

PNEUMATIC CYLINDERS

ISO & CNOMO CYLINDERS

• SERIES 21 - ISO 15552 •

• SERIES V - ISO 15552 •

• MICRO SERIES - ISO 6432 •

• A/C SERIES - CNOMO •

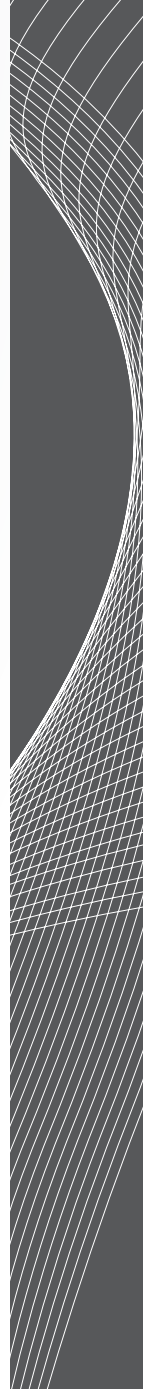
• SERIES KUG - LINEAR GUIDES •

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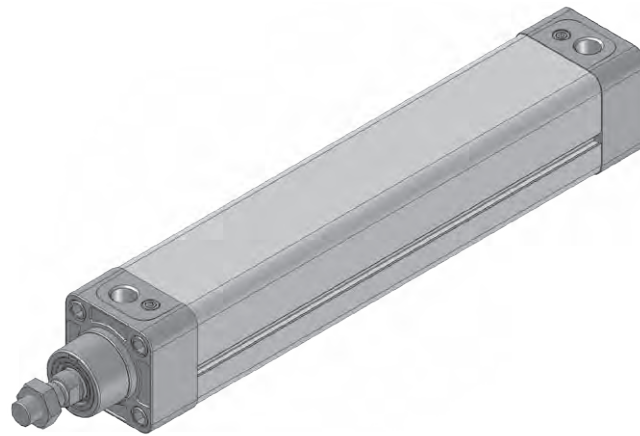
SERIES 21
CYLINDERS ISO 15552



CYLINDERS ISO 15552

General Information

32-100 MM DIAMETER



21 series cylinders are manufactured to ISO 15552 standard which specifies interchangeable mounting dimensions.

The cylinder tube and end plates have a clean profile making them suitable for use in dusty environments and wash down environments such as the food industry.

The cylinder tube is internally and externally anodised, offering an excellent resistance to corrosion while providing a low friction surface for the piston.

This product has been designed to have extraordinary strength.

The piston design (magnetic as standard and complete with cushion bushings) is a solid aluminium block. The tube is assembled using end caps with internal tie rods.

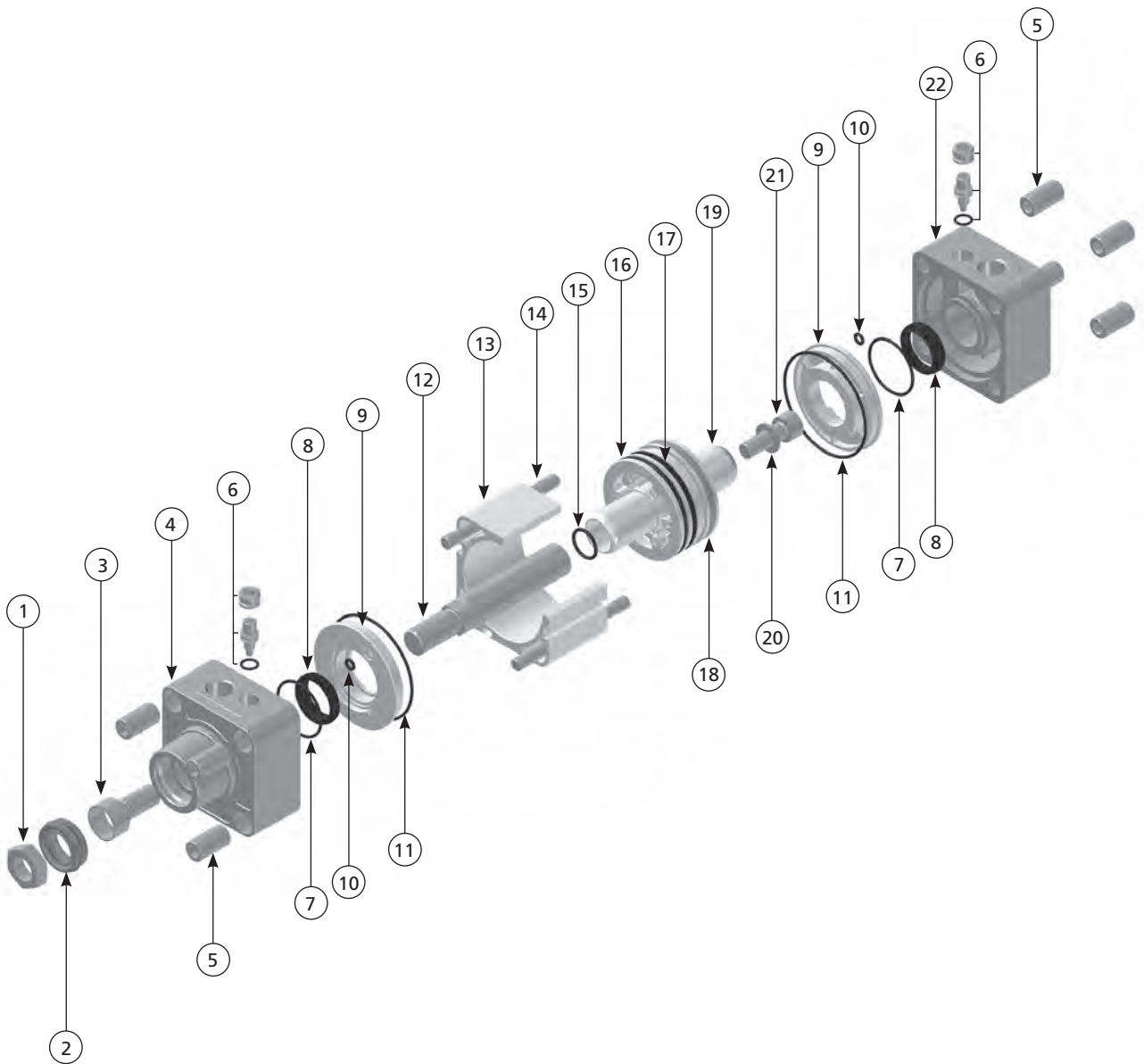
This clean and simple design facilitates the easy supply of versions for high and low temperature applications.

The cylinder is RoHS certified (Directive 2002/95/CE) and it is also available certified for Atex (Directive 94/9/CE) in zone II 2G/D c T4 T135°C -10°C < T_a < 50°C.

Technical Data

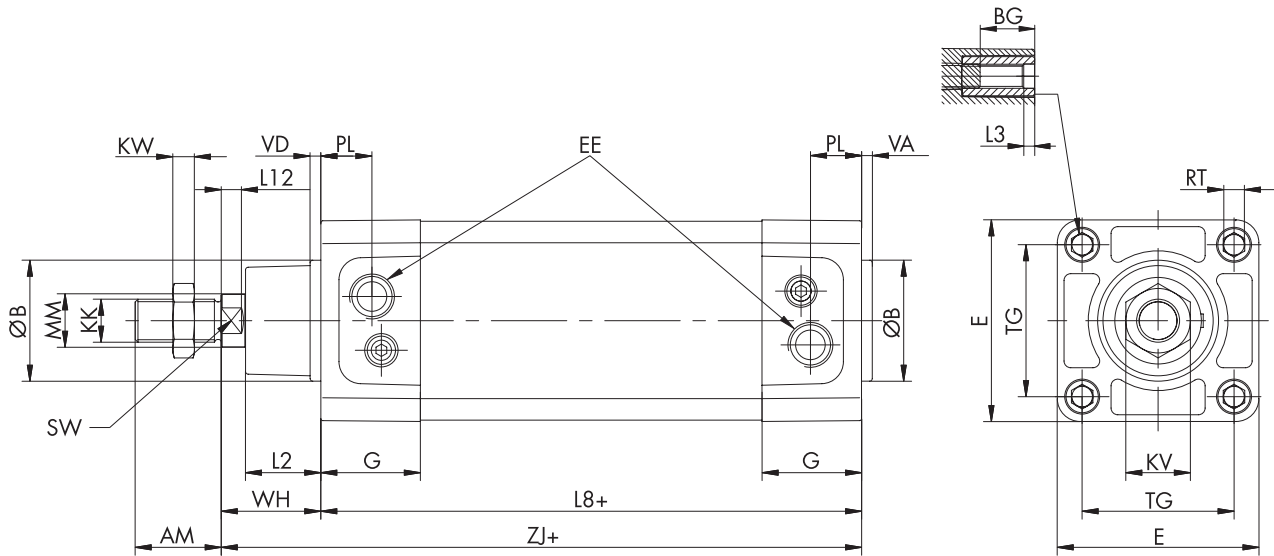
Piston diameters:	Ø 32, 40, 50, 63, 80, 100 (mm)							
Ports:	Ø 32 = G1/8; Ø 40, Ø 50 = G1/4; Ø 63, Ø 80 = G3/8; Ø 100 = G1/2							
End plates:	Painted aluminium alloy casting							
Piston rod:	C45 chromium plated steel (upon request stainless steel)							
Profiled tube:	Aluminium alloy anodised 15 µm							
Piston with cushion bushings:	Aluminium alloy casting							
Tie-rods:	Fe 37							
Cushioning adjustment screw:	Nickel-plated brass							
Piston rod seal:	Polyurethane mixture 94 SH A (Viton® on request)							
Piston seal:	NBR 70 SH A (Viton® on request)							
Cushion seals:	NBR 90 SH A (Viton® on request)							
Other seals:	NBR							
Operating medium:	5 µm filtered air, lubricated or not (dry air must be used for application below 0 °C)							
Max pressure:	10 bar							
Operating temperature:	NBR seals: -20 °C to +80 °C			Viton® seals: -10 °C to +150 °C				
Cushioning length:	Ø 32	40	50	63	80	100		
	mm 20	22	26	30	32	34		
Stroke tolerance:	Ø 32 - 50	< 500 mm: + 2.0 mm						
		> 500 mm: + 3.2 mm						
	Ø 63 - 100	< 500 mm: + 2.5 mm						
		> 500 mm: + 4.0 mm						
Standard strokes:	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500 (mm)							

Exploded View



- | | |
|--------------------------------|-----------------------|
| 1. Piston rod nut | 12. Piston rod |
| 2. Piston rod seal | 13. Cylinder body |
| 3. Piston rod guide bushing | 14. Tie-rod |
| 4. Front cover | 15. Rubber seal |
| 5. Tie-rod nut | 16. Piston seal |
| 6. Cushioning adjustment screw | 17. Magnetic ring |
| 7. Rubber seal | 18. Wear ring |
| 8. Cushion seal | 19. Piston |
| 9. End cap cover ring | 20. Washer |
| 10. Rubber seal | 21. Piston fixing nut |
| 11. Rubber seal | 22. Rear cover |

Dimensional Drawing



Ø	B ^{±0.1}	E	G	L2	L8+	L3	L12	EE	KK	ØMM	AM	BG	KV	KW	PL	RT	SW	TG	VA	VD	WH	ZJ+
32	30	45	30	18	94	5	6	G1/8	M10X1.25	12	22	16	17	6	13	M6	10	32.5	3	4	26	120
40	35	54	28	22	105	5	6	G1/4	M12X1.25	16	24	16	19	7	15	M6	13	38	3	4	30	135
50	40	64	30	26	106	5	8	G1/4	M16X1.5	20	32	16	24	8	15	M8	17	46.5	4	4	37	143
63	45	75	37	28	121	5	8	G3/8	M16X1.5	20	32	16	24	8	19	M8	17	56.5	4	4	37	158
80	45	93	37.5	31	128	5	10	G3/8	M20X1.5	25	40	17	30	9	20.5	M10	22	72	4	4	46	174
100	55	110	40	35	138	5	10	G1/2	M20X1.5	25	40	17	30	9	22	M10	22	89	4	4	51	189

Order Code

Order specifications		21.	1	1	A.	0200	
Series Number		21					
Piston diameter							
	Ø 32		1				
	Ø 40		2				
	Ø 50		3				
	Ø 63		4				
	Ø 80		5				
	Ø 100		6				
Design							
	piston rod C45 (standard)					1	
	stainless steel piston rod					2	
	piston rod C45, Viton® seal					3	
	stainless steel piston rod, Viton® seal					4	
	Atex					X	
Version							
	double acting					A	
	through piston rod					B	
	back to back					C	
	tandem					D	
	two-strokes tandem					E	
	multi-position tandem					F	
Stroke							xxxx (yyyy)
Piston rod lock device assembled (only on versions A and B)							BS

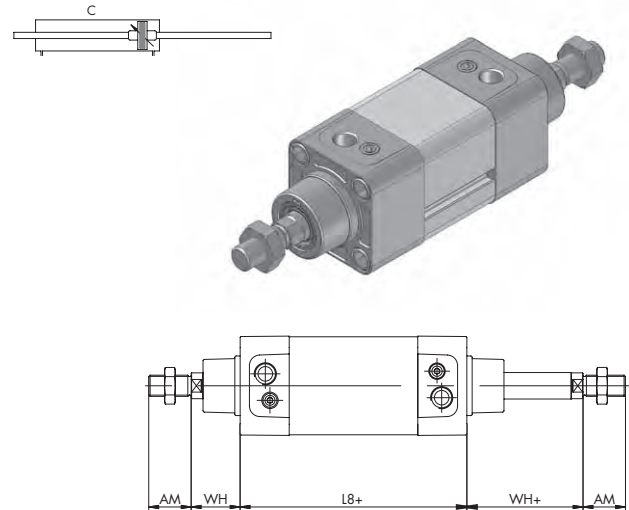
yyyy: please add stroke of the second cylinder only on versions C, E, F

Special versions	KX.	1	1	A.	0200.	zzzz*
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*zzzz = project number (assigned by factory)

Through Piston Rod TYPE B

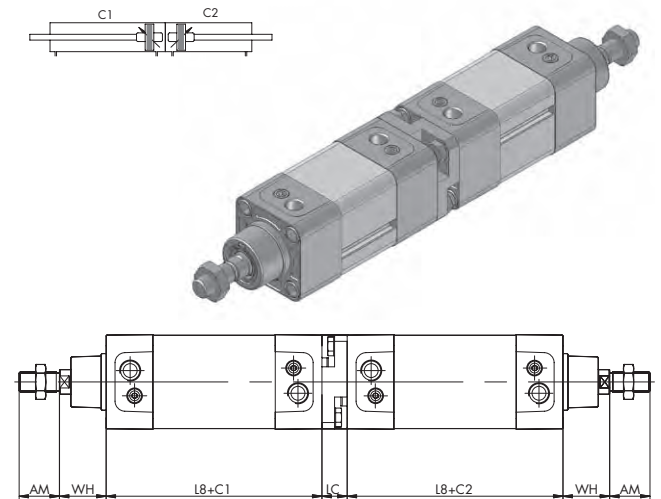
This is a double acting cylinder with piston rod coming out from both end covers. Piston rod extends away from pressurised port.



\varnothing	AM	WH	L8+
32	22	26	94
40	24	30	105
50	32	37	106
63	32	37	121
80	40	46	128
100	40	51	138

Back to Back (C1 independent of C2) TYPE C

Two standard double acting cylinders are joined together with a flange on rear covers. Both cylinders operate independently of each other, and they work as two standard cylinders.

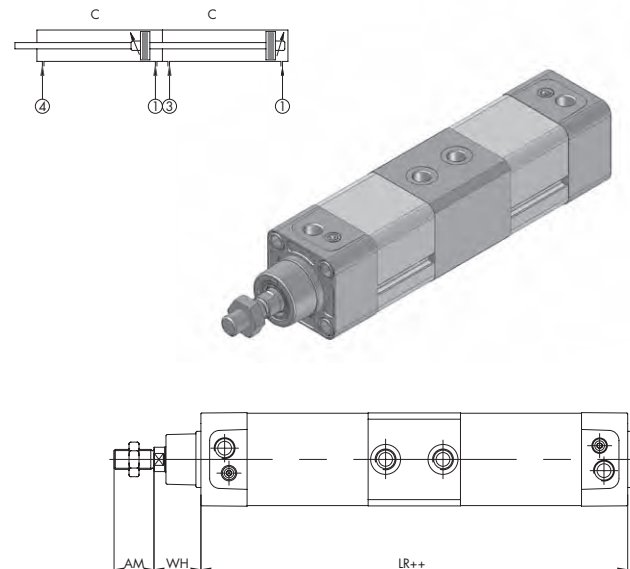


\varnothing	AM	WH	L8+	LC
32	22	26	94	15
40	24	30	105	15
50	32	37	106	20
63	32	37	121	20
80	40	46	128	25
100	40	51	138	25

Tandem TYPE D

This cylinder is used to double the force. Piston rod is one single piece passing through both cylinders (for this reason the strokes of the cylinders have to be exactly the same). Pressure in 1: pressurising both cylinders from the rear covers (port 1), piston rod moves out.

Piston rod return: to have the rod retract, it is necessary to feed both cylinders (ports 3 and 4) or, if there is no load on rod return (load is applied only on the forward stroke), the rod can be returned by applying pressure only on one cylinder (3 or, in preference, 4).



\varnothing	AM	WH	LR++
32	22	26	188
40	24	30	210
50	32	37	212
63	32	37	242
80	40	46	256
100	40	51	276

Two-strokes Tandem (C2 bigger than C1)

TYPE E

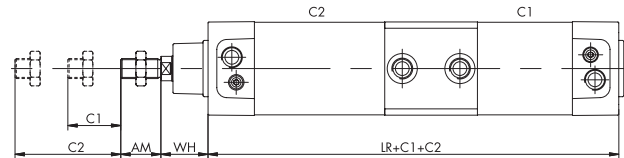
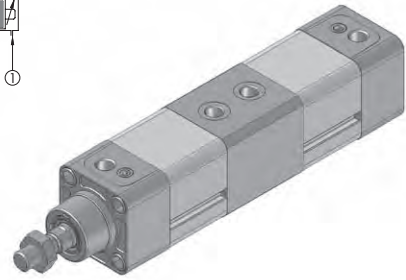
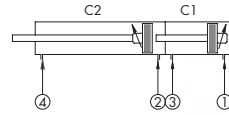
This is a tandem cylinder with two different piston rods (back piston rod "pushes" against the piston of the front cylinder) used to reach two sequential positions. The produced force is the one of a single cylinder.

The stroke of the back cylinder (C1) must be less than the one of the front cylinder (C2).

Pressure in 1: both piston rods run to the stroke of the rear cylinder (C1).

Pressure in 2: the rod of the front cylinder will complete the remaining stroke (C2- C1).

Piston Rod return: to return the rod, pressurise the front of cylinder C2 (4).



∅	AM	WH	LR
32	22	26	188
40	24	30	210
50	32	37	212
63	32	37	242
80	40	46	256
100	40	51	276

Multi-position Tandem (C1 independent of C2)

TYPE F

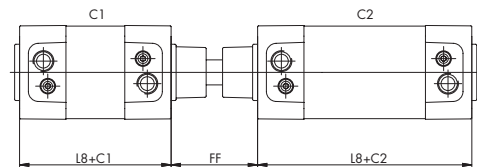
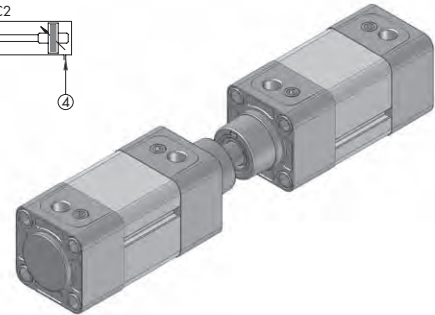
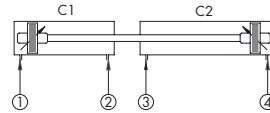
By coupling the piston rods of two cylinders with 2 different strokes (face-to-face) it is possible to reach up to three positions (we don't consider the rod in position, called zero setting, when both cylinders are pressurised in 2 and 3). Strokes are independent of each other.

Pressure only in 1: cylinder runs to stroke C1 (Return setting: pressure in 2).

Pressure only in 4: cylinder runs to stroke C2 (Return setting: pressure in 3).

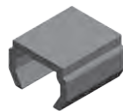
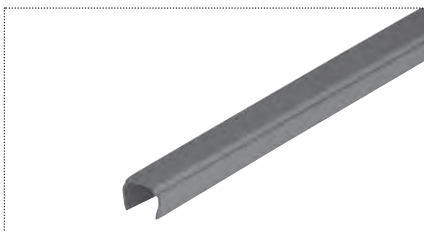
Pressure in 1 and 4 at the same time or sequential: cylinder runs to stroke C1 and C2.

Zero setting: pressure in 2 and 3 at the same time or sequential.



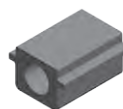
∅	FF	L8+
32	48	94
40	54	105
50	69	106
63	69	121
80	86	128
100	91	138

Cylinder Groove Cover



Code	Description
20.001	Groove cover for use with position transmitter

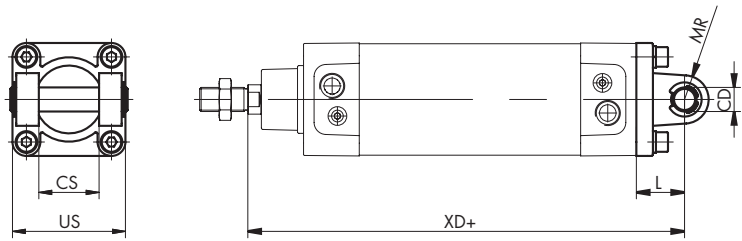
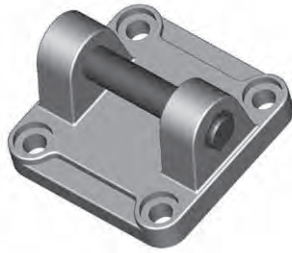
Note: The cylinder groove cover is 2 m in length and can be cut to size.



Code	Description
20.002	Standard groove cover

Note: Specify length. Cover supplied cut to size.

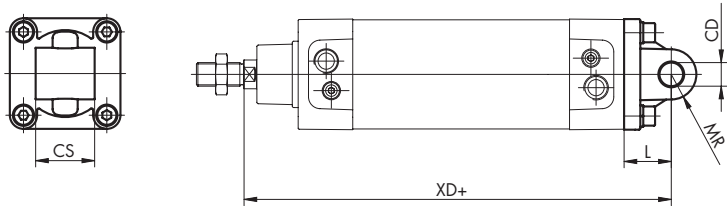
Female Trunnion



Code	∅	CS	US	L	XD+	CD	MR
18.001.01	32	26	45	22	142	10	11
18.001.02	40	28	52	25	160	12	13
18.001.03	50	32	65	27	170	12	13
18.001.04	63	40	75	32	190	16	17
18.001.05	80	50	95	36	210	16	17
18.001.06	100	60	115	41	230	20	21

Note: Bolt and fixing screws included.

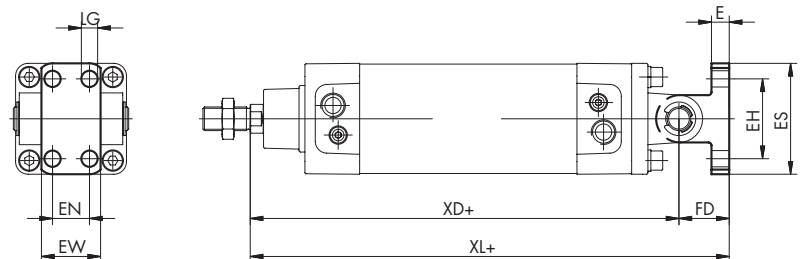
Male Trunnion



Code	∅	CS	L	XD+	CD	MR
18.002.01	32	26	22	142	10	11
18.002.02	40	28	25	160	12	13
18.002.03	50	32	27	170	12	13
18.002.04	63	40	32	190	16	17
18.002.05	80	50	36	210	16	17
18.002.06	100	60	41	230	20	21

Note: Fixing screws included.

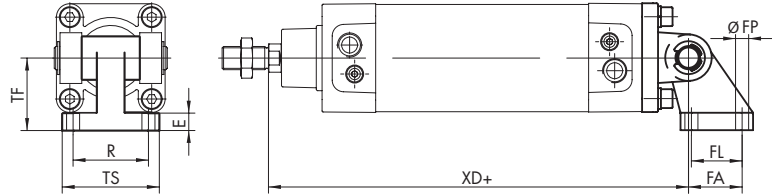
Trunnion Mounting Bracket



Code	∅	LG	EN	EW	XL+	XD+	FD	EH	ES	E
18.003.01	32	7	-	25	160	142	18	28	40	8
18.003.02	40	9	16	28	186	160	26	38	52	10
18.003.03	50	9	16	32	196	170	26	38	52	10
18.003.04	63	11	25	40	224	190	34	54	75	12
18.003.05	80	11	25	50	244	210	34	54	75	12
18.003.06	100	14	32	60	271	230	41	90	115	16

Note: Cetop standard, for use with female trunnion.

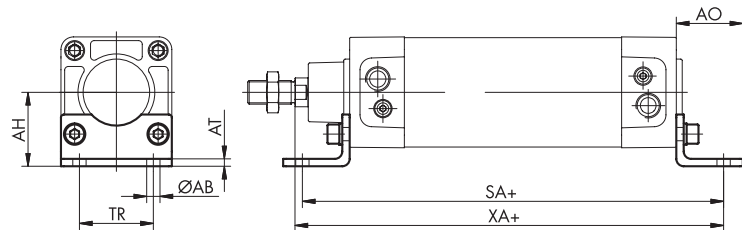
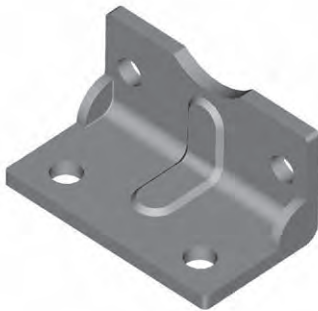
Square Angle Trunnion Mounting Bracket



Code	Ø	TS	R	FP	XD+	FA	FL	TF	E
18.014.01	32	38	31	7	142	21	18	32	8
18.014.02	40	41	35	7	160	24	22	36	10
18.014.03	50	50	45	9	170	33	30	45	12
18.014.04	63	52	50	9	190	37	35	50	12
18.014.05	80	66	60	11	210	47	40	63	14
18.014.06	100	76	70	14	230	55	50	71	15

Note: For use with female trunnion.

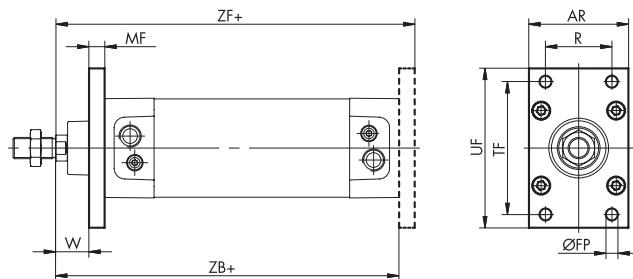
Mounting Bracket



Code	Ø	AT	AH	TR	AB	SA+	XA+	AO
18.005.01	32	4	32	32	7	142	144	35
18.005.02	40	4	36	36	9	161	163	43
18.005.03	50	4	45	45	9	170	175	47
18.005.04	63	6	50	50	9	185	190	47
18.005.05	80	6	63	63	12	210	215	61
18.005.06	100	6	71	75	14	220	230	66

Note: Kit includes only one bracket and fixing screws.

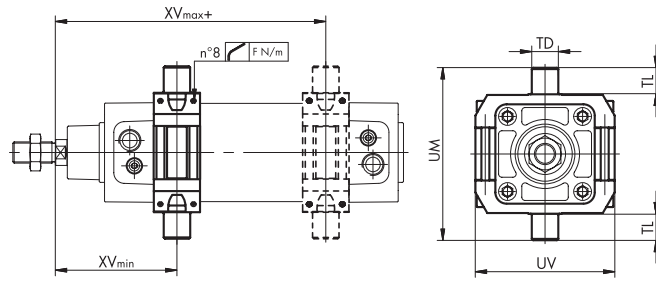
Mounting Plate



Code	Ø	W	ZF+	R	FP	TF	UF	ZB+	AR	MF
18.006.01	32	16	130	32	7	64	80	120	50	10
18.006.02	40	20	145	36	9	72	90	135	55	10
18.006.03	50	25	155	45	9	90	110	143	65	12
18.006.04	63	25	170	50	9	100	120	158	75	12
18.006.05	80	31	189	63	12	126	150	174	95	15
18.006.06	100	36	204	75	14	150	178	189	115	15

Note: Fixing screws included.

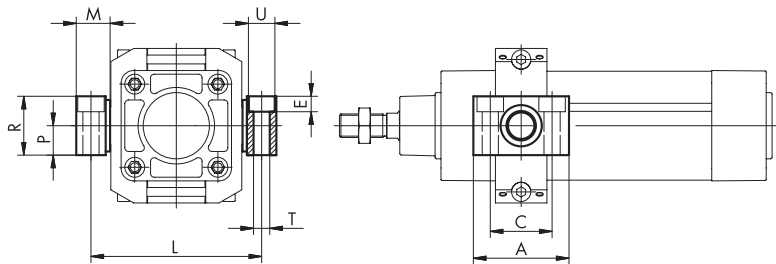
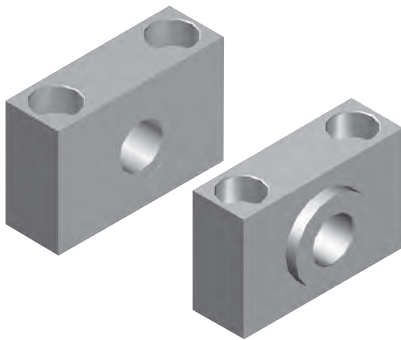
Swivel Bearing



Code	Ø	TD e ⁹	TL h ¹⁴	UM	UV	XVmin	XVmax+	F [N/m]
21.1R.07	32	12	12	74	65	66.5	79.5	2
21.2R.07	40	16	16	95	75	71	94	2
21.3R.07	50	16	16	107	85	80	100	2.5
21.4R.07	63	20	20	130	105	91.5	103.5	2.5
21.5R.07	80	20	20	150	130	101	118.5	5
21.6R.07	100	25	25	182	145	113.5	126.5	5

Note: Adjustable.

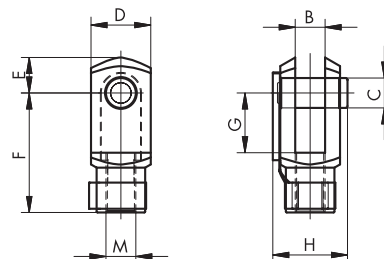
Swivel Bearing Support



Code	Ø	A	C	P	R	M	L	ØT	ØU	E
20.007.11	32	46	32	15	30	18	71	7	11	6.5
20.007.12	40	55	36	18	36	21	87	9	15	8.5
20.007.12	50	55	36	18	36	21	99	9	15	9.5
20.007.14	63	65	42	20	40	23	116	11	18	10.5
20.007.14	80	65	42	20	40	23	136	11	18	10.5
20.007.16	100	75	50	25	14	28.5	164	13	20	12.5

Note: Set of 2.

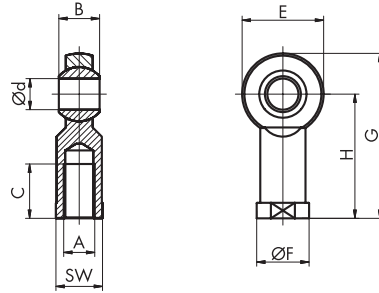
Clevis



Code	Ø	M	B	C	D	E	F	G	H
18.008.01	32	M10x1.25	10	10	20	12	40	20	26
18.008.02	40	M12x1.25	12	12	24	14	48	24	32
18.008.03	50	M16x1.5	16	16	32	19	64	32	40
18.008.03	63	M16x1.5	16	16	32	19	64	32	40
18.008.04	80	M20x1.5	20	20	40	25	80	40	48
18.008.04	100	M20x1.5	20	20	40	25	80	40	48

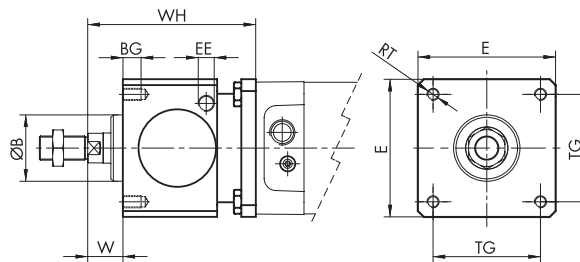
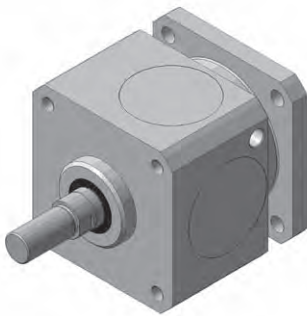
Note: Lockable pin included.

Rod End - Spherical Bearing



Code	Ø	A	B	C	d ^{H7}	E	F	G	H	SW
18.009.01	32	M10x1.25	14	20	10	28	19	57	43	17
18.009.02	40	M12x1.25	16	22	12	32	22	66	50	19
18.009.03	50	M16x1.5	21	28	16	42	27	85	64	22
18.009.03	63	M16x1.5	21	28	16	42	27	85	64	22
18.009.04	80	M20x1.5	25	33	20	50	34	102	77	30
18.009.04	100	M20x1.5	25	33	20	50	34	102	77	30

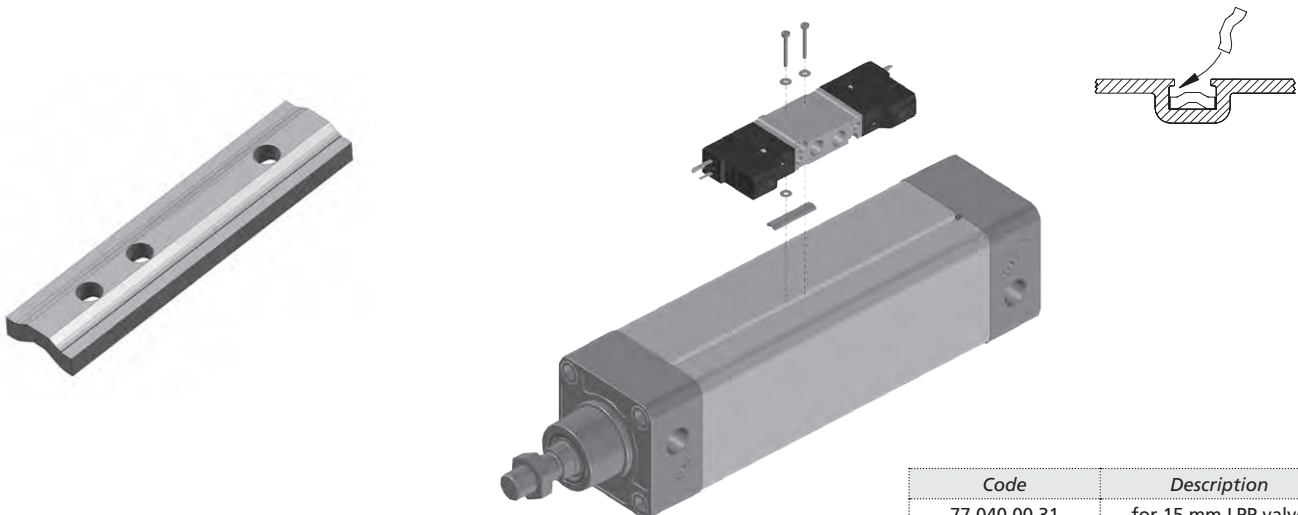
Piston Rod Lock device



Code	Ø	B	BG	E	EE	RT	TG	W	WH	F _{max} [N]
KBS.3001.032	32	30	8	47	G1/8	M6	32.5	26	86	790
KBS.3001.040	40	35	8	54	G1/8	M6	38	30	100	1240
KBS.3001.050	50	40	12	65	G1/8	M8	46.5	37	127	1930
KBS.3001.063	63	45	12	75	G1/8	M8	56.5	37	127	3060
KBS.3001.080	80	45	16	95	G1/4	M10	72	46	156	5400
KBS.3001.100	100	55	16	114	G1/4	M10	89	51	161	7700

Note: Operating pressure: 3 to 6 bar locking by friction with piston rod stopped Special length piston rod may be required.

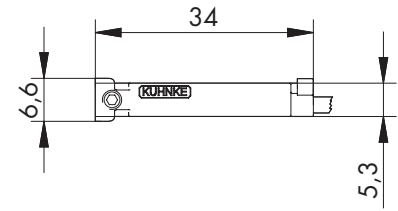
LPP Valve (Series 77) Mounting Bracket



Code	Description
77.040.00.31	for 15 mm LPP valve
77.240.00.31	for 18 mm LPP valve

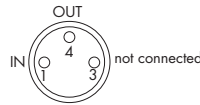
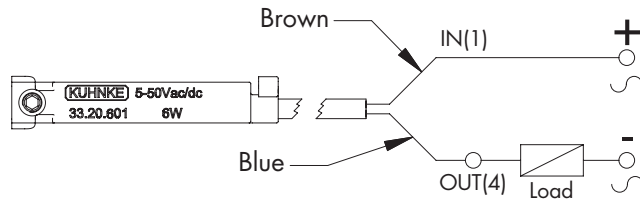
Note: Kit includes 10 brackets and mounting screws.

Position Transmitter



Position Transmitter REED (2 pole)

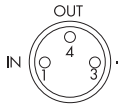
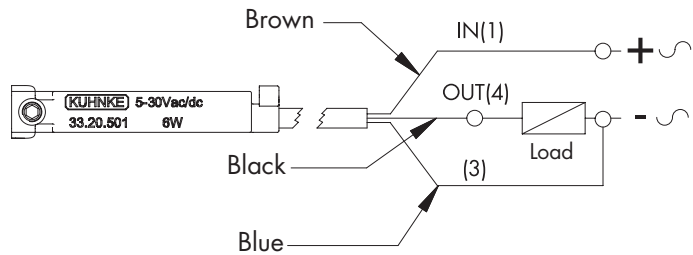
Contact type: N.O.
 Cable: 2 x 0.14 mm²
 Switching capacity: max 6 W
 Switching voltage: 5-50 V AC/DC
 Switching current: max 200 mA
 Voltage drop: 3 V
 Switching time: 0.6 ms
 Switching rate: max 400 Hz
 Service life: 10⁷ operations, depending on the load
 Ambient temperature range: -5°C to +75°C
 Protection class: IP67
 Status indicator: LED
 Housing material: plastic



Code	Description
33.20.601	with cable L = 2000 mm
33.20.681	socket M8, cable L = 300 mm

Position Transmitter REED (3 pole)

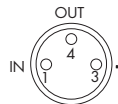
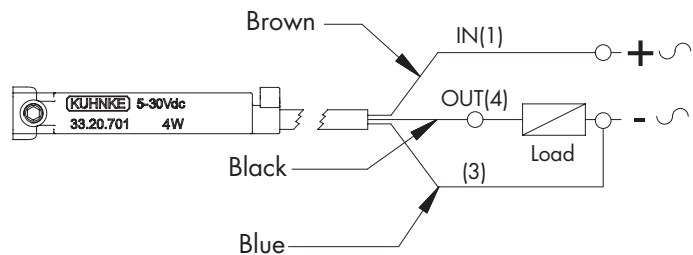
Contact type: N.O.
 Cable: 3 x 0.14 mm²
 Switching capacity: max 6 W
 Switching voltage: 5-30 V AC/DC
 Switching current: max 500 mA
 Voltage drop: 0.1 V
 Switching time: 0.6 ms
 Switching rate: max 400 Hz
 Service life: 10⁷ operations, depending on the load
 Ambient temperature range: -5°C to +75°C
 Protection class: IP67
 Status indicator: LED
 Housing material: plastic



Code	Description
33.20.501	with cable L = 2000 mm
33.20.581	socket M8, cable L = 300 mm

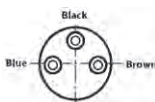
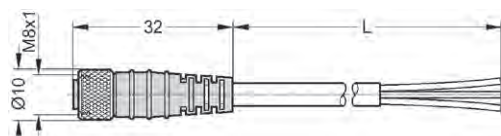
Electronic Position Transmitter

Contact Type: PNP (N.O.)
 Cable: 3 x 0.14 mm²
 Switching capacity: max 4 W
 Switching voltage: 5-30 V DC
 Switching current: max 200 mA
 Voltage drop: 0.7 V
 Switching time: 0.8 μs
 Switching rate: max 1 kHz
 Service life: 10¹¹ operations, depending on the load
 Ambient temperature range: -5°C to +75°C
 Protection class: IP67
 Status indicator: LED
 Housing material: plastic



Code	Description
33.20.701	with cable L = 2000 mm
33.20.781	socket M8, cable L = 300 mm

M8 Connectors (female-straight)



Code	Description
PL08B3.V250.30	cable L = 3000 mm
PL08B3.V250.50	cable L = 5000 mm

Position Transmitter Assembly



1. Insert the transmitter into the groove from the top.



2. Turn the transmitter 90° clockwise.



3. Lay the transmitter on the groove making sure that the locking tooth is well fixed.



4. Tighten the screw (max torque 0.3 Nm).

Position Transmitter Disassembly



1. Loosen the screw.



2. Unlock the tooth using a screwdriver.

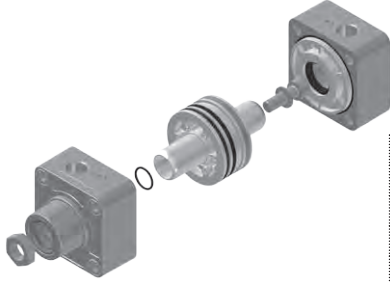


3. Lift the transmitter from the groove.



4. Turn the transmitter 90° anti-clockwise and lift out.


Complete Rebuild Kit for Cylinder



Ø	Code	
	Polyurethane (std)	Viton®
32	21.1R.01	
40	21.2R.01	
50	21.3R.01	
63	21.4R.01	
80	21.5R.01	
100	21.6R.01	

Note: Kit includes all parts except tube, tie-rods and piston rod.

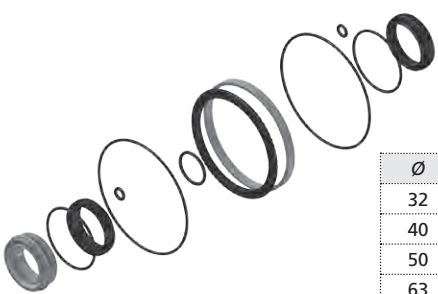
Piston Rod



Ø	Code	
	C45 chromium-plated steel	Stainless steel
32	21.1R.74.xxxx	21.1R.73.xxxx
40	21.2R.74.xxxx	21.2R.73.xxxx
50	21.3R.74.xxxx	21.3R.73.xxxx
63	21.4R.74.xxxx	21.4R.73.xxxx
80	21.5R.74.xxxx	21.5R.73.xxxx
100	21.6R.74.xxxx	21.6R.73.xxxx

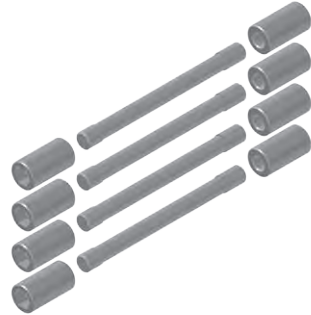
Note: xxxx = please add stroke.

Seal Kit



Ø	Code
32	21.1R.11
40	21.2R.11
50	21.3R.11
63	21.4R.11
80	21.5R.11
100	21.6R.11

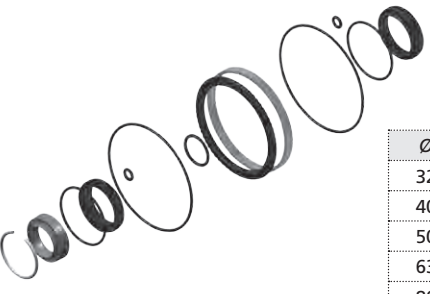
Tie-rods Kit



Ø	Code
32	21.1R.75.xxxx
40	21.2R.75.xxxx
50	21.3R.75.xxxx
63	21.4R.75.xxxx
80	21.5R.75.xxxx
100	21.6R.75.xxxx

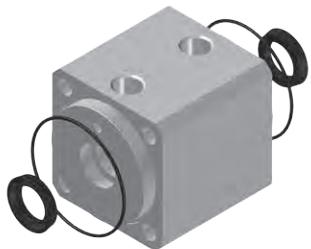
Note: xxxx = please add stroke.

Viton® Seal Kit




Ø	Code
32	21.1R.12
40	21.2R.12
50	21.3R.12
63	21.4R.12
80	21.5R.12
100	21.6R.12

Tandem Cover Kit



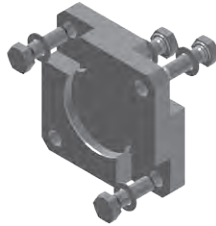
Ø	Code
32	21.1R.82
40	21.2R.82
50	21.3R.82
63	21.4R.82
80	21.5R.82
100	21.6R.82

Rod Seal Kit



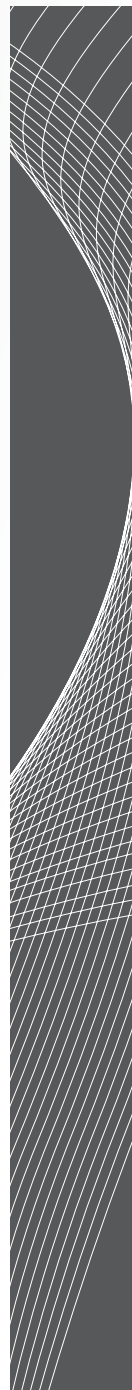
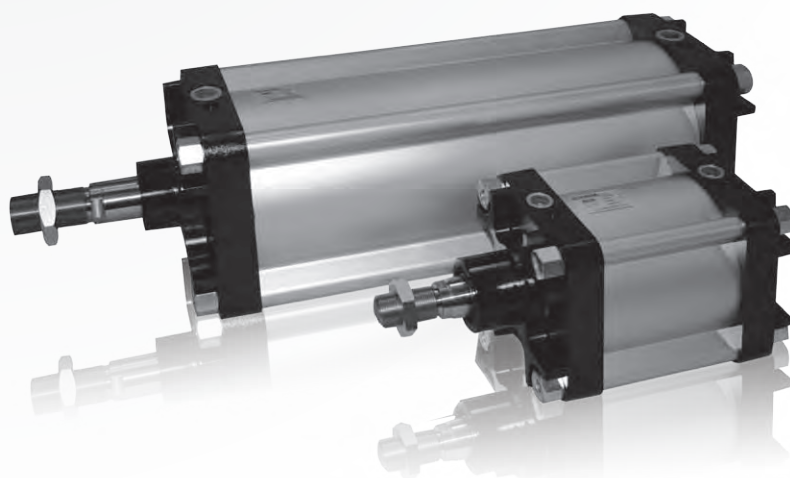
Ø	Code	
	Polyurethane (std)	Viton®
32	21.1R.15	21.1R.16
40	21.2R.15	21.2R.16
50	21.3R.15	21.3R.16
63	21.4R.15	21.4R.16
80	21.5R.15	21.5R.16
100	21.6R.15	21.6R.16

Back to Back Plate Kit



Ø	Code
32	21.1R.83
40	21.2R.83
50	21.3R.83
63	21.4R.83
80	21.5R.83
100	21.6R.83

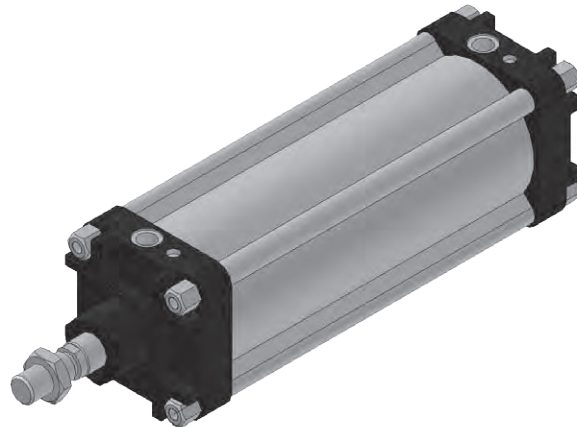
SERIES V
CYLINDERS ISO 15552



CYLINDERS ISO 15552

General Information

125-320 MM DIAMETER



V series cylinders are manufactured to ISO 15552 standard which specifies interchangeable mounting dimensions. The tube profile as illustrated (125- 200 diameter versions) is often known as Mickey Mouse.

This product has been designed to have extraordinary strength. The simple design facilitates options for high and low temperature applications.

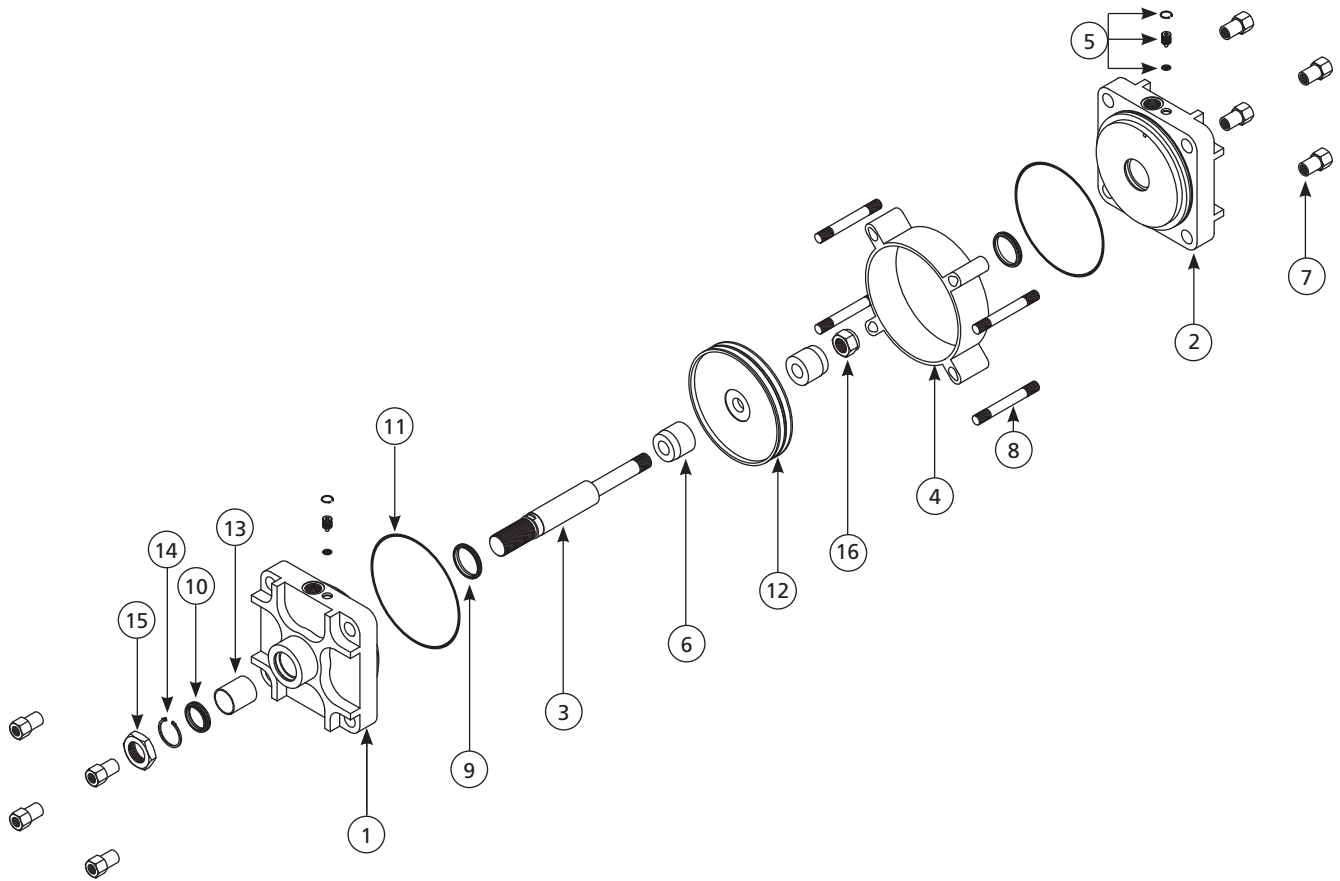
Technical Data

Piston diameters:	Ø 125, 160, 200, 250, 320 (mm)					
Ports:	Ø 125 = G1/2; Ø 160, Ø 200, Ø 250 = G3/4; Ø 320 = G1					
Cover:	Aluminium die-cast (painted)					
Piston rod:	C45 chromium-plated steel (upon request stainless steel)					
Profiled tube (Ø 125 - 200):	Anodized aluminium profile					
Profiled tube (Ø 250 - 320):	Round anodized aluminium					
Tie-rods:	Galvanized steel					
Piston seal:	NBR (Viton® on request)					
Other seals:	NBR					
Operating medium:	Compressed air, prepared, lubricant not necessary					
Max pressure:	10 bar					
Operating temperature:	NBR seals: -10 °C to +80 °C			Viton® seals: -10 °C to +150 °C		
Cushioning length:	Ø mm	125 35	160 45	200 45	250 50	320 -
Stroke tolerance:	Ø 125 - 200	< 500 mm: + 4 mm > 500 mm: + 5 mm				
	Ø 250 - 320	< 500 mm: + 5 mm > 500 mm: + 7 mm				
Force at 6 bar:	Ø	125	160	200	250	320
	N [push]	7.200	11.760	18.440	28.840	47.260
	N [pull]	6.790	11.050	17.700	27.690	40.620
Max strokes:	3000 mm					

Please note that when using Viton seals with magnetic pistons, the temperature limit is determined by the magnetic ring. In this case the upper limit is 100 °C. Accessories for cylinder diameters 250 & 320 mm are only available by special order. Contact our sales office.

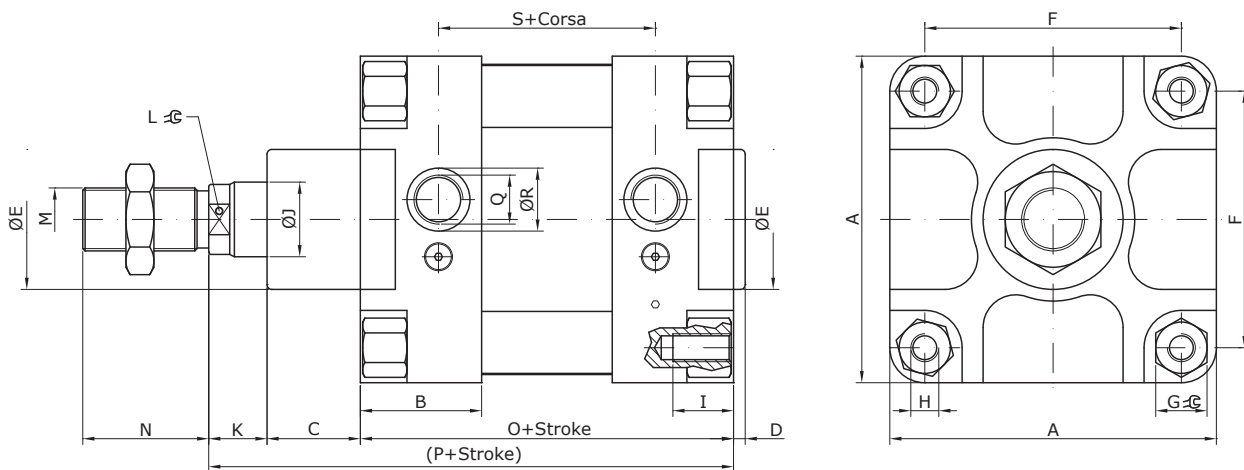
Exploded View

SERIES V
CYLINDERS ISO 15552



- | | |
|--------------------------------|------------------------------|
| 1. Front cover | 9. O-ring |
| 2. Rear cover | 10. Piston rod seal |
| 3. Piston rod | 11. O-ring |
| 4. Cylinder body | 12. Piston |
| 5. Cushioning adjustment screw | 13. Piston rod guide bushing |
| 6. Spinner | 14. End piston rod seal ring |
| 7. Tie-rod nut | 15. Piston rod nut |
| 8. Tie-rod | 16. Piston fixing nut |

Dimensional Drawing



Ø	A	B	C	D	ØE	F	G	H	I	ØJ	K	L	M	N	O	P	Q	ØR	S
125	140	52	40	5	60	110	22	M12	26	32	25	27	M27x2	54	160	225	G1/2	27	93
160	180	60	35	5	65	140	27	M16	28.5	40	45	36	M36x2	72	180	260	G3/4	35	102
200	220	59	35	5	75	175	27	M16	23.5	40	60	36	M36x2	72	180	275	G3/4	35	104
250	280	60	50	5	90	220	38	M20	30	50	25	46	M42x2	85	230	305	G3/4	35	149
320	340	60	82	5	110	270	46	M24	30	63	28	55	M48x2	96	230	340	G1	-	149

Order Code

Order specifications		V	F	160.	0300.	DOM
Series Number		V				
Version						
Piston diameter	with magnetic piston		F			
	without magnetic piston		D			
Stroke	Ø 125 (shaped profile)			125		
	Ø 160 (shaped profile)			160		
	Ø 200 (shaped profile)			200		
	Ø 250 (round tube and tie-rods)			250		
	Ø 320 (round tube and tie-rods)			320		
Design	mm				xxxx	
Design	double acting					DOM
	through rod					DOM.1
	stainless steel piston rod					DOM.4
	Viton® seals					DOM.8
	tandem					DOM.2

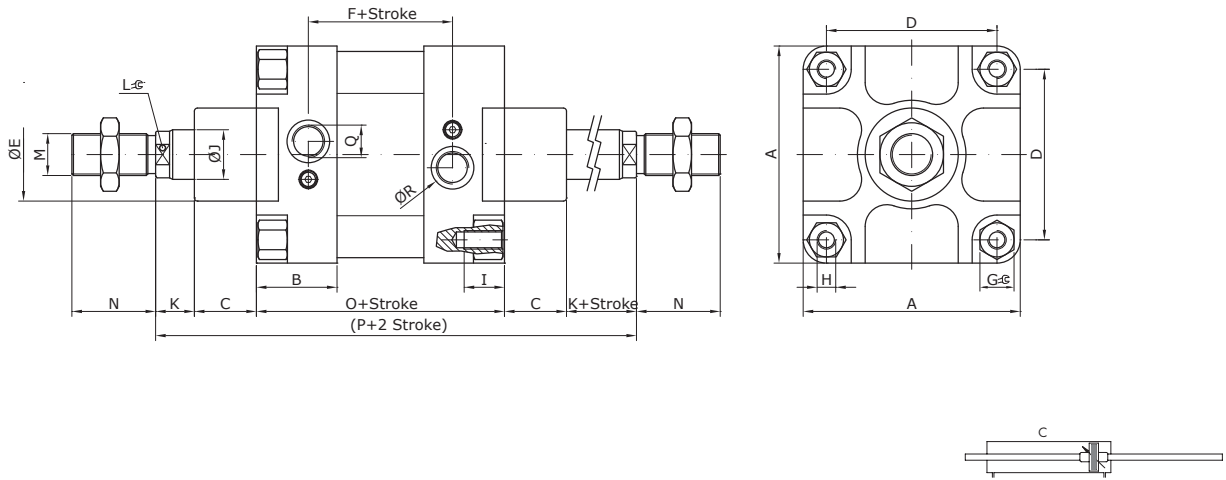
Note: Viton seals are not available for Ø 250 and Ø 320 cylinders

Special versions	V	D.	125.	0300.	zzzz*
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*zzzz = project number (assigned by factory)

Through Piston Rod

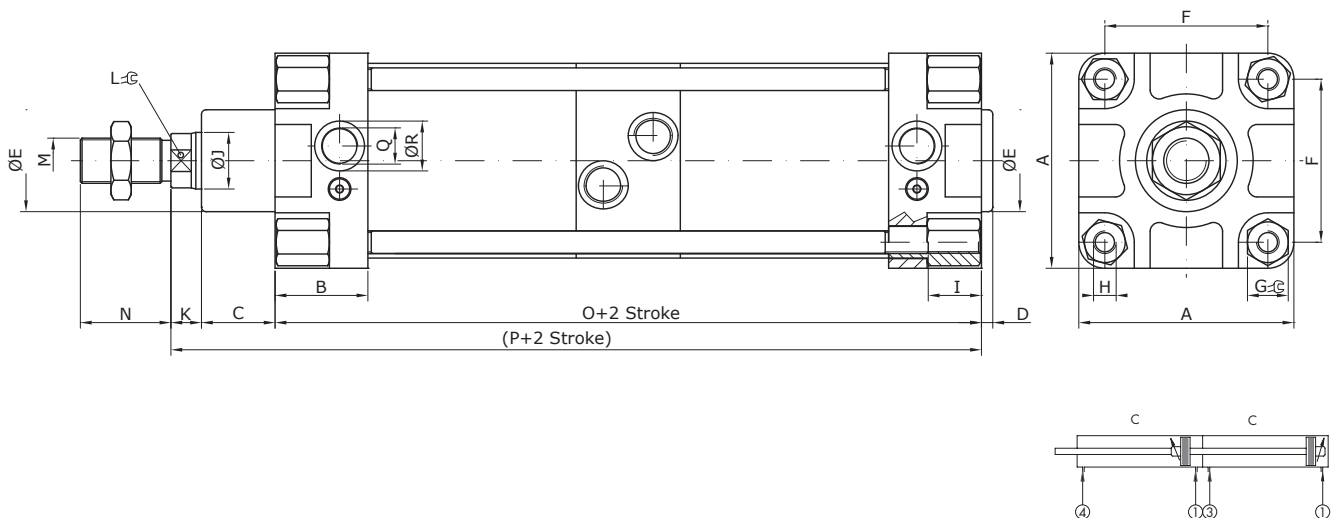
This is a double acting cylinder with piston rod coming out from both end covers.
Piston rod extends away from pressurised port.



Ø	A	B	C	D	ØE	F	G	H	I	ØJ	K	L	M	N	O	P	Q	ØR
125	140	52	40	110	60	93	22	M12	26	32	25	27	M27x2	54	160	290	G 1/2	27.5
160	180	60	35	140	65	102	27	M16	28.5	40	45	36	M36x2	72	180	340	G 3/4	35
200	220	59	35	175	75	104	27	M16	23.5	40	60	36	M36x2	72	180	370	G 3/4	35
250	280	60	50	220	90	149	38	M20	30	50	25	46	M42x2	85	230	380	G 3/4	35
320	340	60	82	270	110	170	46	M24	30	63	28	55	M48x2	96	230	450	G 1	50

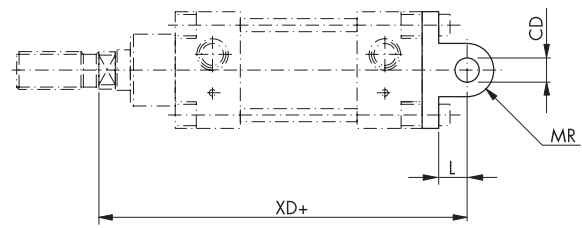
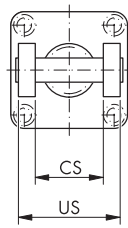
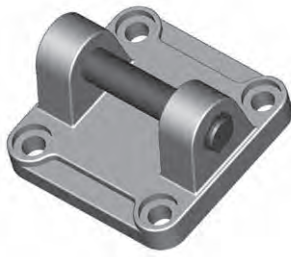
Tandem

This cylinder is used to double the force. Piston rod is one single piece passing through both cylinders (for this reason the strokes of the cylinders have to be exactly the same). Pressure in 1: pressurising both cylinders from the rear covers (port 1), piston rod moves out.
Piston rod return: to have the rod retract, it is necessary to feed both cylinders (ports 3 and 4) or, if there is no load on rod return (load is applied only on the forward stroke), the rod can be returned by applying pressure only on one cylinder (3 or, in preference, 4).



Ø	A	B	C	D	ØE	F	G	H	I	ØJ	K	L	M	N	O	P	Q	ØR
125	140	52	40	5	60	110	22	M12	26	32	25	27	M27x2	54	251	316	G 1/2	27.5
160	180	60	35	5	65	140	27	M16	28.5	40	45	36	M36x2	72	282	362	G 3/4	35
200	220	59	35	5	75	175	27	M16	23.5	40	60	36	M36x2	72	284	379	G 3/4	35
250	280	60	50	5	90	220	38	M20	30	50	25	46	M42x2	85	382	457	G 3/4	35

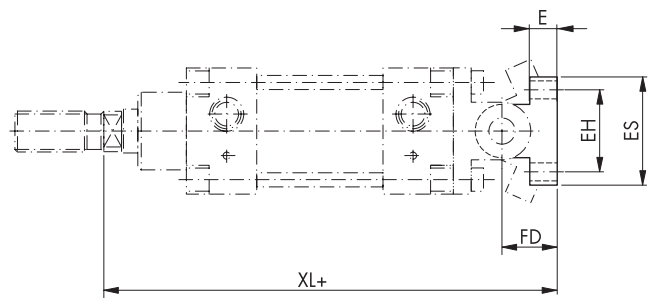
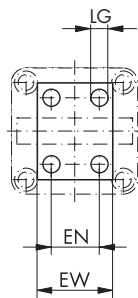
Female Trunnion



Code	∅	CS	US	L	XD+	CD	MR
18.001.07	125	70	130	30	275	25	26
18.001.08	160	90	170	35	315	30	31
18.001.09	200	90	170	35	335	30	31

Note: Bolt and fixing screws included.

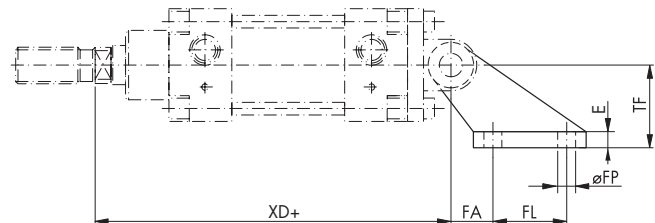
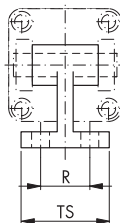
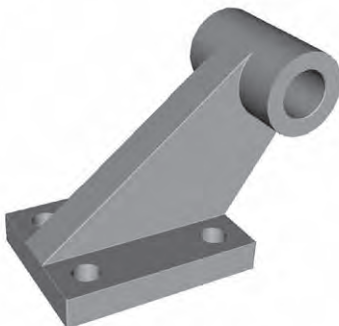
Trunnion Mounting Bracket



Code	∅	EW	EN	LG	XL	FD	E	EH	ES
18.003.07	125	70	32	14	316	41	16	90	115
18.003.08	160	90	43	18	370	55	20	150	180
	200	90	43	18	390	55	20	150	180

Note: Cetop standard, for use with female trunnion.

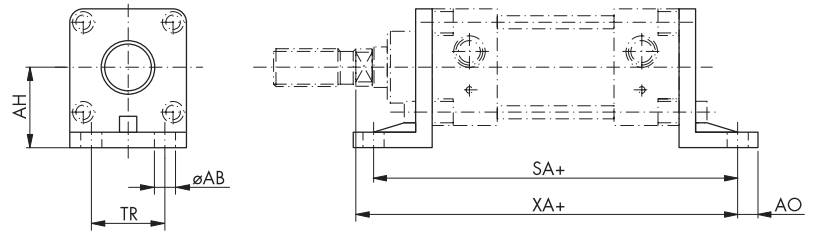
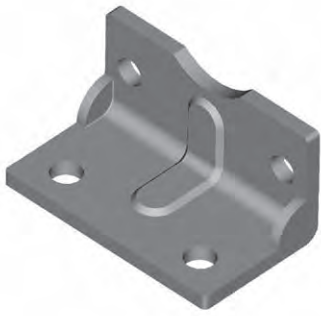
Square Angle Trunnion Mounting Bracket



Code	∅	TS	R	FP	XD	FA	FL	E	TF
18.004.07	125	80	50	14	275	40	70	16	90
18.004.08	160	110	63	18	315	50	110	20	140
	200	110	63	18	335	50	110	20	140

Note: Cetop standard, for use with female trunnion.

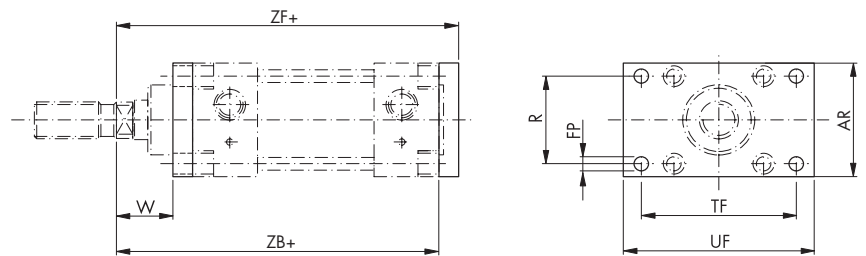
Mounting Bracket



Code	∅	AH	TR	AB	SA	XA	AO
18.005.07	125	90	90	16	250	270	15
18.005.08	160	115	115	18	300	320	20
18.005.09	200	135	135	22	320	345	30

Note: Kit includes only one bracket and fixing screws.

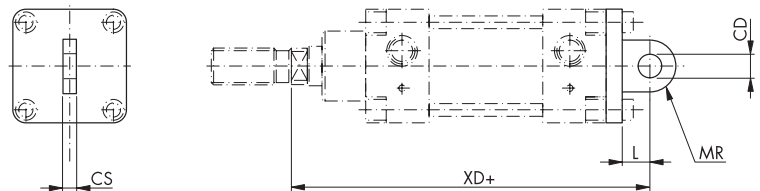
Mounting Plate



Code	∅	W	R	FP	TF	UF	AR	ZF	ZB
18.006.07	125	45	90	16	180	220	140	245	225
18.006.08	160	60	115	18	230	270	180	280	260
18.006.09	200	70	135	22	270	312	225	300	275

Note: Fixing screws included.

Male Trunnion



Code	∅	CS	CD	L	MR	XD
18.002.07	125	70	25	30	26	275
18.002.08	160	90	30	35	31	315
18.002.09	200	90	30	35	31	335

Note: Fixing screws included.

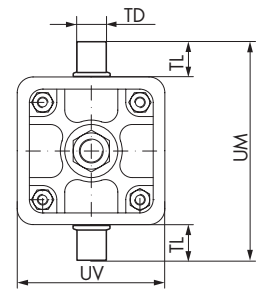
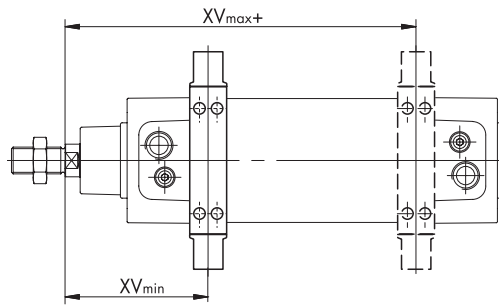
Swivel Bearing



Ø 125



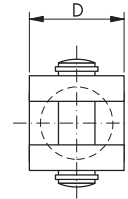
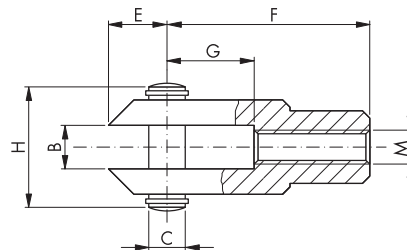
Ø 160 - 200



Note: These swivels could be mounted only disassembling the cylinder. For this reason we suggest to order the swivel directly assembled on the cylinder. Please contact our sales department for support.

Code	Ø	TD	TL	UM	UV	XV _{min}	XV _{min} ⁺
18.007.07	125	25	25	210	154	133.5	156.5
18.007.08	160	32	32	264	190	160	180
18.007.09	200	32	32	314	240	174	196

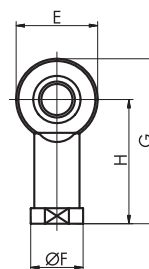
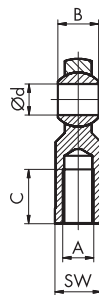
Clevis



Note: Lockable pin included.

Code	Ø	M	B	C	D	E	F	G	H
18.008.05	125	M27x2	30	30	55	38	110	54	65
18.008.06	160	M36x2	35	35	70	44	144	72	84
	200								

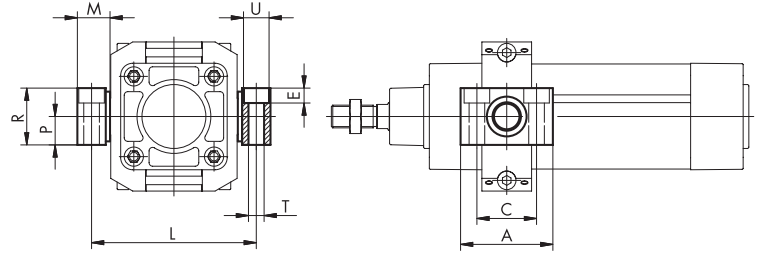
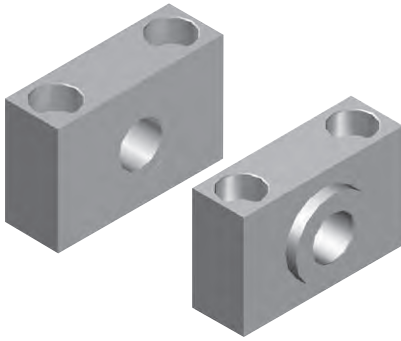
Rod End - Spherical Bearing



Note: Fixing screws included.

Code	Ø	A	Ød	B	E	F	H	G	C	SW
18.009.05	125	M27x2	30	37	70	50	110	145	51	41
18.009.06	160	M36x2	35	43	80	58	125	165	56	50
	200									

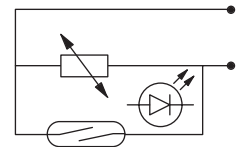
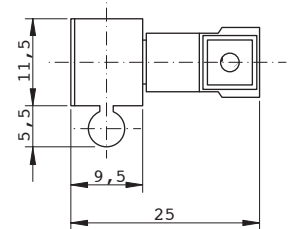
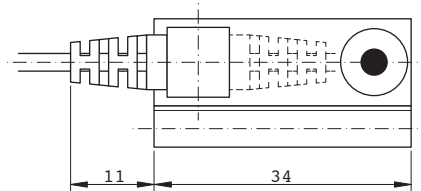
Swivel Bearing Support



Code	Ø	M	B	C	D	E	F	G	H	H
20.007.16	125	75	50	14	13	20	192	25	50	28.5
20.007.18	160	100	66	18	17	26	245	30	60	40
	200						295			

Note: Set of 2 pcs.

Position Transmitter REED (2 pole with plug connector)



Switching output: N.O.
 Switching capacity: max 10 VA
 Switching voltage: 3-230 V AC/DC
 Switching current: max 500 mA
 Voltage drop: -
 Switching time: 0.5 ms
 Service life: 107 operations, depending on the load
 Housing material: plastic
 Protection class: IP67
 Ambient temperature range: -20°C to +85°C
 Status indicator: LED

Code	Description
33.18.115	with cable L = 3000 mm

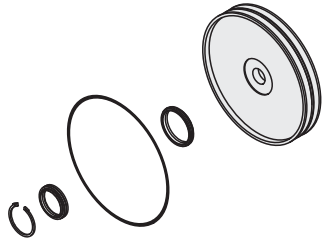
Fastening Clamps

This clamp is used to fit position transmitter 33.18.115 to larger bore ISO 15552 cylinders, 125 to 200.



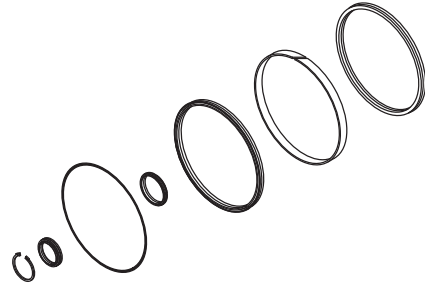
Ø	Code
125	33.009.07
160	33.009.19
200	

Seal Kit for VD (non-magnetic piston)



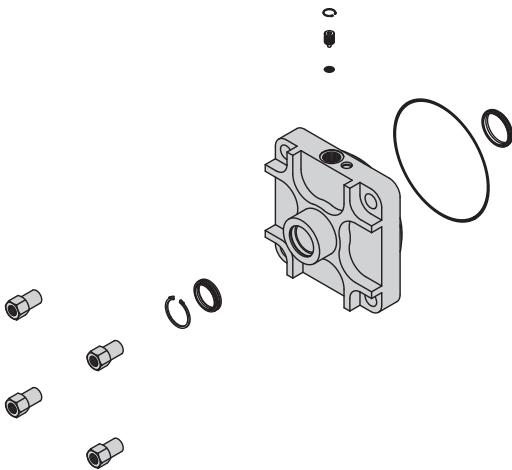
Ø	Code
125	SG.125VD.DOM
160	SG.160VD.DOM
200	SG.200VD.DOM
250	SG.250VD.DOM
320	SG.320VD.DOM

Seal Kit for VF (magnetic piston)



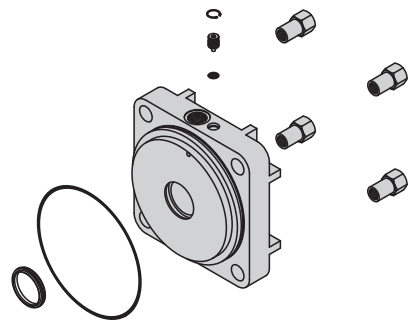
Ø	Code
125	SG.125VF.DOM
160	SG.160VF.DOM
200	SG.200VF.DOM
250	SG.250VF.DOM
320	SG.320VF.DOM

Front Cover Kit



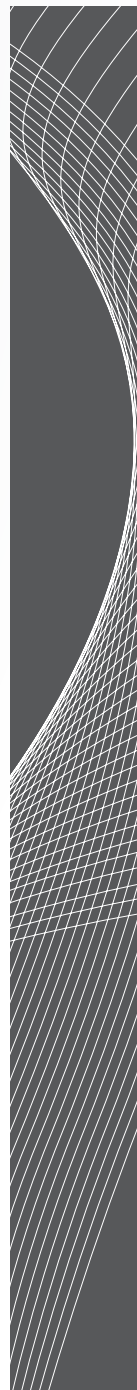
Ø	Code
125	TEST.ANT.125.VD
160	TEST.ANT.160.VD
200	TEST.ANT.200.VD
250	TEST.ANT.250.VD
320	TEST.ANT.320.VD

Rear Cover Kit



Ø	Code
125	TEST.POS.125.VD
160	TEST.POS.160.VD
200	TEST.POS.200.VD
250	TEST.POS.250.VD
320	TEST.POS.320.VD

MICRO SERIES CYLINDERS ISO 6432



MICRO SERIES
CYLINDERS ISO 6432

CYLINDERS ISO 6432

General Information



Micro cylinders are available in 2 variants, U type and S type. U type is ISO 6432 compliant with front or rear mounting. S type are front fixing only and therefore are non ISO standard. The stainless steel cylinder tube offers excellent resistance to cor-

rosion and a low friction surface for the piston. These standard products are rugged and hard wearing. There are single and double acting versions, through rod options, and cushioning options for larger U type cylinders.

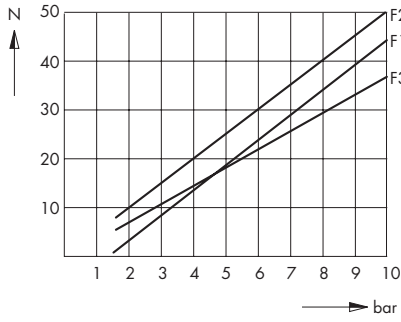
Technical Data

Piston diameters:	Ø 8, 10, 12, 16, 20, 25 (mm)						
Ports:	Ø 8, Ø 10, Ø 12, Ø 16 = M5; Ø 20, Ø 25 = G1/8						
Cylinder covers:	Aluminium						
Piston rod:	Cr-Ni steel						
Cylinder tube:	Cr-Ni steel						
Assembling design:	Chamfered						
Cushioning:	Plastic						
Operating temperature:	-20 °C to +70 °C						
Seals:	Perbunan, oil-resistant						
Operating medium:	Compressed air, prepared						
Lubricant:	Shell Tellus Oil C10 or equivalent						
Mounting:	Version "S": threaded mounting on cylinder front cover Version "U": universal mounting (with threads on nose end, and on rear trunnion)						
Pressure range:	Ø [mm]	8	10	12	16	20	25
	Single acting [bar]	2.0 - 10	1.5 - 10	1.5 - 10	1.5 - 10	1.5 - 10	1.5 - 10
	Double acting [bar]	1.5 - 10	1.5 - 10	1.0 - 10	1.0 - 10	0.5 - 10	0.5 - 10
Spring force:	Designed for return of piston, not for any coupled mass						
	Area ratio of piston with double acting cylinders (due to reduction of piston rod sections)						
	Ø 8	4:3	Ø 12	4:3			
	Ø 10	6:5	Ø 16 - 25	7:6			
Length of cushioning:	Ø 16	13.5 mm					
	Ø 20, Ø 25	16.0 mm					
Stroke tolerance:	Max. + 1.5 mm						
Stroke limitation:	If possible external (for optimum life)						

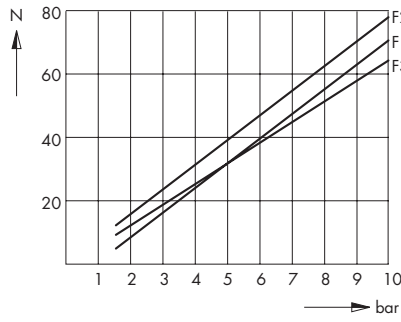
Static Cylinder Characteristics

The cylinder characteristics should be multiplied by a factor of 0.5 - 0.7 for the dynamic behaviour.

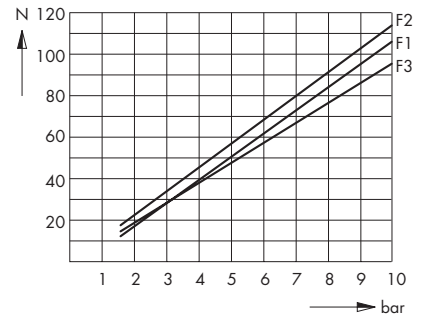
Ø 8 mm



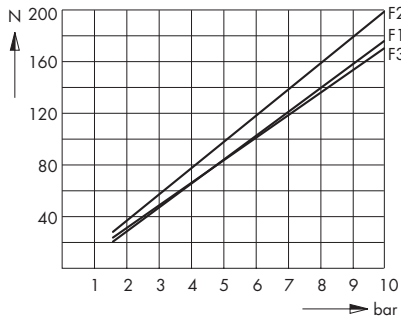
Ø 10 mm



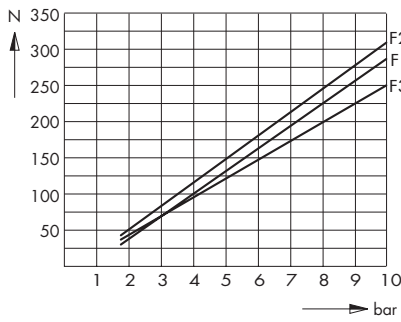
Ø 12 mm



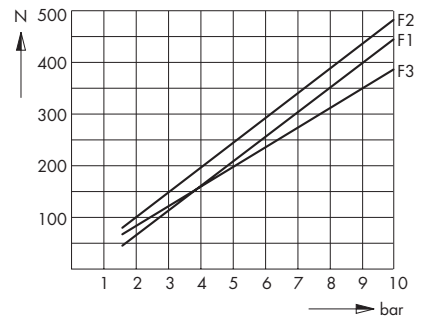
Ø 16 mm



Ø 20 mm



Ø 25 mm



F1 = single acting cylinders

F2 = double acting cylinders in forward stroke

F3 = double acting cylinders in return stroke

Order Code

<i>Order specifications</i>		<i>23.</i>	<i>15</i>	<i>1.</i>	<i>050</i>
Piston diameter					
	Ø 8	23			
	Ø 10	24			
	Ø 12	25			
	Ø 16	26			
	Ø 20	27			
	Ø 25	28			
Design and Type					
	single acting, type S		15		
	single acting, type U		19		
	double acting, type S		25		
	double acting, type U		29		
	double acting, type U with cushioning (only for Ø16, Ø20, Ø25)		24		
	through piston rod		60		
Version					
	without magnetic piston			blank	
	with magnetic piston			1	
Stroke					
	mm				xxx

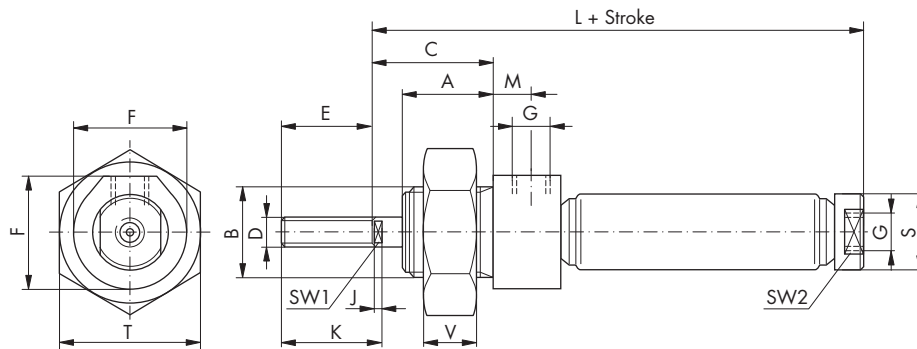
<i>Special versions</i>	<i>SP.7</i>	<i>yy.</i>	<i>zzzz*</i>
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yy = piston diameter code number
**zzzz = project number (assigned by factory)*

Micro-Cylinder - Type S

Acting: Single acting
Double acting

Cushioning: none



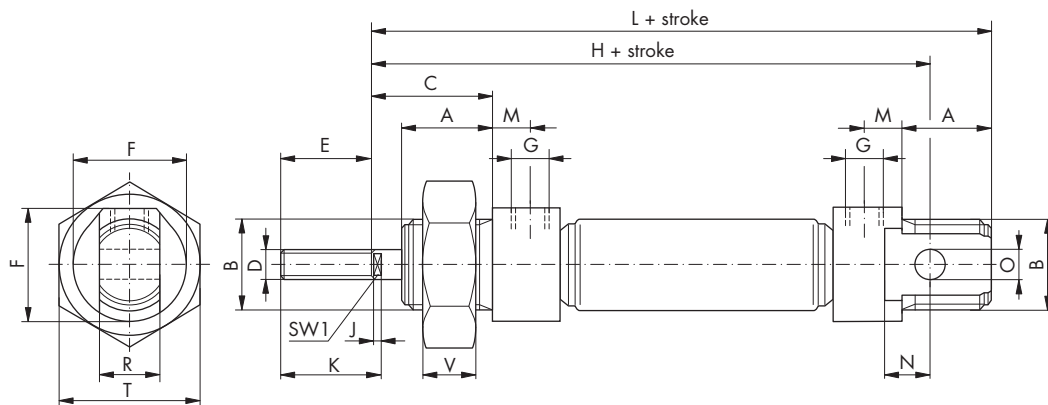
Ø	A	B	C	D	E	F	G	J	K	L	M	SØ	T	V	SW1	SW2	Single acting Max stroke available	Double acting Max stroke available
8	12	M12x1.25	16	M4	12	15	M5	-	12	55	5	10	19	7	-	8	50 mm	150 mm
10	12	M12x1.25	16	M4	12	15	M5	-	12	56	5	12	19	7	-	10	50 mm	150 mm
12	17	M16x1.5	22	M6	16	20	M5	3.5	19.5	64	5	14	24	8	5	12	50 mm	300 mm
16	17	M16x1.5	22	M6	16	20	M5	3.5	19.5	74	5	18	24	8	5	16	50 mm	350 mm
20	20	M22x1.5	24	M8	20	27	G1/8	4	23	82	8	22	32	10	7	19	50 mm	500 mm
25	22	M22x1.5	28	M10x1.25	22	27	G1/8	4	26	90	8	27	32	10	9	24	50 mm	500 mm

Note: The cylinder is supplied with assembled rod nut, the single acting cylinder is threaded only on rear side.

Micro-Cylinder - Type U (no cushioning)

Acting: Single acting
Double acting

Cushioning: none



Ø	A	B	C	D	E	F	G	H	J	K	L	M	N	O _(H9)	R _(d13)	T	V	SW1	Single acting Max stroke available	Double acting Max stroke available
8	12	M12x1.25	16	M4	12	15	M5	64	-	12	72	5	6	4	8	19	7	-	50 mm	150 mm
10	12	M12x1.25	16	M4	12	15	M5	64	-	12	72	5	6	4	8	19	7	-	50 mm	150 mm
12	17	M16x1.5	22	M6	16	20	M5	75	3.5	19.5	85	5	9	6	12	24	8	5	50 mm	300 mm
16	17	M16x1.5	22	M6	16	20	M5	82	3.5	19.5	95	5	9	6	12	24	8	5	50 mm	350 mm
20	20	M22x1.5	24	M8	20	27	G1/8	95	4	23	110	8	12	8	16	32	10	7	50 mm	500 mm
25	22	M22x1.5	28	M10x1.25	22	27	G1/8	104	4	26	119	8	12	8	16	32	10	9	50 mm	500 mm

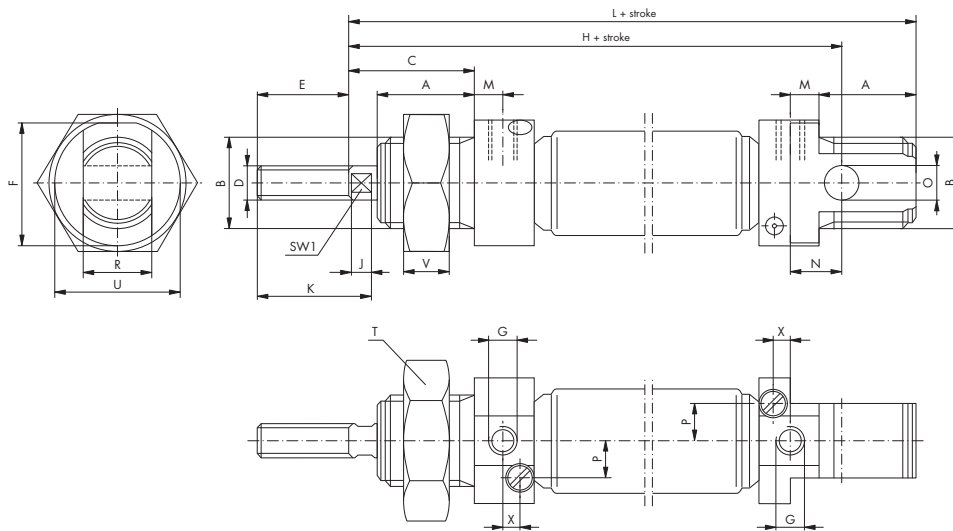
Note: The cylinder is supplied with assembled rod nut, the single acting cylinder is threaded only on rear side.

MICRO SERIES
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Micro-Cylinder - Type U with Cushioning

Acting: Double acting

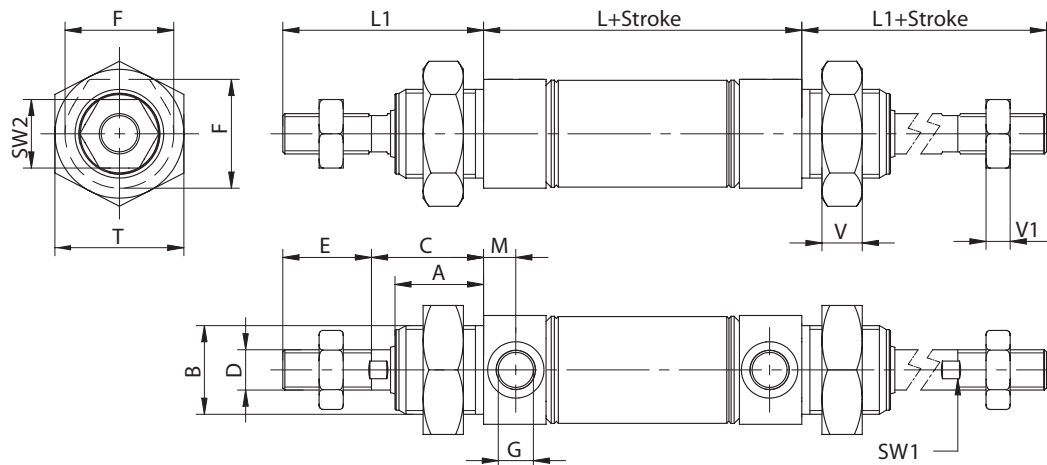
Cushioning: yes



Ø	A	B	C	D	E	F	G	H	J	K	L	M	N	O _(H9)	P	R _(d13)	T	U	V	X	SW1	Double acting Max stroke available
16	17	M16x1.5	22	M6	16	21	M5	82	3.5	19.5	95	5	9	6	6.5	12	24	22	8	3	5	350 mm
20	20	M22x1.5	24	M8	20	27	G1/8	95	4	22.5	110	5	12	8	8	16	32	27	10	4	7	500 mm
25	22	M22x1.5	28	M10x1.25	22	27	G1/8	104	4	26	119	5	12	8	9	16	32	27	10	4	9	500 mm

Note: The cylinder is supplied with assembled rod nut

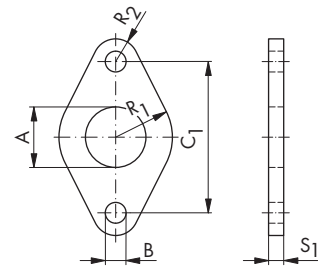
Micro-Cylinder - Through Piston Rod



Ø	A	B	C	D	E	F	G	J	L	L1	SW1	SW2	V	V1
8	12	M12x1.25	16	M4	12	15	M5	-	44	28	-	7	7	3
10	12	M12x1.25	16	M4	12	15	M5	-	44	28	-	7	7	3
12	17	M16x1.5	22	M6	16	20	M5	3.5	46	38	5	10	8	4
16	17	M16x1.5	22	M6	16	20	M5	3.5	56	38	5	10	8	4
20	20	M22x1.5	24	M8	20	27	G1/8	4	66	44	7	13	10	5
25	22	M22x1.5	28	M10x1.25	22	27	G1/8	4	69	50	9	17	10	8

Mounting Flange

Materials: steel, black surface

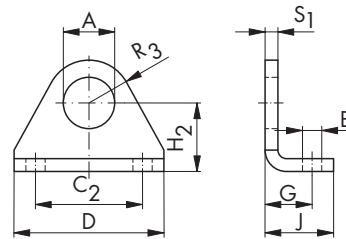


Code	∅	A	B	C1	R ₁	R ₂	S1
23.305	8, 10	12	4.5	30	11	5	3
26.305	12, 16	16	5.5	40	15	6	4
28.305	20, 25	22	6.6	50	20	8	5

Note: Single mounting brackets or flanges are suitable for stroke lengths up to 50mm only.

Mounting Bracket

Materials: steel, black surface



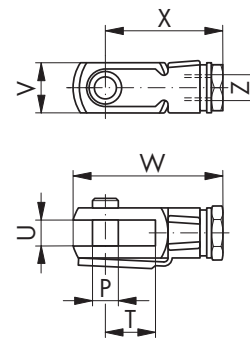
Code	∅	A	B	C ₂	D	G	H ₂	J	R ₃	S ₁
23.312	8, 10	12	4.5	25	35	11	16	16	10	3
26.302	12, 16	16	5.5	32	42	14	20	20	12.5	4
28.302	20, 25	22	6.6	40	54	17	25	25	18	5

Note: Single mounting brackets or flanges are suitable for stroke lengths up to 50mm only.

Clevis

Clevis materials: steel, galvanised

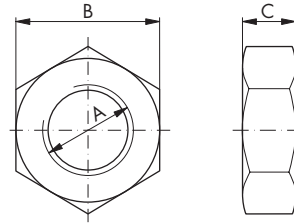
Safety bolt materials: steel, phosphorised



Code	∅	T	U	P	V	W	X	Z
23.314	8, 10	8	4	4	8	23.2	18.2	M4
19.008.07	12, 16	12	6	6	12	31	24	M6
19.008.08	20	16	8	8	16	42	32	M8
18.008.01	25	20	10	10	20	52	40	M10x1.25

Fixing Nut

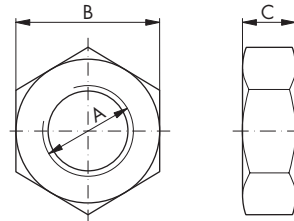
Materials: steel, galvanised



Code	Ø	A	B	C
JB2200007	8, 10	M12x1.25	19	7
JB2200002	12, 16	M16x1.5	24	8
JB5270001	20, 25	M22x1.5	32	10

Rod Nut

Materials: steel, galvanised



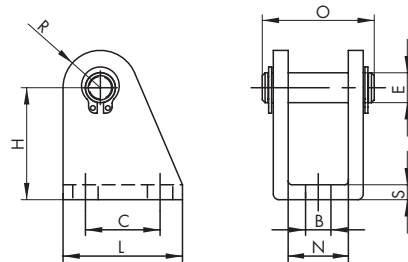
Code	Ø	A	B	C
JB2200025	8, 10	M4	7	3
JB2200051	12, 16	M6	10	4
JB2200022	20	M8	13	5
JB2200001	25	M10x1.25	17	8

Trunnion

Trunnion materials: steel, black surface

Bolt materials: steel, corrosion-resistant

Safety materials: steel, phosphorised



Code	Ø	B	E	C	H	L	N	O	R	S _(±0.2)
23.313	8, 10	4.5	4	12.5	24	20	8.1	17	5	2.5
26.313	12, 16	5.5	6	16	27	25	12.1	23	7	3
28.313	20, 25	6.8	8	20	30	32	16.1	29.5	10	4

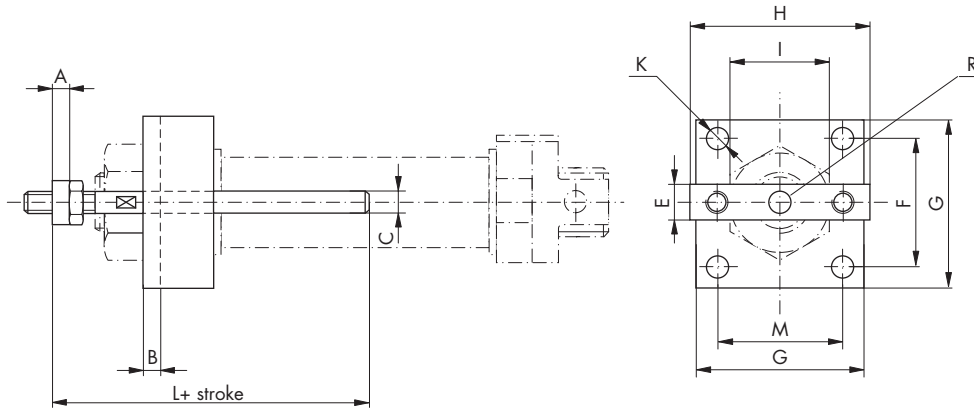
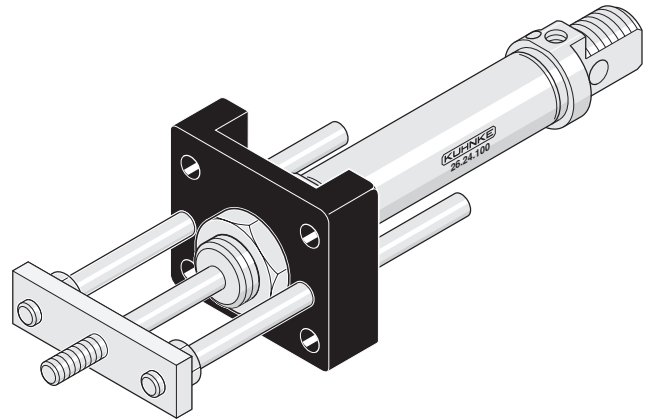
Accessories Linear Guide Units - Mini Torsion Protection

These compact and sturdy units fit easily to the micro cylinder range. They provide protection from torsion to the rod extension due to radial loading

and have a wide range of applications. Select from a range of extensions for each size of micro cylinder.

Materials

- Flange base (control frame): die-cast aluminium
- Bearing: sintered bronze sleeves
- Mounting plate: brass
- Control rails: stainless steel, corrosion resistant, polished



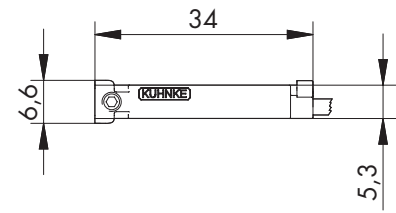
MICRO SERIES
CYLINDERS ISO 6432

Ø	A	B	C	E	F	G	H	I	K	L + Stroke	M	Z	R
8, 10	4	4	4	8	25	35	33	19	5	30	25	17	M4
12, 16	6	5	6	12	31	45	43	24	6	40	33	19	M6
20	6	5	6	16	40	55	52	32	7	52	42	22	M8
25	65	5	6	16	40	55	52	32	7	52	42	22	M10 x 1.25

Order Code

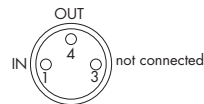
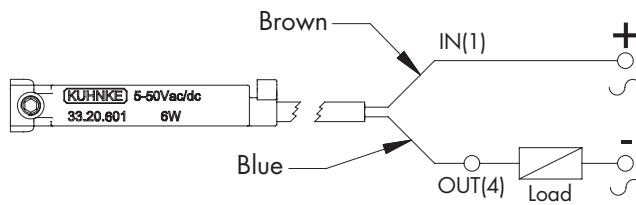
Order specifications		23.	315.	100
Piston diameter				
	Ø 8 - Ø 10	23		
	Ø 12 - Ø 16	26		
	Ø 20	27		
	Ø 25	28		
Design & type	Linear Guide Units		315	
Standard Stroke				
	50 mm			050
	100 mm			100
	160 mm			160
	200 mm (not available for Ø8 - Ø10)			200

Position Transmitter



Position Transmitter REED (2 pole)

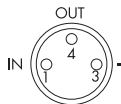
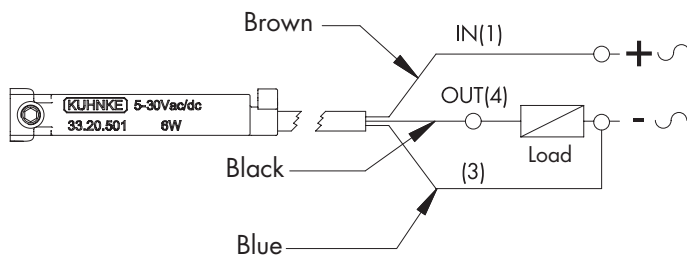
Contact type: N.O.
 Cable: 2 x 0.14 mm²
 Switching capacity: max 6 W
 Switching voltage: 5-50 V AC/DC
 Switching current: max 200 mA
 Voltage drop: 3 V
 Switching time: 0.6 ms
 Switching rate: max 400 Hz
 Service life: 10⁷ operations, depending on the load
 Ambient temperature range: -5°C to +75°C
 Protection class: IP67
 Status indicator: LED
 Housing material: plastic



Code	Description
33.20.601	with cable L = 2000 mm
33.20.681	socket M8, cable L = 300 mm

Position Transmitter REED (3 pole)

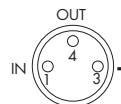
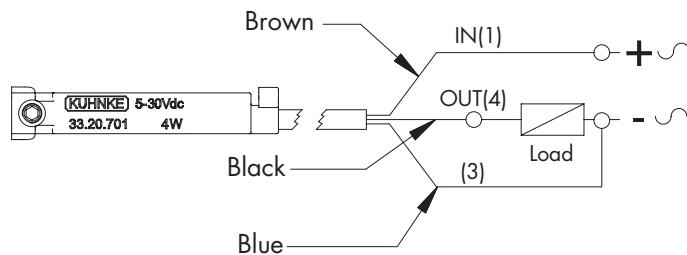
Contact type: N.O.
 Cable: 3 x 0.14 mm²
 Switching capacity: max 6 W
 Switching voltage: 5-30 V AC/DC
 Switching current: max 500 mA
 Voltage drop: 0.1 V
 Switching time: 0.6 ms
 Switching rate: max 400 Hz
 Service life: 10⁷ operations, depending on the load
 Ambient temperature range: -5°C to +75°C
 Protection class: IP67
 Status indicator: LED
 Housing material: plastic



Code	Description
33.20.501	with cable L = 2000 mm
33.20.581	socket M8, cable L = 300 mm

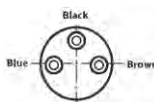
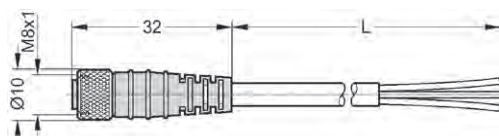
Electronic Position Transmitter

Contact Type: PNP (N.O.)
 Cable: 3 x 0.14 mm²
 Switching capacity: max 4 W
 Switching voltage: 5-30 V DC
 Switching current: max 200 mA
 Voltage drop: 0.7 V
 Switching time: 0.8 μs
 Switching rate: max 1 kHz
 Service life: 10¹¹ operations, depending on the load
 Ambient temperature range: -5°C to +75°C
 Protection class: IP67
 Status indicator: LED
 Housing material: plastic



Code	Description
33.20.701	with cable L = 2000 mm
33.20.781	socket M8, cable L = 300 mm

M8 Connectors (female-straight)



Code	Description
PL08B3.V250.30	cable L = 3000 mm
PL08B3.V250.50	cable L = 5000 mm

Fastening-Clamps for Position Transmitter

Fastening-clamps for electronic position transmitter

Ø	Code
8	33.008.23.01
10	33.008.24.01
12	33.008.25.01
16	33.008.26.01
20	33.008.27.01
25	33.008.28.01

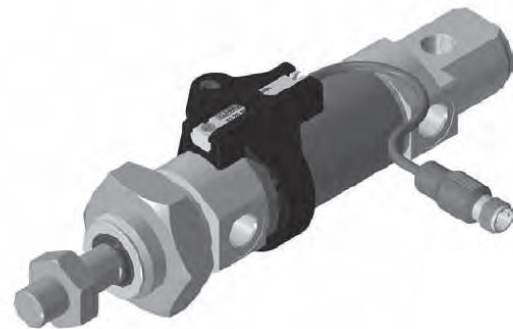
Note: Mounting screw included.



Sensor and Fastening-Clamps Assembly

STEP 1: Place the fastening clamps around the cylinder and fix the screw

STEP 2: Insert the position transmitter inside the clamp



MICRO SERIES
CYLINDERS ISO 6432

Piston Rod Lock Device

Pressure: 3 - 6 bar

Temperature: -5°C to +80°C

Materials: anodised aluminium (body)

Lock Version: by static type friction (stopped piston rod)

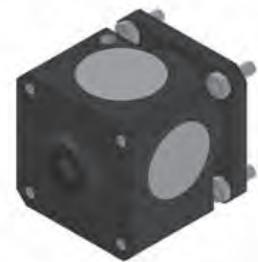
Operating position: any

Fluid: filtered air (dry)

Lubrication: not necessary



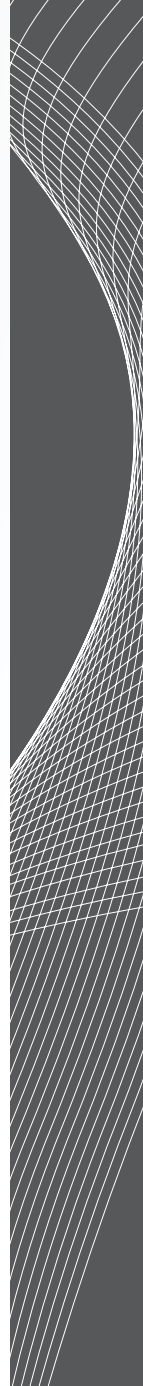
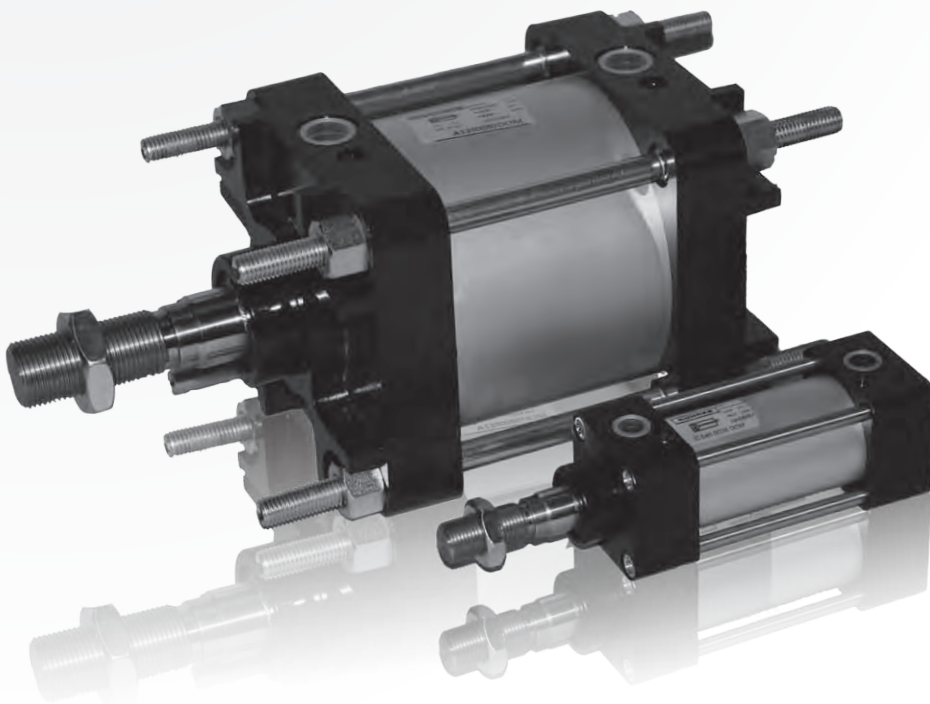
Single jaw



Double jaw

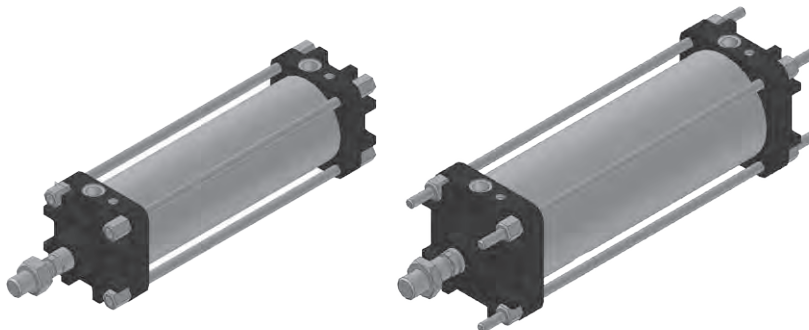
Jaw	Cylinder Diameter	Force (N)	Code
Single jaw	12	180	MA7.012
	16	180	MA7.016
	20	350	MA7.020
	25	350	MA7.025
Double jaw	20	490	KBS.3001.020
	25	490	KBS.3001.025

A/C SERIES
CYLINDERS CNOMO



CYLINDERS CNOMO

General Information



Series A/C cylinders are manufactured according to the Cnomo standard. The cylinder tubes have a round profile and visible tie-rods. This product has been designed to have extraordinary

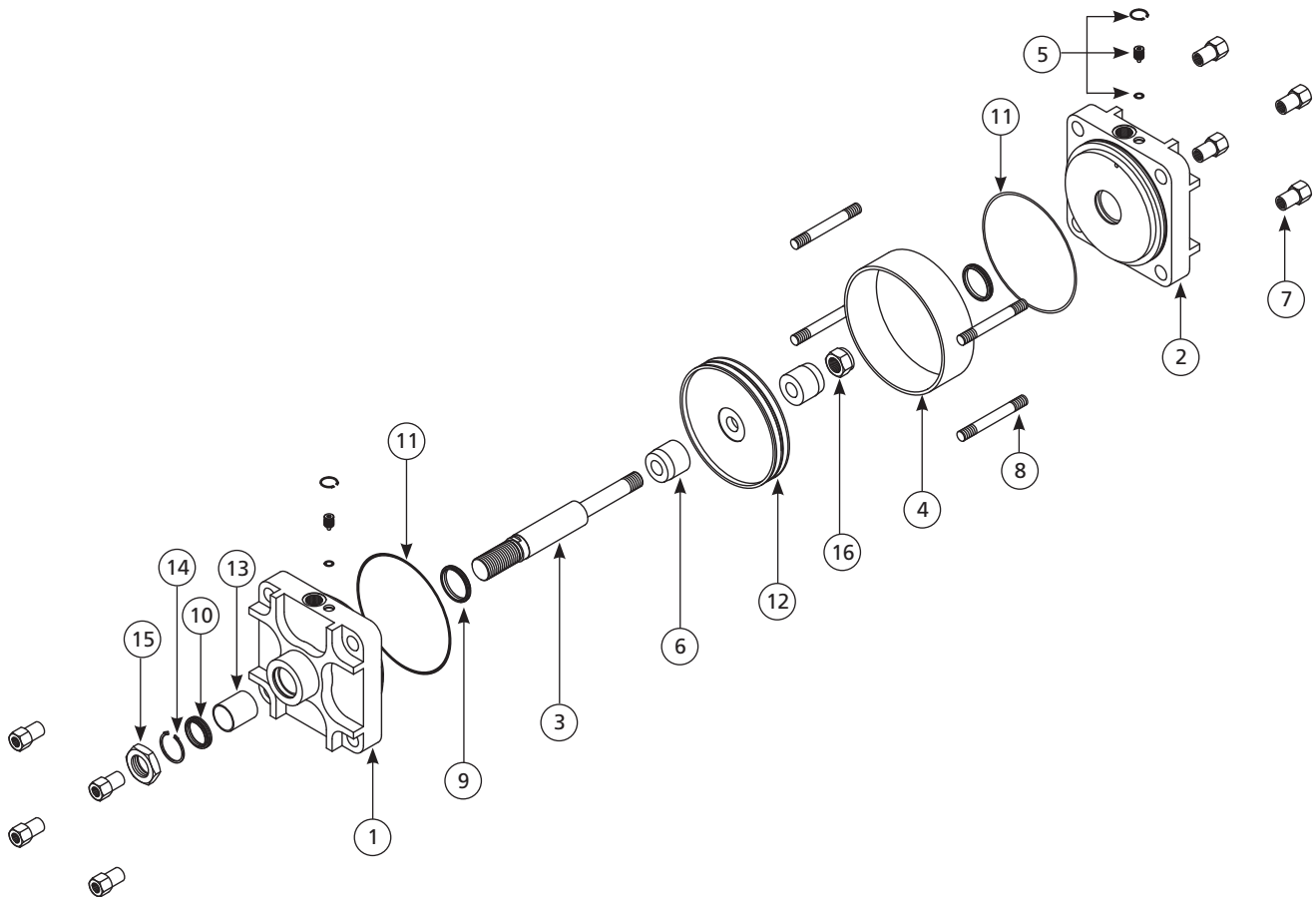
strength. This simple design facilitates special high and low temperature versions, by means of minor component changes. All double acting with through rod and tandem options.

Technical Data

Piston diameters:	Ø 32, 40, 50, 63, 80, 100, 125, 160, 200, 250, 320 (mm)											
Ports:	Ø 32 = G1/8; Ø 40, Ø 50 = G1/4; Ø 63, Ø 80 = G3/8; Ø 100, Ø 125 = G1/2; Ø 160, Ø 200, Ø 250 = G3/4; Ø 320 = G1											
Covers:	Aluminium die-cast (painted)											
Piston rod:	C45 chromium plated steel (upon request stainless steel)											
Tube:	Round anodised aluminium											
Tie-rods:	Galvanised steel											
Piston seal:	NBR (Viton® on request)											
Other seals:	NBR (Viton® seals on request)											
Operating medium:	5 µm filtered air, lubricated or not (dry air must be used for application below 0 °C)											
Max pressure:	10 bar											
Operating temperature:	NBR seals: -10 °C to +80 °C						Viton® seals: -10 °C to +150 °C					
Cushioning length:	Ø 32	40	50	63	80	100	125	160	200	250	320	
	mm	28	28	32	32	40	40	35	45	45	50	-
Stroke tolerance:	Ø 32 - 50	< 500 mm: + 2.0 mm					Ø 125 - 200					< 500 mm: + 4.0 mm
		> 500 mm: + 3.2 mm										> 500 mm: + 5.0 mm
	Ø 63 - 100	< 500 mm: + 2.5 mm					Ø 250 - 320					< 500 mm: + 5.0 mm
		> 500 mm: + 4.0 mm										> 500 mm: + 7.0 mm
Force at 6 bar:	Ø	32	40	50	63	80	100	125	160	200	250	320
	N [push]	470	730	1.150	1.830	2.990	4.600	7.200	11.760	18.440	28.840	47.260
	N [pull]	400	590	1.000	1.590	2.720	4.190	6.790	11.050	17.700	27.690	40.620
Max strokes:	3000 mm											

Please note that when using Viton seals with magnetic pistons, the temperature limit is determined by the magnetic ring. In this case the upper limit is 100°C. Accessories for cylinder diameters 250 & 320mm are only available by special order. Contact our sales office.

Exploded View



- | | |
|--------------------------------|-----------------------------|
| 1. Front cover | 9. End piston rod seal ring |
| 2. Rear cover | 10. Piston rod nut |
| 3. Tie-rod nut | 11. O-ring |
| 4. Cushioning adjustment screw | 12. Piston |
| 5. Piston rod seal | 13. Piston rod |
| 6. O-ring | 14. Spinner |
| 7. Piston fixing nut | 15. Cylinder body |
| 8. Piston rod guide bushing | 16. Tie-rod |

Order Code

<i>Order specifications</i>		A.	125.	0200.	DOM
Series number and version					
Piston diameter	with magnetic piston	C			
	without magnetic piston	A			
Stroke	Ø 32 (standard without protruding tie-rods)		032		
	Ø 40 (standard without protruding tie-rods)		040		
	Ø 50 (standard without protruding tie-rods)		050		
	Ø 63 (standard without protruding tie-rods)		063		
	Ø 80 (standard without protruding tie-rods)		080		
	Ø 100 (standard without protruding tie-rods)		100		
	Ø 125 (with protruding tie-rods only)		125		
	Ø 160 (with protruding tie-rods only)		160		
	Ø 200 (with protruding tie-rods only)		200		
	Ø 250 (with protruding tie-rods only)		250		
Ø 320 (with protruding tie-rods only)		320			
Design	mm			xxxx	
Design	double acting				DOM
	through rod				DOM.1
	stainless steel piston rod				DOM.4
	Viton® seals				DOM.8
	tandem				DOM.2

Note: Viton seals are not available for Ø 250 and Ø 320 cylinders

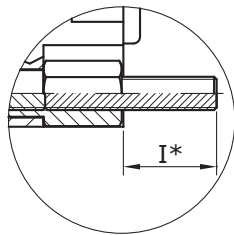
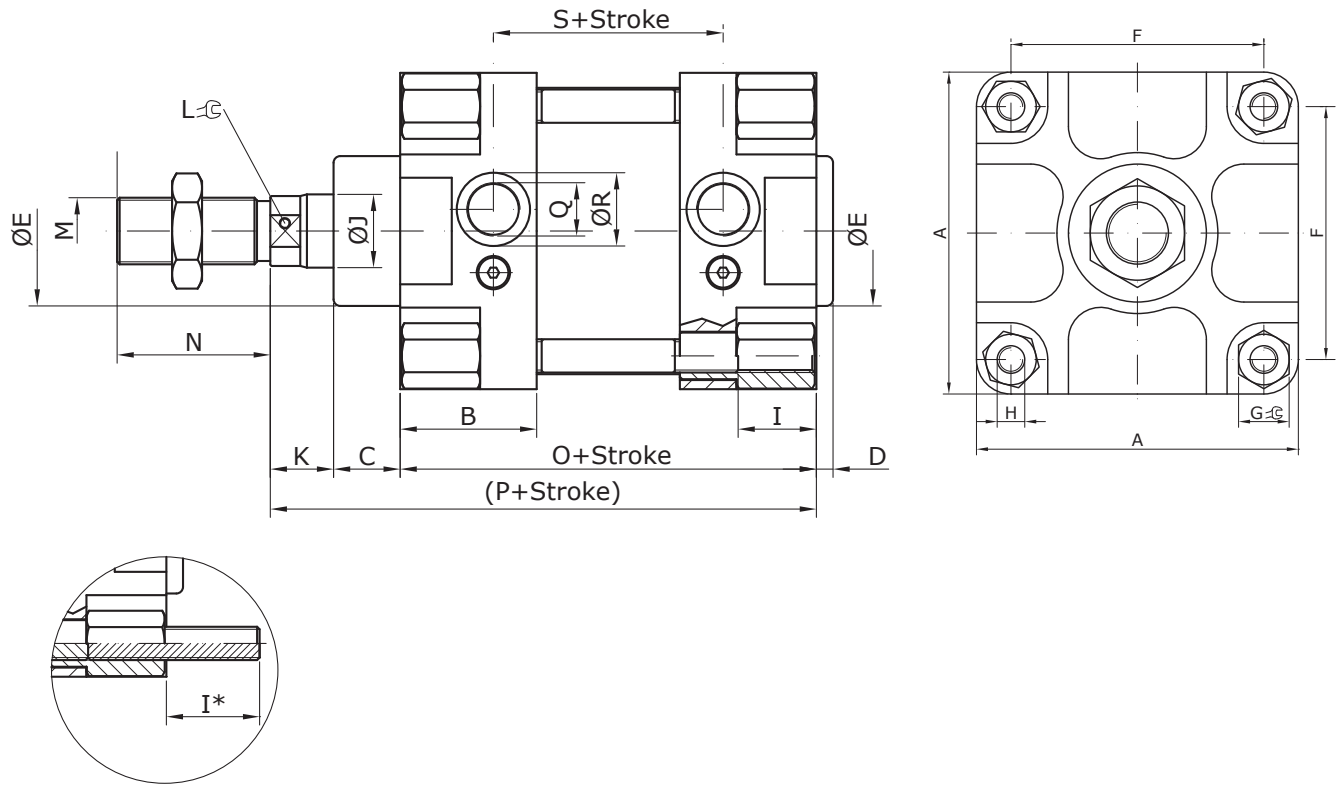
<i>Special versions</i>		A.	125.	0300.	zzzz*
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*zzzz = project number (assigned by factory)

Dimensional Drawing

32-100 MM DIAMETER

Piston diameters: from Ø32 up to Ø100 mm



A/C SERIES
CYLINDERS CNOMO

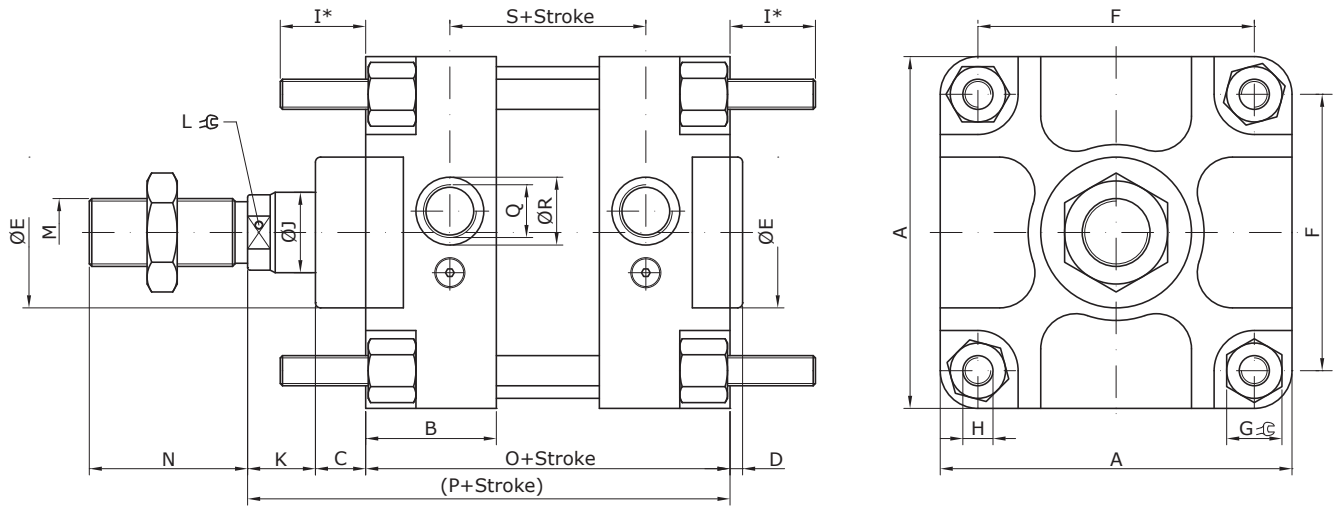
Ø	A	B	C	D	ØE	F	G	H	I	ØJ	K	L	M	N	O	P	Q	ØR	S	I*
32	46	25	15	5	25	33	6	M6	15.5	12	10	10	M10x1.5	20	80	105	G1/8	13	59	17
40	52	29	15	5	32	40	6	M6	15.5	18	19	15	M16x1.5	36	110	144	G1/4	18	80	17
50	66	29	15	5	32	49	14	M8	20.5	18	19	15	M16x1.5	36	110	144	G1/4	18	75	23
63	75	34	20	5	45	59	14	M8	20.5	22	19	19	M20x1.5	46	125	164	G3/8	22	80	23
80	95	41	20	5	45	75	17	M10	23.5	22	19	19	M20x1.5	46	125	164	G3/8	22	68	28
100	115	44	20	5	55	90	17	M10	23.5	30	27	27	M27x2	63	145	192	G1/2	27	88	28

Note: Cnomo cylinders Ø32 to Ø100 with protruding tie-rods only upon request.

Dimensional Drawing

125-320 MM DIAMETER

Piston diameters: from Ø125 up to Ø320 mm

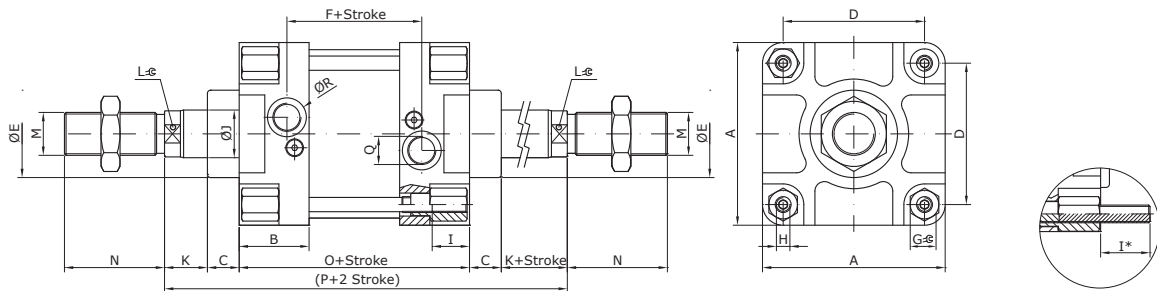


Ø	A	B	C	D	ØE	F	G	H	ØJ	K	L	M	N	O	P	Q	ØR	S	I*
125	140	48.5	20	5	55	110	22	M12	30	27	27	M27x2	63	145	192	G1/2	27	85	34
160	180	60	35	5	65	140	27	M16	40	15	36	M36x2	85	180	230	G3/4	35	102	42
200	220	59	35	5	65	175	27	M16	40	15	36	M36x2	85	180	230	G3/4	35	104	42
250	280	60	50	5	90	220	38	M20	50	30	41	M36x2	85	230	310	G3/4	35	149	50
320	340	60	82	5	110	270	46	M24	63	23	55	M36x2	90	230	335	G1	50	170	60

A/C SERIES
CYLINDERS CNOMO

Through piston rod

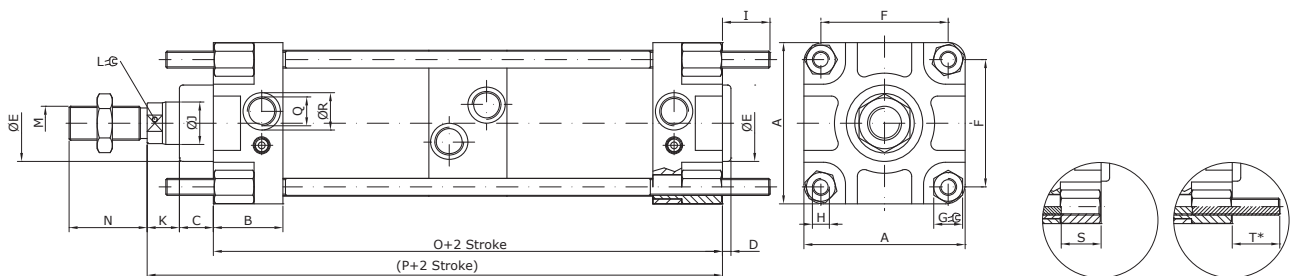
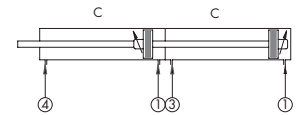
This is a double acting cylinder with piston rod coming out from both end covers.
Piston rod extends away from pressurised port.



Ø	A	B	C	D	ØE	F	G	H	I	ØJ	K	L	M	N	O	P	Q	ØR	I*
32	46	25	15	33	25	59	6	M6	15.5	12	10	10	M10	20	80	130	G 1/8	15	17
40	52	29	15	40	32	80	6	M6	15.5	18	19	15	M16x1.5	36	110	178	G1/4	20	17
50	66	29	15	49	32	74	14	M8	20.5	18	19	15	M16x1.5	36	110	178	G1/4	20	23
63	75	34	20	59	45	81	14	M8	20.5	22	19	19	M20x1.5	46	125	203	G3/8	23	23
80	95	41	20	75	45	68	17	M10	23.5	22	19	19	M20x1.5	46	125	203	G3/8	23	28
100	115	44	20	90	55	88	17	M10	23.5	30	27	27	M27x2	63	145	239	G1/2	27.5	28
125	140	48.5	20	110	55	86	22	M12	-	30	27	27	M27x2	63	145	239	G1/2	27.5	34
160	180	60	35	140	65	102	27	M16	-	40	15	36	M36x2	85	180	280	G3/4	35	42
200	220	59	35	175	65	104	27	M16	-	40	15	36	M36x2	85	180	280	G3/4	35	42
250	280	60	50	220	90	149	38	M20	-	50	30	41	M36x2	85	230	390	G3/4	35	50
320	340	60	82	270	110	170	46	M24	-	63	23	55	M36x2	90	230	440	G1	50	60

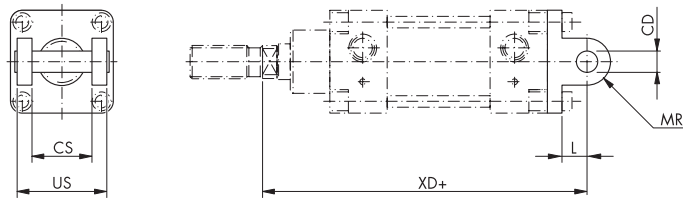
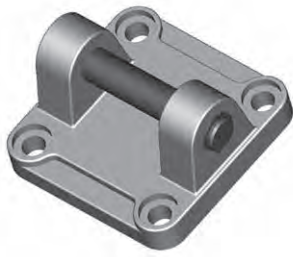
Tandem

This cylinder is used to double the force. Piston rod is one single piece passing through both cylinders (for this reason the strokes of the cylinders have to be exactly the same). Pressure in 1: pressurising both cylinders from the rear covers (port 1), piston rod moves out. Piston rod return: to have the rod retract, it is necessary to feed both cylinders (ports 3 and 4) or, if there is no load on rod return (load is applied only on the forward stroke), the rod can be returned by applying pressure only on one cylinder (3 or, in preference, 4).



Ø	A	B	C	D	ØE	F	G	H	I	ØJ	K	L	M	N	O	P	Q	ØR	S	T
32	46	25	15	5	25	33	6	M6	-	12	10	10	M10x1.5	20	138	163	G 1/8	13	15.5	17
40	52	29	15	5	32	40	6	M6	-	18	19	15	M16x1.5	36	200	234	G1/4	18	15.5	17
50	66	29	15	5	32	49	14	M8	-	18	19	15	M16x1.5	36	200	234	G1/4	18	20.5	23
63	75	34	20	5	45	59	14	M8	-	22	19	19	M20x1.5	46	228	267	G3/8	22	20.5	23
80	95	41	20	5	45	75	17	M10	-	22	19	19	M20x1.5	46	214	253	G3/8	22	23.5	28
100	115	44	20	5	55	90	17	M10	-	30	27	27	M27x2	63	258	305	G1/2	27	23.5	28
125	140	48.5	20	5	55	110	22	M12	34	30	27	27	M27x2	63	230	277	G1/2	27	-	-
160	180	60	35	5	65	140	27	M16	42	40	15	36	M36x2	85	282	332	G3/4	35	-	-
200	220	59	35	5	65	175	27	M16	42	40	15	36	M36x2	85	284	334	G3/4	35	-	-
250	280	60	50	5	90	220	38	M20	50	50	30	41	M36x2	85	382	462	G3/4	35	-	-

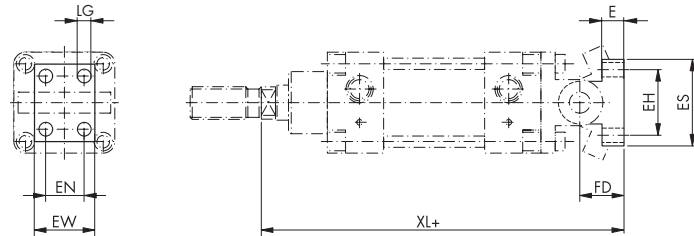
Female Trunnion



Code	∅	CS	US	L	XD	CD	MR
16.001.01	32	26	45	10	123	8	9
16.001.02	40	33	52	16	168	12	12
16.001.03	50	33	65	16	170	12	12
16.001.04	63	47	75	20	194	16	17
16.001.05	80	47	95	20	196	16	17
16.001.06	100	57	115	25	229	20	21
16.001.07	125	57	140	30	233	20	24
16.001.08	160	72	180	35	285	25	30
16.001.09	200	72	220	35	285	25	30

Note: Bolt and fixing screws included.

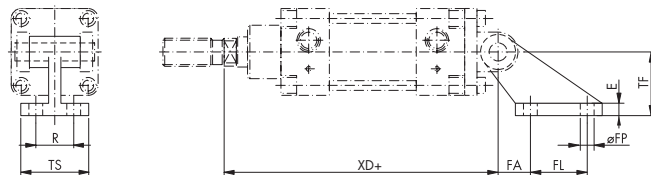
Trunnion Mounting Bracket



Code	∅	EW	EN	LG	XL	FD	E	EH	ES
16.003.01	32	25	-	7	141	18	8	28	40
16.003.02	40	32	16	9	194	26	10	38	52
	50	32	16	9	196	26	10	38	52
16.003.04	63	46	25	11	228	34	12	54	75
	80	46	25	11	230	34	12	54	75
16.003.06	100	56	32	14	270	41	16	90	115
	125	56	32	14	274	41	16	90	115
16.003.08	160	71	43	18	340	55	20	150	180
	200	71	43	18	340	55	20	150	180

Note: Cetop standard, for use with female trunnion.

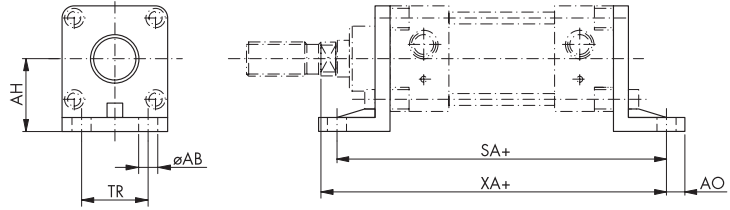
Square Angle Trunnion Mounting Bracket



Code	∅	TS	R	FP	XD	FA	FL	E	TF
16.004.01	32	41	25	7	123	18	20	8	32
16.004.02	40	52	32	9	168	25	32	10	45
	50	52	32	9	170	25	32	10	45
16.004.04	63	63	40	11	194	32	50	12	63
	80	63	40	11	196	32	50	12	63
16.004.06	100	80	50	14	229	40	70	16	90
	125	80	50	14	233	40	70	16	90
16.004.08	160	110	63	18	285	50	110	20	140
	200	110	63	18	285	50	110	20	140

Note: Cetop standard, for use with female trunnion.

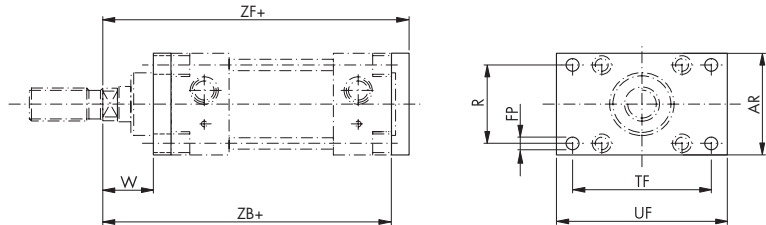
Mounting Bracket



Code	∅	AH	TR	AB	AO	SA	XA
16.005.01	32	32	28	9	8	134	132
16.005.02	40	36	36	9	8	164	171
16.005.03	50	45	45	11	8	180	179
16.005.04	63	50	55	11	10	195	199
16.005.05	80	63	70	14	12	211	207
16.005.06	100	73	90	14	12	231	235
16.005.07	125	90	100	18	16	249	244
16.005.08	160	115	130	22	18	304	292
16.005.09	200	135	170	22	28	304	292

Note: Kit includes only one bracket and fixing screws.

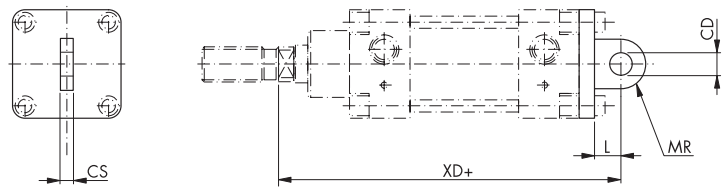
Mounting Plate



Code	∅	W	R	FP	TF	UF	AR	ZF	ZB
16.006.01	32	17	33	9	68	80	45	113	105
16.006.02	40	26	40	9	78	90	52	152	144
16.006.03	50	24	49	1	94	110	65	154	144
16.006.04	63	29	59	1	104	120	75	174	164
16.006.05	80	27	75	14	130	150	95	176	164
16.006.06	100	39	90	14	150	170	115	204	192
16.006.07	125	31	110	18	180	205	140	208	192
16.006.08	160	30	140	22	228	260	180	250	230
16.006.09	200	30	175	22	228	300	220	250	230

Note: Fixing screws included.

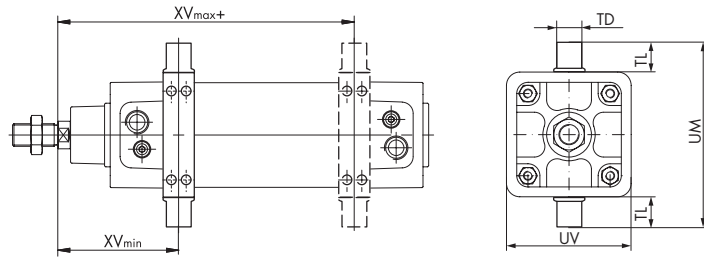
Male Trunnion



Code	∅	CS	CD	L	MR	XD
16.002.01	32	26	10	12	10	125
16.002.02	40	28	12	15	12	167
16.002.03	50	32	12	17	12	171
16.002.04	63	40	16	20	16	194
16.002.05	80	50	16	20	16	196
16.002.06	100	60	20	25	20	229
16.002.07	125	70	25	30	25	238
16.002.08	160	90	30	35	30	285
16.002.09	200	90	30	35	30	285

Note: Fixing screws included, this product is covered by Cetop std.

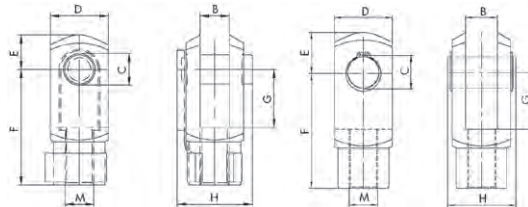
Swivel Bearing



Note: These swivels could be mounted only disassembling the cylinder. For this reason we suggest to order the swivel directly assembled on the cylinder. Please contact our sales department for support.

Code	∅	TD	UL	UM	UV	XV _{min}	XV _{max+}
16.017.01	32	12	12	74	45	57.5	72.5
16.017.02	40	16	16	95	55	73	105
16.017.03	50	16	16	105	65	73	105
16.017.04	63	20	20	130	80	85.5	117.5
16.017.05	80	20	20	148	100	92.5	110.5
16.017.06	100	25	25	181	124	106	133
16.017.07	125	25	25	209	152	111.5	127.5
16.007.08	160	32	32	262	190	130	150
16.007.09	200	32	32	312	240	129	151

Clevis



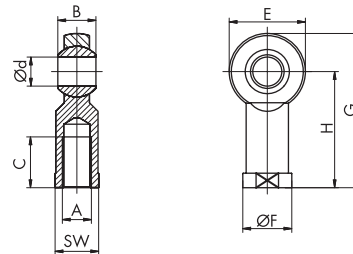
∅ 32 - 125

∅ 160 - 200

Note: Clips (∅ 32-125) and pins (∅ 160-200) are included.

Code	∅	M	B	C	D	E	F	G	H
16.008.01	32	M10x1.5	11	8	22	9	36	16	28
16.008.02	40	M16x1.5	18	12	26	13	51	25	44
	50								
16.008.03	63	M20x1.5	22	16	34	17	63	33	53
	80								
16.008.04	100	M27x2	30	20	42	20	85	40	73
	125								
16.008.05	160	M36x2	40	25	50	25	115	40	95
	200								

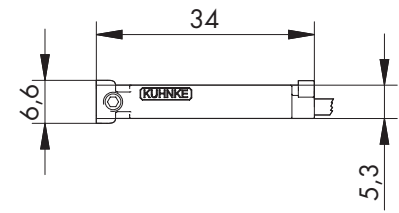
Rod End - Spherical Bearing



Note: Fixing screws included.

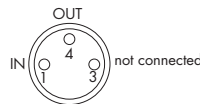
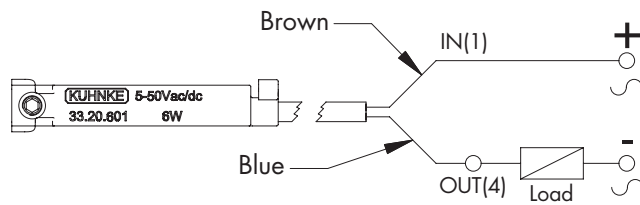
Code	∅	A	d	B	E	F	H	G	C	SW
16.009.01	32	M10x1.5	10	14	28	19	43	57	20	17
18.009.03	40	M16x1.5	16	21	42	27	64	85	28	22
	50									
18.009.04	63	M20x1.5	20	25	50	34	77	102	33	30
	80									
18.009.05	100	M27x2	30	37	70	50	110	145	51	41
	125									
18.009.06	160	M36x2	35	43	80	58	125	165	56	50
	200									

Position Transmitter



Position Transmitter REED (2 pole)

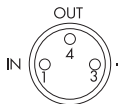
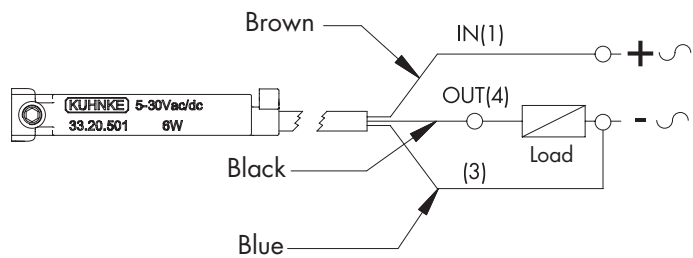
Contact type: N.O.
 Cable: 2 x 0.14 mm²
 Switching capacity: max 6 W
 Switching voltage: 5-50 V AC/DC
 Switching current: max 200 mA
 Voltage drop: 3 V
 Switching time: 0.6 ms
 Switching rate: max 400 Hz
 Service life: 10⁷ operations, depending on the load
 Ambient temperature range: -5°C to +75°C
 Protection class: IP67
 Status indicator: LED
 Housing material: plastic



Code	Description
33.20.601	with cable L = 2000 mm
33.20.681	socket M8, cable L = 300 mm

Position Transmitter REED (3 pole)

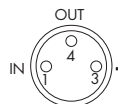
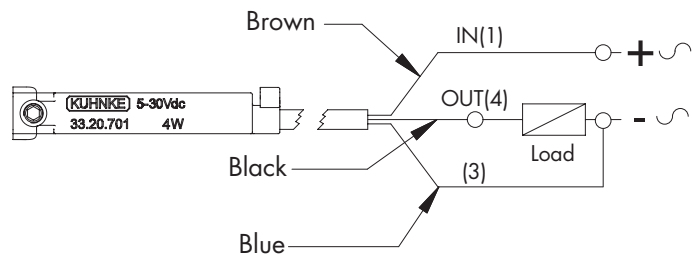
Contact type: N.O.
 Cable: 3 x 0.14 mm²
 Switching capacity: max 6 W
 Switching voltage: 5-30 V AC/DC
 Switching current: max 500 mA
 Voltage drop: 0.1 V
 Switching time: 0.6 ms
 Switching rate: max 400 Hz
 Service life: 10⁷ operations, depending on the load
 Ambient temperature range: -5°C to +75°C
 Protection class: IP67
 Status indicator: LED
 Housing material: plastic



Code	Description
33.20.501	with cable L = 2000 mm
33.20.581	socket M8, cable L = 300 mm

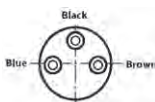
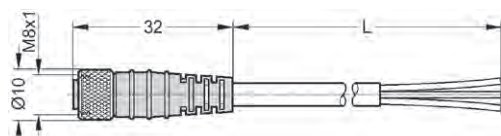
Electronic Position Transmitter

Contact Type: PNP (N.O.)
 Cable: 3 x 0.14 mm²
 Switching capacity: max 4 W
 Switching voltage: 5-30 V DC
 Switching current: max 200 mA
 Voltage drop: 0.7 V
 Switching time: 0.8 μs
 Switching rate: max 1 kHz
 Service life: 10¹¹ operations, depending on the load
 Ambient temperature range: -5°C to +75°C
 Protection class: IP67
 Status indicator: LED
 Housing material: plastic



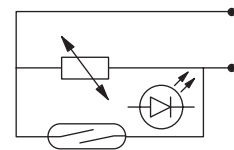
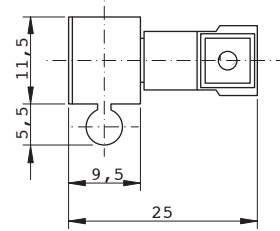
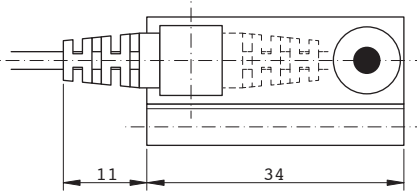
Code	Description
33.20.701	with cable L = 2000 mm
33.20.781	socket M8, cable L = 300 mm

M8 Connectors (female-straight)



Code	Description
PL08B3.V250.30	cable L = 3000 mm
PL08B3.V250.50	cable L = 5000 mm

Position Transmitter REED (2 pole with plug connector)



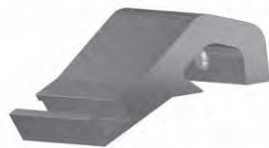
Switching output: N.O.
 Switching capacity: max 10 VA
 Switching voltage: 3-230 V AC/DC
 Switching current: max 500 mA
 Voltage drop: -
 Switching time: 0.5 ms
 Service life: 107 operations, depending on the load
 Housing material: plastic
 Protection class: IP67
 Ambient temperature range: -20°C to +85°C
 Status indicator: LED

Code	Description
33.18.115	with cable L = 3000 mm

Fastening Clamps

a) to assemble position transmitters 33.20.xxx

For fitting to Cnomo cylinders Ø 32 to Ø 100 only



Ø	Code
32	33.008.16.01
40	
50	
63	
80	33.008.16.05
100	

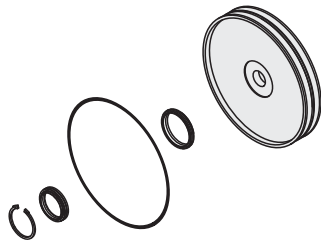
b) to assemble position transmitter 33.18.115

For fitting to Cnomo cylinders Ø 32 to Ø 200 only



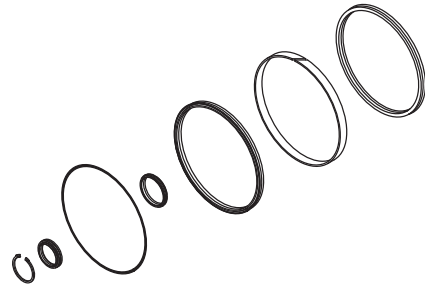
Ø	Code
32	33.009.08
40	
50	
63	
80	33.009.09
100	
125	
160	
200	

Seal Kit for Standard Version (A)



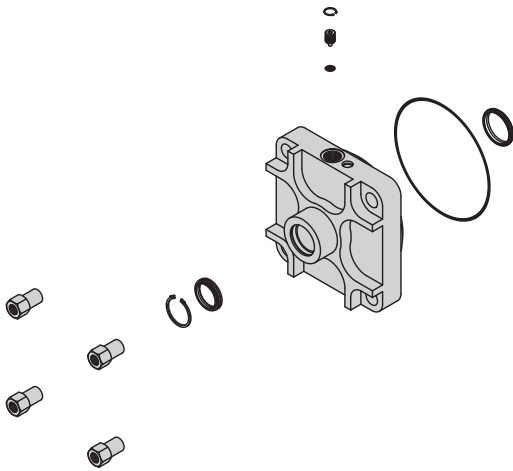
Ø	Code
32	SG.032A.DOM
40	SG.040A.DOM
50	SG.050A.DOM
63	SG.063A.DOM
80	SG.080A.DOM
100	SG.100A.DOM
125	SG.125A.DOM
160	SG.160A.DOM
200	SG.200A.DOM
250	SG.250A.DOM
320	SG.320A.DOM

Seal Kit for Magnetic Version (C)



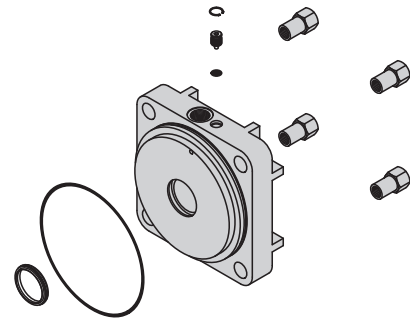
Ø	Code
32	SG.032C.DOM
40	SG.040C.DOM
50	SG.050C.DOM
63	SG.063C.DOM
80	SG.080C.DOM
100	SG.100C.DOM
125	SG.125C.DOM
160	SG.160C.DOM
200	SG.200C.DOM
250	SG.250C.DOM
320	SG.320C.DOM

Front Cover Kit



Ø	Standard Version (A)	Magnetic Version (C)
32	16.109.95	16.109.93
40	16.209.95	16.209.93
50	16.309.95	16.309.93
63	16.409.95	16.409.93
80	16.509.95	16.509.93
100	16.609.95	16.609.93
125	16.709.95	16.709.93
160	16.809.95	16.809.93
200	16.909.95	16.909.93

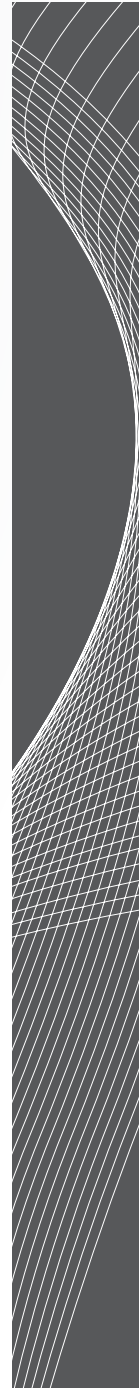
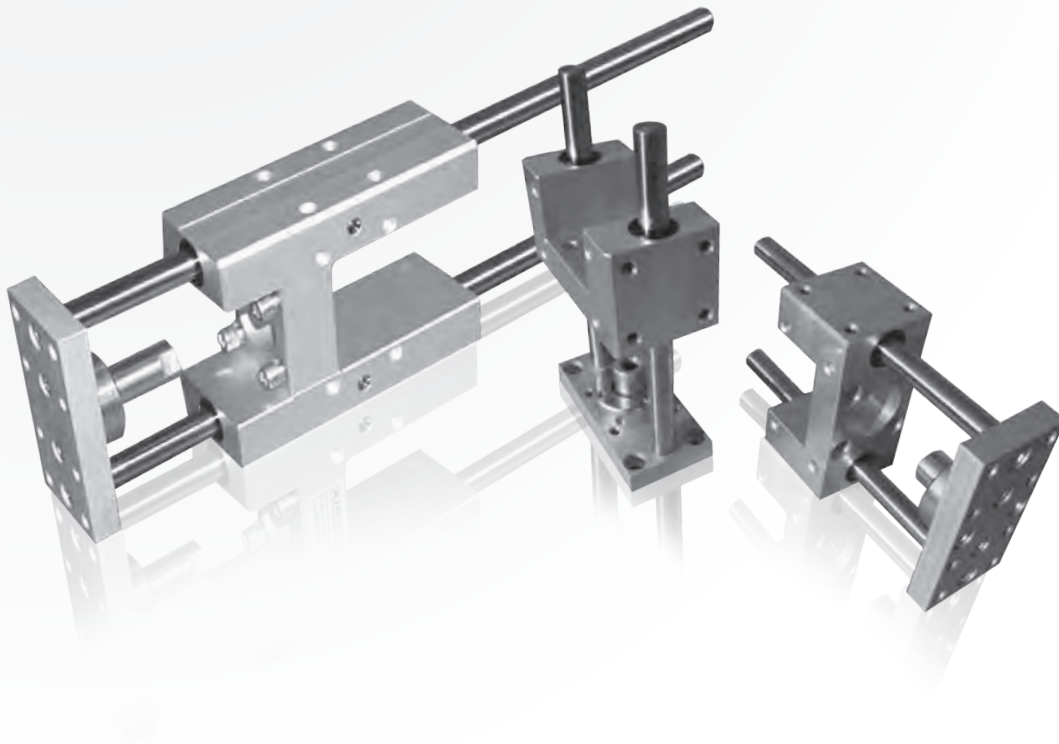
Rear Cover Kit



Ø	Standard Version (A)	Magnetic Version (C)
32	16.109.96	16.109.94
40	16.209.96	16.209.94
50	16.309.96	16.309.94
63	16.409.96	16.409.94
80	16.509.96	16.509.94
100	16.609.96	16.609.94
125	16.709.96	16.709.94
160	16.809.96	16.809.94
200	16.909.96	16.909.94

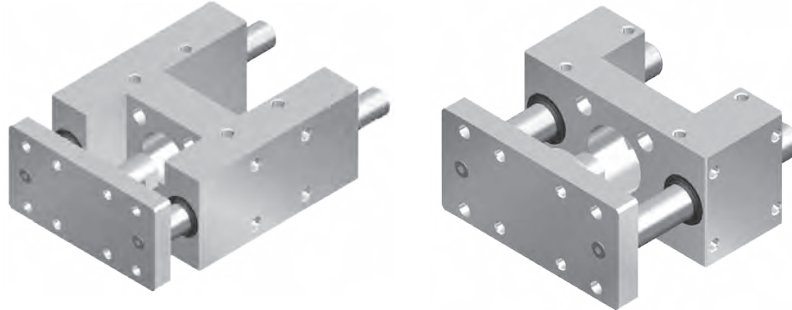
A/C SERIES
CYLINDERS CNOMO

SERIES KUG
LINEAR GUIDES



LINEAR GUIDES

General Information



These linear guides are for use with all ISO 15552 and ISO 6432 cylinders. They are heavy duty devices designed for high loads, fast movements and precision positioning.

Applications include machine tools, packaging and general handling. Choose from 3 versions and 10 sizes.

Technical Data

Piston diameters: Ø 12, 16, 20, 25, 32, 40, 50, 63, 80, 100 (mm)

Piston rod: C45 chromium-plated steel

Body: Anodised aluminium

Seals: NBR

Coupling: Self-aligning

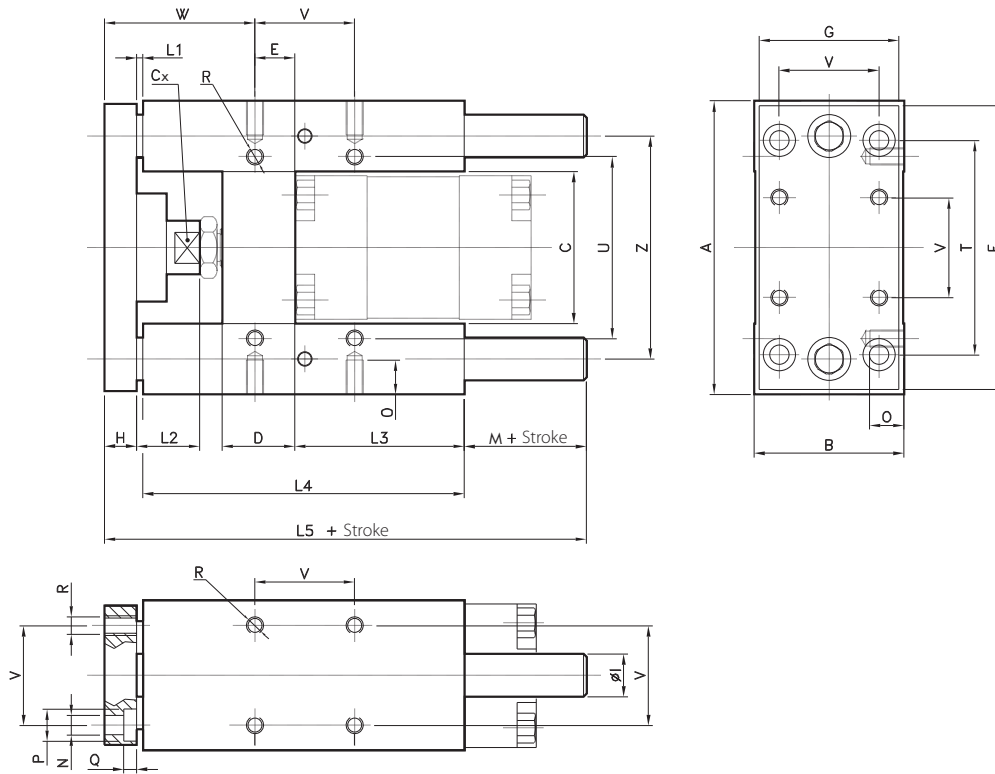
Ambient temperature range: -20 °C to +80 °C

Order Code

Order specifications		KUG.	2008.	32.	050
Series number		KUG			
Version					
	H shape with slide bushings		2004		
	H shape with ball bushings		2005		
	C shape with self-lubricating bushings		2008		
Piston diameter					
	Ø 12			012	
	Ø 16			016	
	Ø 20			020	
	Ø 25			025	
	Ø 32			032	
	Ø 40			040	
	Ø 50			050	
	Ø 63			063	
	Ø 80			080	
	Ø 100			100	
Stroke					
	mm				xxx

Linear Guide Components H Shape - Ø 32 - 100 mm

ISO 15552

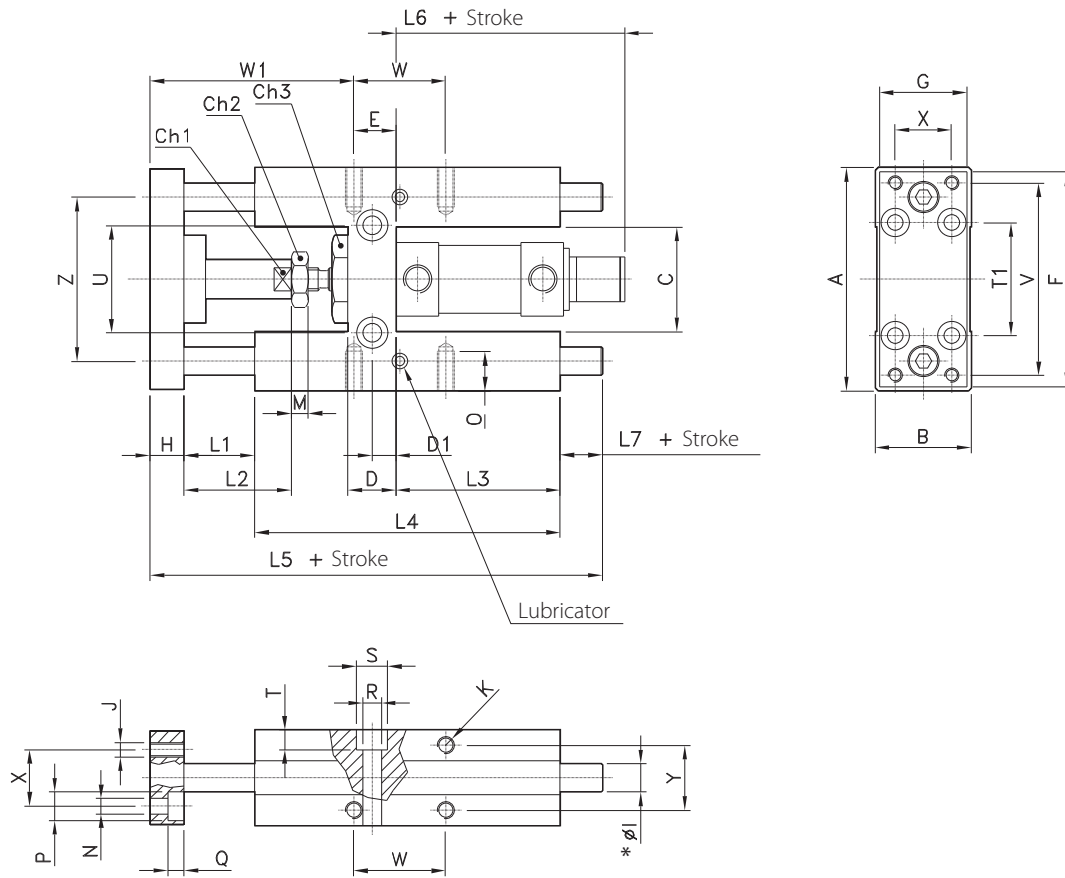


Ø	A	B	C	Cx	D	E	F	G	H	Ø1	L1	L2	L3
32	97	49	51	15	24	4.3	93	45	12	12	25	42	75
40	115	58	58.2	15	28	11	112	55	12	16	25	42	80
50	137	70	70.2	20	34	18.8	134	65	15	20	25	50	78
63	152	85	85.2	20	34	15.3	147	80	15	20	25	50	106
80	189	105	105.5	26	50	25	180	100	20	25	25	50	111
100	213	130	130.5	26	55	30	206	120	20	25	25	50	128

Ø	L4	L5	M	N	O	P	Q	R	T	U	V	W	Z
32	125	187	25	6.6	12	11	6.5	M6	78	61	32.5	82.7	74
40	140	207	30	6.6	12	11	6.5	M6	84	69	38	86	87
50	148	223	35	9	16	15	8.5	M8	100	85	46.5	91.2	104
63	178	243	25	9	16	15	9	M8	105	100	56.5	96.7	119
80	195	267	27	11	20	18	11	M10	130	130	72	104	148
100	218	290	27	11	20	18	11	M10	150	150	89	105	173

Linear Guide Components H Shape - Ø 12 - 25 mm

ISO 6432



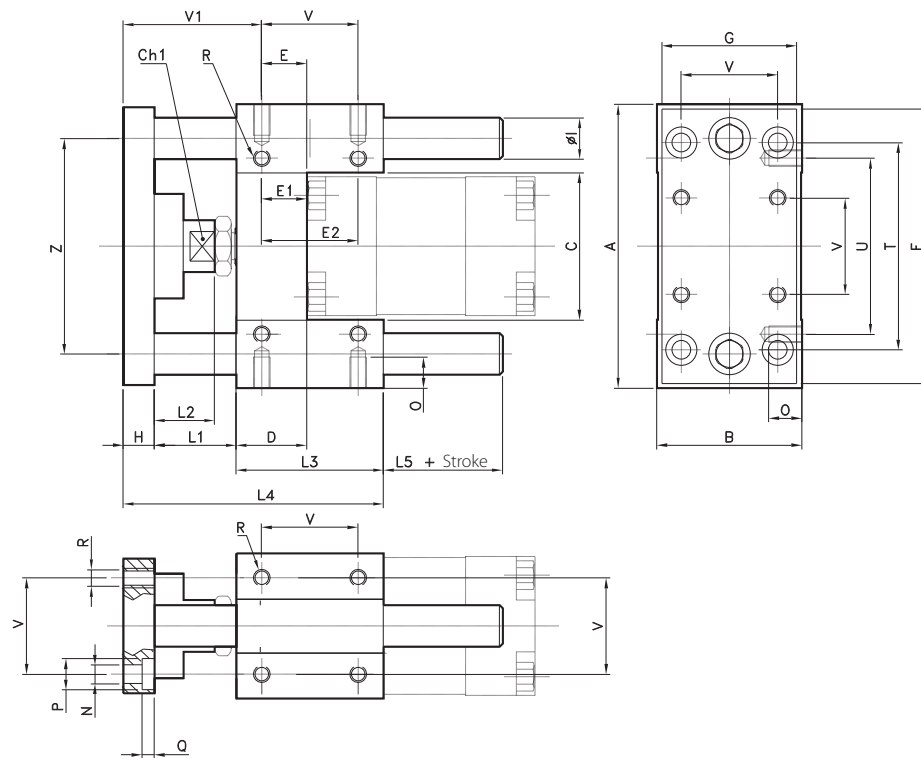
Ø	A	B	C	Ch1	Ch2	Ch3	D	D1	E	F	G	H	Ø11*	Ø12*	J	K	L1	L2	L3	L4
12-16	69	30	30	8	10	24	12	6	8	66	29	10	10	8	M4	M4	25	18	46	68
20	79	34	37	12	13	27	17	8.5	15	78	32	12	12	10	M5	M6	25	40	58	108
25	79	34	37	12	17	27	17	8.5	15	78	32	12	12	10	M5	M6	25	40	58	108

Ø	L5	L6	L7	M	N	O	P	Q	R	S	T	T1	U	V	W	W1	X	Y	Z
12-16	123.5	73	20.5	4	4.5	6	8	4.5	5.5	9	5.5	32	24	58	18	49	18	22	49.5
20	166	87	21	5	5.5	9	10	7.5	6.5	11	6.5	38	38	68	32.5	20	72	23	58
25	166	87	21	5	5.5	9	10	7.5	6.5	11	6.5	38	38	68	32.5	20	72	23	58

* Note:
 Ø 11 = with slide bushings (KUG.2004)
 Ø 12 = with ball bushings (KUG.2005)

Linear Guide Components C Shape - Ø 32 - 100 mm

ISO 15552

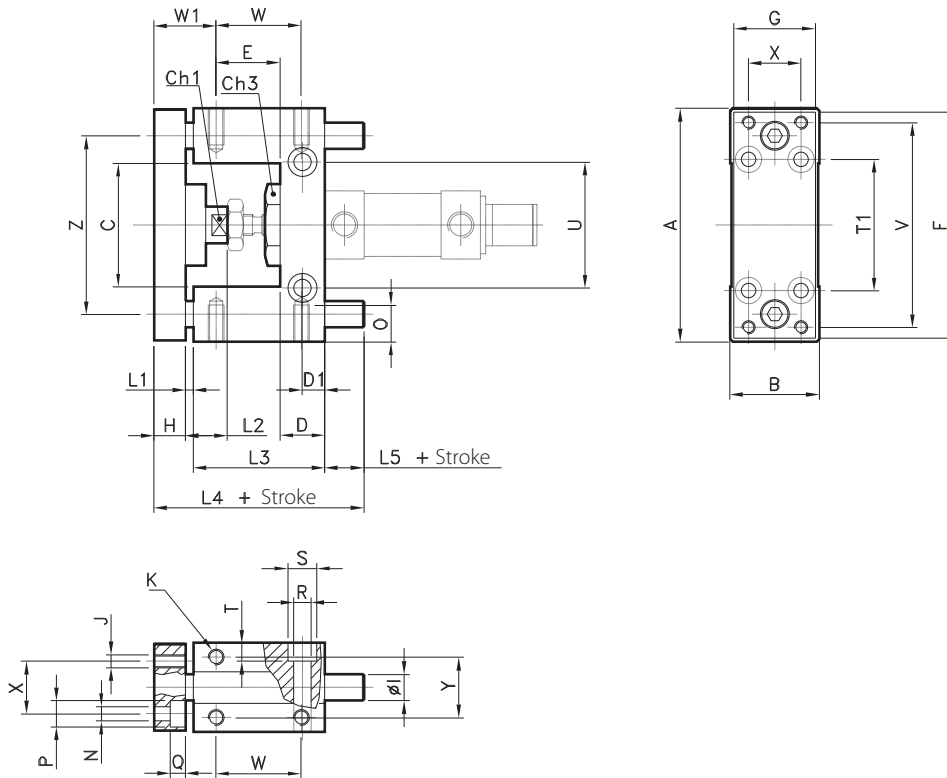


Ø	A	B	C	Ch	D	E	E1	E2	F	G	H	ØI	L1
32	97	49	51	15	17	9.25	9.25	32.5	93	45	12	12	42
40	115	58	58.2	15	21	11	11	38	112	55	12	16	43
50	137	70	70.2	20	25	18.8	18.8	46.5	134	65	15	20	49
63	152	85	85.2	20	25	15.3	15.3	56.5	147	80	15	20	49
80	189	105	105.5	26	34	25	14	50	180	100	20	25	53
100	213	130	130.5	26	39	28.5	19	70	206	120	20	25	54

Ø	L2	L3	L4	L5	N	O	P	Q	R	T	U	V	V1	Z
32	25	48	102	18	6.6	12	11	6.5	M6	78	61	32.5	61.75	74
40	25	58	113	17	6.6	12	11	6.5	M6	84	69	38	65	87
50	29	59	123	20	9	16	15	8.5	M8	100	85	46.5	70.2	104
63	29	76	140	21	9	16	15	9	M8	105	100	56.5	73.7	119
80	27	90	163	30	11	20	18	11	M10	130	130	72	82	148
100	27	110	184	30	11	20	18	11	M10	150	150	89	84.5	173

Linear Guide Components C Shape - Ø 12 - 25 mm

ISO 6432



Ø	A	B	C	Ch1	Ch2	D	D2	E	F	G	H	Ø11	J	K	L1	L2
12-16	69	30	30	8	24	12	6	19.5	66	29	10	10	M4	M4	3	15
20-25	79	34	37	12	2	17	8.5	24.25	78	32	12	12	M5	M6	3	18

Ø	L3	L4	L5	N	O	P	Q	R	S	T	T1	U	V	W	W1	X	Y	Z
12-16	38	66.5	15.5	4.5	6	7.5	4.5	5.5	9	5.5	32	24	58	25	19.5	18	22	49.5
20-25	48	83	20	5.5	9	10	7.5	6.5	11	6.5	38	38	68	32.5	21.75	20	23	58



BSG Kuhnke Solutions S.r.l.

Via R. Colpi, 38
35010 Limena (PD) - Italy

Tel. +39 049 86 57 711
Fax +39 049 88 41 571

sales@bsgkuhnkesolutions.com
www.bsgkuhnkesolutions.com