

L1-N

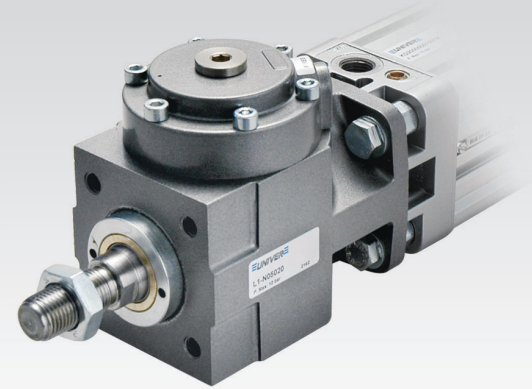
Locking unit for cylinders and rods

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

Available ATEX version upon request

CE Ex II 2Gc IIC T5 II 2Dc T100°C



TECHNICAL CHARACTERISTICS

Ambient temperature	-20 ÷ 80 °C
Fluid	filtered air, with or without lubrication
Working pressure	4 ÷ 10 bar
Cylinders bore	Ø 16 - 20 - 25 - 32 - 40 - 50 - 63 - 80 - 100 - 125 mm

CONSTRUCTIVE CHARACTERISTICS

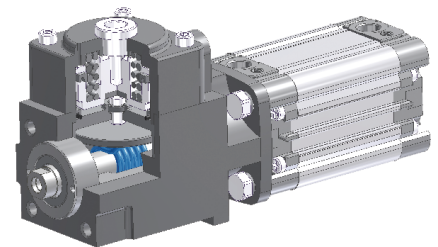
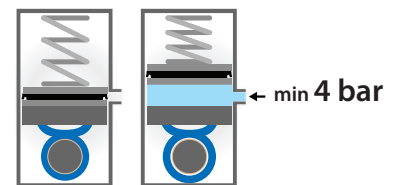
Body	die-cast aluminium
Cover	die-cast aluminium
Piston	aluminium
Seals	nitrile rubber (NBR)
Springs	special steel

CODIFICATION KEY

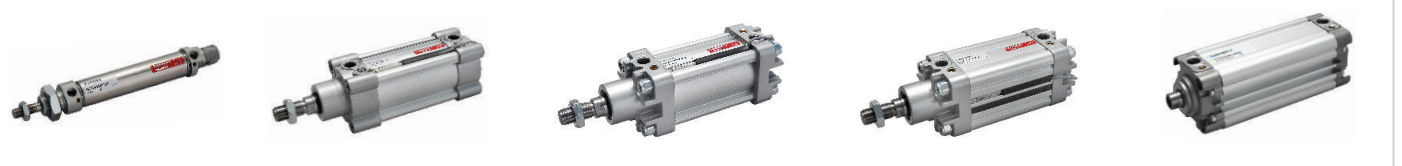
L	1	-	N	0	6	3	2	0		
	1			2		3		4	5	

1 Series	2 Cylinder bore (mm)	3 Piston rod bore (mm)	4 Option	5 ATEX option
L1-N = Locking unit for cylinders and rods	016 = Ø16 020 = Ø20 025 = Ø25 032 = Ø32 040 = Ø40	050 = Ø50 063 = Ø63 080 = Ø80 100 = Ø100 125 = Ø125	06 = Ø6 08 = Ø8 10 = Ø10 12 = Ø12 16 = Ø16 20 = Ø20 25 = Ø25 32 = Ø32	K = Metallic piston rod scraper (upon request) X = ATEX (upon request) See ATEX Catalogue for types and versions

Working principle



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



Main features:

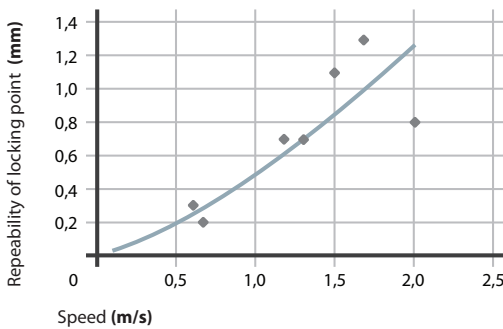
- Suitable only for chromium-plated rods and guiding shafts
- The locking unit stands variation and sudden application of payloads.
- No slipping even in case of greasy or oily rods and guiding shafts.
- The air pressure can be used only to release the unit (4 bar)
- Locking takes place in static or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

Main performances and characteristics

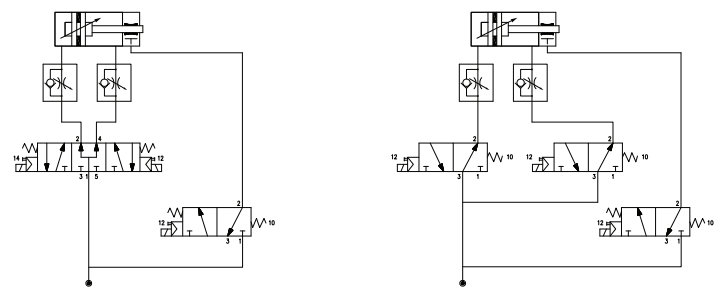
Ø	Ø Rod (mm)	Static locking force	Pressure on the equivalent cylinder	Dynamic braking force	Response time at 6 bar	Stopping point repeatability	Vibration resistance	Shock resistance	Minimum release pressure*
		N	bar	at 1m/s	ms			J	bar
16	6	200	10	40% of the static locking force	12	< 1 mm at 1 m/s (see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

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

Stop point



Scheme of working principle



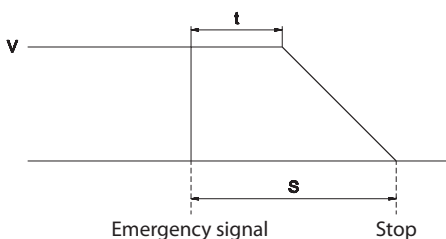
Breaking distance

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)

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

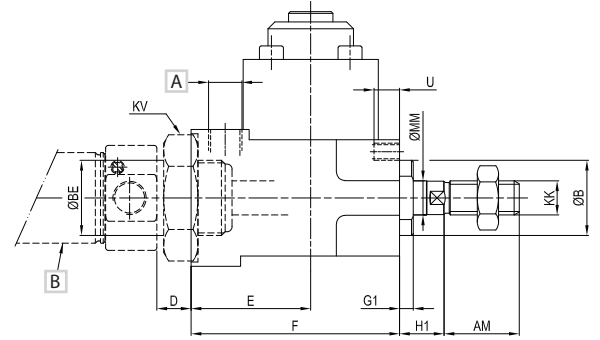
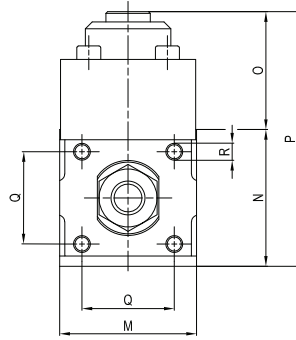
Example: locking unit size 40 with dynamic load 10 kg at a speed of 0,7 m/s



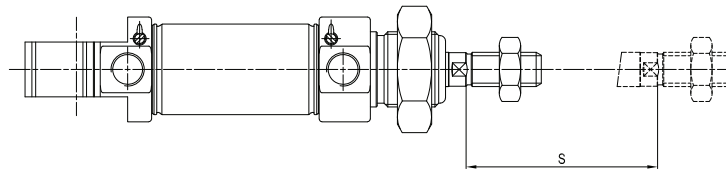
Mass

Ø	g
16	430
20	430
25	380
32	650
40	850
50	1350
63	2100
80	3800
100	6300
125	10000

Locking unit for microcylinders $\varnothing 16 \div 25$ mm



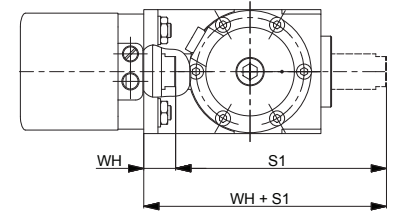
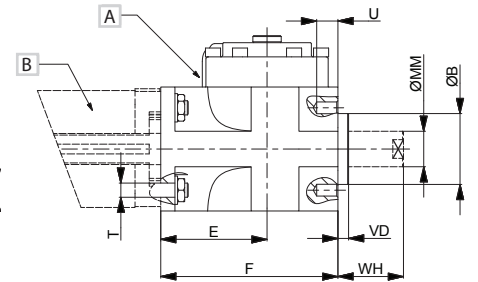
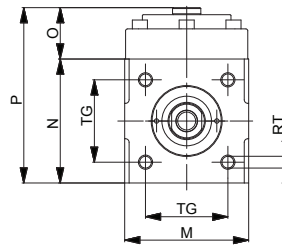
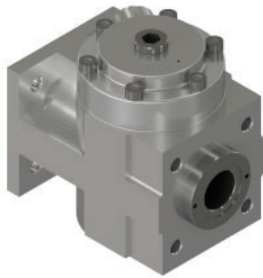
> Additional length to standard rod



A | G1/8 pneumatic release
B | ISO microcylinder

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

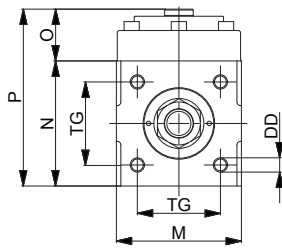
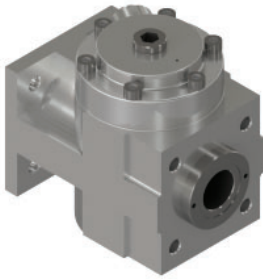
Locking unit for compact cylinders STRONG $\varnothing 32 \div 100$ mm



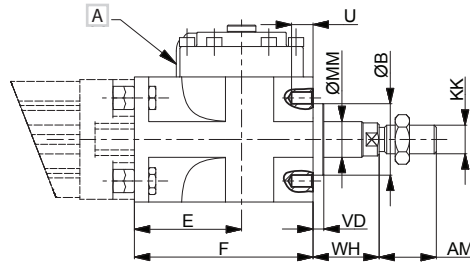
A | G1/8 pneumatic release
B | STRONG cylinder

Ø	B	RT	E	F	M	MM	N	O	P	TG	S1	U	T	VD	VH
32	30	M6	54,5	84	50	12	50	29,5	79,5	32,5	82	10	6,5	6	14
40	35	M6	58	90	58	16	58	29,5	87,5	38	90	9	6,5	6	14
50	40	M8	60	100	70	20	70	29	99	46,5	100	10	8,5	6	18
63	45	M8	65	110	85	20	85	37	122	56,5	110	13	8,5	6	18
80	45	M10	75	125	100	25	100	40,5	140,5	72	125	16	10,5	8	32
100	55	M10	90	152	116	25	116	59	179	89	152	18	10,5	8	32

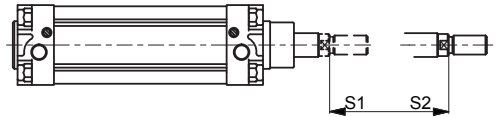
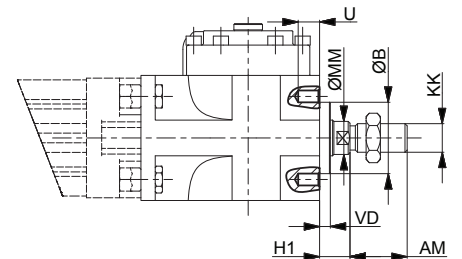
Locking units for ISO cylinders $\varnothing 32 \div 125$ mm



ISO protrusion



Reduced protrusion



Additional length to standard rod

S₁ for ISO protrusion

S₂ for reduced protrusion

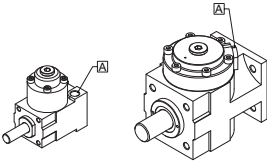
A G1/8 pneumatic release

Ø	AM	B	DD	E	F	H1	KK	M	MM	N	O	P	S1	S2	TG	U	VD	WH
32	22	30	M6	54,5	84	16	M10 x 1,25	50	12	50	29,5	79,5	85	75	32,5	10	6	26
40	24	35	M6	58	90	15	M12 x 1,25	58	16	58	29,5	87,5	90	75	38	9	6	30
50	32	40	M8	60	100	17	M16 x 1,5	70	20	70	29	99	100	80	46,5	10	6	37
63	32	45	M8	65	110	17	M16 x 1,5	85	20	85	37	122	110	90	56,5	13	6	37
80	40	45	M10	75	125	21	M20 x 1,5	100	25	100	40,5	140,5	125	100	72	16	8	46
100	40	55	M10	90	152	26	M20 x 1,5	116	25	116	59	179	150	125	89	18	8	51
125	54	60	M12	112,5	185	35	M27 x 2	145	32	145	62	207	185	155	110	22	9,5	65

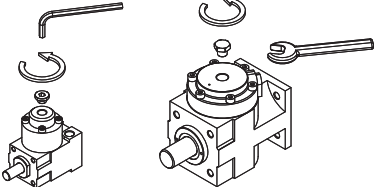
2

Assembly instruction for rods

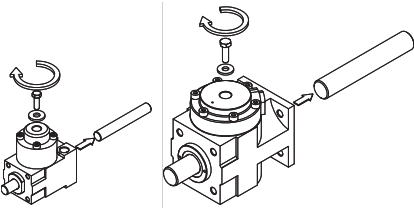
Pneumatic release (mechanic)

- 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)

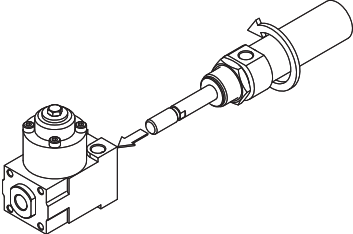
- 1**
- 
- Remove the protective cap from manual control, by using a hex key for $\varnothing 16 \div 25$ or a wrench for $\varnothing 32 \div 125$.

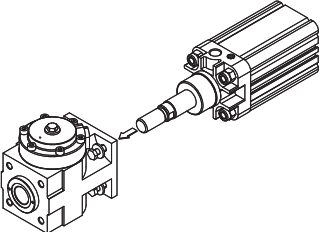
\varnothing	Screw	Washer UNI 6593
16		
20	M5x15	6,6x12,5
25		

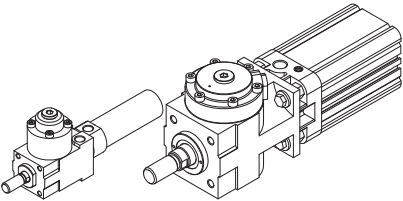
- 2**
- 
- Tighten in the threaded screw M (see tables) until the jaws are released (at this point the block is deactivated) and extract the false rod.

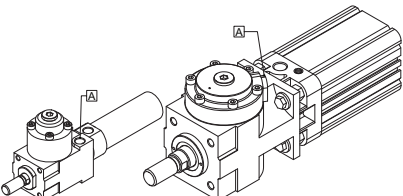
\varnothing	Screw	Washer UNI 6593
32	M5x15	6,6x12,5
40		
50	M6x15	9x17
63		
80	M8x20	
100		
125	M10x35	11x21

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.

- 1**
- 
- $\varnothing 32 \div 125$**
Insert the cylinder rod into the locking unit and pre-fix it onto the end cap by means of the appropriate screws supplied. Reset the locking functions (mechanical or pneumatic) and fully tighten the fixing screws.

- 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

Fixing screws $\varnothing 32 \div 63$ mm
for **STRONG Compact Cylinders**

Grain UNI 5923, washer and nut UNI 5589

\varnothing	Small parts	Q.ty	Dimensions	Part no. *
32	Grain	4	M6x30	AZ4-VS0630
	Washer	4	6,4x16	AZ4-SR06,41,6
	Nut	4	M6x1	AZ4-SO0064
40	Grain	4	M6x30	AZ4-VS0630
	Washer	4	6,4x16	AZ4-SR06,41,6
	Nut	4	M6x1	AZ4-SO0064
50	Grain	4	M8x40	AZ4-VS0840
	Washer	4	8,4x1,6	AZ4-SR841,6
	Nut	4	M8x1,25	AZ4-SH08125
63	Grain	4	M8x40	AZ4-VS0840
	Washer	4	8,4x1,6	AZ4-SR8,41,6
	Nut	4	M8x1,25	AZ4-SH08125
80	Grain	4	M10x45	AZ4-VS0010-45
	Washer	4	10x18	AZ4-SR10,018,2
	Nut	4	M10x1,5	AZ4-SN010A
100	Grain	4	M10x50	AZ4-VS0010-50
	Washer	4	10x18	AZ4-SR10,018,2
	Nut	4	M10x1,5	AZ4-SN010A

* = Package100 pz.

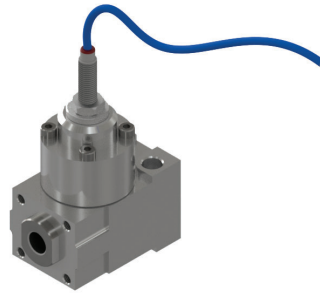
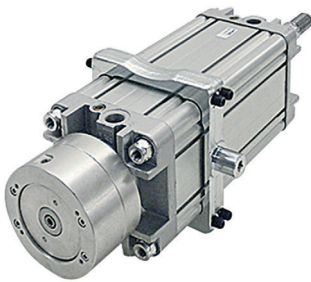
Fixing screws $\varnothing 32 \div 125$ mm
for **ISO Cylinders**

Screw with hexagonal head UNI 5739 and washer UNI 6592 for assembling locking unit to ISO cylinder

\varnothing	Small parts	Q.ty	Dimensions	Part no. *
32	Screws	4	M6x16	AZ4-VE0616
	Washer	4	6,4x1,6	AZ4-SR06,41,6
40	Screws	4	M6x20	AZ4-VE0620
	Washer	4	6,4x1,6	AZ4-SR06,41,6
50	Screws	4	M8x20	AZ4-VE0820
	Washer	4	8,4x1,6	AZ4-SR08,41,6
63	Screws	4	M8x25	AZ4-VE0825
	Washer	4	8,4x1,6	AZ4-SR08,41,6
80	Screws	4	M10x30	AZ4-VE1030
	Washer	4	10,5x2	AZ4-SR10,52,0
100	Screws	4	M10x30	AZ4-VE1030
	Washer	4	10,5x2	AZ4-SR10,52,0
125	Screws	4	M12x35	AZ4-VE1235
	Washer	4	13x2,5	AZ4-SR13,02,5

* = Package100 pz.

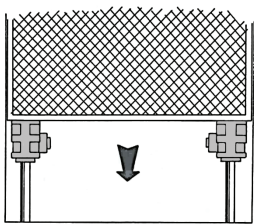
2



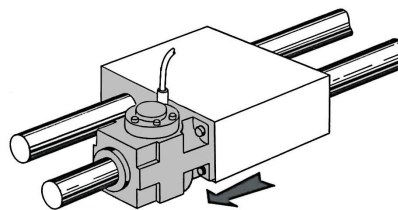
NFZ 160/200
ISO 15552 cylinders with
integrated locking unit

Locking unit with M8 inductive
position sensor

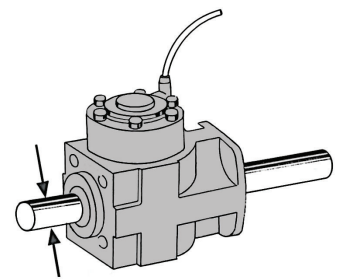
Other examples of locking unit applications



For bulkheads



For carriages



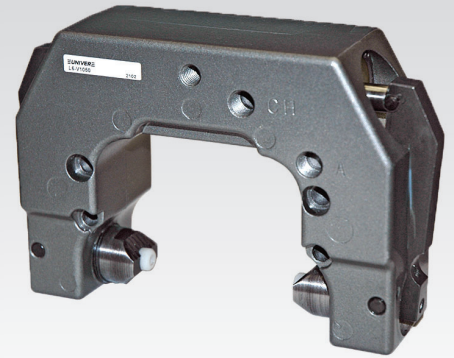
f8	f8
$\varnothing 6 - 8 - 10 - 12 - 14 - 16$	$\varnothing 20 - 25 - 32$

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

L6

Locking Units for rodless cylinders S5 - VL1

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.



TECHNICAL CHARACTERISTICS

Ambient temperature	-20 ÷ 80 °C
Fluid	filtered air, with or without lubrication
Working pressure	4,5 ÷ 10 bar
Cylinder bore	Ø 25- 32- 40 - 50 mm

CONSTRUCTIVE CHARACTERISTICS

Body	die-cast aluminium
Seals	nitrile rubber (NBR)
Internal parts	brass/aluminium

CODIFICATION KEY

L	6	-	S	5	0	3	2
1				2			

1 Series

L6-S5 = Locking Units for S5 series rodless cylinder
L1-V1 = Locking Units for VL1 series rodless cylinder

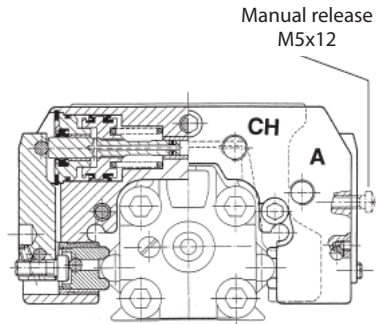
2 Cylinder bore (mm)

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

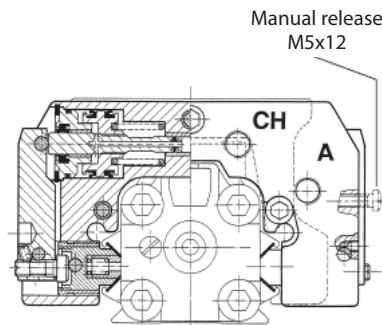
Main features:

- Min release pressure 4,5 bar
- Able to keep the carriage in position in both directions
- Easy installation, possible by both the carriage sides indifferently.
- Permanent manual release by tightening two M5 screws.
- Locking by means of mechanic springs acting over the carriage in event of lack of air pressure (A).
- To increase the locking force, this unit is ready for an additional pneumatic override (CH).

■ S5 series with L6 locking unit



■ VL1 series with L6 locking unit



2

Static locking force* (N)

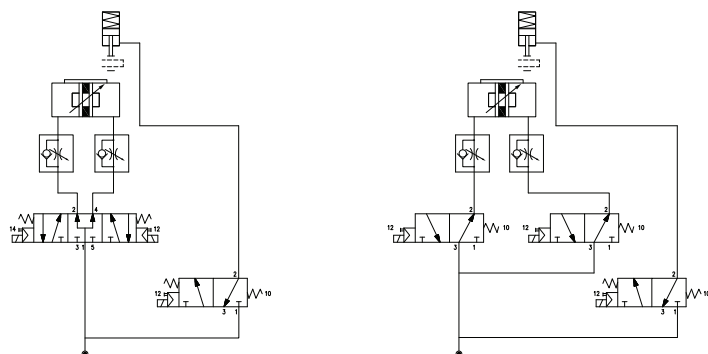
Ø	Force		A = CH
	Locking unit S5	Locking unit VL1	
25	810	520	M5
32	1185	745	G1/8
40	825	1465	G1/8
50	1235	2365	G1/8

* = Braking force is equivalent to 40% the static locking force
 A = Pneumatic release
 CH = Additional pneumatic override

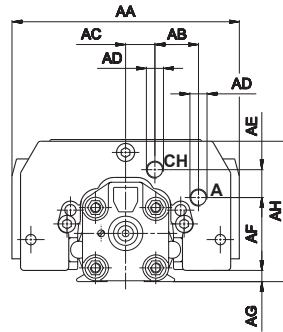
S5/VL1 mass

Ø	Locking unit S5		Locking unit VL1	
	g		g	
	Stroke 0	Part no.	Stroke 0	Part no.
25	350	L6-S5025	350	L6-V1025
32	460	L6-S5032	460	L6-V1032
40	820	L6-S5040	820	L6-V1040
50	1450	L6-S5050	1450	L6-V1050

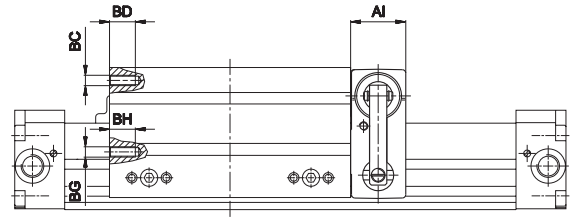
Scheme of working principle



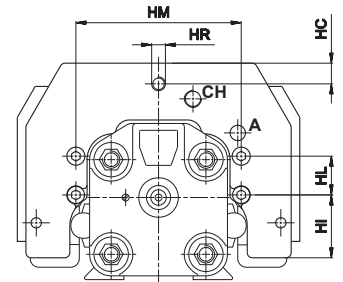
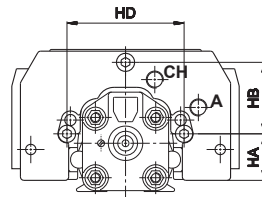
Locking unit for S5 series $\varnothing 25 \div 50$ mm



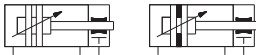
> Fixing $\varnothing 25 - 32 - 40$



> Fixing $\varnothing 50$

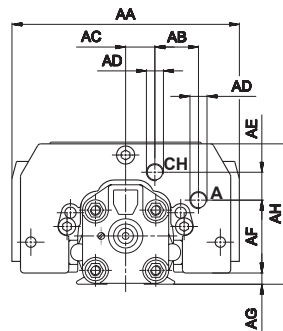
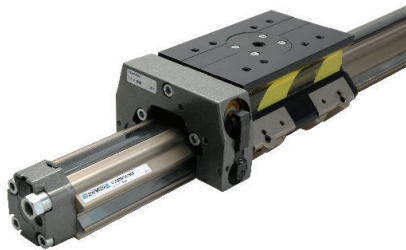


A = Pneumatic release
CH = Additional pneumatic override

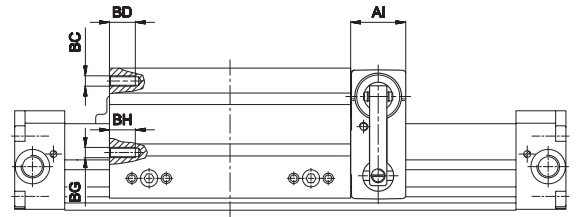


\varnothing	AA	AB	AC	AD	AE	AF	AG	AH	AI	BC	BD	BG	BH	HA	HB	HC	HD	HI	HL	HM	HR
32	120	24,5	12,5	M5	16,5	34,5	5	71,5	32	M6	15	M6	15	24,7	34,8	-	59,5	-	-	-	-
40	132	25,3	17	G1/8	16,2	42,3	6,5	81,5	32	M6	15	M6	15	27	41,5	-	68	-	-	-	-
50	150	26	17	G1/8	18,2	58,3	10	106	40	M6	15	M6	15	45,3	43,8	-	81,5	-	-	-	-
63	164	26	20	G1/8	19,8	72,5	12,7	125,7	51	M8	16	M6	15	-	-	12	-	36,5	22,5	96	M8x14

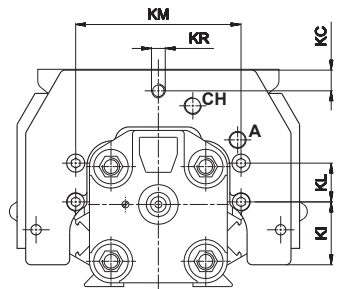
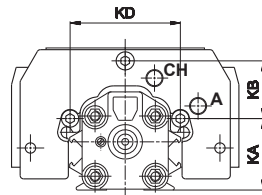
Locking unit for VL1 series $\varnothing 25 \div 50$ mm



> Fixing $\varnothing 25 - 32 - 40$



> Fixing $\varnothing 50$



A = Pneumatic release
CH = Additional pneumatic override

\varnothing	AA	AB	AC	AD	AE	AF	AG	AH	AI	BC	BD	BE	BF	KA	KB	KC	KD	KI	KL	KM	KR
32	120	24,5	12,5	M5	16,5	34,5	7,1	73,6	32	M6	10	M6	10	31,5	28	-	52	-	-	-	-
40	132	25,3	17	G1/8	16,2	42,3	6,5	81,5	32	M6	10	M6	10	35	33,5	-	64	-	-	-	-
50	150	26	17	G1/8	18,2	58,3	9	105	40	M6	15	M6	15	45,3	43,8	-	81,5	-	-	-	-
63	164	26	20	G1/8	19,8	72,5	12,7	125,7	51	-	-	M6	12	-	-	12	-	36,5	22,5	96	M8x14

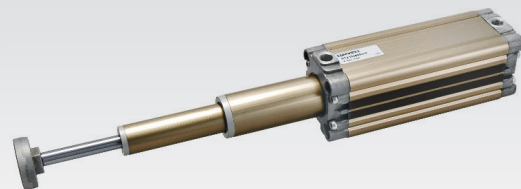
RT

Ø 25 ÷ 63 mm - 2/3 stage Telescopic Pneumatic Cylinders

UNIVER Original design and technology
 Industrialized components and advanced technology
 Reduced dimensions: 60% less than standard cylinders
 Non-rotating standard supplied
 Magnetic version on stage 1 standard supplied (on stage 2 and 3 upon request)
 Slide unit for two-stages version available (J64RT)

Available ATEX version upon request

CE Ex II 2Gc IIC T5 II 2Dc T100°C



TECHNICAL CHARACTERISTICS

Ambient temperature	-20 ÷ 80 °C
Fluid	filtered air, with or without lubrication
Working pressure	1,5 ÷ 10 bar
Bore	2 stages: Ø 25 - 32 - 40 - 50 - 63 3 stages: Ø 40 - 50 - 63

CONSTRUCTIVE CHARACTERISTICS

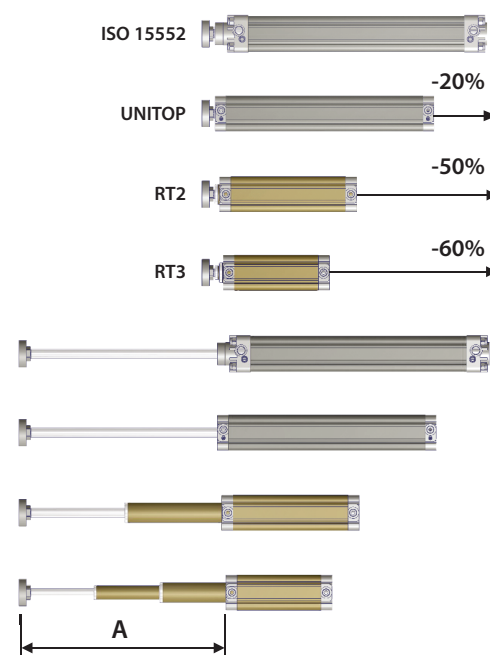
End-caps	die-cast aluminium
Barrel	anodized aluminium
Piston	aluminium
Guide slide	acetalic resin
Piston rod	non-rotating, chromium-plated steel, with flange (female piston rod) stainless steel upon request
Piston seal	nitrile rubber
Guide bush for piston rod	acetalic resin
Shock absorber seals	nitrile rubber
Magnet	standard supplied (stage 1)

CODIFICATION KEY

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

Comparison of overall dimensions

Stroke 300 mm (A)



2 HIGH-TECH

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 3 = D.A. Male piston rod D.A. = Double acting

5 Bore (mm)	6 Stroke (mm)	7 Option	8 Atex option
2 stages 025 = Ø25 032 = Ø32 040 = Ø40 050 = Ø50 063 = Ø63 3 stages 040 = Ø40 050 = Ø50 063 = Ø63	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 (without flange) M = With telescopic magnetic shaft (stage 2-3) except for Ø 25, only for female piston rod	X = Atex (upon request) For types and versions, see ATEX catalogue
	3 stages 0150 - 0180 - 0210 - 0240 - 0270 - 0300 - 0360 - 0450 0600 - 0750 - 900 - 1050 - 1200 - 1500 - 1800 Max stroke: 1200 (Ø40) 1500 (Ø50) 1800 (Ø63)		

Bore combinations

Ø	Ø		
	1 stage	2 stages	3 stages
25	25	16	-
32	32	20	-
40	40	25	16
50	50	32	20
63	63	40	25

Stroke tolerances Maximum torque (Nm)
for non-rotating rod

Ø	Tolerance		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

2-stage telescopic cylinders

Theoretical forces (N) at a certain working pressure (bar)

Ø	Surface area		Working pressure									
	mm ²		bar									
	Thrust	Traction	Thrust					Traction				
			2	4	6	8	10	2	4	6	8	10
25	201	111	41	82	123	164	205	22	43	65	87	108
32	314	201	64	128	192	256	320	41	82	123	164	205
40	490	377	100	200	300	400	500	77	154	231	308	384
50	804	603	164	328	492	656	820	123	246	369	492	615
63	1256	1055	256	512	769	1025	1281	215	430	649	861	1076

2

3-stage telescopic cylinders

Theoretical forces (N) at a certain working pressure (bar)

Ø	Surface area		Working pressure									
	mm ²		bar									
	Thrust	Traction	Thrust					Traction				
			2	4	6	8	10	2	4	6	8	10
40	201	111	41	82	123	164	205	22	43	65	87	108
50	314	201	64	128	192	256	320	41	82	123	164	205
63	490	377	100	200	300	400	500	77	154	231	308	384

Mass 2-stage cylinder RT220/RT220I/RT220M/RT223

Ø	Cylinder - stroke 0				Increase per mm stroke for 1/2 stroke				Moving element - stroke 0				Increase for mm stroke for 1/2 stroke			
	g				g				g				g			
	RT220	RT220I	RT220M	RT223	RT220	RT220I	RT220M	RT223	RT220	RT220I	RT220M	RT223	RT220	RT220I	RT220M	RT223
25	232	206	-	230	2,02	2,02	-	2,02	75	68	-	80	1,02	1,02	-	1,02
32	252	228	254	250	3,00	3,00	3,01	3,00	125	100	138	130	1,38	1,38	1,39	1,38
40	377	342	379	364	3,74	3,74	3,75	3,74	182	143	189	173	1,59	1,59	1,60	1,59
50	597	540	599	585	5,20	5,20	5,21	5,20	314	246	318	291	2,52	2,52	2,53	2,52
63	913	819	915	870	6,31	6,31	6,32	6,31	480	385	487	430	2,70	2,70	2,71	2,70

Mass 3-stage cylinder RT230/RT230I/RT230M/RT233

Ø	Cylinder - stroke 0				Increase per mm stroke for 1/3 stroke				Moving element - stroke 0				Increase for mm stroke for 1/3 stroke			
	g				g				g				g			
	RT230	RT230I	RT230M	RT233	RT230	RT230I	RT230M	RT233	RT230	RT230I	RT230M	RT233	RT230	RT230I	RT230M	RT233
40	367	337	369	362	3,88	3,88	3,90	3,88	162	137	191	168	1,73	1,73	1,75	1,73
50	510	486	512	511	5,00	5,00	5,02	5,00	265	226	307	257	2,32	2,32	2,34	2,32
63	810	775	812	810	6,32	6,32	6,34	6,32	417	349	459	380	2,71	2,71	2,73	2,71

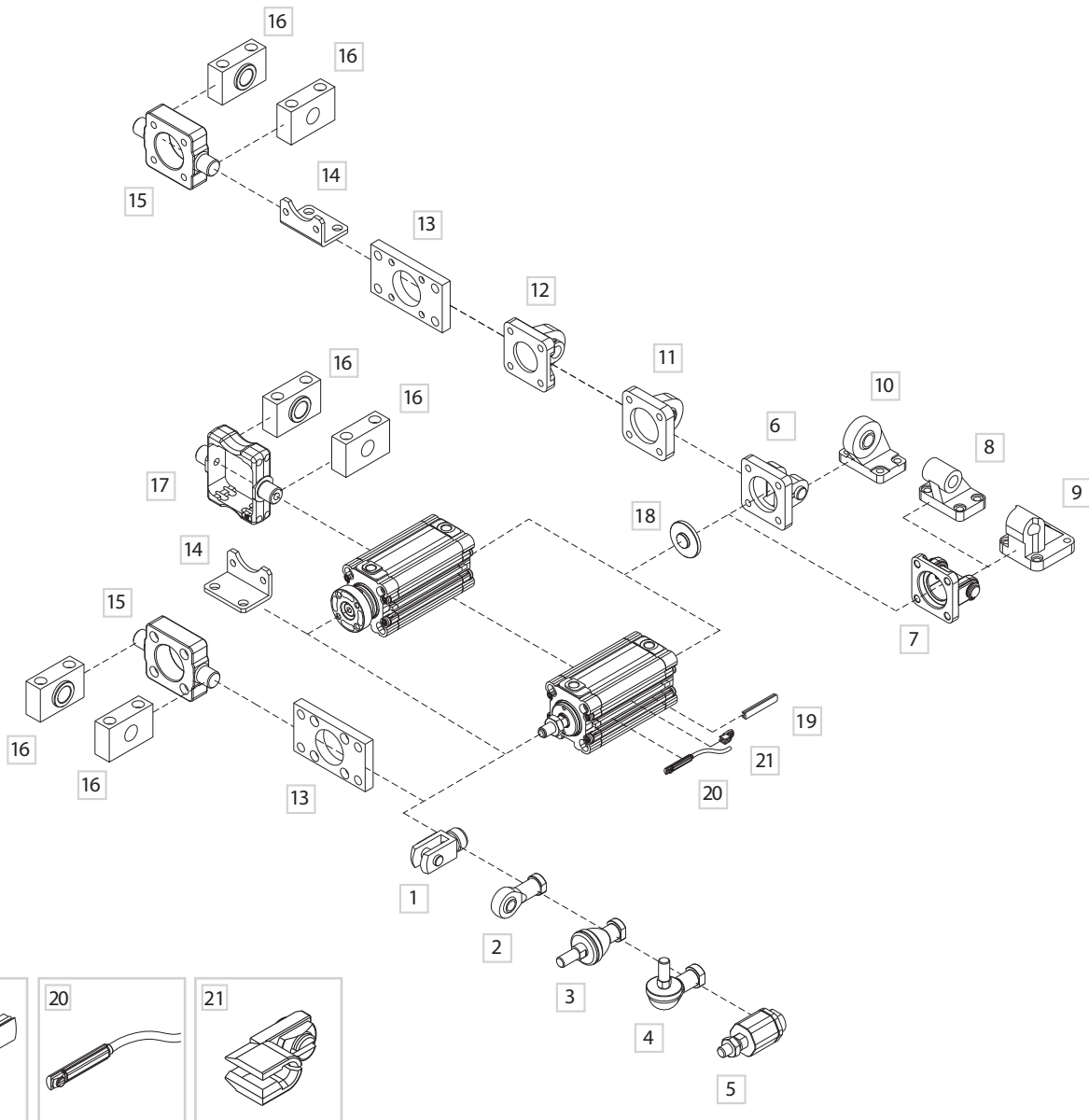
Precautions for use and assembly

The telescopic cylinder works in optimal conditions when the load is axial, i.e. with the cylinder placed vertically, upwards and downwards.

Naturally it can horizontally and cantilevered. However in this case:

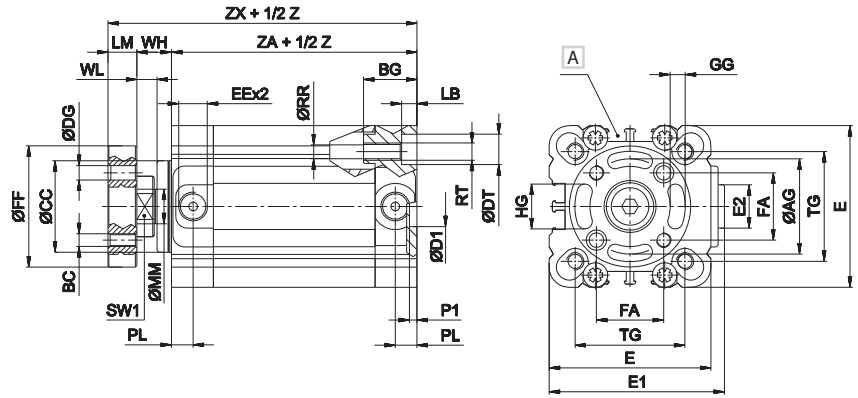
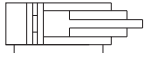
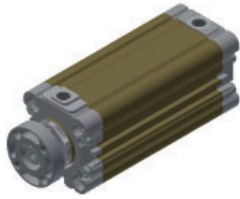
- the maximum strokes have to be reduced by 50% as compared to the maximum rated ones;
- request cylinders with slide units;
- the radial load has to be supported by other systems (carrage, slides, sliding guides);
- max. speed 0,5m/sec is recommended.

Fixing elements and accessories

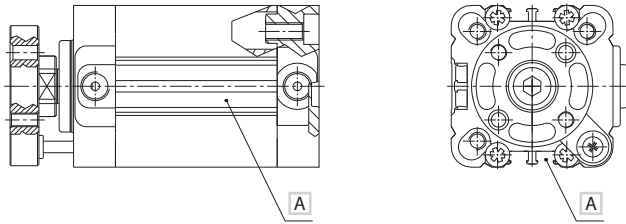
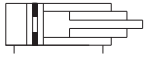
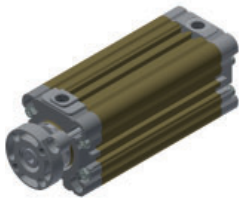


DESCRIPTION	PART NO.
1 Female fork with clips	KF-15_ _ _
2 Articulated self-lubricating fork	KF-17_ _ _
3 Fork with axially mounted articulated pin	KF-22_ _ _
4 Fork with angle-mounted articulated pin	KF-23_ _ _
5 Floating joint	KF-24_ _ _
6 Female hinge with pin	KF-10_ _ _ A
7 Narrow female hinge with pin	KF-10_ _ _ AS
8 Counter hinge 90° (AB7)	KF-19_ _ _ CTA
9 Counter hinge 90°	KF-19_ _ _
10 Articulated counter hinge	KF-19_ _ _ SC
11 Male hinge with articulated head	KF-11_ _ _ S
12 Rear male hinge	KF-11_ _ _
13 Front/rear flange	KF-12_ _ _
14 Angle bracket	KF-13_ _ _
15 Front/rear hinge with floating pin	KF-14_ _ _ AP
16 Hinge support	KF-41_ _ _
17 ISO intermediate hinge	KDF-14_ _ _ /RPF-14_ _ _
18 Centering adaptor ring	RSF-09_ _ _
19 DHF covering strip	DHF-0020100
20 DF sensor	DF- _ _ _
21 Cable clamping for DF sensor	DF-001

2 stages with flange RT220...

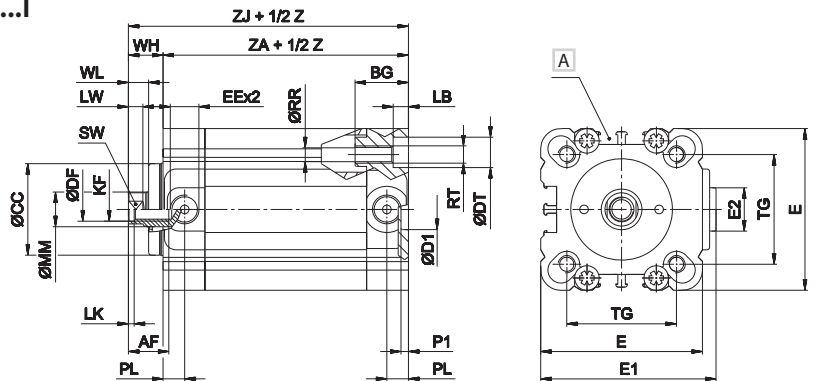
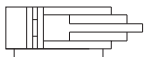
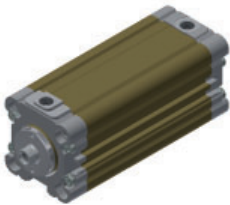


2 stages with flange, magnetic version RT220...M

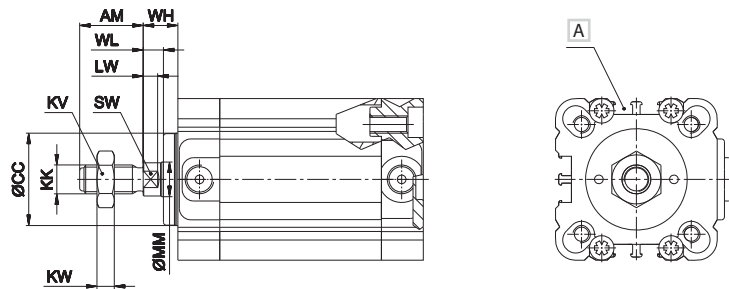
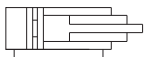
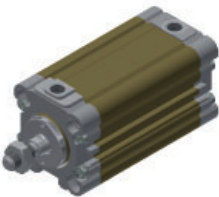


A = the magnetic sensor DF... may only be placed near the telescopic magnet holder stem (as shown in the drawing)

2 stages, female piston rod RT220...



2 stages, male piston rod RT223...



A Groove for sensor

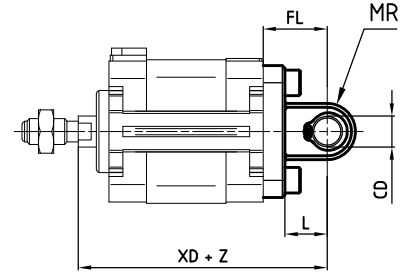
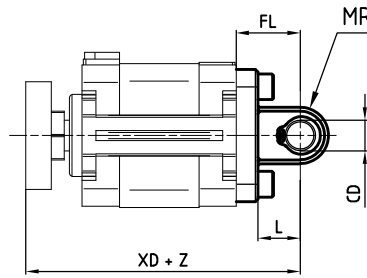
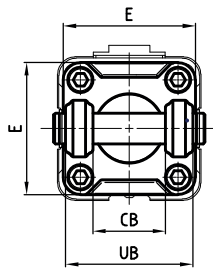
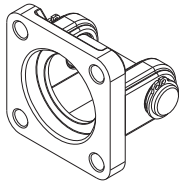
Z = Stroke

Ø	AF	AG	AM	BC	BG	CC	DF	DG	DT	D1	E	E1	E2	EE	FA	FF	GG	HG	KF	KK
25	10	22	22	M5	16	22	6,1	5	8	2	37	39	18	M5	15,6	30	5	9	M6	M10x1,25
32	12	28	22	M5	18	26	8,2	5	9	14	46	50,5	16	G1/8	19,8	37	5,2	11	M8	M10x1,25
40	12	33	22	M5	18	32	8,2	5	9	14	56	60,5	16	G1/8	23,3	42	5,2	15	M8	M10x1,25
50	16	42	24	M6	24	40	10,2	6	11	18	66	70,5	16	G1/8	29,7	52	6,2	19	M10	M12x1,25
63	16	50	24	M6	24	48	10,2	6	11	18	79	83,5	38	G1/8	35,4	64	6,2	25	M10	M12x1,25
Ø	KV	KW	LB	LK	LM	LW	MM	PL	P1	RR	RT	SW	SW1	TG	WH	WL	ZA	ZJ	ZX	
25	17	3	4,5	1	8	4,5	10	8	8	4,2	M5	8	-	26	17	7	48	65	73	
32	17	4	5,3	2	10	5	12	7,5	2,5	5,2	M6	10	17	32,5	13	7	58	71	81	
40	17	4	5,3	2	10	5	12	7,5	2,5	5,2	M6	10	19	38	12	7	60	72	82	
50	19	5	6,5	2	12	6	16	7,5	2,5	6,6	M8	13	24	46,5	15	8	61	76	88	
63	19	5	6,5	2	12	6	16	7,5	2,5	6,6	M8	13	24	56,5	15	8	65	80	92	

Female hinge with pin (ISO MP2)

> Standard version (with flange)

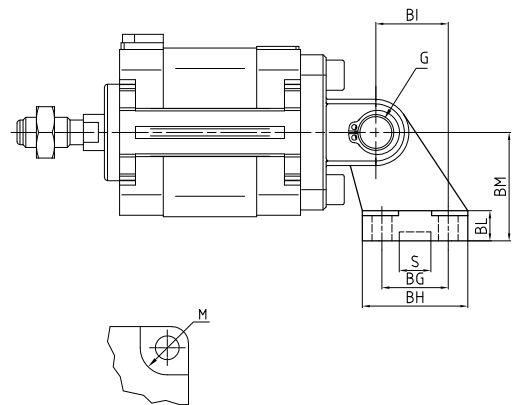
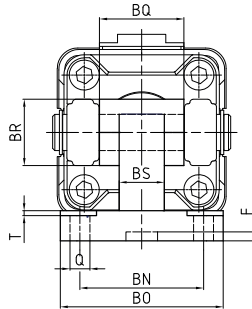
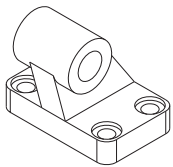
> Male piston rod version



Material: Aluminium Z = Stroke

Ø	CB	CD	E	FL	L	MR	UB	XD (standard version)		XD (male piston rod version)		Mass g	Part no.
	H14	H9		± 0,2	min	Max	H14						
25	-	-	-	-	-	-	-	-	-	-	-	-	-
32	26	10	48	22	12	11	45	103	±1,25	93	±1,25	75	KF-10032A
40	28	12	54	25	15	13	52	107	±1,25	97	±1,25	110	KF-10040A
50	32	12	65	27	15	13	60	115	±1,25	103	±1,25	150	KF-10050A
63	40	16	75	32	20	17	70	124	±1,6	112	±1,6	270	KF-10063A

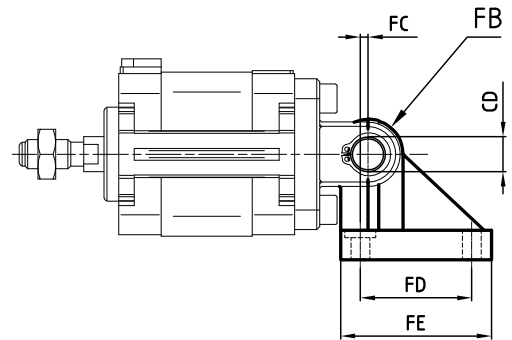
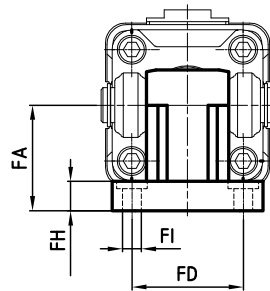
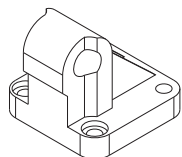
Counter hinge 90° (AB7)



Material: Aluminium

Ø	Q	M	BG	BH	BI	BL	BM	BN	BO	BS	BR	T	G	S	F	BQ	Mass g	Part no.
	H13	H13	JS 14	Max	JS 14	JS 15	JS 14	Max	Max	Max	Max	H9	+0,5 0	+0,5 0				
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	6,6	11	18	31	21	8	32	38	51	10	20	1,6	10	10,5	3	26	56	KF-19032CTA
40	6,6	11	22	35	24	10	36	41	54	15	22	1,6	12	10,5	3	28	139	KF-19040CTA
50	9	15	30	45	33	12	45	50	65	16	26	1,6	12	10,5	3	32	142	KF-19050CTA
63	9	15	35	50	37	14	50	52	67	16	30	1,6	16	10,5	3	40	200	KF-19063CTA

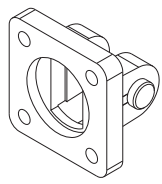
Counter hinge 90°



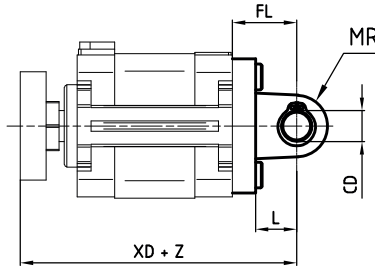
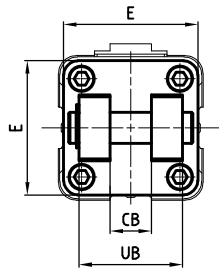
Material: Aluminium

Ø	CD	FA	FB	FC	FD	FE	FH	FI	Mass g	Part no.
	H9									
25	-	-	-	-	-	-	-	-	-	-
32	10	32	10	1,2	32,5	46,5	9	6,5	90	KF-19032
40	12	36	12	2,6	38	51,5	9	6,5	120	KF-19040
50	12	45	12	0,3	46,5	63,5	9	8,5	200	KF-19050
63	16	50	16	3,3	56,5	73	10,5	8,5	320	KF-19063

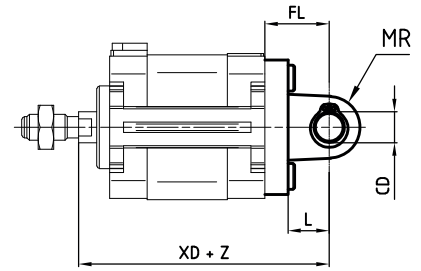
Narrow female hinge with pin (DIN 648K)



> Standard version (with flange)



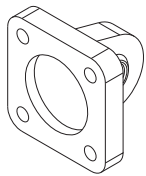
> Male piston rod version



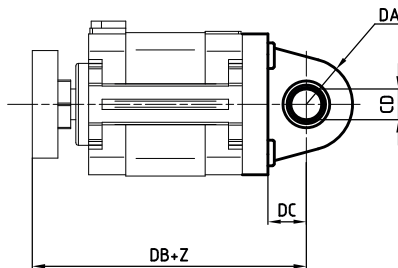
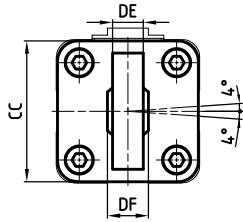
Material: Aluminium Z = Stroke

Ø	CB H14	CD H9	E	FL ± 0,2	L min	MR Max	UB H14	XD (standard version)	XD (male piston rod version)	Mass g	Part no.		
25	-	-	-	-	-	-	-	-	-	-	-		
32	14	10	45	22	13	10	34	103	±1,25	93	±1,25	68	KF-10032AS
40	16	12	52	25	16	12	40	107	±1,25	97	±1,25	112	KF-10040AS
50	21	16	65	27	16	14	45	115	±1,25	113	±1,25	196	KF-10050AS
63	21	16	75	32	21	18	51	124	±1,6	112	±1,6	288	KF-10063AS

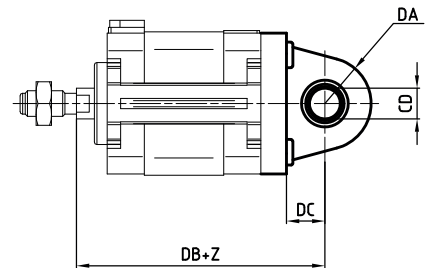
Articulated male rear hinge (ISO MP6)



> Standard version (with flange)



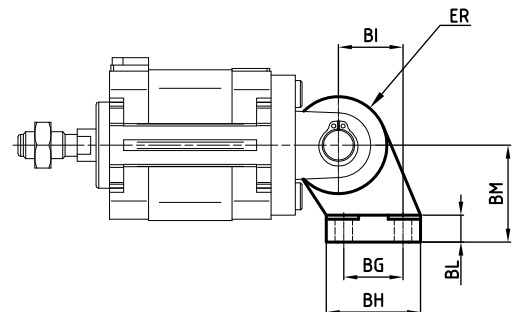
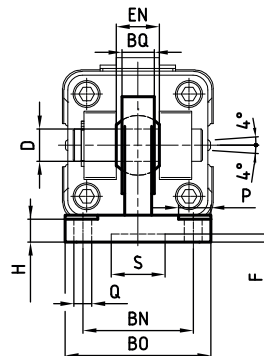
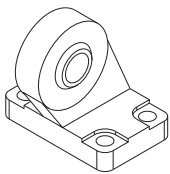
> Male piston rod version



Material: Aluminium Z = Stroke

Ø	CC	CD H9	DA	DB (standard version)	DB (male piston rod version)	DC	DE	DF	Mass g	Part no.
25	-	-	-	-	-	-	-	-	-	-
32	48	10	15	115	95	14	10,5	14	100	KF-11032S
40	54	12	18	118,5	98,5	16,5	12	16	200	KF-11040S
50	65	12	20	129	105,5	17,5	12	16	300	KF-11050S
63	75	16	21	137,5	113,5	21,5	15	21	350	KF-11063S

Articulated counter hinge (DIN 648K)



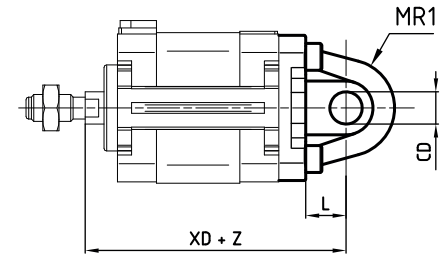
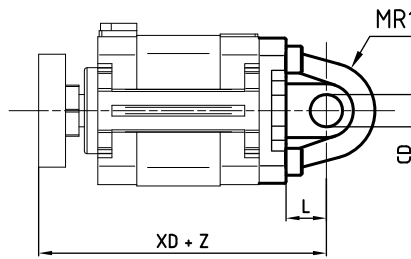
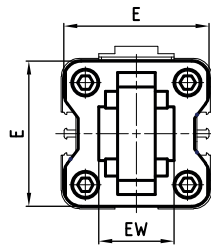
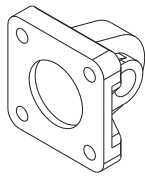
Material: Zinc-plated steel

Ø	Q H13	P H13	BG JS14	BH Max	BI JS15	BL	BM JS15	BN JS14	BO Max	EN -0,1	ER Max	BQ Max	D H7	H +0,5	S H13	F	Mass g	Part no.
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	6,6	11	18	31	21	10	32	38	51	14	15	10,5	10	8,5	20	3	178	KF-19032SC
40	6,6	11	22	35	24	10	36	41	54	16	18	12	12	8,5	20	3	268	KF-19040SC
50	9	15	30	45	33	12	45	50	65	21	20	15	16	10,5	20	3	458	KF-19050SC
63	9	15	35	50	37	12	50	52	67	21	23	15	16	10,5	20	3	550	KF-19063SC

Rear male hinge (ISO MP4)

> Standard version (with flange)

> Male piston rod version

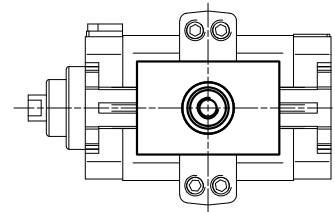
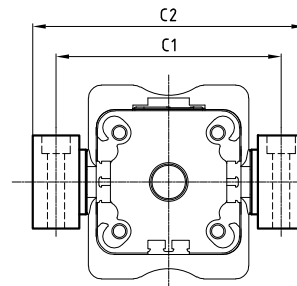
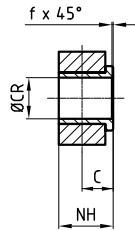
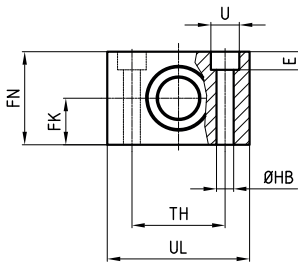
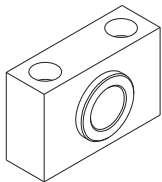


Material: Aluminium

Z = Stroke

Ø	CD H9	E	EW	L min	MR1 Max	XD (standard version)	XD (male piston rod version)	Mass g	Part no.
25	8	38	16 -0,2/-0,6	14	8	85 ±1,25	75 ±1,25	43	RPF-11025
32	10	48	26 -0,2/-0,6	12	15	113 ±1,25	103 ±1,25	80	KF-11032
40	12	54	28 -0,2/-0,6	15	18	117 ±1,25	107 ±1,25	100	KF-11040
50	12	65	32 -0,2/-0,6	15	20	127 ±1,25	125 ±1,25	170	KF-11050
63	16	75	40 -0,2/-0,6	20	23	136 ±1,6	124 ±1,6	250	KF-11063

Hinge support



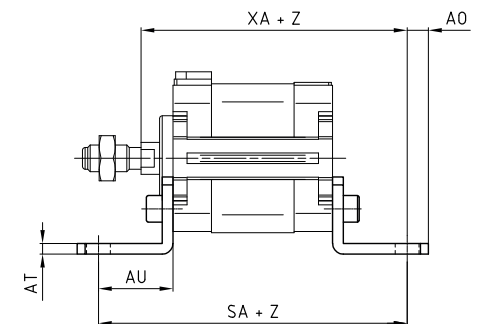
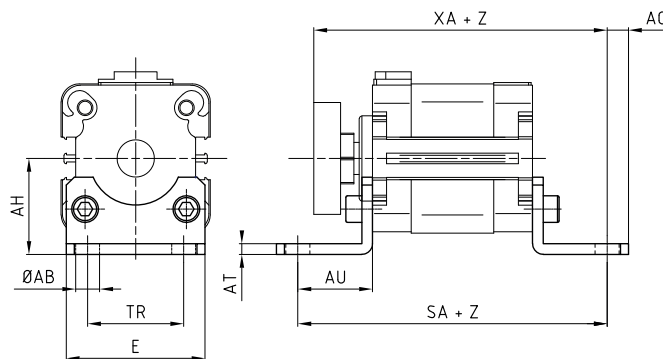
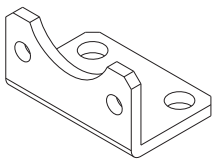
Material: Anodized aluminium and brass bushing

Ø	C	CR F7	FK ±0,1	FN	HB	NH	TH ±0,1	UL	U	E ±0,5	f	C1	C2	Mass g	Part no.
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	10,2	12	15	30	6,6	18	32	46	11	7	1	71	86	110	KF-41032
40	12	16	18	36	9	21	36	55	15	9	1,6	87	105	200	KF-41040050
50	12	16	18	36	9	21	36	55	15	9	1,6	99	117	200	KF-41040050
63	13	20	20	40	11	23	42	65	18	11	1,6	116	136	267	KF-41063080

Angle bracket

> Standard version (with flange)

> Male piston rod version

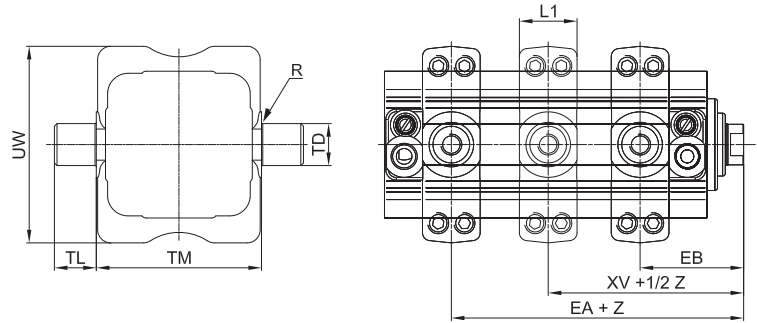
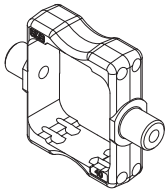


Material: Zinc-plated steel

Z = Stroke

Ø	Ø AB Ø h13	AH Js15	AO	AT	AU ±0,2	E Max	SA	TR	XA	Mass g	Part no.
25	6,6	30	6	4	16	40	80	26	89	40	RTF-13025
32	7	32	11	4	24	50	106	32	105	70	KF-13032
40	9	36	15	4	28	58	116	36	110	100	KF-13040
50	9	45	15	5	32	70	125	45	120	150	KF-13050
63	9	50	15	5	32	85	129	50	124	250	KF-13063

ISO intermediate hinge



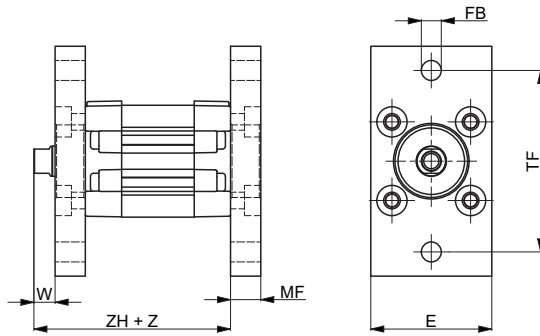
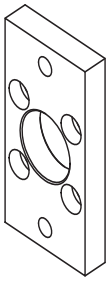
Material: Zinc-plated steel

Z = Stroke

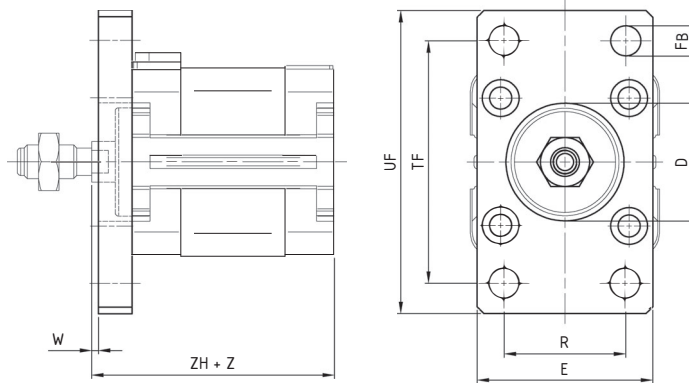
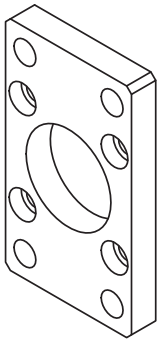
Ø	EA	EB	L1	R	TD	TL	TM	UW	XV	Mass	Part No.
	Max	min	Max	Max	e9	h14	h14	Max		g	
25	-	-	-	-	-	-	-	-	-	-	-
32	24	34	22	0,5	12	12	50	65	29	130	KDF-14032
40	25	34	22	0,5	16	16	63	75	29,5	240	RPF-14040
50	26	35	22	1	16	16	75	95	30,5	320	RPF-14050
63	27	38	28	1	20	20	90	105	32,5	470	RPF-14063

Front/rear flange

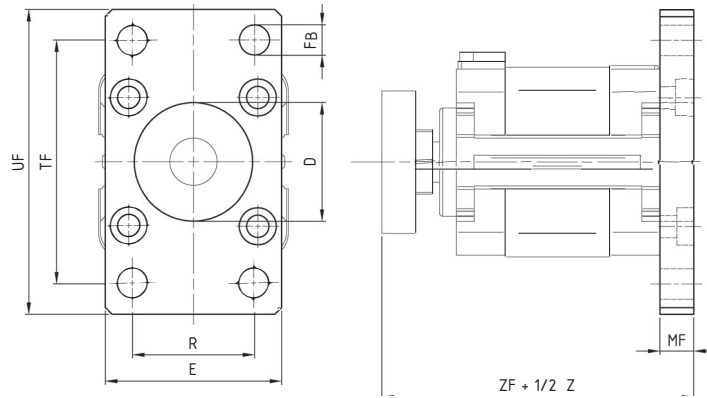
> Front/rear assembly Ø25 mm



> Front assembly Ø32 ÷ 63 mm



> Rear assembly Ø32 ÷ 63 mm

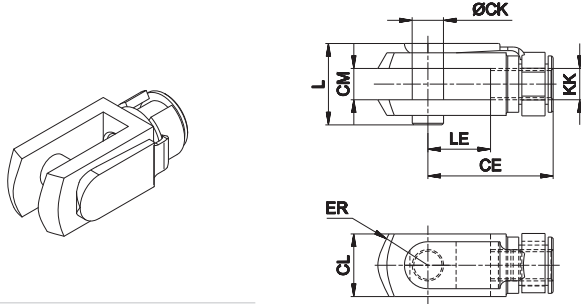


Material: Zinc-plated steel

Z = Stroke

Ø	ØD h11	E	ØFB h13	MF	R Js14	TF Js14	UF	W	ZF	ZH	Mass g	Part No.
25	24	40	6,6	10	-	60	76	7	83	58	180	RTF-12025
32	30	45	7	10	32	64	80	3	91	68	200	KF-12032
40	35	52	9	10	36	72	90	2	92	70	250	KF-12040
50	44	65	9	12	45	90	110	3	100	73	500	KF-12050
63	52	75	9	12	50	100	120	3	104	77	650	KF-12063

Female fork with clips

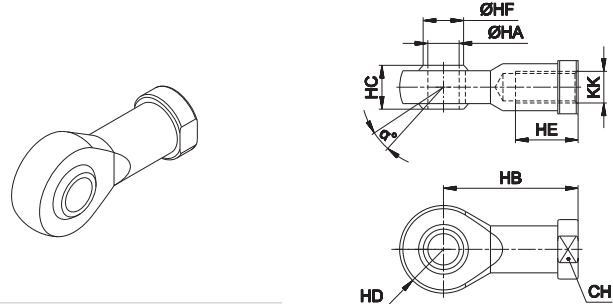


Material: Zinc-plated steel

Cylinder Ø	CE	CK	CL	CM	ER	KK	L	LE	Mass g	Part no.
25-32-40	40	10	20	10	16	M10x1,25	26	20	90	KF-15032
50-63	48	12	24	12	19	M12x1,25	32	24	150	KF-15040

Fork with pin suitable for piston rod according to ISO 8140 standard

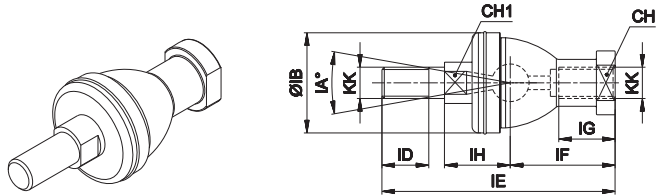
Articulated self-lubricating fork



Material: Zinc-plated steel

Cylinder Ø	α°	CH	KK	HA	HB	HC	HD	HE	HF	Mass g	Part no.
25-32-40	13	17	M10x1,25	10	43	14	14 ^{0-0,12}	20	12,9	76	KF-17032
50-63	13	19	M12x1,25	12	50	16	16	22	15,4	110	KF-17040

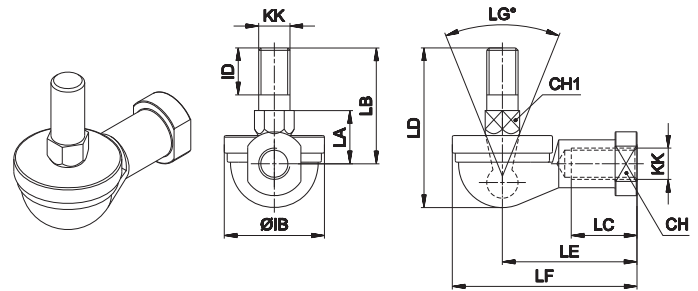
Fork with axially mounted articulated pin



Material: Zinc-plated steel

Cylinder Ø	CH	CH1	IA°	KK	IH	IB	ID	IE	IF	IG	Mass g	Part no.
25-32-40	17	11	30	M10x1,25	19,5 ^{±0,3}	32	15	74,5	35	18	120	KF-22025
50-63	19	17	30	M12x1,25	22	36	17	84	40	20	185	KF-22040

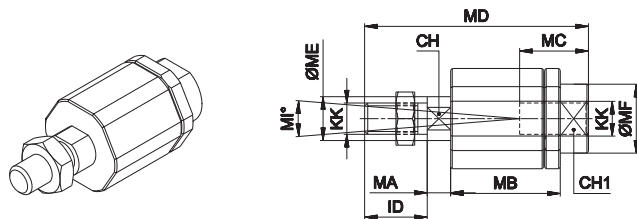
Fork with angle mounted articulated pin



Material: Zinc-plated steel

Cylinder Ø	CH	CH1	LG°	KK	IB	ID	LA	LB	LC	LD	LE	LF	Mass g	Part no.
25-32-40	17	11	50	M10x1,25	32	15	17	37	21	50,5	43	57	110	KF-23025
50-63	19	17	50	M12x1,25	36	17	19	42	27	57,5	50	66	165	KF-23040

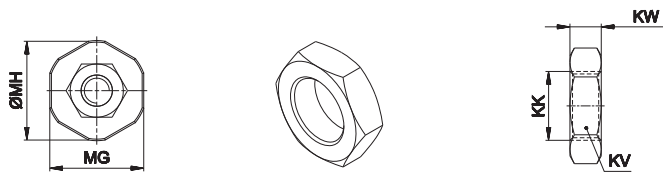
Floating joint



Material: Zinc-plated steel

Cylinder Ø	CH	CH1	ID	KK	MA	MB	MC	MD	ME	MF	MG	MH	MI°	Mass g	Part no.
25-32-40	12	19	71	M10x1,25	5	35	20	71	14	22	30	32	8	220	KF-24032
50-63	12	19	75	M12x1,25	5	35	20	75	14	22	30	32	8	230	KF-24040

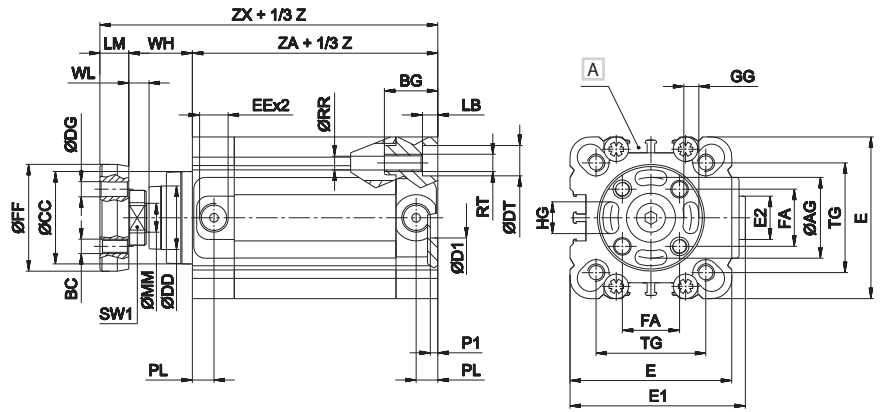
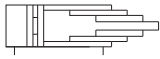
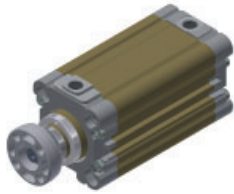
Piston rod locknut (zinc-plated steel)



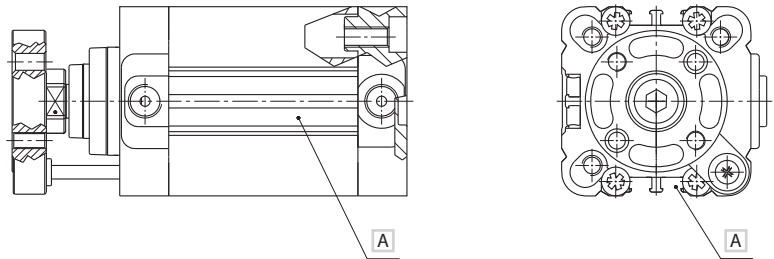
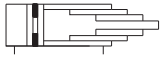
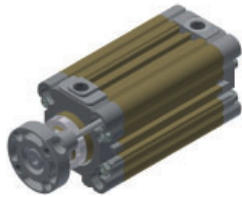
Material: Zinc-plated steel

Cylinder Ø	KK	KV	KW	Mass g	Part no.
25-32-40	M10x1,25	17	6	5	KF-16032
50-63	M12x1,25	19	7	10	KF-16040

3 stages with flange RT230...

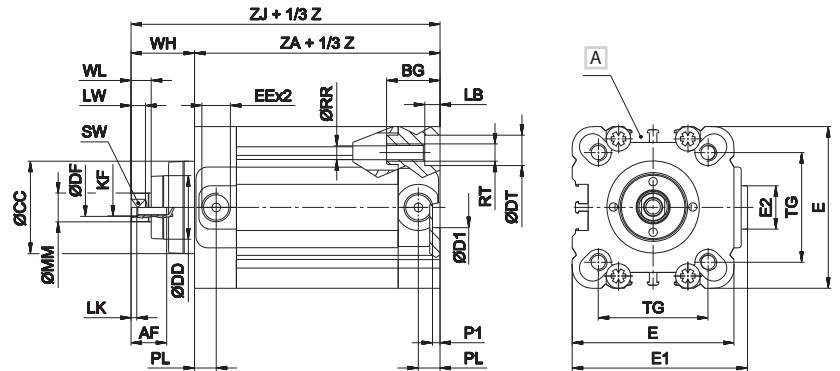


3 stages, magnetic version RT230...M

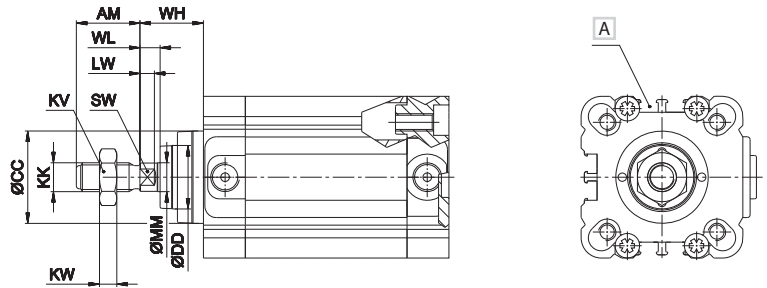
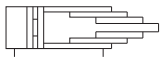


A = the magnetic sensor DF... may only be placed near the telescopic magnet holder stem (as shown in the drawing).

3 stages, female piston rod RT230...I



3 stages, male piston rod RT233...



A Groove for sensor

Z = Stroke

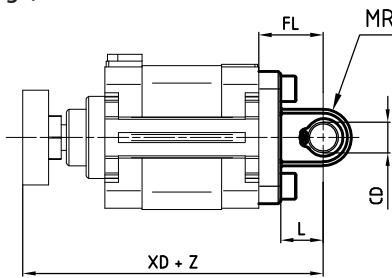
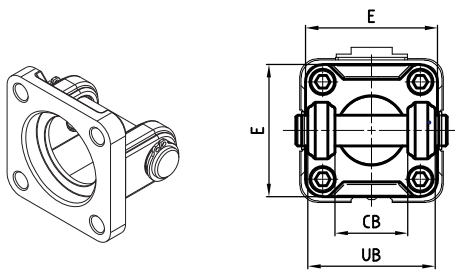
Ø	AF	AG	AM	BC	BG	CC	DF	DG	DT	D1	E	E1	E2	EE	FA	FF	GG	HG	KF	KK	KV	KW	LB	LK	LM
40	12	33	22	M5	18	32	8,2	5	9	14	56	60,5	16	G1/8	23,3	42	5,2	15	M8	M10x1,25	17	4	5,3	2	10
50	16	42	24	M6	24	40	10,2	6	11	18	66	70,5	16	G1/8	29,7	52	6,2	19	M10	M12x1,25	19	5	6,5	2	12
63	16	50	24	M6	24	48	10,2	6	11	18	79	83,5	38	G1/8	35,4	64	6,2	25	M10	M12x1,25	19	5	6,5	2	12

Dimensional variations for RT230...M series

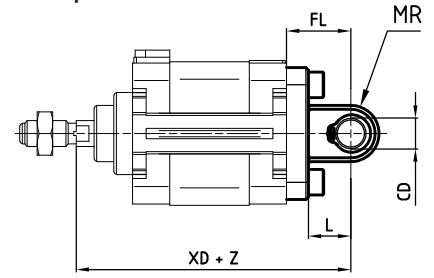
Ø	LW	MM	PL	P1	RR	RT	SW	SW1	TG	WH	WL	ZA	ZJ	ZX	Ø	AG	BC	DG	FA	FF	GG	HG	LM	SW2	ZX
40	5	12	7,5	2,5	5,2	M6	10	19	38	12	7	60	72	82	40	5	12	7,5	2,5	5,2	M6	10	19	38	12
50	6	16	7,5	2,5	6,6	M8	13	24	46,5	15	8	61	76	88	50	6	16	7,5	2,5	6,6	M8	13	24	46,5	15
63	6	16	7,5	2,5	6,6	M8	13	24	56,5	15	8	65	80	92	63	6	16	7,5	2,5	6,6	M8	13	24	56,5	15

Female hinge with pin (ISO MP2)

> Standard version (with flange)



> Male piston rod version

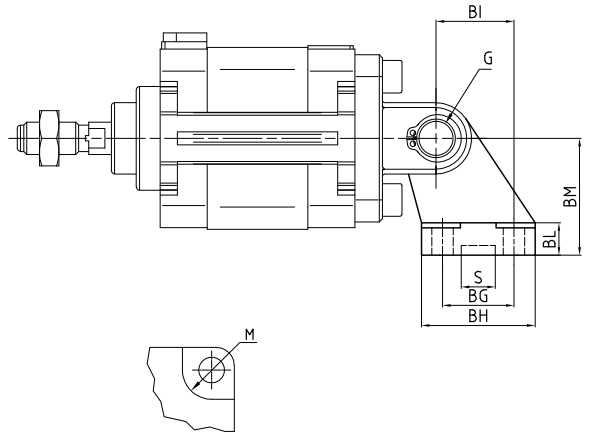
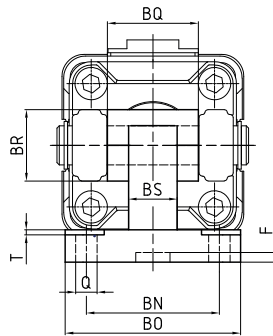
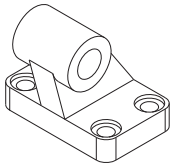


Material: Aluminium

Z = Stroke

Ø	CB	CD	E	FL	L	MR	UB	XD (standard version)		XD (male piston rod version)		Mass	Part no.
	H14	H9		± 0,2			H14	±1,25	±1,25	g			
40	28	12	54	25	15	13	52	107	±1,25	97	±1,25	110	KF-10040A
50	32	12	65	27	15	13	60	115	±1,25	103	±1,25	150	KF-10050A
63	40	16	75	32	20	17	70	124	±1,6	112	±1,6	270	KF-10063A

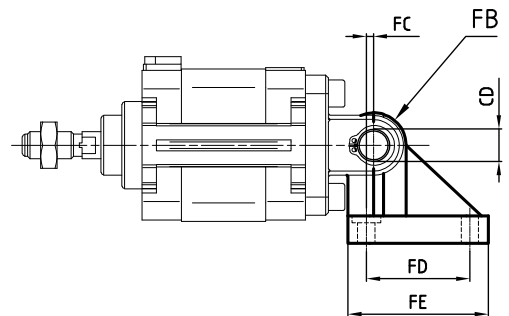
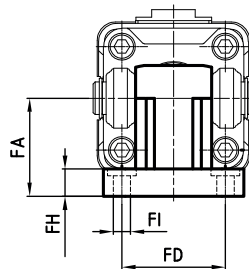
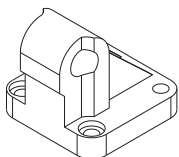
Counter hinge 90° (AB7)



Material: Aluminium

Ø	Q	M	BG	BH	BI	BL	BM	BN	BO	BS	BR	T	G	S	F	BQ	Mass	Part no.	
	H13	H13	JS 14	Max	JS 14		JS 15	JS 14	Max	Max	Max	Max	H9	^{+0,5}	^{+0,5}				g
40	6,6	11	22	35	24	10	36	41	54	15	22	1,6	12	10,5	3	28	+0,2 -0,6	139	KF-19040CTA
50	9	15	30	45	33	12	45	50	65	16	26	1,6	12	10,5	3	32		142	KF-19050CTA
63	9	15	35	50	37	14	50	52	67	16	30	1,6	16	10,5	3	40		200	KF-19063CTA

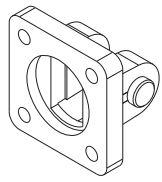
Counter hinge 90°



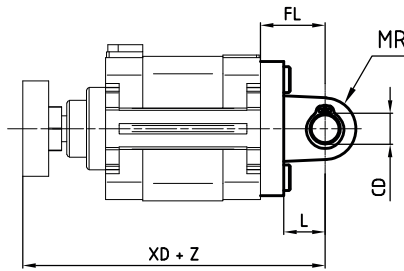
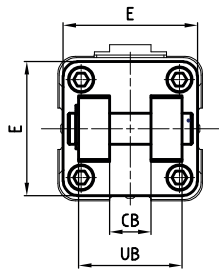
Material: Aluminium

Ø	CD	FA	FB	FC	FD	FE	FH	FI	Mass	Part no.
	H9							g		
40	12	36	12	2,6	38	51,5	9	6,5	120	KF-19040
50	12	45	12	0,3	46,5	63,5	9	8,5	200	KF-19050
63	16	50	16	3,3	56,5	73	10,5	8,5	320	KF-19063

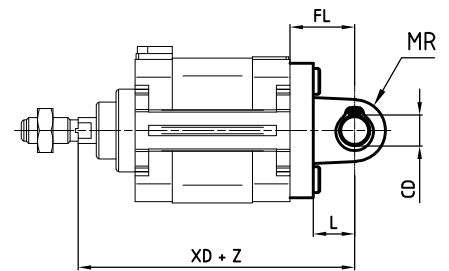
Narrow female hinge with pin (DIN 648K)



> Standard version (with flange)



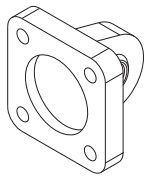
> Male piston rod version



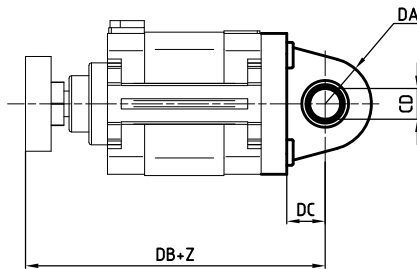
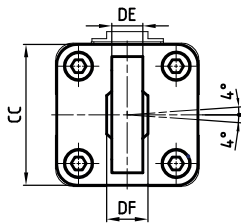
Material: Aluminium Z = Stroke

Ø	CB H14	CD H9	E	FL ± 0,2	L min	MR Max	UB H14	XD (standard version)	XD (male piston rod version)	Mass g	Part no.
40	16	12	52	25	16	12	40	107 ±1,25	97 ±1,25	112	KF-10040AS
50	21	16	65	27	16	14	45	115 ±1,25	103 ±1,25	196	KF-10050AS
63	21	16	75	32	21	18	51	124 ±1,6	112 ±1,6	288	KF-10063AS

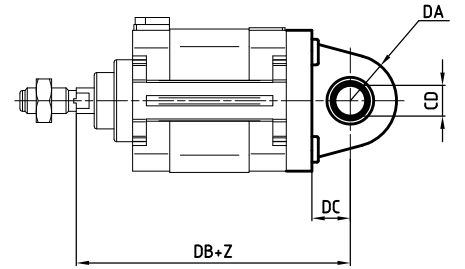
Articulated male rear hinge (ISO MP6)



> Standard version (with flange)



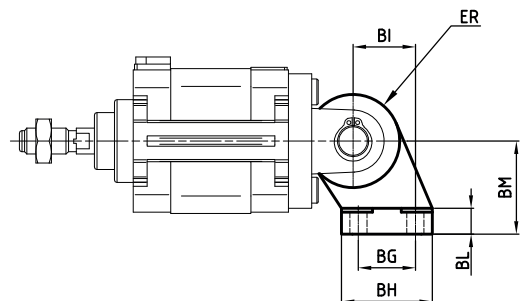
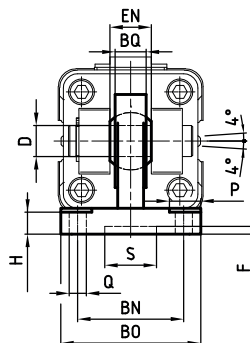
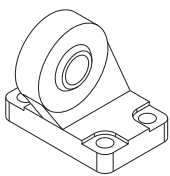
> Male piston rod version



Material: Aluminium Z = Stroke

Ø	CC	CD H9	DA	DB (standard version)	DB (male piston rod version)	DC	DE	DF	Mass g	Part no.
40	54	12	18	107	97	16,5	12	16	200	KF-11040S
50	65	12	20	115	103	17,5	12	16	300	KF-11050S
63	75	16	21	124	112	21,5	15	21	350	KF-11063S

Articulated counter hinge (DIN 648K)



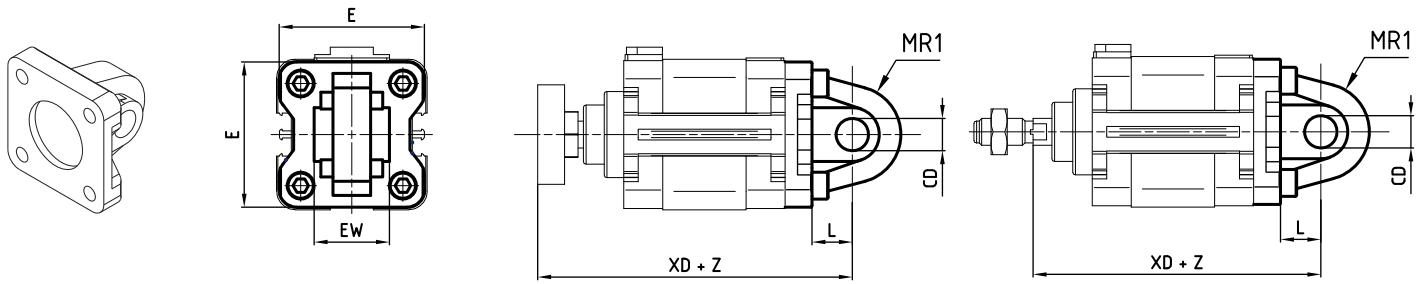
Material: Zinc-plated steel

Ø	Q H13	P H13	BG JS14	BH Max	BI JS15	BL	BM JS15	BN JS14	BO Max	EN -0,1	ER Max	BQ Max	D H7	H +0,5	S H13	F	Mass g	Part no.
40	6,6	11	22	35	24	10	36	41	54	16	18	12	12	8,5	20	3	268	KF-19040SC
50	9	15	30	45	33	12	45	50	65	21	20	15	16	10,5	20	3	458	KF-19050SC
63	9	15	35	50	37	12	50	52	67	21	23	15	16	10,5	20	3	550	KF-19063SC

Rear male hinge (ISO MP4)

> Standard version (with flange)

> Male piston rod version

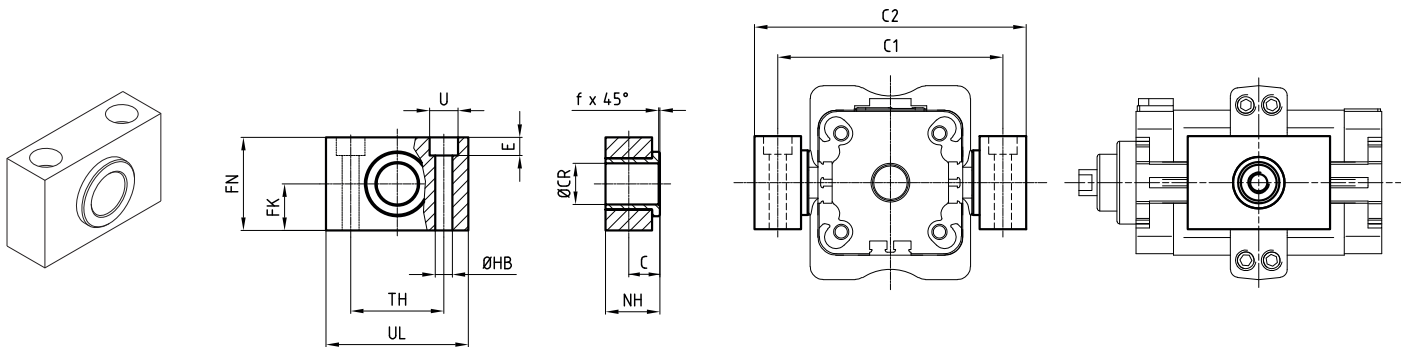


Material: Aluminium

Z = Stroke

Ø	CD H9	E	EW	L min	MR1 Max	XD (standard version)		XD (male piston rod version)		Mass g	Part no.
							±1,25	97	±1,25		
40	12	54	28 -0,2/-0,6	15	18	107	±1,25	97	±1,25	100	KF-11040
50	12	65	32 -0,2/-0,6	15	20	115	±1,25	103	±1,25	170	KF-11050
63	16	75	40 -0,2/-0,6	20	23	124	±1,6	112	±1,6	250	KF-11063

Hinge support



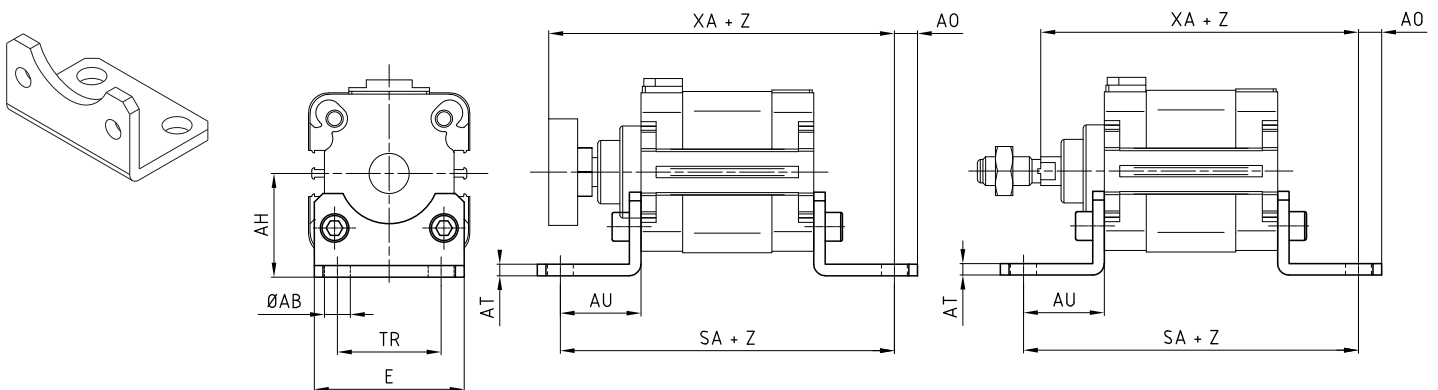
Material: Anodized aluminium and brass bushing

Ø	C	CR F7	FK ±0,1	FN	HB	NH	TH ±0,1	UL	U	E ±0,5	F	C1	C2	Mass g	Part no.
50	12	16	18	36	9	21	36	55	15	9	1,6	99	117	200	KF-41040050
63	13	20	20	40	11	23	42	65	18	11	1,6	116	136	267	KF-41063080

Angle bracket

> Standard version (with flange)

> Male piston rod version

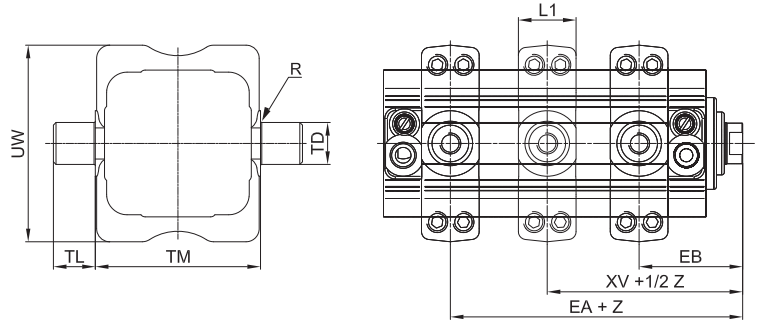
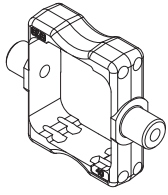


Material: Zinc-plated steel

Z = Stroke

Ø	Ø AB Ø h13	AH Js15	AO	AT	AU ±0,2	E Max	SA	TR	XA	Mass g	Part no.
50	9	45	15	5	32	70	125	45	120	150	KF-13050
63	9	50	15	5	32	85	129	50	124	250	KF-13063

ISO intermediate hinge

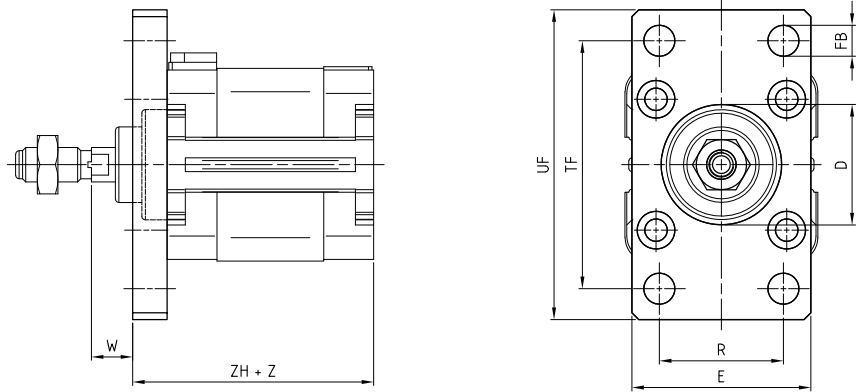
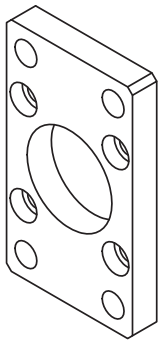


Material: Zinc-plated steel

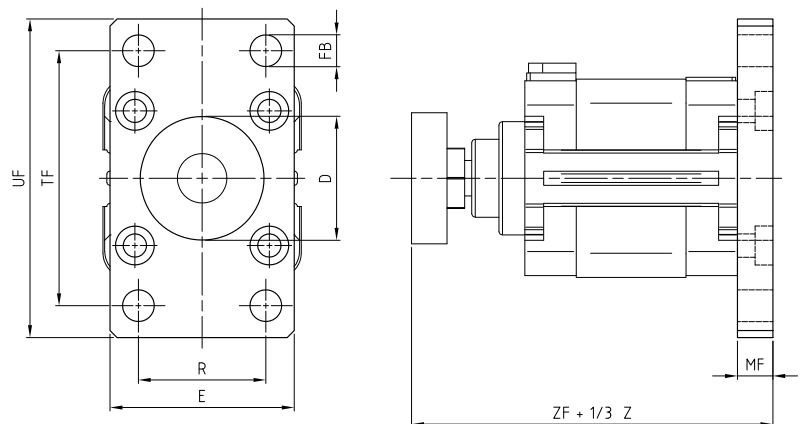
Ø	EA	EB	L1	R	TD	TL	TM	UW	XV	Mass	Part no.
	Max	min	Max	Max	e9	h14	h14	Max	Max		
40	25	34	22	0,5	16	16	63	75	29,5	268	KF-19040SC
50	26	35	22	1	16	16	75	95	30,5	458	KF-19050SC
63	27	38	28	1	20	20	90	105	32,5	550	KF-19063SC

Front/rear flange

> Front assembly



> Rear assembly

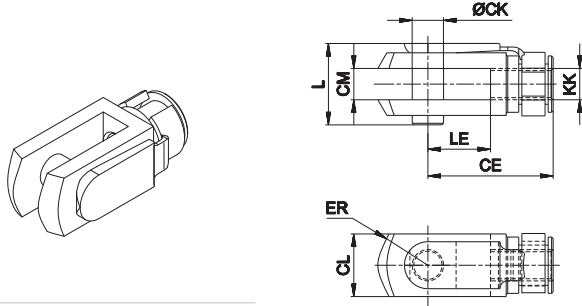


Material: Zinc-plated steel

Z = Stroke

Ø	ØD	E	ØFB	MF	R	TF	UF	W	ZF	ZH	Mass	Part No.
	h11		h13		Js14	Js14						
40	35	52	9	10	36	72	90	2	92	70	250	KF-12040
50	44	65	9	12	45	90	110	3	100	73	500	KF-12050
63	52	75	9	12	50	100	120	3	104	77	650	KF-12063

Female fork with clips

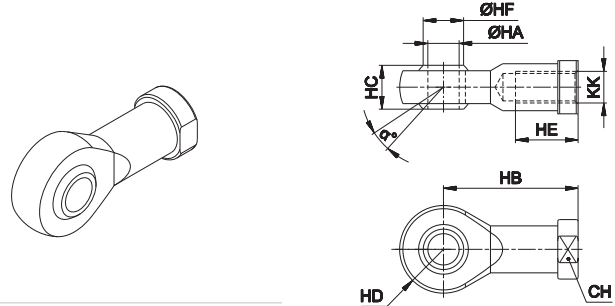


Material: Zinc-plated steel

Cylinder Ø	CE	CK	CL	CM	ER	KK	L	LE	Mass g	Part no.
40	40	10	20	10	16	M10x1,25	26	20	90	KF-15032
50 - 63	48	12	24	12	19	M12x1,25	32	24	150	KF-15040

Fork with pin suitable for piston rod according to ISO 8140 standard

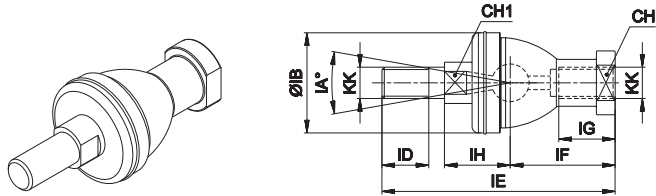
Articulated self-lubricating fork



Material: Zinc-plated steel

Cylinder Ø	α°	CH	KK	HA	HB	HC	HD	HE	HF	Mass g	Part no.
40	13	17	M10x1,25	10	43	14	14 ^{0-0,12}	20	12,9	76	KF-17032
50 - 63	13	19	M12x1,25	12	50	16	16	22	15,4	110	KF-17040

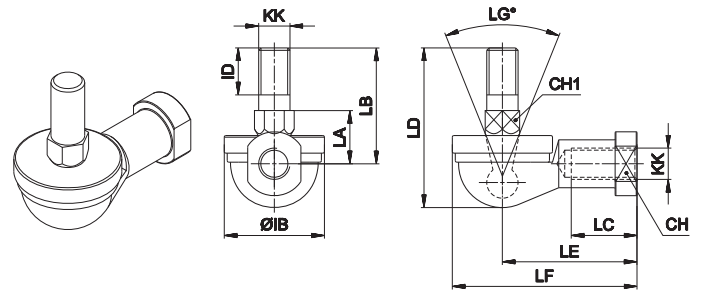
Fork with axially mounted articulated pin



Material: Zinc-plated steel

Cylinder Ø	CH	CH1	IA°	KK	IH	IB	ID	IE	IF	IG	Mass g	Part no.
40	17	11	30	M10x1,25	19,5 ^{±0,3}	32	15	74,5	35	18	120	KF-22025
50 - 63	19	17	30	M12x1,25	22	36	17	84	40	20	185	KF-22040

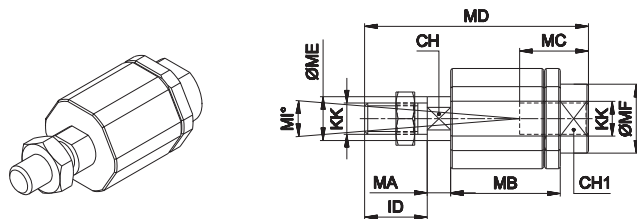
Fork with angle mounted articulated pin



Material: Zinc-plated steel

Cylinder Ø	CH	CH1	LG°	KK	IB	ID	LA	LB	LC	LD	LE	LF	Mass g	Part no.
40	17	11	50	M10x1,25	32	15	17 ^{±0,3}	37	21	50,5	43	57	110	KF-23025
50 - 63	19	17	50	M12x1,25	36	17	19	42	27	57,5	50	66	165	KF-23040

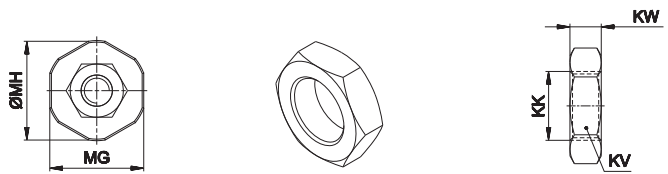
Floating joint



Material: Zinc-plated steel

Cylinder Ø	CH	CH1	ID	KK	MA	MB	MC	MD	ME	MF	MG	MH	MIP°	Mass g	Part no.
40	12	19	71	M10x1,25	5	35	20	71	14	22	30	32	8	220	KF-24032
50 - 63	12	19	75	M12x1,25	5	35	20	75	14	22	30	32	8	230	KF-24040

Piston rod locknut (zinc-plated steel)



Material: Zinc-plated steel

Cylinder Ø	KK	KV	KW	Mass g	Part no.
40	M10x1,25	17	6	5	KF-16032
50 - 63	M12x1,25	19	7	10	KF-16040

NTZ

Pneumatic actuator with integrated digital measuring system and safety locking device

- High repeatability and intervention speed (16 m/s).
- Piston rod holding force (without axial backlash): ≥ 3 times the thrust of a cylinder with air supply at 6 bar.
- Locking device passive functioning, in absence of signal and/or air supply.



TECHNICAL CHARACTERISTICS

Ambient temperature	-10 ÷ 70°C
Fluid	30 µm filtered air
Working pressure	2 ÷ 10 bar
Min. pressure (locking system)	>3 bar
Max speed	1 m/s
Intervention speed	16 m/s
Precision of repeatability	± 0,3 mm
Bores	Ø 32 - 40 - 50 - 63 mm
Cushioning	adjustable pneumatic on both sides

CONSTRUCTIVE CHARACTERISTICS

End caps	die-cast aluminium alloy
Barrel	extruded barrel in aluminium alloy
Piston	aluminium
Guide slide	acetalic resin
Piston rod	chromium-plated steel
Piston seal	double-lip seal in nitrile rubber
Guide bush for piston rod	acetalic resin
Shock absorber seals	nitrile rubber
Magnet	ferrite rubber (standard)

ELECTRIC CHARACTERISTICS

Voltage	5 ÷ 24 V DC
Output	level L < 0,5 V - level HV CC
Limit frequency	60 KHz
Impedance	2 Kohm
Power consumption	40 mA max
Time of upstroke/downstroke	<1 µS
Pulse rate	500
Resolution	± 0,01 pulses/turn

CODIFICATION KEY

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

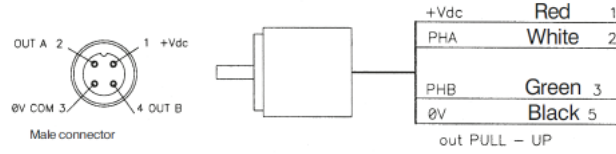
1 Series	2 Bore (mm)	3 Max stroke (mm)
NTZ = Pneumatic actuator with integrated digital measuring system and safety locking device Ø 32÷63 mm	032 = Ø32	350 (Ø32)
	040 = Ø40	450 (Ø40)
	050 = Ø50	600 (Ø50)
	063 = Ø63	750 (Ø63)

When the detector is used in environments with electromagnetic disturbances exceeding those allowed by the EN50081-2 standard, it is requested the adapter TAE011A10305 (our production) or suppressors of electromagnetic interferences available on the market.

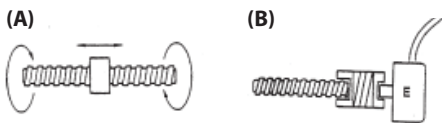
Theoretical forces (N)

Scheme of encoder

Ø	Thrust
	6 bar
32	400
40	600
50	960
63	1600



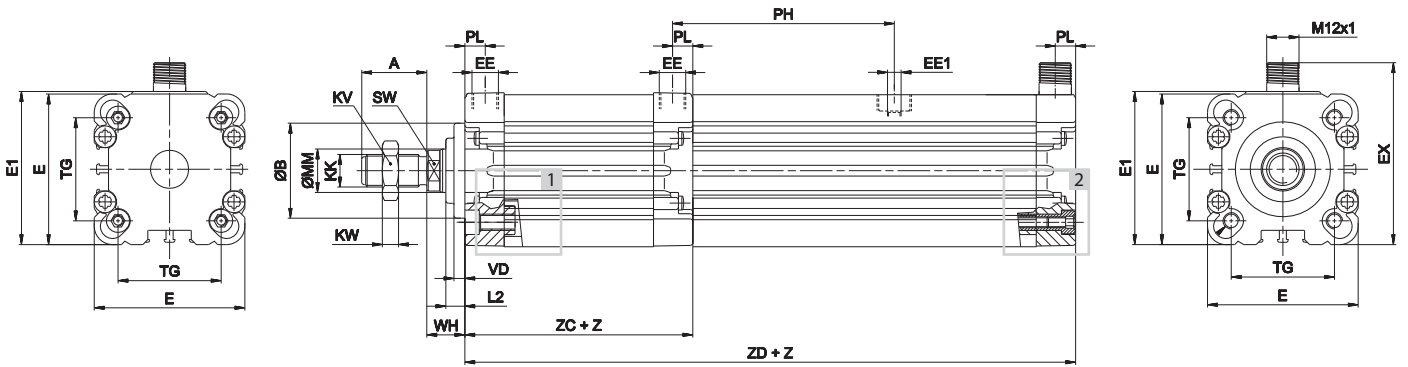
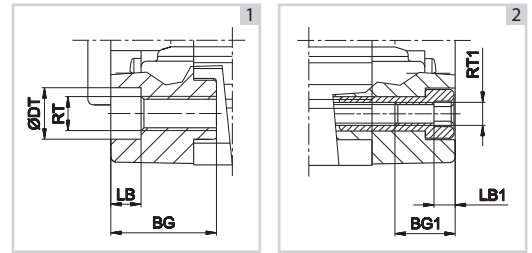
This product is the result of having linked to a pneumatic actuator both the digital position detector and the integrated safety locking system. The system does not need to be connected to the moving part of the mechanism as it generates by itself the movement by means of an internal pusher with bidirectional pneumatic function. This pusher, operated by a 5-way microvalve, moves autonomously until it meets the obstacle and measures the position. The detection of the position is obtained by transforming the translation movement of the piston rod in a rotation movement of the screw (B) by means of the coupling of screw-female screw (A); the encoder transforms the rotation (mechanical size) in sequences of electric pulses and establishes the relation between number of turns and number of pulses. The piston and the body of the encoder of the actuator must necessarily be fixed, i.e. must not move as regards to the rotation of the screw and for this reason has been used the cylinder with octagonal piston and non-rotating piston rod adequately modified.



The speed of the impact against the obstacle is limited by appropriate calibrated reducers which are built into the detector, whilst it is possible to adequately regulate the translation speed by means of a normal pressure regulator. In order to guarantee a reading with the indicated repeatability, the translation speed must be as constant as possible.

The main sectors of application are:
Mechanization, palletization, automation of operating machines.

NTZ Ø 32 ÷ 63 mm



Z = Stroke

Ø	A	B	BG	BG1	DT	E	EE	EX	E1	EE1	KK	KV	KW
32	22	30	18	6,5	9	46	G1/8	57	47	M5	M10x1,25	17	6
40	24	35	18	6,5	9	56	G1/8	67	57	M5	M12x1,25	19	7
50	32	40	24	6,5	11	66	G1/8	77	67	M5	M16x1,5	24	8
63	32	45	24	6,5	11	79	G1/8	90	80	M5	M16x1,5	24	8

Ø	LB	LB1	L2	MM	PH	PL	RT	RT1	SW	TG	VD	WH	ZC	ZD
32	5,3	3,5	7	12	55,5	7,5	M6	M4	10	32,5	4	14	84	177
40	5,3	3,5	7	16	58	7,5	M6	M6	13	38	4	14	89	185
50	6,5	3,5	10	20	63	7,5	M8	M6	17	46,5	5	18	94	194
63	6,5	3,5	10	20	63	7,5	M8	M6	17	56,5	5	18	114	214

- For magnetic sensor DF series see chapter 5 Accessories
- Fixing elements and accessories: same as for STRONG series cylinders

NQZ

Pneumatic actuator with integrated digital measuring system

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.



TECHNICAL CHARACTERISTICS

Ambient temperature	-10 ÷ 70°C				
Fluid	30 µm filtered air				
Working pressure	2 ÷ 10 bar				
Thread of the screw	Ø	32	40	50	63
	mm/turn	12	16	20,5	
Max speed	0,2 m/s (detector) 0,8 m/s (actuator)				
Precision of repeatability	± 0,02 mm				
Bores	Ø 32 - 40 - 50 - 63 mm				
Cushioning	adjustable pneumatic on both sides				

CONSTRUCTIVE CHARACTERISTICS

End caps	die-cast aluminium alloy
Barrel	extruded barrel in aluminium alloy
Piston	aluminium
Guide slide	acetalic resin
Piston rod	chromium-plated steel
Piston seal	double-lip seal in nitrile rubber
Guide bush for piston rod	acetalic resin
Shock absorber seals	nitrile rubber
Magnet	ferrite rubber (standard)

ELECTRIC CHARACTERISTICS

Voltage	5 ÷ 24 V DC
Output	level L < 0,5 V - level HV CC
Limit frequency	60 KHz
Impedance	2 Kohm
Power consumption	40 mA max
Time of upstroke/downstroke	<1 µS
Pulse rate	500
Resolution	± 0,01 pulses/turn

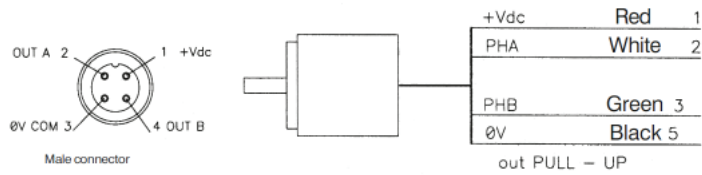
CODIFICATION KEY

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

1 Series	2 Bore (mm)	3 Max stroke (mm)
NQZ = Pneumatic actuator with integrated digital measuring system Ø 32÷63 mm	032 = Ø32 040 = Ø40 050 = Ø50 063 = Ø63	350 (Ø32) 450 (Ø40) 600 (Ø50) 750 (Ø63)

When the detector is used in environments with electromagnetic disturbances exceeding those allowed by the EN50081-2 standard, it is requested the adapter TAE011A10305 (our production) or suppressors of electromagnetic interferences available on the market.

Scheme of encoder



The pneumatic cylinders with digital measuring of the position derive from the respective fluidic axes with numerical control and are particularly suitable for:

- **Detection of stopping**
- **Anticollision control for cycles with critical sequence**
- **Level control relating to the palletization and/or depalletization of objects placed one onto the other**
- **Identification, classification and dimensional choice of objects (tolerances and rejects)**
- **Certification stations of machined pieces or breaking of tools on machines due to chip removal.**

The device can be used in two different ways:

- **As digital measuring detector**
- **As pneumatic actuator with digital detection of the position**

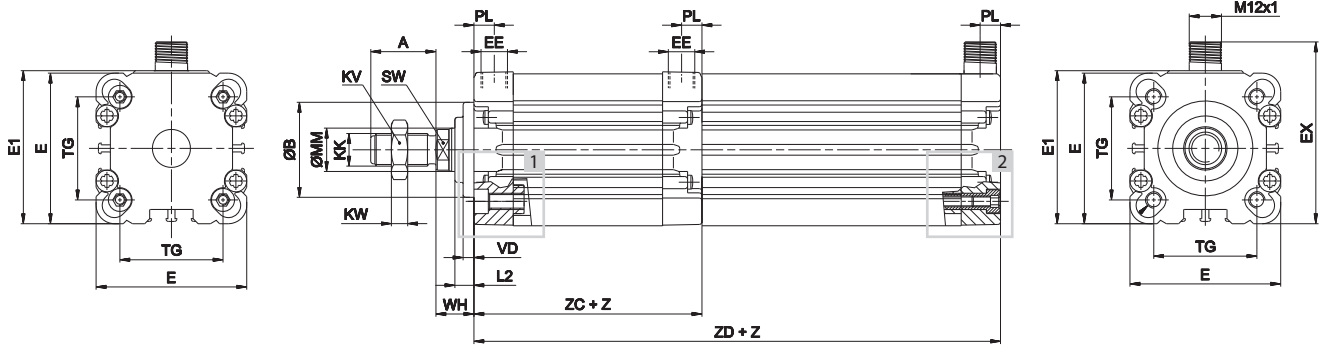
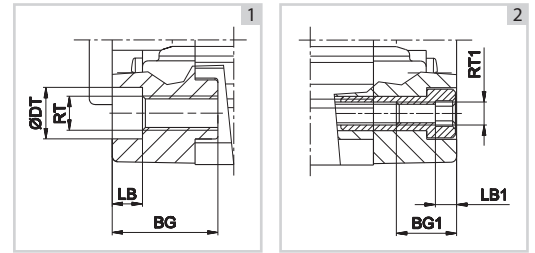
In the first case the system does not need to be connected to the moving part of the mechanism as it generates by itself the movement by means of an internal pusher with bidirectional pneumatic function at low pressure. This pusher, operated by a 5-way microvalve, moves autonomously until it meets the obstacle and measures the position by means of the encoder whose indication may be visualized on a digital display with centesimal resolution. The precision repeatability is $\pm 0,02$ mm.

The speed of the impact against the obstacle is limited by appropriate calibrated reducers which are built into the detector, whilst it is possible to adequately regulate the translation speed by means of a normal pressure regulator.

In order to guarantee a reading with the indicated repeatability, the translation speed must be as constant as possible.

In the second case the air supply of the device is effected by means of the network pressure adequately regulated according to the necessity; it depends on the load to be moved or is prearranged to exert the desired thrust once reached the object to be detected.

NQZ Ø 32 ÷ 63 mm



Z = Stroke

Ø	A	B	BG	BG1	DT	E	EE	EX	E1	KK	KV	KW
32	22	30	18	6,5	9	46	G1/8	57	47	M10x1,25	17	6
40	24	35	18	6,5	9	56	G1/8	67	57	M12x1,25	19	7
50	32	40	24	6,5	11	66	G1/8	77	67	M16x1,5	24	8
63	32	45	24	6,5	11	79	G1/8	90	80	M16x1,5	24	8

Ø	LB	LB1	L2	MM	PL	RT	RT1	SW	TG	VD	WH	ZC	ZD
32	5,3	3,5	7	12	7,5	M6	M4	10	32,5	4	14	84	186
40	5,3	3,5	7	16	7,5	M6	M6	13	38	4	14	89	194
50	6,5	3,5	10	20	7,5	M8	M6	17	46,5	5	18	94	204
63	6,5	3,5	10	20	7,5	M8	M6	17	56,5	5	18	114	223

- For magnetic sensor DF series see chapter 5 Accessories
- Fixing elements and accessories: same as for STRONG series cylinders

NFZ

Pneumatic actuator with integrated safety locking device

- Locking device embodied in the cylinder rear part in axial position
- High repeatability and intervention speed (16 m/s)
- Recommended use: emergency braking intervention at the speed allowed by the cylinder; for repeated functioning, as locking unit or braking intervention ≤ 50 mm/s
- Piston rod holding force (without axial backlash): ≥ 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



TECHNICAL CHARACTERISTICS

Ambient temperature	-10 ÷ 70°C
Fluid	30 µm filtered air
Working pressure	3 ÷ 10 bar
Min. pressure locking system	≥ 3 bar
Max speed	1 m/s
Intervention speed	16 m/s
Precision of repeatability	$\pm 0,3$ mm
Bores	Ø 32 - 40 - 50 - 63 mm
Cushioning	adjustable pneumatic on both sides

CONSTRUCTIVE CHARACTERISTICS

End caps	die-cast aluminium alloy
Barrel	extruded barrel in aluminium alloy
Piston	aluminium
Guide slide	acetalic resin
Piston rod	chromium-plated steel
Piston seal	double-lip seal in nitrile rubber
Guide bush for piston rod	acetalic resin
Shock absorber seals	nitrile rubber
Magnet	ferrite rubber (standard)

CODIFICATION KEY

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

1 Series

NFZ = Ø 32÷63 mm - Pneumatic actuator with integrated safety locking device

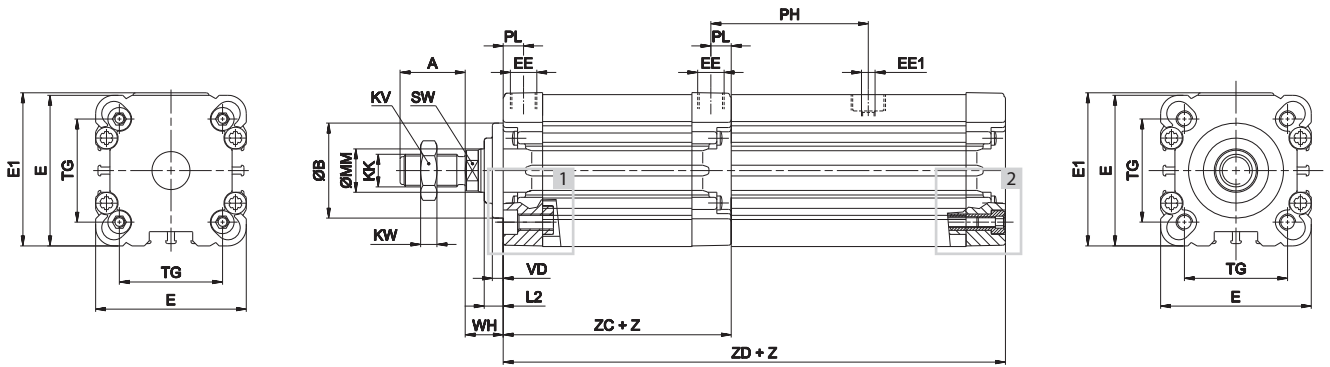
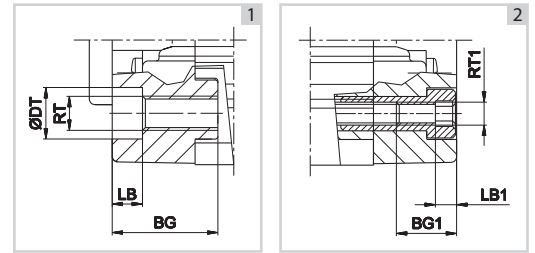
2 Bore (mm)

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

3 Max stroke (mm)

350 (Ø32)
450 (Ø40)
600 (Ø50)
750 (Ø63)

NFZ Ø 32 ÷ 63 mm



Z = Stroke

Ø	A	B	BG	BG1	DT	E	EE	E1	EE1	KK	KV	KW	LB
32	22	30	18	6,5	9	46	G1/8	47	M5	M10x1,25	17	6	5,3
40	24	35	18	6,5	9	56	G1/8	57	M5	M12x1,25	19	7	5,3
50	32	40	24	6,5	11	66	G1/8	67	M5	M16x1,5	24	8	6,5
63	32	45	24	6,5	11	79	G1/8	80	M5	M16x1,5	24	8	6,5

Ø	LB1	L2	MM	PH	PL	RT	RT1	SW	TG	VD	WH	ZC	ZD
32	3,5	7	12	55,5	7,5	M6	M4	10	32,5	4	14	84	177
40	3,5	7	16	58	7,5	M6	M6	13	38	4	14	89	185
50	3,5	10	20	63	7,5	M8	M6	17	46,5	5	18	94	194
63	3,5	10	20	63	7,5	M8	M6	17	56,5	5	18	114	214

- For magnetic sensor DF series see chapter 5 Accessories
- Fixing elements and accessories: same as for STRONG series cylinders