



TECHNICAL CHARACTERISTICS

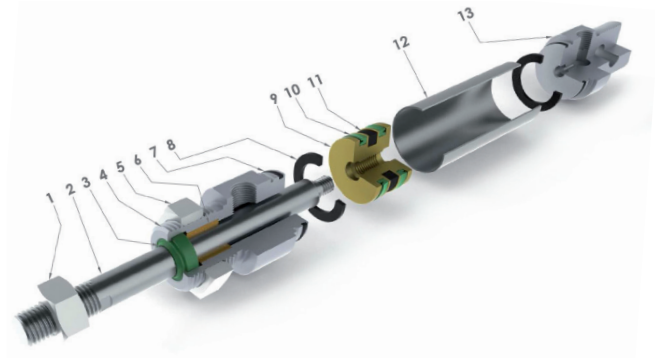


Reference Standard

II 2 GD h T6 -20°C<Tamb<80°C


1907/2006
REACH

2011/65/CE
RoHS

SILICON
FREE


Pressures

1 bar (0.1 MPa)
÷ 10 bar (1 MPa)


Temperature

0 °C (-20 °C in dry air)
÷ + 80 °C


Fluid

Filtered compressed air, lubricated
or non-lubricated


Bores

8 - 10 - 12 - 16 - 20 - 25 mm



Stroke Standard

10 mm ÷ 320 mm



Sensors recommended

DSL with MFX bracket
DF with DH bracket


Functioning

Single acting magnetic (non-magnetic upon request). Double acting, magnetic (non-magnetic upon request), single or double end rod, cushioned or non-cushioned.



Component Parts and Materials

1. Zinc-plated steel Nut
2. Steel AISI 303 Piston rod
3. Polyurethane Rod seal
4. Anodised aluminium Front cover
5. Zinc-plated steel Nut
6. Sintered bronze Bearing
7. NBR O-RING Seals
8. Neoprene Bumper
9. Brass Piston
10. Polyurethane Piston seal
11. Bonded Ferrite Magnet
12. Stainless Steel AISI 304 Mini cylinder shape body
13. Anodised aluminium Back cover



Series

Ø mm

Stroke

Special version

M F

0 0 8

0 0 2 5

V S

- ▲ MB Single-Acting Magnetic
- MD Single-Acting Magnetic - Spring Thrust
- MF Double Acting Magnetic
- ◆ MFA Double acting magnetic hexagonal anti-rotation
- MFN Double Acting Magnetic Head Cut, Feed At 90 °
- MFX Double Acting Magnetic Head Cut Feed On Axis
- ◆ MH Double Acting Cushioned Magnetic
- MJ Double Acting Magnetic With Double Rod End
- ◆ ML Double Acting Cushioned Magnetic With Double Rod End
- ◆ MHL Double-acting, magnetically cushioned, with rod lock

- VS Rod Seals in FKM
- V Seals in FKM

Ø (mm)	Stroke (mm)										
	10	25	40	50	80	100	125	160	200	250	320
8	▲●	▲●	▲●	▲●	●	●	●				
10	▲●	▲●	▲●	▲●	●	●	●				
12	▲●	▲●	▲●	▲●	●	●	●				
16	▲■○	▲■○	▲■○	▲■○	●○	●○	●○	●○	●○	●○	
20	▲■○	▲■○	▲■○	▲■○	●○	●○	●○	●○	●○	●○	●○
25	▲■○	▲■○	▲■○	▲■○	●○	●○	●○	●○	●○	●○	●○

Intermediate or higher strokes are available on request.

THRUST AND TRACTION FORCES															
Cylinder	Rod	Effective area				Working pressure									
Ø	Ø	mm²				bar									
					1	2	3	4	5	6	7	8	9	10	
Developed force N															
8	4	S	=	50,2	5	10	15	20	25	30	35	40	45	50	
		T	=	37,7	3	6	9	12	15	18	21	24	27	30	
10	4	S	=	78,5	7	14	21	28	35	42	49	56	63	70	
		T	=	66	6	12	18	24	30	36	42	48	54	60	
12	6	S	=	113	10	20	30	40	50	60	70	80	90	100	
		T	=	85	7,5	15	22	30	37	45	52	60	68	75	
16	6	S	=	200	18	36	54	72	90	108	126	144	162	180	
		T	=	173	16	32	48	64	80	96	112	128	144	160	
20	8	S	=	314	28	56	84	112	140	168	196	224	252	280	
		T	=	264	24	48	72	96	120	144	168	192	216	240	
25	10	S	=	490	44	88	132	176	220	264	308	352	396	440	
		T	=	412	36	72	108	144	180	216	252	288	324	360	

S Thrust; T Traction

S Thrust; T Traction

FORZE DELLA MOLLA														
Cylinder	Carico molla				Stroke									
Ø					mm									
					10	25	50	75	100	125	150	175	200	225
Developed force N														
8	R				4,1	3,5	2,6							
		C			4,5	4,5	4,5							
10	R				4,1	3,5	2,6							
		C			4,5	4,5	4,5							
12	R				5,5	4,8	3,5							
		C			6	6	6							
16	R				16,5	13,7	9							
		C			18,3	18,3	18,3							
20	R				19	15,5	9,5							
		C			21,5	21,5	21,5							
25	R				27	24	13,5							
		C			29	29	29							

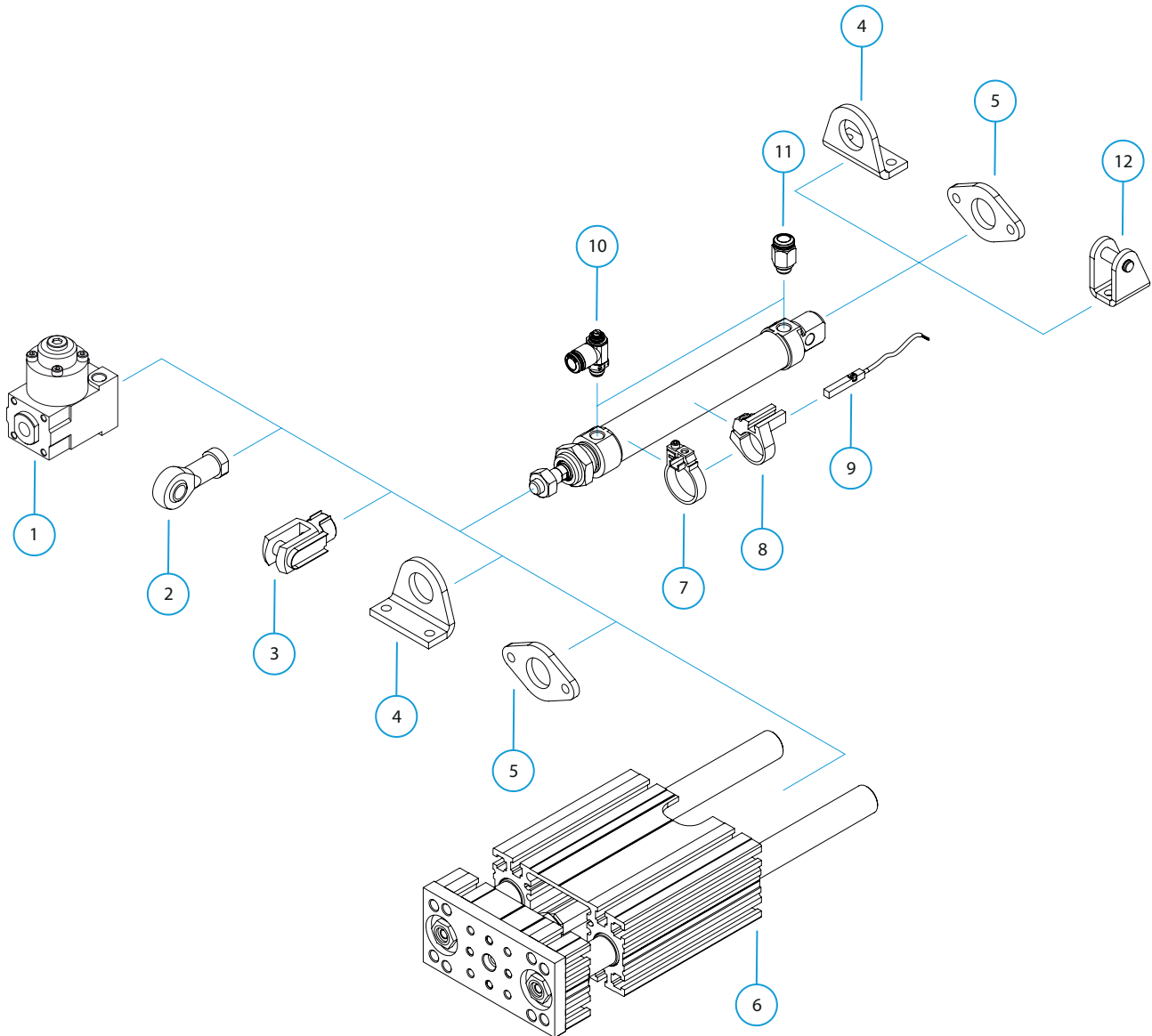
R Spring load at rest; C Compressed spring load

CONSUMI CILINDRO															
Cylinder	Rod	Effective area				Working pressure									
Ø	Ø	mm²				bar									
					1	2	3	4	5	6	7	8	9	10	
Air consumption per 10 mm of stroke N															
8	4	S	=	50,2	0,001	0,002	0,002	0,003	0,003	0,004	0,004	0,005	0,005	0,006	
		T	=	37,7	0,001	0,001	0,002	0,002	0,002	0,003	0,003	0,003	0,004	0,004	
10	4	S	=	78,5	0,002	0,002	0,003	0,004	0,005	0,005	0,006	0,007	0,008	0,009	
		T	=	66	0,001	0,002	0,003	0,003	0,004	0,005	0,005	0,006	0,007	0,007	
12	6	S	=	113	0,002	0,003	0,005	0,006	0,007	0,008	0,009	0,010	0,011	0,012	
		T	=	85	0,002	0,003	0,003	0,004	0,005	0,006	0,007	0,008	0,009	0,009	
16	6	S	=	200	0,004	0,006	0,008	0,010	0,012	0,014	0,016	0,018	0,020	0,022	
		T	=	173	0,003	0,005	0,007	0,009	0,010	0,012	0,014	0,016	0,017	0,019	
20	8	S	=	314	0,006	0,009	0,013	0,016	0,019	0,022	0,025	0,028	0,031	0,035	
		T	=	264	0,005	0,008	0,011	0,013	0,016	0,018	0,021	0,024	0,026	0,029	
25	10	S	=	490	0,010	0,015	0,020	0,025	0,029	0,034	0,039	0,044	0,049	0,054	
		T	=	412	0,008	0,012	0,016	0,021	0,025	0,029	0,033	0,037	0,041	0,045	

S Thrust; T Traction

S Thrust; T Traction

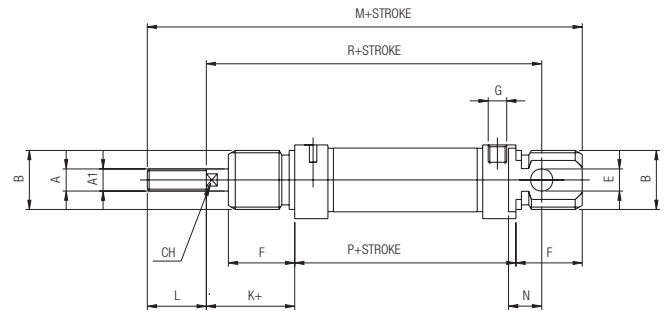
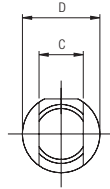
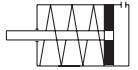
FIXING ELEMENTS AND ACCESSORIES - MINI CYLINDERS ISO 6432



1	LOCKING BLOCK - L1-N
2	FORK WITH ANGLED JOINT PIN - TF
3	FORK WITH IN-LINE JOINT PIN - FC
4	FOOT - MPD
5	FLANGE - MFL
6	GUIDE UNIT - J11
7	BRACKET MFX FOR SENSOR - DSL
8	DH BRACKET FOR DF SENSOR
9	SENSOR DF - DSL
10	FLOW REGULATOR
11	QUICK FITTING
12	HINGE - MCC

MB

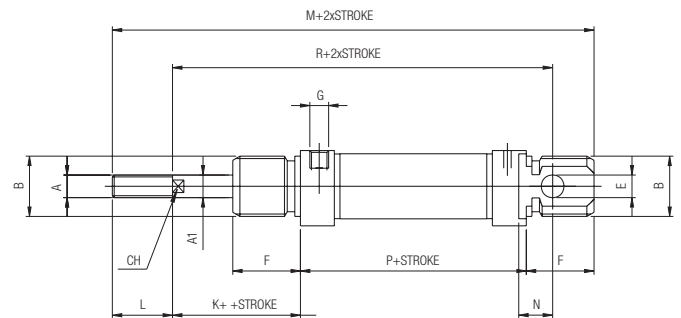
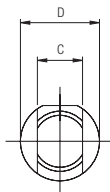
SINGLE-ACTING MAGNETIC



Ø	A	A ¹	B	C	D	E	F	G	K	L	M	N	P	R	CH
8	M4	4	M12x1.25	8	16	4	12	M5	16	12	86	6	46	64	-
10	M4	4	M12x1.25	8	16	4	12	M5	16	12	86	6	46	64	-
12	M6	6	M16x1.5	12	19	6	18	M5	22	16	104	9	48	75	5
16	M6	6	M16x1.5	12	19	6	18	M5	22	16	109	9	53	82	5
20	M8	8	M22x1.5	16	27	8	20	1/8G	24	20	131	12	67	95	7
25	M10x1.25	10	M22x1.5	16	30	8	22	1/8G	28	22	140	12	68	104	9

MD

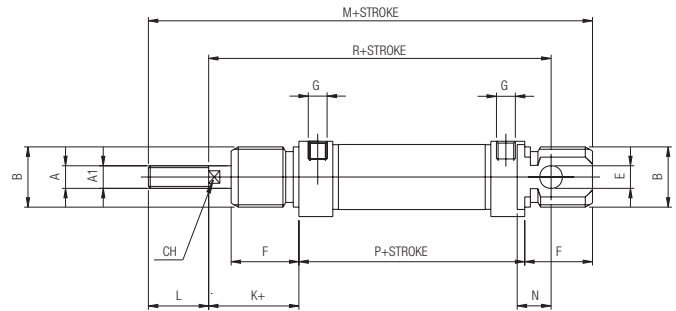
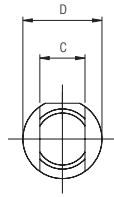
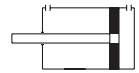
SINGLE-ACTING MAGNETIC - SPRING THRUST



Ø	A	A ¹	B	C	D	E	F	G	K	L	M	N	P	R	CH
16	M6	6	M16x1.5	12	19	6	18	M5	22	16	134,5	9	78,5	107,5	5
20	M8	8	M22x1.5	16	27	8	20	1/8G	24	20	154	12	90	118	7
25	M10x1.25	10	M22x1.5	16	30	8	22	1/8G	28	22	166	12	94	130	9

MF

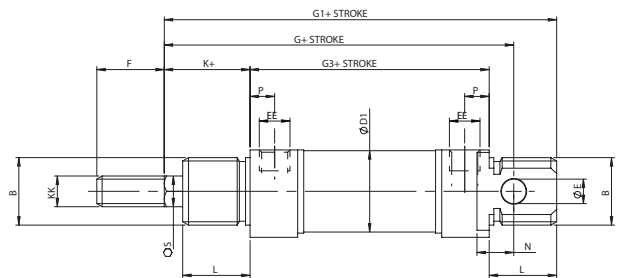
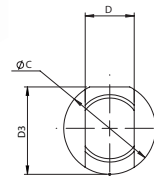
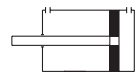
DOUBLE ACTING MAGNETIC



Ø	A	A1	B	C	D	E	F	G	K	L	M	N	P	R	CH
8	M4	4	M12x1.25	8	16	4	12	M5	16	12	86	6	46	64	-
10	M4	4	M12x1.25	8	16	4	12	M5	16	12	86	6	46	64	-
12	M6	6	M16x1.5	12	19	6	18	M5	22	16	104	9	48	75	5
16	M6	6	M16x1.5	12	19	6	18	M5	22	16	109	9	53	82	5
20	M8	8	M22x1.5	16	27	8	20	1/8G	24	20	131	12	67	95	7
25	M10x1.25	10	M22x1.5	16	30	8	22	1/8G	28	22	140	12	68	104	9

MFA

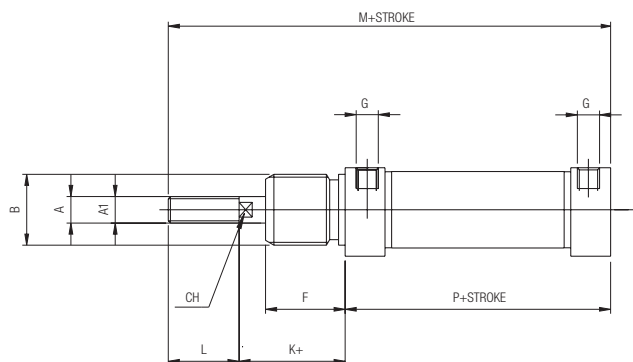
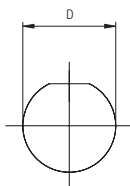
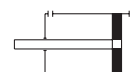
DOUBLE ACTING MAGNETIC WITH HEXAGONAL SHANK ANTI-ROTATION



Ø	B	ØS	ØC	D	ØD1	D3	ØE	EE	F	G	G1	G3	K	KK	L	N	P
16	M6x1.5	6	19	12	17.27	18	6	M5	16	82	93	53	22	M6x1	18	9	4.5
20	M22x1.5	8	27	16	21.27	25.5	8	1/8"G	20	95	111	67	24	M8x1.25	20	12	8
25	M22x1.5	10	30	16	26.5	28.5	8	1/8"G	22	104	118	68	28	M10x1.25	22	12	8

MFN

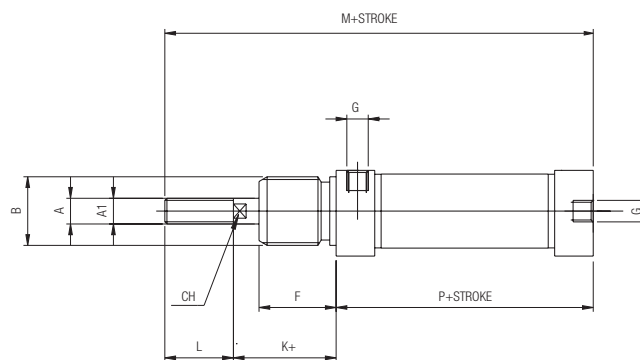
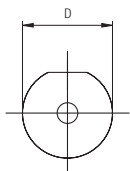
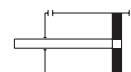
DOUBLE ACTING MAGNETIC HEAD CUT, FEED AT 90 °



Ø	A	A'	B	D	G	K	L	M	P	CH	F
16	M6	6	M16x1.5	21	M5	22	16	91.5	53	5	18
20	M8	8	M22x1.5	27	1/8G	24	20	111.5	67	7	2
25	M10x1.25	10	M22x1.5	30	1/8G	28	22	118.5	68	9	22

MFX

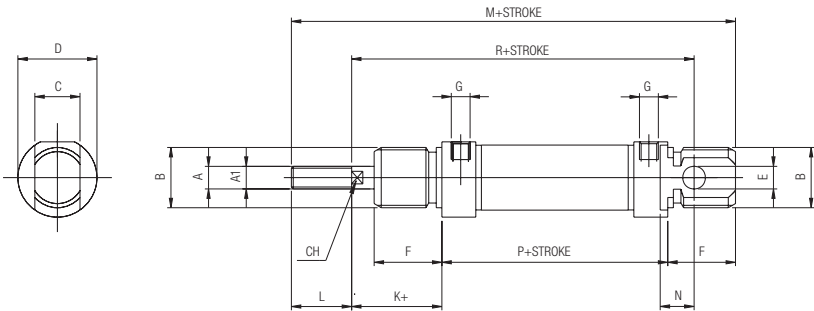
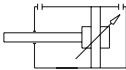
DOUBLE ACTING MAGNETIC HEAD CUT FEED ON AXIS



Ø	A	A'	B	D	G	K	L	M	P	CH	F
16	M6	6	M16x1.5	21	M5	22	16	91.5	53	5	18
20	M8	8	M22x1.5	27	1/8G	24	20	111.5	67	7	2
25	M10x1.25	10	M22x1.5	30	1/8G	28	22	118.5	68	9	22

MH

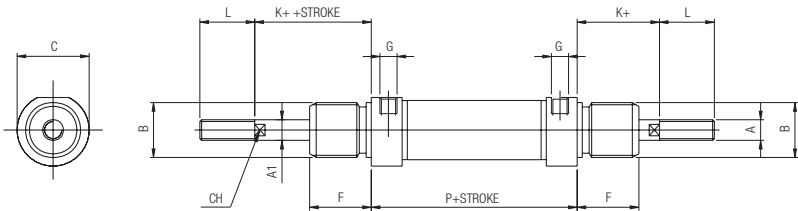
DOUBLE ACTING CUSHIONED MAGNETIC



Ø	A	A1	B	C	D	E	F	G	K	L	M	N	P	R	CH
16	M6	6	M16x1.5	12	21	6	18	M5	22	16	109	9	53	82	5
20	M8	8	M22x1.5	16	27	8	20	1/8G	24	20	131	12	67	95	7
25	M10x1.25	10	M22x1.5	16	30	8	22	1/8G	28	22	140	12	68	104	9

MJ

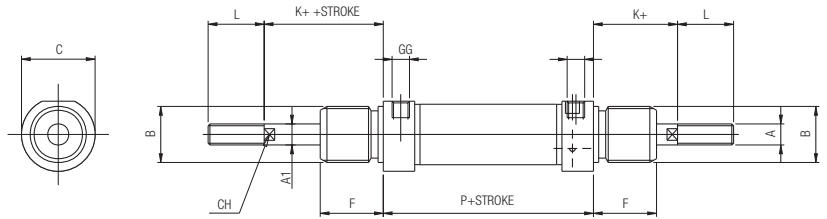
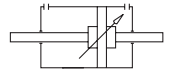
DOUBLE ACTING MAGNETIC WITH DOUBLE ROD END



Ø	A	A1	B	C	F	G	K	L	P	CH
16	M6	6	M16x1.5	19	18	M5	22	16	53	5
20	M8	8	M22x1.5	27	20	1/8G	24	20	67	7
25	M10x1.25	10	M22x1.5	30	22	1/8G	28	22	68	9

ML

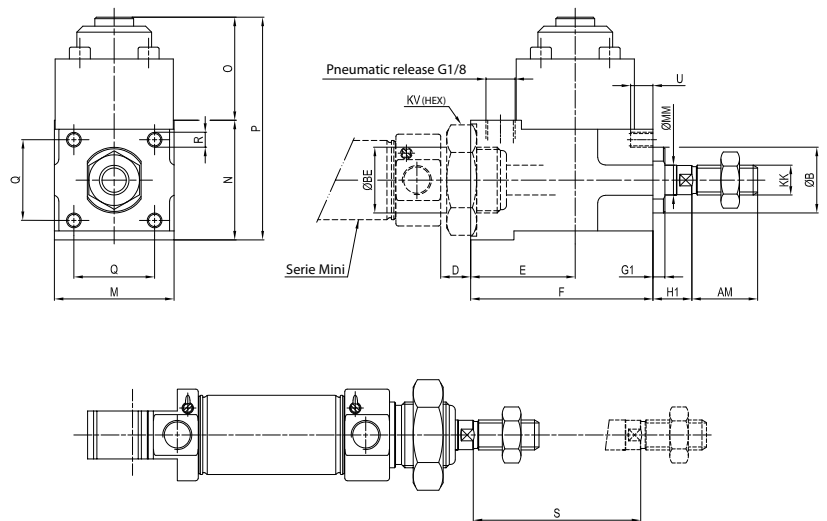
DOUBLE ACTING CUSHIONED MAGNETIC WITH DOUBLE ROD END



Ø	A	A ¹	B	C	F	G	K	L	P	CH
16	M6	6	M16x1.5	21	18	M5	22	16	53	5
20	M8	8	M22x1.5	27	20	1/8G	24	20	67	7
25	M10x1.25	10	M22x1.5	30	22	1/8G	28	22	68	9

MHL

DOUBLE-ACTING, MAGNETICALLY CUSHIONED, WITH ROD LOCK



Code	Ø	AM	B	BE	D	E	F	G1	H1	KK	KV	M	MM	N	O	P	Q	R	S	U
MHL 016 0000	16	16	16	M16x1.5	10	35	61	1.5	7	M6x1	24	40	6	40	34.5	74.5	27	M5	55	7.5
MHL 020 0000	20	20	22	M22x1.5	10	35	61	4	9	M8x1.25	32	40	8	40	34.5	74.5	27	M5	55	7.5
MHL 025 0000	25	22	22	M22x1.5	10	35	61	4	13	M10x1.25	32	40	10	40	34.5	74.5	27	M5	55	7.5

MINI CYLINDERS ISO 6432 FOR LOCKING UNIT L1-N

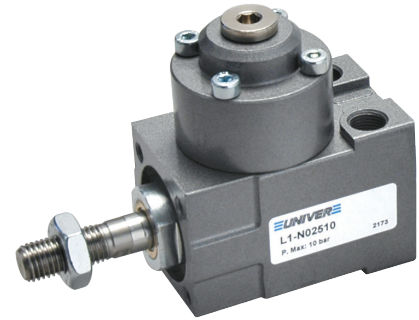


TECHNICAL CHARACTERISTICS

A product that combines the familiar and traditional appearance of the UNIVER locking unit to a new and revolutionary "elastic heart", which is able to improve

performance under all points of view:

- maximum clamping force
- excellent response time
- high dissipable kinetic energy
- extreme locking repeatability
- excellent resistance to shocks and vibrations
- static locking and dynamic braking in a single component



Reference Standard

II 2G Ex h IICT5 Gb



II 2D Ex h IICT100°C Db



Pressures

4 bar (0.4 MPa) ÷ 10 bar (1 MPa)



Temperature

-20 °C ÷ + 80 °C



Fluid

Filtered air, with or without lubrication



Functioning

For Mini series cylinders



Component Parts and Materials

- Body in die-cast aluminium
- Cover in die-cast aluminium
- Piston in aluminium
- Seals in NBR
- Special steel springs

Series	Cylinder bore (mm)	Piston rod bore (mm)	Option
L 1 N	0 1 6	0 6	☐
L1-N Blocco di stazionamento per cilindri e steli	016 = Ø016 020 = Ø020 025 = Ø025	→ Ø06 → Ø08 → Ø10	K Raschiatore metallico (a richiesta)

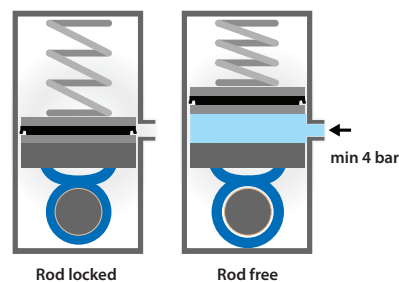
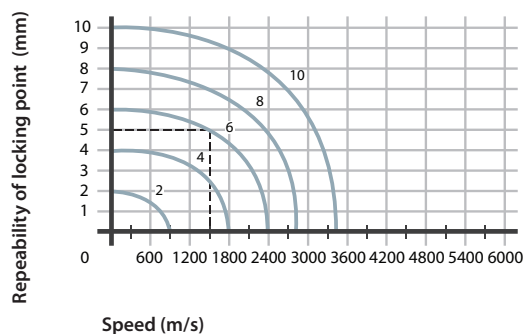
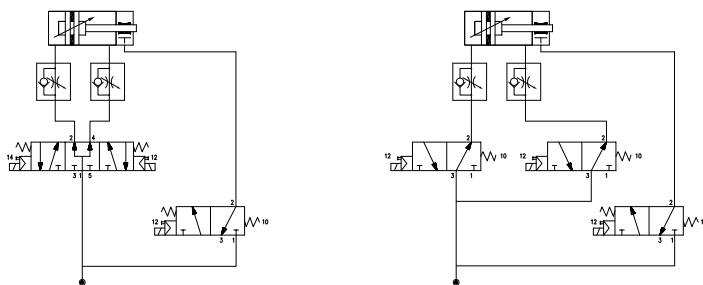


CHARACTERISTICS

- Suitable only for chromium-plated rods and guiding shafts
- The locking unit stands variation and sudden application of payloads.
- No slipping even in case of greasy or oily rods and guiding shafts.
- The air pressure can be used only to release the unit (4 bar)
- Locking takes place in static or dynamic braking conditions

Ø	Ø Rod (mm)	Static locking force N	Pressure on the equivalent cylinder bar	Dynamic braking force a 1m/s	Response time at 6 bar ms	Stopping point repeatability	Vibration resistance	Shock resistance J	Minimum release pressure* 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	2	4
20	8	314	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	3	4
25	10	490	10	40% of the static locking force	15	< 1 mm at 1 m/s	10 g (10-55 Hz) for 30 minutes on each axis	4	4

* = For release pressure values under 4 bar, the reaction of the locking unit cannot be foreseen

LOCKING UNIT WITH M8 INDUCTIVE POSITION SENSOR

STOP POINT

SCHEME OF WORKING PRINCIPLE

BREAKING DISTANCE

In some applications, it could be necessary to know the piston rod strokes between the receipt of an emergency signal and its stop. This value (S) depends on the following values:

V = speed at emergency signal in m/s

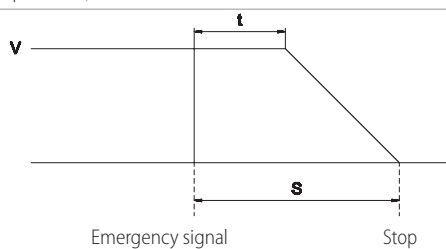
t = locking system response time in seconds

m = displacing mass (Kg)

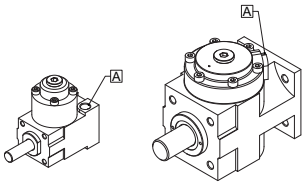
f = breaking force under dynamic conditions in N (see table performances and characteristics)

$$S = (V \cdot t) + \frac{m V^2}{2f} = (0,7 \cdot 0,02) + \frac{10 \cdot 0,7^2}{2 \cdot 756} = 0,017 \text{ m}$$

Example: locking unit size 40 with dynamic load 10 kg at a speed of 0,7 m/s

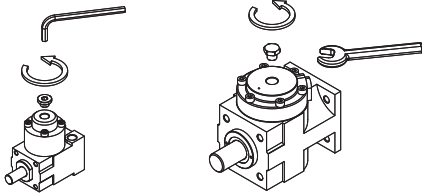

MASS

Code	Ø	g
L1-N01606	16	430
L1-N02008	20	430
L1-N02510	25	380

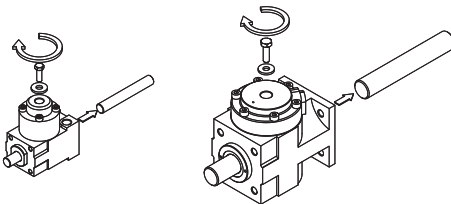
ASSEMBLY INSTRUCTION FOR RODS
PNEUMATIC RELEASE (MECHANIC)
1


With 6 bar compressed air prepare to feed safety the release port (e.g. check valve or reservoir)
Supply with pressurized air to clear the false rod off.
Ensure the safe and controlled removal of the false rod.

A Supply

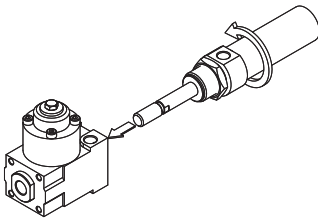
MANUAL RELEASE (MECHANIC)
1


Remove the protective cap from manual control, by using a hex key for $\varnothing 16 \div 25$

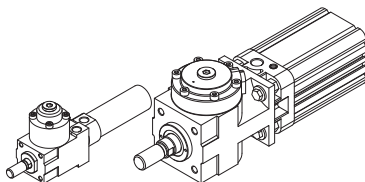
2


Tighten in the threaded screw M (see tables) until the jaws are released (at this point the block is deactivated) and extract the false rod.

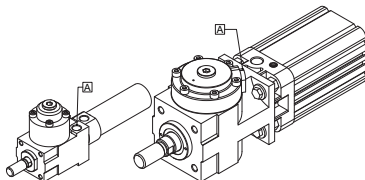
$\varnothing$	Screw	Washer UNI 6593
16		
20	M5x15	6,6x12,5
25		

ASSEMBLING INSTRUCTION FOR CYLINDERS
1


$\varnothing 16 \div 25$
Insert the cylinder rod into the locking unit and tighten it in, orienting it to the correct position.
Reset the locking functions (mechanical or pneumatic) and proceed by fully tightening the fixing nut.

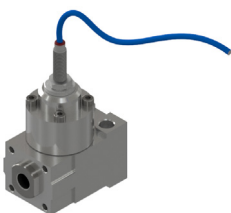
2


Remove the threaded screw used to release the jaws and reposition the protective cap (mechanical).

3


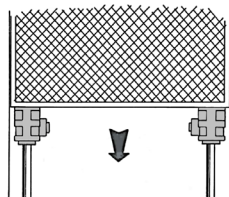
Ensure it is correctly working in both locking and release conditions by performing different actions.

A Supply

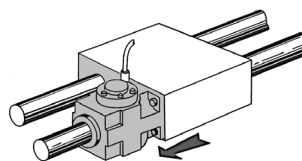
OTHER EXAMPLES OF LOCKING UNIT APPLICATIONS


L1-N _____ PRM08

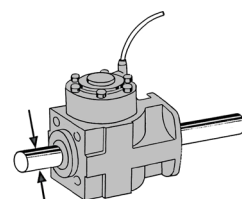
Locking unit with M8 inductive position sensor



For bulkheads



For carriages



F8

F8

$\varnothing 6 - 8 - 10 - 12 - 14 - 16$

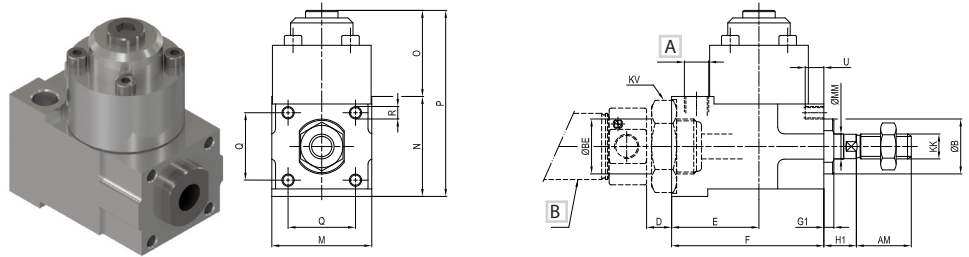
$\varnothing 20 - 25 - 32$

For chrome-plated rods
Shafts with F8-F7 tolerance are to be used

FIXING ELEMENTS AND ACCESSORIES

L1-N

ROD LOCK FOR
MINI CYLINDERS Ø 16 - 20 - 25 MM



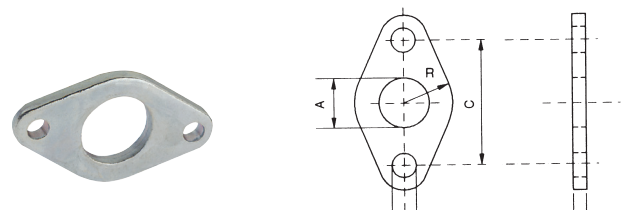
A G1/8 pneumatic release valve

B ISO mini-cylinder

Code	Ø	AM	B	BE	D	E	F	G1	H1	KK	KV	M	MM	N	O	P	Q	R	S	U
L1-N01606	16	16	16	M16 x 1,5	8	35	61	1,5	9	M6 x 1	24	40	6	40	34,5	74,5	27	M5	55	7,5
L1-N02008	20	20	22	M22 x 1,5	10	35	61	4	9	M8 x 1,25	32	40	8	40	34,5	74,5	27	M5	55	7,5
L1-N02510	25	22	22	M22 x 1,5	10	35	61	4	13	M10 x 1,25	32	40	10	40	34,5	74,5	27	M5	55	7,5

MFL

FLANGE

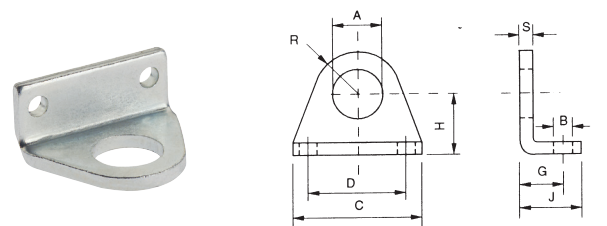


Aignep	Univer	Ø	A	B	C	R	S
MFL 008	MF-12008	8-10	12	3	30	9	4.5
MFL 012	MF-12012	12-16	16	4	40	13	5.5
MFL 020	MF-12020	20-25	22	5	50	19	6.6

Material: Steel

MPD

FOOT

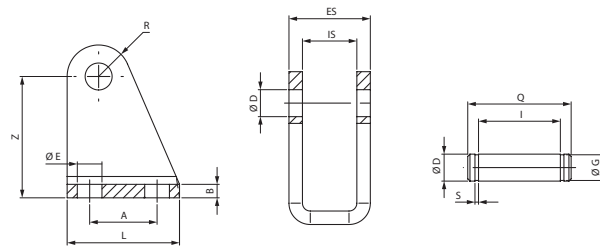


Aignep	Univer	Ø	A	B	C	D	G	H	J	R	S
MPD 008	MF-13008	8-10	12	4.5	35	25	11	16	16	10	3
MPD 012	MF-13012	12-16	16	5.5	42	32	14	20	20	13.5	4
MPD 020	MF-13020	20-25	22	6.6	54	40	17	25	25	18	5

Material: Steel

MCC

CLEVIS BRACKET

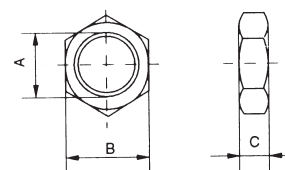


Aignep	Univer	Ø	A	B	R	L	Z	IS	ES	S	I	Q	ØE	ØD	ØG
MCC 008	MF-21008	8-10	12,5	2,5	5	22	24	8,1	13	0,8	14	18	4,5	4	2,3
MCC 012	MF-21012	12-16	15	3	7	25	27	12	18	0,8	19	24	5,5	6	4
MCC 020	MF-21020	20-25	20	4	10	32	30	16	24	0,9	25	30	6,5	8	7

Material: Steel

DA

NUT FOR COVERS

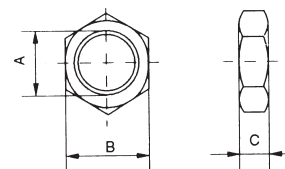


Aignep	Univer	A	B	C
ODA00 00 51 D5 ZI	MF-20008	M12x1.25	19	7
ODA00 00 51 E3 ZI	MF-20012	M16x1.5	22	6
ODA00 00 51 F6 ZI	MF-20020	M22x1.5	27	8

Material: Steel

DA

NUT FOR COVERS

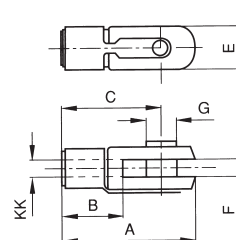


Aignep	KK	A	B
ODA00 00 51 B1 ZI	M4	7	3,2
ODA00 00 51 B8 ZI	M6	10	5
ODA00 00 51 C3 ZI	M8x1.25	13	6,5
ODA00 00 51 C9 ZI	M10x1.25	17	8

Material: Steel

FC

YOKE WITH LOCABLE PIN

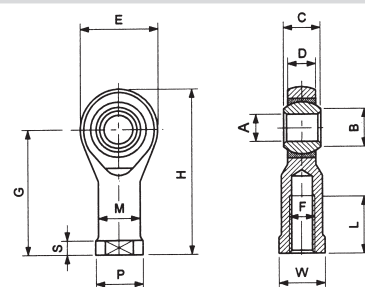


Aignep	Univer	KK	A	B	C	E	F	G
FC 008	MF-15008	M4	21	8	16	8	4	4
FC 012	MF-15012	M6	31	12	24	12	6	6
FC 020	MF-15020	M8	42	16	32	16	8	8
FC 025	KF-15032	M10x1.25	52	20	40	20	10	10

Material: Steel

TF

ROD ENDS SELF-LUBRICATING



Aignep	Aignep	Univer	F	A	B	C	Ø	D	E	G	H	L	M	P	S	W	Radial load	Weight	
•	■	•					Spher										D	S	
				H7	0	0 -0.13		±0.13	±0.5	±0.5		±0.7	±0.7	±0.5	+0.2 -0.7	±0.25	kg	kg	g
TF 008	TFI 008		M4x0,7	5	7,7	8	11,11	6	18	27	36	10	9	11	4	9	-	-	-
TF 012	TFI 012		M6x1	6	8,9	9	12,7	6,75	20	30	40	9	10	13	5	11	470	1.100	19
TF 020	TFI 020		M8x1.25	8	10,4	12	15,88	9	24	36	48	12	12,5	16	5	14	780	1.900	36
TF 025	TFI 025		M10x1.25	10	12,9	14	19,05	10,5	28	43	57	15	15	19	6,5	17	1.200	3.100	88

• Material: Steel

■ Material: Stainless steel

D : Dynamic

S : Static