC080034	G3/4

### HC09

Miniature ball valve F-F with black handle

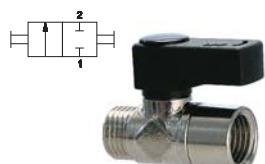


connection

HC090018	G1/8
HC090014	G1/4

### HC10

Miniature ball valve M-F with black handle

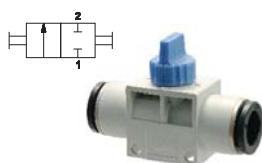


connection

HC100018	G1/8
HC100014	G1/4

### HC11

Manual 2/2 minivalve

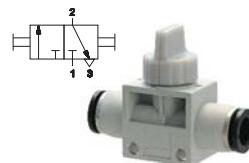


Ø

HC110606	6
HC110808	8
HC111010	10
HC111212	12

### HC12

Manual 3/2 minivalve



Ø

HC120606	6
HC120808	8
HC121010	10
HC121212	12

## Silencers

**HC51**

Sintered bronze flat silencer



## connection

HC5100M5	M5
HC510018	G1/8
HC510014	G1/4
HC510038	G3/8
HC510012	G1/2
HC510034	G3/4
HC510001	G1
HC510112	G1 1/2

**HC52**

Sintered bronze cone silencer



## connection

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

**HC53**Sintered bronze cone silencer  
(with square wrench head)

## connection

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

**HC54**

Silencer with exhaust flow regulator (narrow)



## connection

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

**HC55**

Silencer with exhaust flow regulator



## connection

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

**HC56**

Technopolymer dynamic silencer



## connection

HC560018	G1/8
HC560014	G1/4
HC560038	G3/8
HC560012	G1/2
HC560034	G3/4
HC560001	G1

**HC57**

Polyethylene plastic silencer



## connection

HC5700M5	M5
HC570018	G1/8
HC570014	G1/4
HC570038	G3/8
HC570012	G1/2
HC570034	G3/4
HC570001	G1

**HC58**

Technopolymer silencer



## connection

HC580018	G1/8
HC580014	G1/4
HC580038	G3/8
HC580012	G1/2
HC580034	G3/4
HC580001	G1

**HC59**

Silencer with dome-shaped steel head



## connection

HC5900M5	M5
HC590018	G1/8
HC590014	G1/4
HC590038	G3/8
HC590012	G1/2
HC590034	G3/4
HC590001	G1

**HC60**

Cone silencer with hexagon nipple



## connection

HC6000M5	M5
HC600018	G1/8
HC600014	G1/4
HC600038	G3/8
HC600012	G1/2
HC600034	G3/4
HC600001	G1
HC600112	G1 1/2

**HC61**

Recessed silencer



## connection

HC6100M5	M5
HC610018	G1/8
HC610014	G1/4
HC610038	G3/8
HC610012	G1/2
HC610034	G3/4
HC610001	G1

## CHARACTERISTICS

Temperature	-15 ÷ +80 °C
Max pressure	50 bar
Body	nickel-plated brass, aluminium, zinc-plated steel
Application fields	pneumatic circuits, low-pressure oleodynamic and hydraulic circuits, vacuum

**HD01**

Parallel nipple



	connection 1	connection 2	key
HD01M5M5	M5	M5	8
HD01M518	M5	G1/8	14
HD011818	G1/8	G1/8	14
HD011814	G1/8	G1/4	17
HD011838	G1/8	G3/8	19
HD011414	G1/4	G1/4	17
HD011438	G1/4	G3/8	19
HD011412	G1/4	G1/2	24
HD013838	G3/8	G3/8	19
HD013812	G3/8	G1/2	24
HD011212	G1/2	G1/2	24
HD011234	G1/2	G3/4	30
HD013434	G3/4	G3/4	30

**HD02**

Taper nipple



	connection 1	connection 2	key
HD021818	R1/8	R1/8	12
HD021814	R1/8	R1/4	14
HD021838	R1/8	R3/8	17
HD021414	R1/4	R1/4	14
HD021438	R1/4	R3/8	17
HD021412	R1/4	R1/2	22
HD023838	R3/8	R3/8	17
HD023812	R3/8	R1/2	22
HD021212	R1/2	R1/2	22
HD021234	R1/2	R3/4	27
HD023434	R3/4	R3/4	27
HD023401	R3/4	R1	34
HD020101	R1	R1	34

**HD03**

Female socket



	connection	key
HD0300M5	M5	8
HD030018	G1/8	14
HD030014	G1/4	17
HD030038	G3/8	22
HD030012	G1/2	26
HD030034	G3/4	32

**HD04**

Reduction M-F taper thread



	connection M	connection F	key
HD041814	R1/4	G1/8	14
HD041838	R3/8	G1/8	17
HD041812	R1/2	G1/8	22
HD041438	R3/8	G1/4	17
HD041412	R1/2	G1/4	22
HD043812	R1/2	G3/8	22
HD043834	R3/4	G3/8	27
HD041234	R3/4	G1/2	27

**HD05**

Reduction M-F parallel thread



	connection M	connection F	key
HD05M518	G1/8	M5	14
HD051814	G1/4	G1/8	17
HD051838	G3/8	G1/8	19
HD051812	G1/2	G1/8	24
HD051438	G3/8	G1/4	19
HD051412	G1/2	G1/4	24
HD053812	G1/2	G3/8	24
HD053834	G3/4	G3/8	30
HD051234	G3/4	G1/2	30

**HD06**

Extension M-F taper thread



	connection M	connection F	key
HD061818	R1/8	G1/8	14
HD061814	R1/8	G1/4	17
HD061838	R1/8	G3/8	22
HD061414	R1/4	G1/4	17
HD061438	R1/4	G3/8	22
HD061412	R1/4	G1/2	24
HD063838	R3/8	G3/8	22
HD063812	R3/8	G1/2	24
HD061212	R1/2	G1/2	26
HD061234	R1/2	G3/4	32

**HD07**

Extension M-F parallel thread



	connection M	connection F	key
HD07M518	G1/8	M5	14
HD071818	G1/8	G1/8	14
HD071814	G1/4	G1/8	17
HD071838	G3/8	G1/8	22
HD071414	G1/4	G1/4	17
HD071438	G3/8	G1/4	22
HD071412	G1/2	G1/4	24
HD073838	G3/8	G3/8	22
HD073812	G1/2	G3/8	24
HD071212	G1/2	G1/2	26

**HD08**

Extension M-F parallel thread



	connection M-F	key
HD081822	G1/8	14
HD081435	G1/4	17
HD081451	G1/4	17

**HD09**

Extension F-F



	connection 1	connection 2	key
HD091814	G1/8	G1/4	17
HD091838	G1/8	G3/8	22
HD091812	G1/8	G1/2	24
HD091438	G1/4	G3/8	22
HD091412	G1/4	G1/2	24
HD093812	G3/8	G1/2	24
HD091234	G1/2	G3/4	32

**HD10**

Male plug with hexagon wrench head



	connection	key
HD1000M5	M5	8
HD100018	G1/8	14
HD100014	G1/4	17
HD100038	G3/8	19
HD100012	G1/2	24
HD100034	G3/4	30
HD100001	G1	38

**HD11**

Male plug (taper thread) with allen head



	connection	key
HD110018	R1/8	5
HD110014	R1/4	6
HD110038	R3/8	8
HD110012	R1/2	10

**HD12**

Male plug with O-ring (allen head)



	connection	key
HD1200M5	M5	2,5
HD120018	G1/8	5
HD120014	G1/4	6
HD120038	G3/8	8
HD120012	G1/2	10

**HD13**

Female plug



	connection	key
HD130018	G1/8	14
HD130014	G1/4	17
HD130038	G3/8	20
HD130012	G1/2	24

**HD14**

Elbow connector F-F



	connection	key
HD1400M5	M5	8
HD140018	G1/8	10
HD140014	G1/4	13
HD140038	G3/8	17
HD140012	G1/2	21
HD140034	G3/4	25
HD140001	G1	30

**HD15**

Elbow connector M-F



	connection 1	connection 2	key
HD1500M5	M5	M5	9
HD150018	R1/8	G1/8	10
HD151814	R1/8	G1/4	10
HD150014	R1/4	G1/4	13
HD150038	R3/8	G3/8	17
HD150012	R1/2	G1/2	21
HD150034	R3/4	G3/4	25
HD150001	R1	G1	30

**HD16**

Elbow connector M-M (taper thread)



	connection	connection	key
	1	2	
HD1600M5	M5	M5	9
HD160018	R1/8	R1/8	10
HD161814	R1/8	R1/4	10
HD160014	R1/4	R1/4	13
HD160038	R3/8	R3/8	17
HD160012	R1/2	R1/2	21
HD160034	R3/4	R3/4	25
HD160001	R1	R1	30

**HD17**

Intermediate Tee F-F-F (parallel thread)



	connection	key
HD1700M5	M5	9
HD170018	G1/8	10
HD170014	G1/4	13
HD170038	G3/8	17
HD170012	G1/2	21
HD170034	G3/4	25
HD170001	G1	30

**HD18**

Central Tee M-F-F



	connection	connection	key
	M	F	
HD1800M5	M5	M5	9
HD180018	R1/8	G1/8	10
HD180014	R1/4	G1/4	13
HD180038	R3/8	G3/8	18
HD180012	R1/2	G1/2	21
HD180034	R3/4	G3/4	25
HD180001	R1	G1	30

**HD19**

Lateral Tee M-F-F



	connection	connection	key
	M	F	
HD1900M5	M5	M5	9
HD190018	R1/8	G1/8	10
HD190014	R1/4	G1/4	13
HD190038	R3/8	G3/8	18
HD190012	R1/2	G1/2	21
HD190034	R3/4	G3/4	25
HD190001	R1	G1	30

**HD20**

Intermediate Tee M-M-M (taper thread)



	connection	key
HD200018	R1/8	10
HD200014	R1/4	13
HD200038	R3/8	17
HD200012	R1/2	21
HD200034	R3/4	25
HD200001	R1	30

**HD21**

Lateral Tee M-F-M



	connection	connection	key
	M	F	
HD210018	R1/8	G1/8	10
HD210014	R1/4	G1/4	13
HD210038	R3/8	G3/8	17
HD210012	R1/2	G1/2	21
HD210034	R3/4	G3/4	25
HD210001	R1	G1	30

**HD22**

Cross F-F-F-F



	connection	key
HD220018	G1/8	10
HD220014	G1/4	13
HD220038	G3/8	17
HD220012	G1/2	21

**HD24**

Tube adaptor (parallel thread)



	Ø	connection	key
HD2404M5	4	M5	8
HD240618	6	G1/8	12
HD240718	7	G1/8	12
HD240818	8	G1/8	12
HD240918	9	G1/8	12
HD241018	10	G1/8	12
HD240614	6	G1/4	14
HD240714	7	G1/4	14
HD240814	8	G1/4	14
HD240914	9	G1/4	14
HD241014	10	G1/4	14
HD241214	12	G1/4	14
HD240938	9	G3/8	19
HD241038	10	G3/8	19

	Ø	connection	key
HD241238	12	G3/8	19
HD241438	14	G3/8	19
HD241738	17	G3/8	19
HD241212	12	G1/2	22
HD241412	14	G1/2	22
HD241712	17	G1/2	22
HD242012	20	G1/2	30
HD242034	20	G3/4	30

**HD25**

Y connector F-F-F



	connection	key
HD250018	G1/8	10
HD250014	G1/4	13
HD250038	G3/8	17
HD250012	G1/2	21

**HD26**

Y connector M-F-F



	connection	connection	key
	M	F	
HD260018	R1/8	G1/8	13
HD260014	R1/4	G1/4	17
HD260038	R3/8	G3/8	20
HD260012	R1/2	G1/2	25

**HD27**

Threaded bulkhead connector



	connection	key
HD2700M5	M5	14
HD270018	G1/8	19
HD270014	G1/4	24
HD270038	G3/8	30
HD270012	G1/2	32

**HD32**

Female single banjo



	connection
HD3200M5	M5
HD320018	G1/8
HD320014	G1/4

**HD33**

Taper nipple - 3 pieces



	connection	key
HD330018	R1/8	15
HD330014	R1/4	19
HD330038	R3/8	22
HD330012	R1/2	27
HD330034	R3/4	36
HD330001	R1	46

**HD34**

Female nipple - 3 pieces



	connection	key
HD340018	G1/8	14
HD340014	G1/4	17
HD340038	G3/8	21
HD340012	G1/2	25

**HD42**

Single banjo bolt



	connection	key
HD4200M5	M5	8
HD420018	R1/8	14
HD420014	R1/4	17
HD420038	R3/8	19
HD420012	R1/2	24

**HD43**

Double banjo bolt



	connection	key
HD430018	R1/8	14
HD430014	R1/4	17
HD430038	R3/8	19
HD430012	R1/2	24

**HD44**

Triple banjo bolt



	connection	key
HD440018	R1/8	14
HD440014	R1/4	17

Washer to be used  
HD46 2 pcsWasher to be used  
HD46 3 pcsWasher to be used  
HD46 4 pcs

**■ HD45**  
Aluminium washer



	connection	thickness (mm)
HD4500M5	M5	1
HD450018	G1/8	1,5
HD450014	G1/4	1,5
HD450038	G3/8	1,5
HD450012	G1/2	1,5

**■ HD46**  
Indented nylon washer



	connection	thickness (mm)
HD4600M5	M5	1
HD460018	G1/8	1,6
HD460014	G1/4	1,6
HD460038	G3/8	1,8
HD460012	G1/2	2

## Accessories

**■ HD23**  
Cross block F-F-F-F



	connection
HD230018	G1/8
HD230014	G1/4
HD230038	G3/8
HD230012	G1/2

**■ HD30**  
Distribution manifold (single outlets)



	In	Out	nr.
HD301803	G1/4	G1/8	3
HD301804	G1/4	G1/8	4
HD301805	G1/4	G1/8	5
HD301806	G1/4	G1/8	6
HD301403	G3/8	G1/4	3
HD301404	G3/8	G1/4	4
HD301405	G3/8	G1/4	5
HD301406	G3/8	G1/4	6
HD303803	G1/2	G3/8	3
HD303804	G1/2	G3/8	4
HD303805	G1/2	G3/8	5
HD303806	G1/2	G3/8	6

**■ HD31**  
Distributors manifold (double outlets)



	In	Out	nr.
HD311803	G1/4	G1/8	3+3
HD311804	G1/4	G1/8	4+4
HD311805	G1/4	G1/8	5+5
HD311403	G3/8	G1/4	3+3
HD311404	G3/8	G1/4	4+4
HD311405	G3/8	G1/4	5+5

**■ HD40**  
Reservoir (Max pressure 10 bar)



HD400100	lt 1
HD400250	lt 2,5
HD400500	lt 5
HD400700	lt 7
HD401200	lt 12

**■ HD41000A**  
Stainless steel AISI 301 bracket



**■ HD41000B**  
Reservoir extension



AM50



AM51



AM52



AM53



AM54



AM5200



AM5220



AM55



AM series (p. 3.93/94)

**CHARACTERISTICS**

Temperature	-15 ÷ 80 °C
Fluid	compressed air, vacuum, liquid
Working pressure	-0,99 ÷ 10 bar
Max pressure	16 bar
Body	nickel-plated brass
Nut	nickel-plated brass
Seal	NBR
Application fields	pneumatic circuits
Recommended tube	polyamide PA 10.12, polyurethane Sh.A98, co-polyurethane Sh.55D

**HGC03**  
Male straight taper thread


Ø connection			Ø connection		
HGC030418	4 - 2,7	R1/8	HGC030838	8 - 6	R3/8
HGC030518	5 - 3	R1/8	HGC031038	10 - 8	R3/8
HGC030618	6 - 4	R1/8	HGC031238	12 - 10	R3/8
HGC030818	8 - 6	R1/8	HGC030812	8 - 6	R1/2
HGC031018	10 - 8	R1/8	HGC031012	10 - 8	R1/2
HGC030614	6 - 4	R1/4	HGC031212	12 - 10	R1/2
HGC030814	8 - 6	R1/4	HGC031512	15 - 12,5	R1/2
HGC031014	10 - 8	R1/4			
HGC030638	6 - 4	R3/8			

**HGC04**  
Male straight parallel thread with O-Ring


Ø connection			Ø connection		
HGC0404M5	4 - 2,7	M5	HGC041038	10 - 8	G3/8
HGC0405M5	5 - 3	M5	HGC041238	12 - 10	G3/8
HGC0406M5	6 - 4	M5	HGC041012	10 - 8	G1/2
HGC040418	4 - 2,7	G1/8	HGC041212	12 - 10	G1/2
HGC040618	6 - 4	G1/8			
HGC040818	8 - 6	G1/8			
HGC041018	10 - 8	G1/8			
HGC040614	6 - 4	G1/4			
HGC040814	8 - 6	G1/4			
HGC041014	10 - 8	G1/4			
HGC040838	8 - 6	G3/8			

**HGC07**  
Female straight


Ø connection		
HGC070618	6 - 4	G1/8
HGC070818	8 - 6	G1/8
HGC070614	6 - 4	G1/4
HGC070814	8 - 6	G1/4
HGC071014	10 - 8	G1/4
HGC070838	8 - 6	G3/8
HGC071038	10 - 8	G3/8
HGC071238	12 - 10	G3/8

**HGC08**  
Female elbow


Ø connection		
HGC080618	6 - 4	G1/8
HGC080614	6 - 4	G1/4
HGC080818	8 - 6	G1/8
HGC080814	8 - 6	G1/4
HGC080838	8 - 6	G3/8
HGC081014	10 - 8	G1/4
HGC081038	10 - 8	G3/8
HGC081238	12 - 10	G3/8

**HGC09**  
Taper elbow connection male


Ø connection		
HGC090418	4 - 2,7	R1/8
HGC090518	5 - 3	R1/8
HGC090618	6 - 4	R1/8
HGC090818	8 - 6	R1/8
HGC091018	10 - 8	R1/8
HGC090614	6 - 4	R1/4
HGC090814	8 - 6	R1/4
HGC091014	10 - 8	R1/4
HGC090638	6 - 4	R3/8
HGC090838	8 - 6	R3/8
HGC091038	10 - 8	R3/8
HGC091238	12 - 10	R3/8
HGC090812	8 - 6	R1/2
HGC091012	10 - 8	R1/2
HGC091212	12 - 10	R1/2
HGC091512	15 - 12,5	R1/2

**HGC10**  
Swivel elbow with OR


Ø connection		
HGC100618	6 - 4	G1/8
HGC100818	8 - 6	G1/8
HGC100614	6 - 4	G1/4
HGC100814	8 - 6	G1/4
HGC101014	10 - 8	G1/4
HGC100838	8 - 6	G3/8
HGC101038	10 - 8	G3/8
HGC101238	12 - 10	G3/8

**HGC14**  
Male lateral Tee taper thread


Ø connection		
HGC140618	6 - 4	R1/8
HGC140614	6 - 4	R1/4
HGC140818	8 - 6	R1/8
HGC140814	8 - 6	R1/4
HGC140838	8 - 6	R3/8
HGC141014	10 - 8	R1/4
HGC141038	10 - 8	R3/8
HGC141012	10 - 8	R1/2
HGC141238	12 - 10	R3/8
HGC141212	12 - 10	R1/2
HGC141512	15 - 12,5	R1/2

**HGC16**  
Male central Tee taper thread


Ø connection		
HGC160618	6 - 4	R1/8
HGC160614	6 - 4	R1/4
HGC160818	8 - 6	R1/8
HGC160814	8 - 6	R1/4
HGC160838	8 - 6	R3/8
HGC161014	10 - 8	R1/4
HGC161038	10 - 8	R3/8
HGC161012	10 - 8	R1/2
HGC161238	12 - 10	R3/8
HGC161212	12 - 10	R1/2
HGC161512	15 - 12,5	R1/2

**HGC19**  
Intermediate straight


Ø		
HGC190600	6 - 4	
HGC190800	8 - 6	
HGC191000	10 - 8	
HGC191200	12 - 10	
HGC191500	15 - 12,5	

**HGC20**  
Intermediate elbow


Ø		
HGC200400	4 - 2,7	
HGC200600	6 - 4	
HGC200800	8 - 6	
HGC201000	10 - 8	
HGC201200	12 - 10	
HGC201500	15 - 12,5	

**HGC21**  
Intermediate Tee


Ø		
HGC210400	4 - 2,7	
HGC210600	6 - 4	
HGC210800	8 - 6	
HGC211000	10 - 8	
HGC211200	12 - 10	
HGC211500	15 - 12,5	

**HGC22**  
Intermediate cross



	Ø
HGC220600	6 - 4
HGC220800	8 - 6
HGC221000	10 - 8

**HGC33**  
Intermediate straight bulkhead connector



	Ø
HGC330610	6 - 4
HGC330812	8 - 6
HGC331014	10 - 8
HGC331216	12 - 10
HGC331520	15 - 12,5

**HGC30**  
Nut



	Ø	thread
HGC300400	4 - 2	M7x0,75
HGC300600	6 - 4	M10x1
HGC300800	8 - 6	M12x1
HGC301000	10 - 8	M14x1
HGC301200	12 - 10	M16x1
HGC301500	15 - 12,5	M20x1

**HGC40**  
Single banjo



	Ø	connection
HGC4004M5	4 - 2	M5
HGC4005M5	5 - 3	M5
HGC4006M5	6 - 4	M5
HGC400618	6 - 4	G1/8
HGC400818	8 - 6	G1/8
HGC400614	6 - 4	G1/4
HGC400814	8 - 6	G1/4
HGC401014	10 - 8	G1/4
HGC400838	8 - 6	G3/8
HGC401038	10 - 8	G3/8

Bolt to be used:  
HD42 - HD43 - HD44

**CHARACTERISTICS**

Temperature	-15 ÷ 80 °C
Fluid	compressed air, water, oil
Working pressure	130 bar (Ø4), 180 bar (Ø6), 150 bar (Ø8), 110 bar (Ø10), 75 bar (Ø12), 70 bar (Ø15)
Body	nickel-plated brass
Nut	nickel-plated brass
Seals	NBR
Application fields	pneumatic circuits
Recommended tube	copper alloy, brass, stainless steel, plastic (reinforcing core)

**HGO03**

Male straight taper thread



Ø connection		
HGO030418	4	R1/8
HGO030618	6	R1/8
HGO030818	8	R1/8
HGO030614	6	R1/4
HGO030814	8	R1/4
HGO031014	10	R1/4
HGO030838	8	R3/8
HGO031038	10	R3/8
HGO031238	12	R3/8
HGO031212	12	R1/2
HGO031512	15	R1/2

**HGO04**

Male straight parallel thread



Ø connection		
HGO040418	4	G1/8
HGO040618	6	G1/8
HGO040818	8	G1/8
HGO040614	6	G1/4
HGO040814	8	G1/4
HGO041014	10	G1/4
HGO040838	8	G3/8
HGO041038	10	G3/8

**HGO09**

Male elbow taper thread



Ø connection		
HGO090418	4	R1/8
HGO090618	6	R1/8
HGO090818	8	R1/8
HGO090614	6	R1/4
HGO090814	8	R1/4
HGO091014	10	R1/4
HGO090838	8	R3/8
HGO091038	10	R3/8
HGO091238	12	R3/8
HGO091212	12	R1/2
HGO091512	15	R1/2

**HGO14**

Male lateral Tee



Ø connection		
HGO140418	4	R1/8
HGO140618	6	R1/8
HGO140818	8	R1/8
HGO140614	6	R1/4
HGO140814	8	R1/4
HGO141014	10	R1/4
HGO141038	10	R3/8
HGO141238	12	R3/8
HGO141212	12	R1/2

**HGO16**

Male central Tee taper thread



Ø connection		
HGO160418	4	R1/8
HGO160618	6	R1/8
HGO160818	8	R1/8
HGO160614	6	R1/4
HGO160814	8	R1/4
HGO161014	10	R1/4
HGO161038	10	R3/8
HGO161238	12	R3/8
HGO161212	12	R1/2
HGO161512	15	R1/2

**HGO19**

Intermediate straight



Ø		
HGO190400	4	
HGO190600	6	
HGO190800	8	
HGO191000	10	
HGO191200	12	
HGO191500	15	

**HGO20**

Intermediate elbow



Ø		
HGO200400	4	
HGO200600	6	
HGO200800	8	
HGO201000	10	
HGO201200	12	

**HGO21**

Intermediate Tee



Ø		
HGO210400	4	
HGO210600	6	
HGO210800	8	
HGO211000	10	
HGO211210	12	
HGO211500	15	

**HGO30**

Nut



Ø	thread	key
HGO300400	4	8x1
HGO300600	6	10x1
HGO300800	8	12x1
HGO301000	10	16x1
HGO301200	12	18x1
HGO301500	15	30x1

**HGO31**

Olive



Ø		
HGO310400	4	
HGO310600	6	
HGO310800	8	
HGO311000	10	
HGO311200	12	
HGO311500	15	

**HGO32**

Reinforcing core



Ø1		
HGO320600	4	
HGO320800	6	
HGO321000	8	
HGO321200	10	
HGO321500	12,5	

**HGO33**

Bulkhead connector



Ø		
HGO330600	6	
HGO330800	8	
HGO331000	10	
HGO331200	12	

**HGO40**

Single banjo



Ø connection		
HGO400618	6	G1/8
HGO400818	8	G1/8
HGO400614	6	G1/4
HGO400814	8	G1/4

Bolt to be used:  
HD42 - HD43 - HD44

## CHARACTERISTICS

Temperature	-10 ÷ 80 °C
Fluid	compressed air
Max working pressure	12 bar
Body	nickel-plated brass, zinc-plated steel
Ferrule	nickel-plated brass, zinc-plated steel
Seals	NBR
Spring	nickel-plated brass, zinc-plated steel

<b>HGU2001M</b> Universal male socket	<b>HGU2001F</b> Universal female socket	<b>HGU2002M</b> Universal male plug
 connection HGU2001M14 G1/4 HGU2001M38 G3/8 HGU2001M12 G1/2	 connection HGU2001F14 G1/4 HGU2001F38 G3/8 HGU2001F12 G1/2	 connection HGU2002M14 G1/4 HGU2002M38 G3/8
<b>HGU2002F</b> Universal female plug	<b>HGU1001M</b> Male mini socket	<b>HGU1001F</b> Female mini socket
 connection HGU2002F14 G1/4 HGU2002F38 G3/8	 connection HGU1001M18 G1/8 HGU1001M14 G1/4	 connection HGU1001F18 G1/8 HGU1001F14 G1/4
<b>HGU1002M</b> Male mini plug	<b>HGU1002F</b> Female mini plug	
 connection HGU1002M18 G1/8 HGU1002M14 G1/4	 connection HGU1002F18 G1/8 HGU1002F14 G1/4	

For further technical information contact our Sales Office

**HE**

**HEA**

Polyamide tubes PA10.12  
Colors: neutral, black, blue, sky-blue

Part No.	Tube		
	Ø E	Ø I	R
HEA0420...	4	2	15
HEA0425...	4	2,5	20
HEA0604...	6	4	35
HEA0806...	8	6	40
HEA1008...	10	8	60
HEA1210...	12	10	85
HEA1412...	14	12	90

**HEC**

Polyurethane tubes Sh. A98  
Colors: neutral, black, blue, sky-blue

Part No.	Tube		
	Ø E	Ø I	R
HEC0420...	4	2	15
HEC0604...	6	4	20
HEC0806...	8	6	25
HEC1008...	10	8	35
HEC1209...	12	9	45

**HED**

Co-polyurethane tubes Sh. 55D  
Colors: neutral, black, blue, sky-blue

Part No.	Tube		
	Ø E	Ø I	R
HED0420...	4	2,5	10
HED0604...	6	4	15
HED0806...	8	6	25
HED1008...	10	8	35
HED1209...	12	9	45

Ø E = External diameter (mm) Ø I = Internal diameter (mm) R = Bending radius (mm)

For color options, add the following suffixes to part no.:

NEU = Neutral NER = Black BLU = Blue AZZ = Sky-blue (example HEA0420NEU)

Min. package: 100 m coil

**HF**
**HFA Rilsan® Spiral tubes**

Polyamide Spiral Tubes PA10.12  
Colors: neutral, blue, sky-blue



Part No.	Tube			Spiral		
	Ø E	Ø I	Linear (mt)	Rest (mm)	Max Lenght (mt)	Ø I (mm)
HFA042010...	4	2	10	360	6	30
HFA042015...	4	2	15	550	9	30
HFA060415...	6	4	15	430	9	60
HFA060430...	6	4	30	870	17	60
HFA080615...	8	6	15	455	9	80
HFA080630...	8	6	30	910	17	80
HFA100815...	10	8	15	490	9	90
HFA100830...	10	8	30	990	17	90
HFA121015...	12	10	15	430	9	120
HFA121030...	12	10	30	870	17	120

**HFC Elastollan® Spiral tubes with straight ends**

Polyurethane Spiral Tubes (Sh.A98) with ends parallelling the spiral axis  
Colors: neutral, blue, sky-blue

Part No.	Tube			Spiral		
	Ø E	Ø I	Linear (mt)	Rest (mm)	Max Lenght (mt)	Ø I (mm)
HFC64C06...	6	4	6	380	4	25
HFC64C12...	6	4	12	760	8	25
HFC855C06...	8	5,5	6	310	4	40
HFC855C12...	8	5,5	12	640	8	40
HFC107C06...	10	7	6	330	4	50
HFC107C12...	10	7	12	680	8	50
HFC128C06...	12	8	6	320	4	60
HFC128C12...	12	8	12	660	8	60

Ø E = External diameter (mm) Ø I = Internal diameter (mm) End length 150 mm

For color options, add the following suffixes to part no.:

NEU = Neutral BLU = Blue AZZ = Sky-blue

**HD28**

Tube cutter



Tube  
HD280012 2÷12  
HD280025 12÷25



Other available versions (M08-M12)

Type	ELECTROMECHANICAL				ELECTRONIC PNP
Part No.	DF-220	DF-330	DF-440	DF-770	
<b>Working voltage (V AC/DC)</b>	5÷30 V AC/DC	5÷30 V AC/DC	5÷30 V AC/DC	5÷30 V DC	
<b>Max switching voltage (mA)</b>	100	100	100	100	
<b>Max switching power (W/VA)</b>	3	3	3	3	
<b>Max voltage drop (V AC/DC)</b>	<3,5	0,1	0,1	0,7	
<b>Minimum magnetic field (gauss)</b>	60	60	60	30	
<b>Opening response time (ms)</b>	< 0,5	< 0,5	< 0,5	0,08	
<b>Closing response time (ms)</b>	< 1	< 1	< 1	0,03	
<b>Electric life with resistive load (cycles)</b>	>10 <sup>7</sup>	>10 <sup>7</sup>	>10 <sup>7</sup>	>10 <sup>9</sup>	
<b>State indicator (LED)</b>	red	red	red	red	
<b>Cable number and section (mmq)</b>	2x0,14	3x0,14	3x0,14	3x0,14	
<b>Electric circuit</b>	A	C	D	C	
<b>Protection degree (EN60529)</b>	IP67				
<b>Working temperature (°C)</b>	-20 ÷ +80				

Cable extensions

DHF-033 M08 = 3 m M08  
DHF-033 M12 = 3 m M12  
DHF-053 M08 = 5 m M08  
DHF-053 M12 = 5 m M12

**Fixing elements**



**DH-M10DF** **DH-M20DF**  
**DH-M12DF** **DH-M25DF**  
**DH-M16DF**

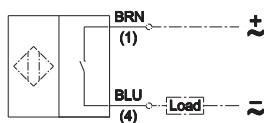
Fixing bracket for M series cylinders



**DF-001**  
Cable clamping



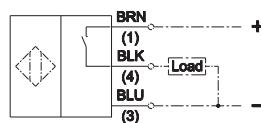
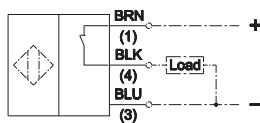
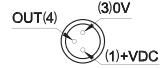
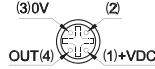
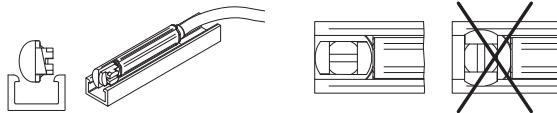
**DHF-0020100**  
Covering strip

**Electrical Circuit****A AC/DC 2 wires NO**

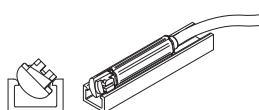
BRN = Brown

BLK = Black

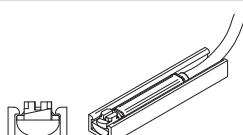
BLU = Blue

**C DC 3 wires PNP NO****D DC 3 wires PNP NC****M08****M12****ASSEMBLY SCHEME****1**

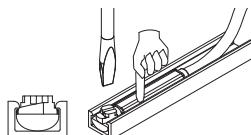
Put the sensor in the proper groove and make sure that the fastening plate has the slot for screwdriver along the sensor axis.

**2**

Put the sensor inside its groove and make sure that the fastening plate is on the open part of the groove.

**3**

Check the correct position of the sensor in the groove.  
Turn it to the wished position for detection.

**4**

Keep the sensor in its position and screw the fastening plate to fix the sensor in the groove.  
Max torque: 0,5 ÷ 1 Nm

## DH



Other available versions

(M08-M12)

DH-200M08 DH-200M12

DH-500M08 DH-500M12

DH-700M08 DH-700M12

Cable extensions

DHF-033 M08 = 3 m M08

DHF-033 M12 = 3 m M12

DHF-053 M08 = 5 m M08

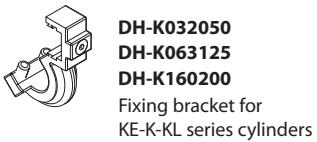
DHF-053 M12 = 5 m M12

Type	ELECTROMECHANICAL			ELECTRONIC PNP
Part No.	KM-032000	DH-200	DH-500	DH-700
<b>Working voltage (V AC/DC)</b>	5÷48 V AC/DC	5÷48 V AC/DC	5÷48 V AC/DC	10÷30 V DC
<b>Max switching voltage (mA)</b>	100	100	100	100
<b>Max switching power (W/VA)</b>	5	5	5	5
<b>Max voltage drop (V AC/DC)</b>	< 3,5	< 3,5	< 3,5	0,7
<b>Minimum magnetic field (gauss)</b>	85	85	60	30
<b>Opening response time (ms)</b>	< 0,5	< 0,5	< 0,5	0,08
<b>Closing response time (ms)</b>	< 1	< 1	< 1	0,03
<b>Electric life with resistive load (cycles)</b>	>10 <sup>7</sup>	>10 <sup>7</sup>	>10 <sup>7</sup>	>10 <sup>9</sup>
<b>State indicator (LED)</b>	red	red	red	red
<b>Cable number and section (mmq)</b>	2x0,25	2x0,25	2x0,25	3x0,25
<b>Electric circuit</b>	A	A	A	C
<b>Protection degree (EN60529)</b>	IP65			
<b>Working temperature (°C)</b>	-20 ÷ +80			

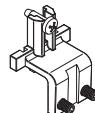
## Fixing elements

DH-M10 DH-M20  
DH-M12 DH-M25  
DH-M16

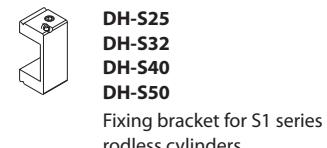
Fixing bracket for M series cylinders

DH-K032050  
DH-K063125  
DH-K160200

Fixing bracket for KE-K-KL series cylinders

KM-032050-1  
KM-063100-1  
KM-125000-1

Fixing bracket for KM sensors on KE-K-KL series cylinders (upon request)

DH-S25  
DH-S32  
DH-S40  
DH-S50

Fixing bracket for S1 series rodless cylinders

## DF-R/DF-T



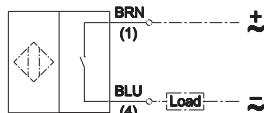
Type	ELECTROMECHANICAL		ELECTRONIC PNP	
Part No.	DF-R200L02	DF-R200M08	DF-R700L02	DF-R700M08
<b>Working voltage (V AC/DC)</b>	5÷120 V AC/DC	5÷120 V AC/DC	5÷30 V DC	5÷30 V DC
<b>Max switching voltage (mA)</b>	100	100	50	50
<b>Max switching power (W/VA)</b>	10	10	1,5	1,5
<b>Shock resistance (G)</b>	30	30	50	50
<b>Max voltage drop (V AC/DC)</b>	2,5	2,5	1,5	1,5
<b>Cable number and section (mmq)</b>	2 x 2,8 (PUR)	2 x 2,8 (PUR)	3x3 (PUR)	3x3 (PUR)
<b>Cable length (mm)</b>	2000	150	2000	150
<b>Contact</b>	NO	NO	NO	NO
<b>Max response time (ms)</b>	1	1	1	1
<b>State indicator (LED)</b>	red	red	green	green
<b>Electric circuit</b>	A	-	C	-
<b>Protection degree (NEMA 6)</b>	IP67			
<b>Working temperature (°C)</b>	-10 ÷ +70			



Type	ELECTROMECHANICAL		ELECTRONIC PNP	
Part No.	DF-T200L03	DF-T200M08	DF-T700L03	DF-T700M08
<b>Working voltage (V AC/DC)</b>	5÷120 V AC/DC	5÷120 V AC/DC	5÷30 V DC	5÷30 V DC
<b>Max switching voltage (mA)</b>	100	100	200	200
<b>Max switching power (W/VA)</b>	10	10	6	6
<b>Shock resistance (G)</b>	30	30	50	50
<b>Max voltage drop (V AC/DC)</b>	2,5	2,5 V	1	1
<b>Cable number and section (mmq)</b>	2 x 2,8 (PUR)	2 x 2,8 (PUR)	3 x 2,8 (PUR)	3 x 2,8 (PUR)
<b>Cable length (mm)</b>	3000	150	3000	150
<b>Contact</b>	NO	NO	NO	NO
<b>Max response time (ms)</b>	1	1	1	1
<b>Protection degree (NEMA 6)</b>	red	red	green	green
<b>Electric circuit</b>	A	-	C	-
<b>State indicator (LED)</b>	IP67			
<b>Working temperature (°C)</b>	-10 ÷ +70			

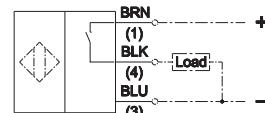
## Electrical Circuit

## A AC/DC 2 wires NO

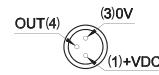


BRN = Brown    BLK = Black    BLU = Blue

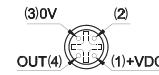
## C DC 3 wires PNP NO



## M8

(3)0V  
(1)+VDC  
(2)

## M12

(3)0V  
(1)+VDC  
(2)

# 6

## Power Clamps



	Pneumatic Power clamps	UBP/UBH IBP/IBM UBS UDP UBM/UBQ UBT UFL/UHL UNP/UNM DMS	4/5
	Retractable locating pin units	LCP/LCM LCG LCZ/LCY LCT/LCX LCA/LCO LCL	5/6
	Pin clamps	LSP LTP LUP LSL	6
	Gripper units	UGP UGM LGP	7
	Power pivots	DMA LAGP	7
	Marking units	PRP	7
	Electrical units	LAE LNE LGE LCE LAGE	8
	Accessories	CLAMPING ARMS UBK UBF	8

**STEPLESS ADJUSTMENT**

Opening angle adjustment 0 ° ÷ 135°

**LIGHT-WEIGHT**

Clamping arm and clamp housing in aluminium alloy

**UNIVER ORIGINAL LINKAGE DESIGN**

Ensures positional repeatability

**UNIVER ORIGINAL METAL SENSOR**

Metal case

M12 swivel connector

**UNIVER power clamps** meet the requirements of the Automotive and sheet metal industries; they are mostly used for sheet metal handling, BIW applications and welding fixtures production.



CNOMO clamps' applications





Pneumatic power clamps' applications



Electric power pivots' applications



Our customers

## Pneumatic power clamps

### ■ UBP

UNIVERSAL Pneumatic power clamp

Ø32  
**NEW**



Ø Cylinder mm: 32 - 40 - 50 - 63 - 80  
Fully adjustable opening angle

### ■ UBH

UNIVERSAL Pneumatic power clamp



Ø Cylinder mm: 40 - 63  
Fully adjustable opening angle

### ■ IBP

Pneumatic power clamp interchangeable with size 50/63 mm



Ø Cylinder mm: 40  
Fully adjustable opening angle

### ■ UBS

Safety pneumatic power clamp



Ø Cylinder mm: 40  
In case of emergency (= no air) the safety clamp closes automatically

### ■ UDP

Pneumatic power clamp with 2 arms



Ø Cylinder mm: 40  
Fully adjustable opening angle



Ø Cylinder mm: 63  
Fully adjustable opening angle

### ■ UBM

UNIVERSAL Pneumatic power clamp with handlever



Ø Cylinder mm: 40 - 50 - 63 - 80  
Fully adjustable opening angle

### ■ IBM

Pneumatic power clamp with handlever interchangeable with size 50/63 mm



Ø Cylinder mm: 40  
Fully adjustable opening angle

### ■ UBQ

Pneumatic power clamp with handlever



Ø Cylinder mm: 40 - 63  
Fully adjustable opening angle

### ■ UBT

Pneumatic power clamp with central handlever



Ø Cylinder mm: 40  
Fully- adjustable opening angle

### ■ UFL - UHL

Manual power clamps



Self-holding device for opening position

## Clamps conforming to the NAAMS and CNOMO standard

**UNP**

Pneumatic power clamps conforming to the N.A.A.M.S. Standard



**Ø Cylinder mm:** 50 - 63 - 80  
**Fully adjustable opening angle**

**UNM**

Pneumatic power clamps with handlever conforming to the N.A.A.M.S. Standard



**Ø Cylinder mm:** 50 - 63  
**Fully adjustable opening angle**

**DMS**

Pneumatic power clamps conforming to the CNOMO Standard



**Ø Cylinder mm:** 32 - 40 - 50 - 63  
**Fully adjustable opening angle**

## Retractable locating pin units, single and double rod

**LCP**

Pneumatic retractable locating pin units with single rod



**LCP32**  
**Ø Cylinder mm:** 32  
**Stroke mm:** 20 - 40



**LCP50**  
**Ø Cylinder mm:** 50  
**Stroke mm:** 15 - 25 - 40 - 50 - 60 - 75 - 100 - 110



**LCP63**  
**Ø Cylinder mm:** 63  
**Versions:** 15 - 25 - 40 - 50 - 60

**LCG**

Pneumatic retractable locating pin units with single rod



**Ø Cylinder mm:** 50 - 63  
**Stroke mm:** 25 - 50

**LCZ**

Pneumatic retractable locating pin units with single rod and toggle-joint mechanism

**Ø Cylinder mm:** 40  
**Stroke mm:** 40

**LCJ**

Pneumatic retractable locating pin units, with improved pull force

**NEW**

**Ø Cylinder mm:** 50  
**Stroke mm:** 25 - 40 - 60

**LCA**

Pneumatic retractable locating pin units with double rod



**Ø Cylinder mm:** 40  
**Stroke mm:** 20 - 40



**Ø Cylinder mm:** 63  
**Stroke mm:** 25 - 40 - 50 - 60

**LCT**

Pneumatic retractable locating pin units with double rod and toggle-joint mechanism

## Pneumatic retractable locating pin units with handlever

**LCM**

Pneumatic retractable locating pin unit with handlever



$\varnothing$  Cylinder mm: 50

Stroke mm: 25 - 40 - 50 - 60

**LCL**

Manual retractable locating pin unit



Stroke mm: 25 - 40 - 50 - 60

**LCO**

Pneumatic retractable locating pin unit with two rods and handlever



$\varnothing$  Cylinder mm: 50

Stroke mm: 40

**LCY**

Pneumatic retractable locating pin unit with handlever and toggle-joint mechanism



$\varnothing$  Cylinder mm: 40

Stroke mm: 40

**LCX**

Pneumatic retractable locating pin unit with two rods and handlever and toggle-joint mechanism



$\varnothing$  Cylinder mm: 50

Stroke mm: 40

## Pneumatic pin clamps

**LSP**

Pneumatic pin clamp



$\varnothing$  Cylinder mm: 32 - 50

**LSP50U**

Pneumatic pin clamp- horizontal shape

**LTP**

Pneumatic pin clamp with vanishing hook



$\varnothing$  Cylinder mm: 50

**LUP**

Pneumatic pin clamp with vanishing hook and pin



$\varnothing$  Cylinder mm: 63

**LSL**

Manual pin clamp



Multiple pin sizes available

## Gripper units

<p><b>UGP</b> Pneumatic gripper units</p>  <p>Ø Cylinder mm: 50 - 63 - 80 Versions: single and double jaws movement Fully adjustable opening angle</p>	<p><b>UGM</b> Pneumatic gripper unit with handleve</p>  <p>Ø Cylinder mm: 40 Versions: single and double jaws movement Fully adjustable opening angle</p>	<p><b>LGP</b> Pneumatic gripper</p>  <p>Ø Cylinder mm: 40 Versions: single and double jaws movement</p> <p style="color: blue;">NEW</p>
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## Power pivots

<p><b>DMA</b> Pneumatic power pivots, CNOMO mounting</p>  <p>Ø Cylinder mm: 63 Fully adjustable opening angle</p>	<p><b>LAGP</b> Pneumatic power pivots</p>  <p>Ø Cylinder mm: 63 - 80 - 100 - 125 - 160 - 200 Brake system</p>
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## Marking unit

<p><b>PRP</b> Pneumatic marking unit</p>  <p>PRP025 - PRP050 Ø Cylinder mm: 63 Versions: single letter/number</p>	<p><b>PRP500</b></p>  <p>Ø Cylinder mm: 100 Versions: up to 7 letters/numbers marking The marking head can be mounted on the lower mounting surface or on the upper moving arms</p>	 <p>PRP1100 Ø Cylinder mm: 160 Versions: up to 8 letters/numbers marking The marking head can be mounted on the lower mounting surface or on the upper moving arms</p> <p style="color: blue;">NEW</p>
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## Electric unit with modular electronics

**LAE**

Electric power clamps

**Size:** 140 - 225 - 350

Adjustable opening angle

Built in "obstruction" detection

**LNE**

Electric power clamps, fixing conforming to the N.A.M.S. Standard

**Size:** 225 - 350

Adjustable opening angle

Built in "obstruction" detection

**LGE**

Electric gripper units

**Size:** 140

Adjustable opening angle

Built in "obstruction" detection

**LCE**

Electric retractable locating pin unit

**Size:** 350

Adjustable stroke

**LAGE**

Electric power pivots

**Size:** 500 - 1000

Control module can be mounted remotely

The Integrated brake maintains the position any time power is lost

## Accessories

**Clamping arms**

Wishbone/Blade Arms

**Offset mm:** 0 - 15 - 25 - 45 - 50 - 70 - 75 - 105 - 120**UBK**

Self-holding spring for open position

**UBF**

Ergonomic Handlevers



## 7

## GR8 Tooling

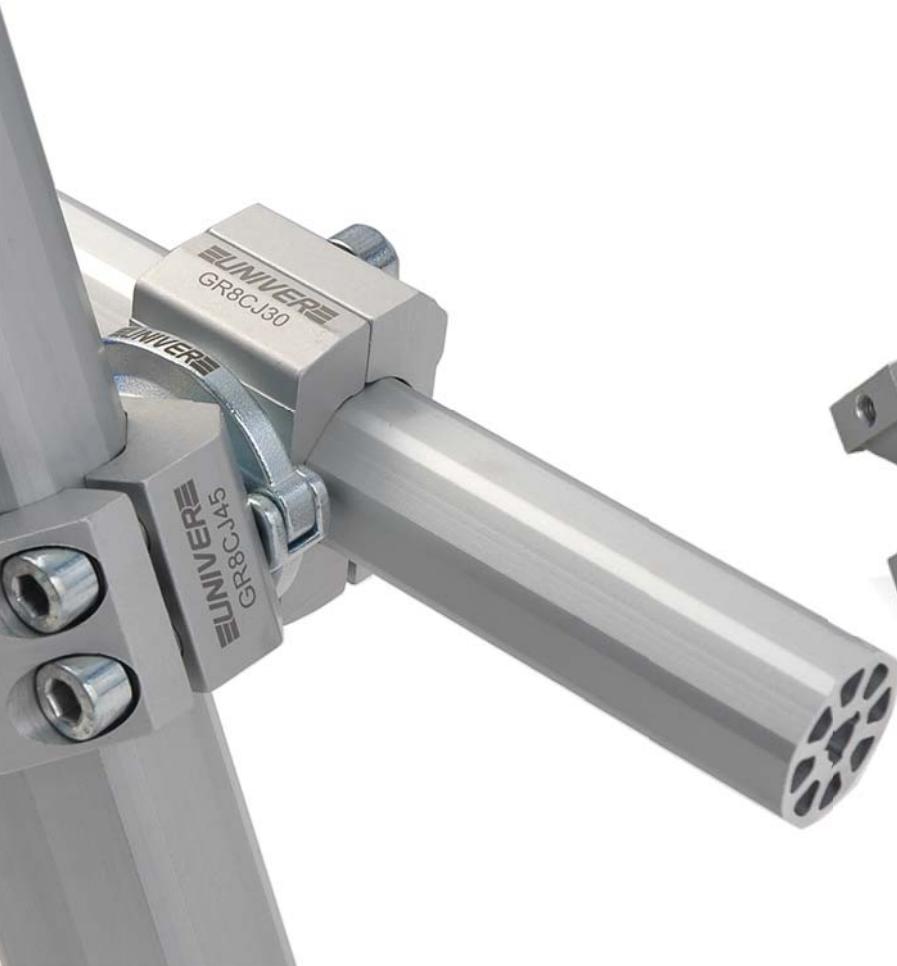


Modular Tooling System GR8

2



# GR8 Modular Tooling System

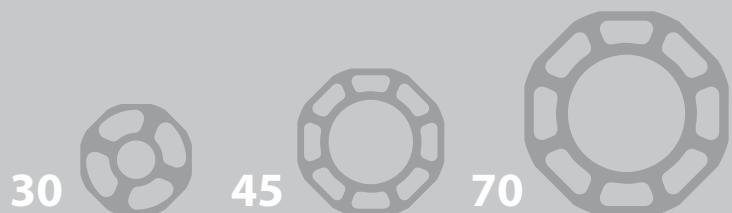


## KIT

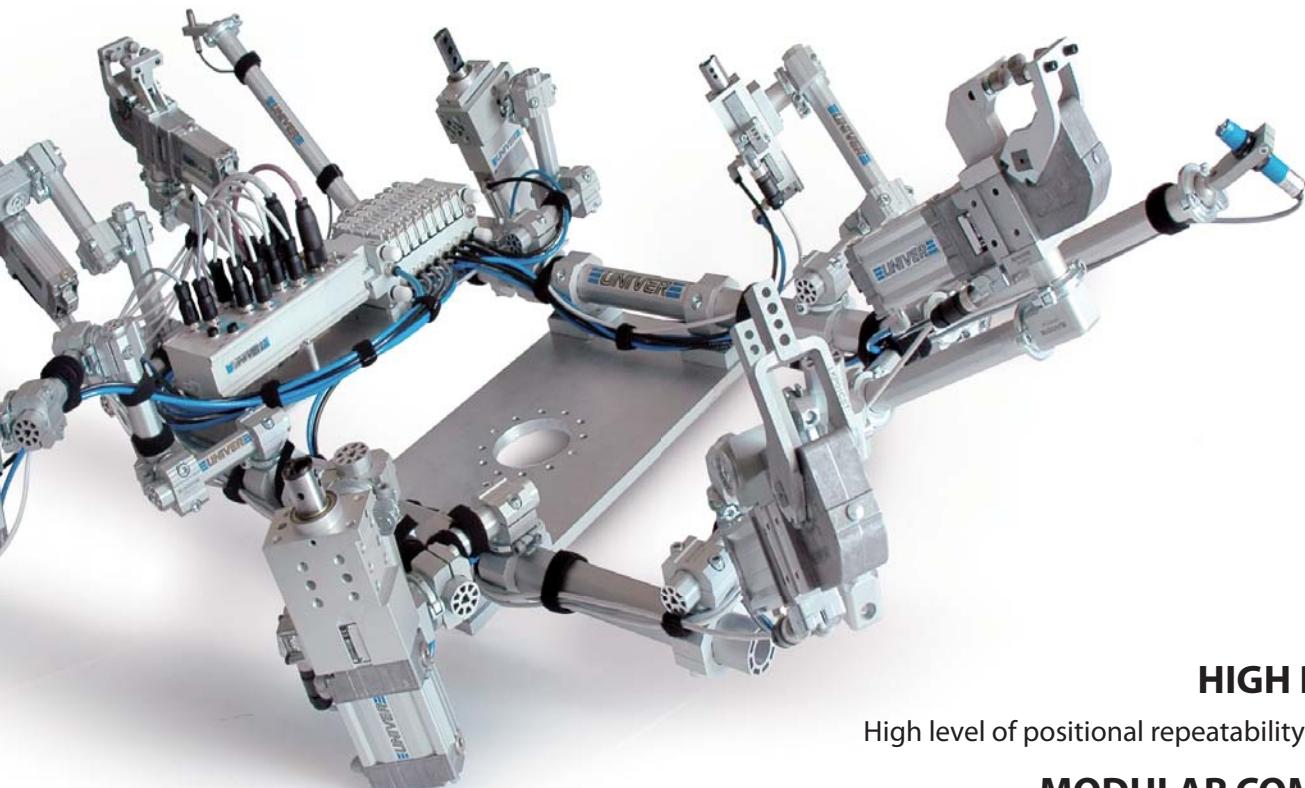
Considerable reduction of  
mounting elements

**Ø 30 - 45 - 70 mm booms**

Maximum stiffness and minimum weight



PATENT PENDING

**HIGH PRECISION**

High level of positional repeatability; low deflection

**MODULAR COMPONENTS**

Considerable reduction of mounting components

**QUICK INSTALLATION AND SET UP**

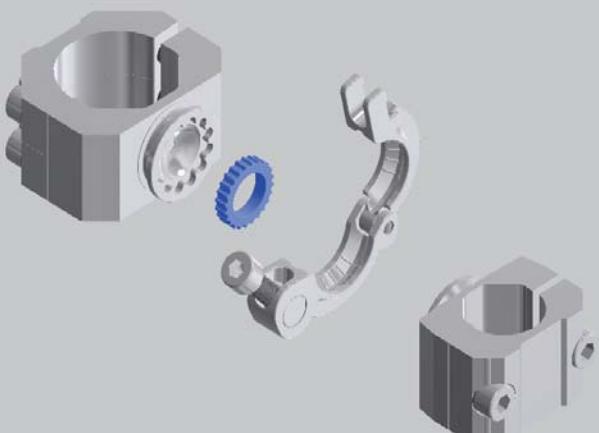
No welding or doweling required,  
easily replaceable components

**FULLY ADJUSTABLE**

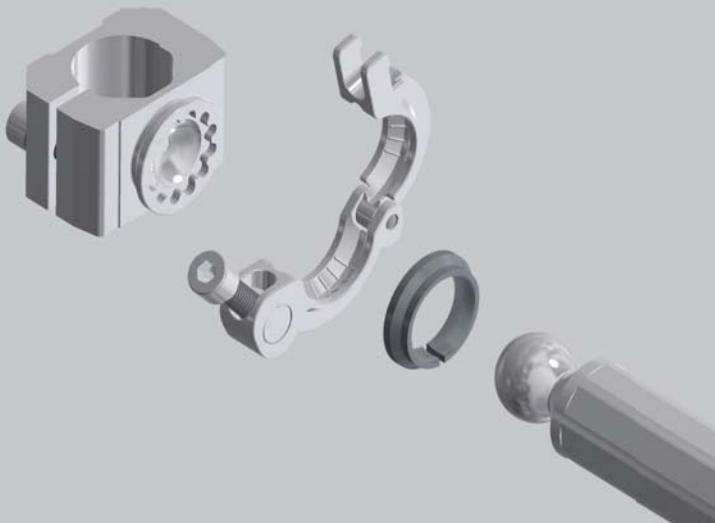
Unlimited orientation in space and free configuration

**Locking ring**

Precise and efficient system to guarantee a high level of positional accuracy

**Ball mounting**

Unlimited swivel rotation



Booms	Inserts	Locking ring
<b>GR8B306000</b> Boom 30	<b>GR8B456000</b> Boom 45	<b>GR8B706000</b> Boom 70

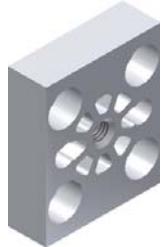
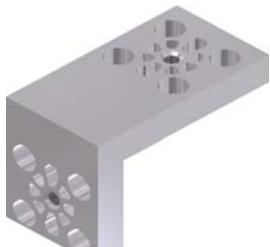
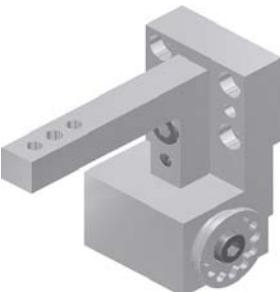
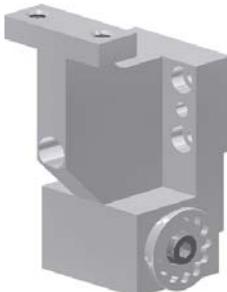
7

<b>GR8CJ30</b> Cross Joint 30	<b>GR8CJ45</b> Cross Joint 45	<b>GR8CJ70</b> Cross Joint 70	<b>GR8HD4545</b> Heavy duty Joint 45-45
<b>GR8RJ30</b> Round Joint 30	<b>GR8RJ45</b> Round Joint 45	<b>GR8CM4545</b> Coplanar Mount 45-45	<b>GR8HD7070</b> Heavy duty Joint 70-70
<b>GR8CM7045</b> Coplanar Mount 70-45	<b>GR8CJD30</b> Double cross joint 30	<b>GR8CJD45</b> Double cross joint 45	<b>GR8EOA</b> Orientable angle adapter
<b>GR8SM3030</b> Edge mounting element 30-30	<b>GR8SCI30</b> Interlocking adapter 30	<b>GR8ECI45</b> Interlocking adapter 45	<b>GR8SCB30</b> Ball adapter

## End connectors

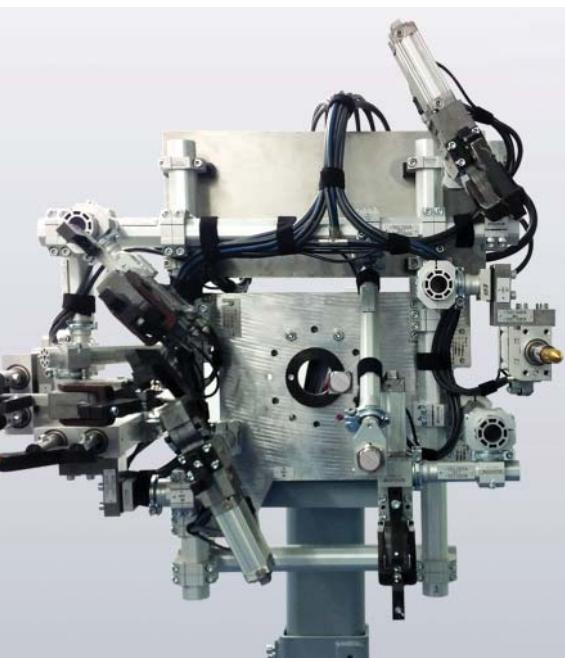
<b>GR8BB30</b> Base plate bracket 30	<b>GR8BB45</b> Base plate bracket 45	<b>GR8BB70</b> Base plate bracket 70	
			

## Mounting adaptations

<b>GR8SR40</b> Rear mount plate for 40 clamps	<b>GR8SR50</b> Rear mount plate for retractable locating pin units LCP50	<b>GR8SR50M8</b> Rear mount plate with M8 threads	<b>GR8SS50</b> Side mount plate for retractable locating pin units LCP50
			
<b>GR8MF40</b> Front mount plate for 40 clamps	<b>GR8MFGL</b> Front mount plate for UGP40VL	<b>GR8MF50</b> Front mount plate for 50 mm clamps	<b>GR8SV</b> Vacuum cups mount
			
<b>GR8MP19</b> Vacuum cups mount 19	<b>GR8MP12</b> Proximity locator mount 12	<b>GR8MP18</b> Proximity locator mount 18	<b>GR8MP30</b> Proximity locator mount 30
			

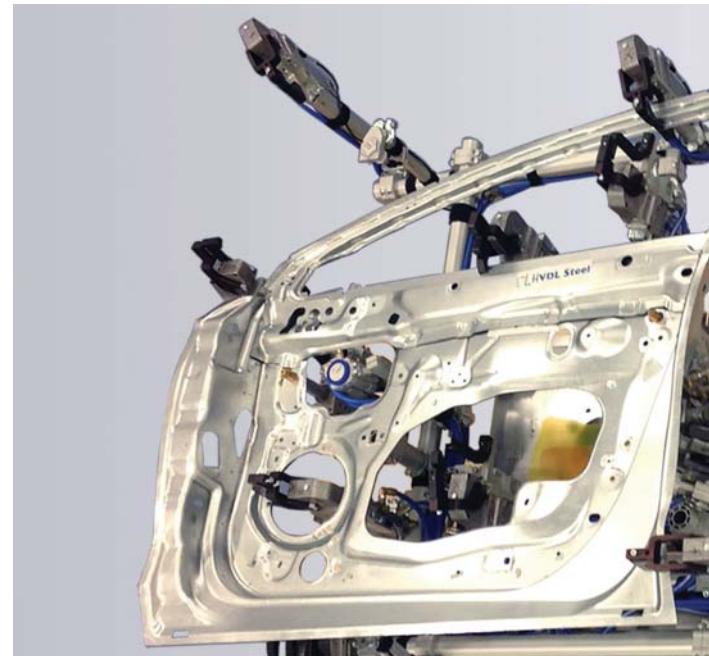
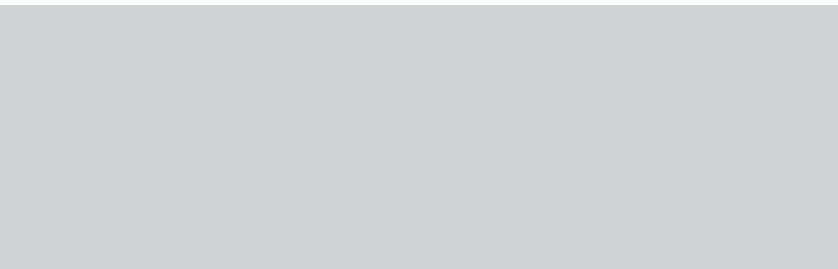
# GR8

GR8 applications and details  
of the components



Unlimited and complex configurations  
Weight-optimized standard components and brackets  
Quick installation and adjustment

COMPLETE SOLUTION  
WITH **UNIVER** COMPONENTS





**Compliance with  
International  
Standards**

**DIRECTIVE 94/9/CE "ATEX"**

Directive that specifies the safety requirements for equipment/components for use in potentially explosive atmospheres

**PRODUCT CERTIFICATION "CSA"**

Product Safety certification for the North American market

**DIRECTIVE 2002/95/CE "RoHS / RAEE"**

Directive which regulates the use and disposal of hazardous substances in electrical and electronic equipment.

**DIRECTIVE "REACH"**

CE 1907/2006 of the European Parliament and the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals.

**DIRECTIVE 97/23/CE "PED"**

Directive which applies to the design, manufacture and conformity assessment of pressure equipment and assemblies with a maximum allowable pressure greater than 0.5 bar.

**DIRECTIVE 2006/42/CE "MACHINERY"**

Directive defining essential health and safety requirements for the design, construction, installation and maintenance of machinery.

**ISO 9001:2008  
"QUALITY MANAGEMENT SYSTEM"**

Standard specifying Quality Management System requirements.



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A-141N	3.8	AC-7905	3.49	AG-3021	3.54	AI-3514Q	3.88	AI-9120M	3.57
A-142N	3.8	AC-8010	3.48	AG-3040	3.54	AI-3514QD	3.88	AI-9130	3.57
A-151N	3.8	AC-8013	3.48	AG-3041	3.54	AI-3515	3.88	AI-9130M	3.57
A-161N	3.8	AC-8013P	3.48	AG-3050	3.54	AI-3515Q	3.88	AI-9200	3.57
A-162N	3.8	AC-8100	3.48	AG-3051	3.54	AI-3516	3.88	AI-9200M	3.57
A-171N	3.8	AC-8120	3.48	AG-3062	3.54	AI-3516D	3.88	AI-9210	3.57
A-299-11	3.8	AC-8500	3.49	AG-3063	3.54	AI-3516Q	3.88	AI-9210M	3.57
A-301	3.8	AC-8520	3.49	AG-3071	3.54	AI-3516QD	3.88	AI-9220	3.57
A-305	3.8	AC-8900	3.49	AG-3072	3.54	AI-3517	3.88	AI-9220M	3.57
A-326A/B/D	3.8	AC-9010	3.48	AG-3073	3.54	AI-3517Q	3.88	AI-9230	3.57
A-345	3.8	AC-9013	3.48	AG-3074	3.54	AI-3519	3.88	AI-9230M	3.57
A-350	3.8	AC-9013P	3.48	AG-3075	3.54	AI-3519Q	3.88	AI-9300	3.58
AA-0150	3.9	AC-9100	3.48	AG-3076	3.54	AI-3520	3.89	AI-9300M	3.58
AA-0157	3.9	AC-9120	3.48	AG-3081	3.55	AI-3520Q	3.89	AI-9310	3.58
AA-0170	3.9	AC-9500	3.49	AG-3082	3.55	AI-3521	3.89	AI-9310M	3.58
AA-0184	3.9	AC-9520	3.49	AG-3091	3.55	AI-3521Q	3.89	AI-9320	3.58
AA-0186	3.9	AC-N8100	3.22	AG-3092	3.55	AI-3522	3.89	AI-9320M	3.58
AA-0188	3.9	AC-N8120	3.22	AG-3100	3.55	AI-3522Q	3.89	AI-9330	3.58
AA-0211	3.9	AC-N8500	3.22	AG-3101	3.55	AI-3523	3.89	AI-9330M	3.58
AA-0213	3.9	AC-N8520	3.22	AG-3110	3.55	AI-3523Q	3.89	AI-9350	3.58
AA-0219	3.9	AE-1000	3.15	AG-3111	3.55	AI-3524	3.88	AI-9350M	3.58
AA-0231	3.9	AE-1003	3.15	AG-3210	3.55	AI-3524Q	3.88	AI-9360	3.58
AA-0233	3.9	AE-1009	3.15	AG-3211	3.55	AI-3525	3.89	AI-9360M	3.58
AA-0239	3.9	AE-1010	3.15	AG-3214	3.55	AI-3525Q	3.89	AI-9370	3.58
AA-0400	3.9	AE-1100	3.15	AG-3215	3.55	AI-3526	3.89	AI-9370M	3.58
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AA-0402	3.9	AE-1120	3.15	AG-3223	3.55	AI-3529	3.89	AI-9380M	3.58
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AA-0450	3.9	AF-2500	3.52	AG-3233	3.55	AI-3551	3.89	AI-9400M	3.58
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AB-0613	3.10	AF-2510	3.52	AG-3243	3.55	AI-3562	3.89	AI-9410M	3.58
AB-0640	3.10	AF-2511	3.52	AG-3256	3.55	AI-3563	3.89	AI-9420	3.58
AB-0643	3.10	AF-2517	3.52	AG-3257	3.55	AI-3570	3.89	AI-9420M	3.58
AB-0681	3.10	AF-2518	3.52	AG-3300	3.55	AI-3571	3.89	AI-9430	3.58
AB-0685	3.10	AF-2520	3.52	AG-3301	3.55	AI-3572	3.89	AI-9430M	3.58
AB-0687	3.10	AF-2521	3.52	AG-3302	3.55	AI-35B10N	3.59	AI-9500B	3.59
AB-0722	3.10	AF-2524	3.52	AG-3303	3.55	AI-35B10R	3.59	AI-9500BM	3.59
AB-0728	3.10	AF-2525	3.52	AG-3310	3.55	AI-35B10V	3.59	AI-9510B	3.59
AB-0751	3.10	AF-2530	3.52	AG-3311	3.55	AI-35B11N	3.59	AI-9510BM	3.59
AB-0755	3.10	AF-2531	3.52	AG-3312	3.55	AI-35B11R	3.59	AI-9520B	3.59
AB-0757	3.10	AF-2540	3.52	AG-3313	3.55	AI-35B11V	3.59	AI-9520BM	3.59
AB-0765	3.10	AF-2541	3.52	AG-3320	3.55	AI-35B13N	3.59	AI-9550B	3.59
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AB-0819	3.10	AF-2546	3.52	AG-3322	3.55	AI-35B20	3.59	AI-9560B	3.59
AB-0822	3.10	AF-2550	3.53	AG-3330	3.55	AI-35B21	3.59	AI-9560BM	3.59
AB-0824	3.10	AF-2551	3.53	AG-3331	3.55	AI-35B22	3.59	AI-9570B	3.59
AB-0825	3.10	AF-2552	3.53	AG-3332	3.55	AI-35B25	3.59	AI-9570BM	3.59
AB-0826	3.10	AF-2561	3.52	AI-3500	3.56	AI-35B26	3.59	AM-5000	3.60
AB-0827	3.10	AF-2565	3.52	AI-3500Q	3.56	AI-35B27	3.59	AM-5000A	3.60
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AB-0831	3.10	AF-2606	3.52	AI-3501Q	3.56	AI-3610	3.56	AM-5003	3.60
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AB-0885	3.10	AF-2617	3.53	AI-3502	3.56	AI-9000M	3.57	AM-5004A	3.60
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AM-5031	3.60	AM-5500	3.93	BDA-4844	3.19	BDF-4185	3.20	BE-4205	3.12
AM-5041	3.60	AM-5501	3.93	BDB-324024	3.18	BDF-4210	3.20	BE-4700	3.12
AM-5043	3.60	AM-5502	3.93	BDB-324124	3.18	BDF-4211	3.21	BE-4720	3.12
AM-5043B	3.60	AM-5503	3.93	BDB-324424	3.18	BDF-4212	3.21	BE-4730	3.12
AM-5043C	3.60	AM-5504	3.93	BDB-334424	3.18	BDF-4220	3.20	BE-4760	3.12
AM-5043D	3.60	AM-5510	3.93	BDB-344424	3.18	BDF-4221	3.21	BE-4800	3.12
AM-5050	3.60	AM-5511	3.93	BDB-354424	3.18	BDF-4222	3.21	BE-4850	3.12
AM-5051	3.60	AM-5512	3.93	BDB-364424	3.18	BDF-4230	3.20	BE-4870	3.12
AM-5052	3.60	AM-5513	3.93	BDB-374424	3.18	BDF-4231	3.21	BE-4900	3.12
AM-5060	3.92	AM-5514	3.93	BDB-384424	3.18	BDF-4232	3.21	BE-4940	3.12
AM-5061	3.92	AP-500	3.92	BDB-424024	3.18	BDF-4310	3.20	BE-5000	3.12
AM-5062	3.92	AP-520	3.92	BDB-424124	3.18	BDF-4311	3.21	BE-5020	3.12
AM-5063	3.92	AZ-0200	4.12	BDB-424424	3.18	BDF-4312	3.21	BE-5030	3.12
AM-5064	3.92	AZ4-SN003A	3.63	BDB-434424	3.18	BDF-4320	3.20	BE-5060	3.12
AM-5065	3.92	AZ4-SN004A	3.39	BDB-444424	3.18	BDF-4321	3.21	BE-5100	3.12
AM-5066	3.92	AZ4-VN0310	3.63	BDB-454424	3.18	BDF-4322	3.21	BE-5150	3.12
AM-5067	3.92	AZ4-VN0414	3.73	BDB-464424	3.18	BDF-4330	3.20	BE-5170	3.12
AM-5070	3.92	B-101N	3.7	BDB-474424	3.18	BDF-4331	3.20	BE-5200	3.12
AM-5071	3.92	B-102N	3.7	BDB-484424	3.18	BDF-4332	3.20	BE-5205	3.12
AM-5072	3.92	B10-401L24D	3.4	BDE-324024	3.18	BDF-4400	3.20	BE-5700	3.12
AM-5074	3.92	B10-403P24D	3.4	BDE-324124	3.18	BE12-3000	3.13	BE-5720	3.12
AM-5076	3.92	B10-405M24D	3.4	BDE-324424	3.18	BE12-3020	3.13	BE-5730	3.12
AM-5077	3.92	B11-401L24D	3.3	BDE-334424	3.18	BE12-3205	3.13	BE-5760	3.12
AM-5090	3.92	B11-403P24D	3.3	BDE-344424	3.18	BE12-3700	3.13	BE-5800	3.12
AM-5091	3.92	B11-405M24D	3.3	BDE-354424	3.18	BE12-3720	3.13	BE-5850	3.12
AM-5092	3.92	B11-411L24D	3.3	BDE-364424	3.18	BE12-3900	3.13	BE-5870	3.12
AM-5109	3.87	B11-413P24D	3.3	BDE-374424	3.18	BE12-3940	3.13	BE-5900	3.12
AM-5110	3.87	B11-415M24D	3.3	BDE-384424	3.18	BE12-4000	3.13	BE-5940	3.12
AM-5111	3.87	B-121N	3.7	BDE-424024	3.18	BE12-4020	3.13	BE-6000	3.12
AM-5148	3.29	B12-401L24D	3.5	BDE-424124	3.18	BE12-4205	3.13	BE-6020	3.12
AM-5151	3.29	B12-403P24D	3.5	BDE-424424	3.18	BE12-4700	3.13	BE-6030	3.12
AM-5152	3.29	B12-405M24D	3.5	BDE-434424	3.18	BE12-4720	3.13	BE-6060	3.12
AM-5160	3.92	BDA-3230	3.19	BDE-444424	3.18	BE12-4900	3.13	BE-6100	3.12
AM-5161	3.92	BDA-3231	3.19	BDE-454424	3.18	BE12-4940	3.13	BE-6150	3.12
AM-5162	3.92	BDA-3233	3.19	BDE-464424	3.18	BE12-5000	3.13	BE-6170	3.12
AM-5163	3.92	BDA-3240	3.19	BDE-474424	3.18	BE12-5020	3.13	BE-6200	3.12
AM-5164	3.92	BDA-3241	3.19	BDE-484424	3.18	BE12-5205	3.13	BE-6205	3.12
AM-5200	3.93	BDA-3244	3.19	BDF-3100	3.20	BE12-5700	3.13	BE-6700	3.12
AM-5211A	3.9	BDA-3333	3.19	BDF-3110	3.21	BE12-5720	3.13	BE-6720	3.12
AM-5211B	3.9	BDA-3344	3.19	BDF-3115	3.20	BE12-5900	3.13	BE-6730	3.12
AM-5212A	3.10	BDA-3433	3.19	BDF-3120	3.20	BE12-5940	3.13	BE-6760	3.12
AM-5212B	3.10	BDA-3444	3.19	BDF-3125	3.21	BE-3000	3.12	BE-6800	3.12
AM-5213A	3.9	BDA-3533	3.19	BDF-3140TIM	3.20	BE-3020	3.12	BE-6850	3.12
AM-5214A	3.10	BDA-3544	3.19	BDF-3180	3.20	BE-3030	3.12	BE-6870	3.12
AM-5220	3.93	BDA-3633	3.19	BDF-3185	3.20	BE-3060	3.12	BE-6900	3.12
AM-5240	3.93	BDA-3644	3.19	BDF-3190	3.20	BE-3100	3.12	BE-6940	3.12
AM-5241	3.93	BDA-3733	3.19	BDF-3191	3.21	BE-3150	3.12	BF-1060	3.13
AM-5242	3.93	BDA-3744	3.19	BDF-3210	3.20	BE-3170	3.12	BF-1061	3.13
AM-5242E	3.93	BDA-3833	3.19	BDF-3211	3.21	BE-3200	3.12	BF-1062	3.13
AM-5243	3.93	BDA-3844	3.19	BDF-3212	3.21	BE-3205	3.12	BF-1063	3.13
AM-5243E	3.93	BDA-4230	3.19	BDF-3230	3.20	BE-3700	3.12	BF-1065	3.14
AM-5254	3.93	BDA-4231	3.19	BDF-3231	3.21	BE-3720	3.12	BF-1066	3.14
AM-5255	3.93	BDA-4233	3.19	BDF-3232	3.21	BE-3730	3.12	BF-1068	3.14
AM-5256	3.93	BDA-4240	3.19	BDF-3310	3.20	BE-3760	3.12	BF-1070	3.14
AM-5259	3.93	BDA-4241	3.19	BDF-3311	3.21	BE-3800	3.12	BF-1071	3.13
AM-5260	3.93	BDA-4244	3.19	BDF-3312	3.21	BE-3850	3.12	BF-1071S	3.13
AM-5261	3.93	BDA-4333	3.19	BDF-3330	3.20	BE-3870	3.12	BF-1072	3.13
AM-5350	3.93	BDA-4344	3.19	BDF-3331	3.21	BE-3900	3.12	BF-1072S	3.13
AM-5351	3.93	BDA-4433	3.19	BDF-3332	3.21	BE-3940	3.12	BF-1085	3.14
AM-5352	3.93	BDA-4444	3.19	BDF-3400	3.20	BE-4000	3.12	BF-1150	3.13
AM-5353	3.93	BDA-4533	3.19	BDF-4100	3.20	BE-4020	3.12	BF-1151	3.13
AM-5354	3.93	BDA-4544	3.19	BDF-4110	3.21	BE-4030	3.12	BF-1152	3.13
AM-5355	3.93	BDA-4633	3.19	BDF-4115	3.20	BE-4060	3.12	BF-1153	3.13
AM-5356	3.93	BDA-4644	3.19	BDF-4120	3.20	BE-4100	3.12	BF-1154	3.14
AM-5400	3.93	BDA-4733	3.19	BDF-4125	3.21	BE-4150	3.12	BF-1155	3.14
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BF-3064	3.14	CL-300	3.28	CM-422R	3.26	CM-9600	3.28	DD-050	3.87
BF-3071	3.13	CL-301	3.28	CM-423	3.26	CM-9602A	3.28	DD-051	3.87
BF-3072	3.13	CL-302A	3.28	CM-423A	3.26	CM-9620	3.28	DD-051-2C	3.36
BF-3082	3.14	CL-303A	3.28	CM-423D	3.26	CM-9621	3.28	DD-051L030	3.87
BF-3175	3.14	CL-320	3.28	CM-423E	3.26	CM-9622	3.28	DD-052	3.87
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CH-254	3.50	CL-9111A	3.25	CM-435E	3.26	CP-111	3.29	DE-355	3.86
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CH-264	3.50	CL-9118R	3.27	CM-520	3.28	CP-9101	3.29	DE-642I	3.86
CH-266	3.50	CL-9120	3.27	CM-521	3.28	CP-9105	3.29	DE-652	3.86
CH-270	3.50	CL-9120A	3.27	CM-524	3.28	CP-9110	3.29	DE-652I	3.86
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CL-101A	3.24	CL-9220	3.28	CM-685	3.28	CP-912R	3.26	DF-330M12	5.21
CL-101P	3.24	CL-9221	3.28	CM-690	3.28	CP-913R	3.26	DF-440	5.21
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CL-104A	3.24	CL-9303A	3.28	CM-9410A	3.25	D-530-30	3.87	DF-770M12	5.22
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CL-122R	3.26	CM-411A	3.25	CM-9430	3.27	DB-0608	3.55	DH-K063125	5.22
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E-0222	3.30	G-6566	3.35	GL-6755	3.38	GR8ECI45	7.4	HZ9P401018	4.10
E-0240	3.30	G-6633	3.34	GL-6766	3.38	GR8EOA	7.4	HZ9P500314	4.10
E-0244	3.30	G-6644	3.35	GL-6833	3.37	GR8HD4545	7.4	HZ9P500614	4.10
E-0270	3.30	G-6655	3.35	GL-6844	3.38	GR8HD7070	7.4	HZ9P501014	4.10
E-0277	3.30	G-6666	3.35	GL-6855	3.38	GR8IK	7.4	HZ9P630314	4.10
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E-0422	3.31	G-6744	3.35	GP-6100	3.36	GR8MF40	7.5	HZ9P631014	4.10
E-0440	3.31	G-6755	3.35	GP-6110	3.36	GR8MF50	7.5	HZ9PB400318	4.10
E-0444	3.31	G-6766	3.35	GP-611212	3.36	GR8MFL	7.5	HZ9PB400618	4.10
E-0470	3.31	G-6833	3.34	GP-611806	3.36	GR8MP12	7.5	HZ9PB401018	4.10
E-0477	3.31	G-6844	3.35	GP-6210	3.39	GR8MP18	7.5	HZ9PB500314	4.10
E-0522	3.30	G-6855	3.35	GP-6211	3.39	GR8MP19	7.5	HZ9PB500614	4.10
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E-0722	3.30	G-7230	3.41	GP-6220	3.39	GR8RJ30	7.4	HZ9PB630314	4.10
E-0822	3.31	G-7231	3.41	GP-6221	3.39	GR8RJ45	7.4	HZ9PB630614	4.10
E-0922	3.31	G-7233	3.41	GP-6222	3.39	GR8SCB30	7.4	HZ9PB631014	4.10
E-1022	3.31	G-7290	3.41	GP-6230	3.39	GR8SCI30	7.4	HZ9PBS400318	4.10
E-15402A	3.32	G-7291	3.41	GP-6231	3.39	GR8SM3030	7.4	HZ9PBS400618	4.10
E-15403A	3.32	G-7299	3.41	GP-6232	3.39	GR8SR40	7.5	HZ9PBS401018	4.10
E-15412A	3.32	G-7333	3.41	GP-6240	3.39	GR8SR50	7.5	HZ9PBS500314	4.10
E-15420	3.32	G-7399	3.41	GP-6241	3.39	GR8SR50M8	7.5	HZ9PBS500614	4.10
E-15420A	3.32	G-7433	3.41	GP-6242	3.39	GR8SS50	7.5	HZ9PBS501014	4.10
E-15422G	3.32	G-7499	3.41	GP-6285	3.39	GR8SV	7.5	HZ9PBS630314	4.10
E-15422N	3.32	G-7533	3.41	GP-6310	3.36	GZR-100	3.46	HZ9PBS630614	4.10
E-15422R	3.32	G-7599	3.41	GP-6311	3.36	GZR-101	3.46	HZ9PBS631014	4.10
E-4500	3.30	G-7885	3.41	GP-6312	3.36	GZR-102	3.46	HZE0B08GM	4.5
E-4505	3.30	G-7900-02	3.41	GP-6320	3.36	GZR-V10004	3.39	HZE0B08GMV	4.5
F-0220	3.33	G-7900-03	3.41	GP-6321	3.36	GZR-V10006	3.39	HZE0C08GM	4.6
F-0222	3.33	G-7900-04	3.41	GP-6322	3.36	GZR-V10008	3.39	HZE0D08GM	4.6
F-0240	3.33	G-7900-05	3.41	GP-6330	3.36	GZR-V20004	3.39	HZE0F08G	4.3
F-0244	3.33	G-7900-06	3.41	GP-6331	3.36	GZR-V20006	3.39	HZE0L08G	4.4
F-0270	3.33	G-7900-07	3.41	GP-6332	3.36	GZR-V20008	3.39	HZE0N08G	4.7
F-0277	3.33	G-7900-08	3.41	GP-6340	3.36	GZR-V20L004	3.39	HZE0P08G	4.7
F-0522	3.33	G-7900-09	3.41	GP-6341	3.36	GZR-V20L006	3.39	HZE0R08G	4.4
F-0544	3.33	G-7900-10	3.41	GP-6342	3.36	GZR-V20L008	3.39	HZE0R08GM	4.4
F-0577	3.33	G-7900-11	3.41	GP-6380	3.36	GZR-VV1006	3.20	HZE0R08GMV	4.4
F-0622	3.33	G-7900-12	3.41	GP-6385	3.36	GZR-VV1008	3.20	HZE0S08G	4.8
F-0644	3.33	GL-6230	3.37	GP-6400-1	3.36	GZR-VV1010	3.20	HZE0Y08G	4.7
F-0677	3.33	GL-6231	3.37	GP-6400-2	3.36	HA ...	5.2	HZE0Z200	4.9
F-0722	3.33	GL-6233	3.37	GP-6400-5	3.36	HAR ...	5.5	HZE0Z210	4.9
F-0744	3.33	GL-6240	3.38	GP-6411	3.39	HB ...	5.6	HZE0Z300	4.9
F-0777	3.33	GL-6241	3.38	GP-6512-01MF	3.36	HC ...	5.9	HZE0Z310	4.9
F-4500	3.33	GL-6244	3.38	GP-6512-02MF	3.36	HD ...	5.13	HZE0Z401	4.9
F-4505	3.33	GL-6250	3.38	GP-6512-03MF	3.36	HEA ...	5.20	HZE0Z402	4.9
G-6230	3.34	GL-6251	3.38	GP-6512-05MF	3.36	HEC ...	5.20	HZE0Z600	4.9
G-6231	3.34	GL-6255	3.38	GP-6512-06MF	3.36	HED ...	5.20	HZE0Z600SS	4.9
G-6233	3.34	GL-6260	3.38	GP-6514-01MF	3.36	HFA ...	5.20	HZE0Z601	4.9
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G-6241	3.35	GL-6266	3.38	GP-6514-03MF	3.36	HGC ...	5.16	HZE0Z603	4.9
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HZE1B15GMV	4.5	HZE7Z400	4.9	KF-10320AC	1.9	KF-15160	1.8	KLF-14080	1.4
HZE1C10GM	4.6	HZE7Z470	4.9	KF-11032	1.4	KF-15250	1.9	KLF-14100	1.4
HZE1C15GM	4.6	HZE7Z480	4.9	KF-11032S	1.4	KF-15320	1.9	KLF-14125	1.4
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HZE1P10G	4.7	HZRM610	4.12	KF-11100	1.4	KF-17320	1.9-	LAGP	6.7
HZE1P15G	4.7	HZRM611	4.12	KF-11100S	1.4	KF-19032	1.4	LCA	6.5
HZE1R10GM	4.4	HZRM652	4.12	KF-11125	1.4	KF-19032CN	1.4	LCE	6.8
HZE1R10GMV	4.4	HZRM654	4.12	KF-11125S	1.4	KF-19032CTA	1.4	LCG	6.5
HZE1R15GM	4.4	HZRM658	4.12	KF-11160	1.8	KF-19032SC	1.4	LCJ	6.5
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HZE1RL15GM	4.4	HZRP1008GC	4.11	KF-11200S	1.8	KF-19040CTA	1.4	LCO	6.6
HZE1S10G	4.8	HZRP12	4.11	KF-11250C	1.9	KF-19040SC	1.4	LCP	6.5
HZE1S15G	4.8	HZRP1310	4.11	KF-11320C	1.9	KF-19050	1.4	LCT	6.5
HZE1Y10G	4.7	HZRP2008GA	4.11	KF-12032	1.4	KF-19050CTA	1.4	LCX	6.6
HZE1Y15G	4.7	HZRP2008GB	4.11	KF-12040	1.4	KF-19050SC	1.4	LCY	6.6
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HZE1Z603	4.9	J65...	1.31	KF-13040	1.4	KF-19100SC	1.4	MF-12008	1.2
HZE1Z610	4.9	JL...	1.32	KF-13050	1.4	KF-19125CTA	1.4	MF-12012	1.2
HZE1Z611	4.9	JT...	1.33	KF-13063	1.4	KF-19125SC	1.4	MF-12020	1.2
HZE1Z652	4.9	JX1...	1.33	KF-13080	1.4	KF-19160200CN	1.8	MF-13008	1.2
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HZE1Z670	4.9	KDF-14032	1.7	KF-13200	1.8	KF-22025	1.2	MF-15012	1.2
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HZE2C15GM	4.6	KDF-14063	1.7	KF-14032AP	1.6	KF-22050	1.4	MF-17008	1.2
HZE2D15GM	4.6	KDF-14080	1.7	KF-14040	1.6	KF-22080	1.4	MF-17012	1.2
HZE2F15G	4.3	KDF-14100	1.7	KF-14040AP	1.6	KF-23020	1.19	MF-17020	1.2
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HZE2R1L5GM	4.4	KF-10032AS	1.4	KF-14063AP	1.6	KF-23050	1.4	MF-20020	1.2
HZE2Z210	4.9	KF-10040A	1.4	KF-14080	1.6	KF-23080	1.4	MF-21008	1.2
HZE2Z300	4.9	KF-10040AS	1.4	KF-14080AP	1.6	KF-24020	1.19	MF-21012	1.2
HZE2Z310	4.9	KF-10050A	1.4	KF-14100	1.6	KF-24032	1.4	MF-21016	1.2
HZE2Z500	4.9	KF-10050AS	1.4	KF-14100AP	1.6	KF-24040	1.4	MF-21020	1.2
HZE2Z501	4.9	KF-10063A	1.4	KF-14125	1.6	KF-24050	1.4	MF-22016	1.2
HZE2Z600	4.9	KF-10063AS	1.4	KF-14125AP	1.6	KF-24080	1.4	MF-22020	1.2
HZE2Z600SS	4.9	KF-10080A	1.4	KF-14160	1.8	KF-41032	1.11	MF-22025	1.2
HZE2Z601	4.9	KF-10080AS	1.4	KF-14160AP	1.8	KF-41040050	1.4	MF-23012	1.2
HZE2Z602	4.9	KF-10100A	1.4	KF-14200	1.8	KF-41063080	1.4	MF-23020	1.2
HZE2Z603	4.9	KF-10100AS	1.4	KF-14200AP	1.8	KF-41100125	1.4	MF-24012	1.2
HZE2Z610	4.9	KF-10125A	1.4	KF-14250	1.9	KF-41160200	1.8	MF-24020	1.2
HZE2Z611	4.9	KF-10125AS	1.4	KF-15020	1.19	KF-41250	1.9	NFZ...	2.9
HZE2Z652	4.9	KF-10160A	1.8	KF-15032	1.4	KL...	1.4	NQZ...	2.8
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P10B76624	3.65	P10SB505	3.65	P15B74424	3.74	P15F46624	3.72	P15SS1404MFP	3.73
P10B78824	3.68	P10SB550	3.65	P15B76624	3.74	P15F48824	3.76	P15SS1404MP	3.73
P10B79924	3.68	P10SB560	3.65	P15B78824	3.77	P15F49924	3.76	P15SS1406M	3.73
P10B833	3.64	P10SB570	3.65	P15B79924	3.77	P15F533	3.71	P15SS1408M	3.73
P10B84424	3.65	P10SF100	3.63	P15B833	3.74	P15F54424	3.72	P15SS1408MF	3.73
P10B86624	3.65	P10SF110	3.63	P15B84424	3.74	P15F56624	3.72	P15STR01	3.73
P10B88824	3.68	P10SF200	3.63	P15B86624	3.74	P15F58824	3.76	P15STR02	3.73
P10B89924	3.68	P10SF210	3.63	P15B88824	3.77	P15F59924	3.76	P15STR05	3.73
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PS15300	3.45	RPF-14063	1.11	TSCFN16D0500	3.20				
PS15310	3.46	RPF-28016	1.11	TSCFN16D1000	3.20				
PS15320	3.46	RPF-28020	1.11	TSCFN24S000	3.20				
PS15330	3.46	RPF-28025	1.11	TSCFN24S0300	3.20				
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