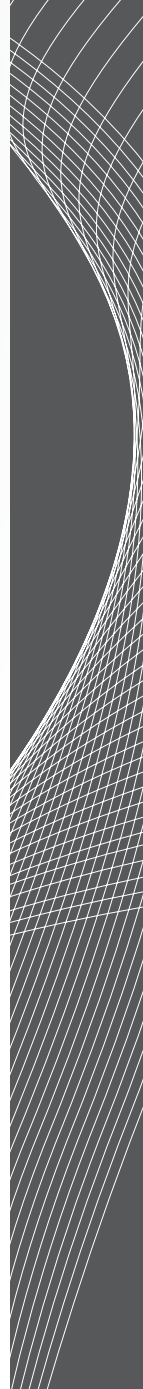


SERIES 21  
CYLINDERS ISO 15552

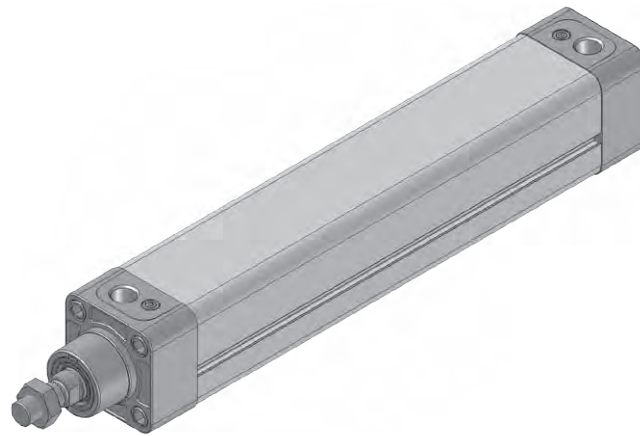




# CYLINDERS ISO 15552

## 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.

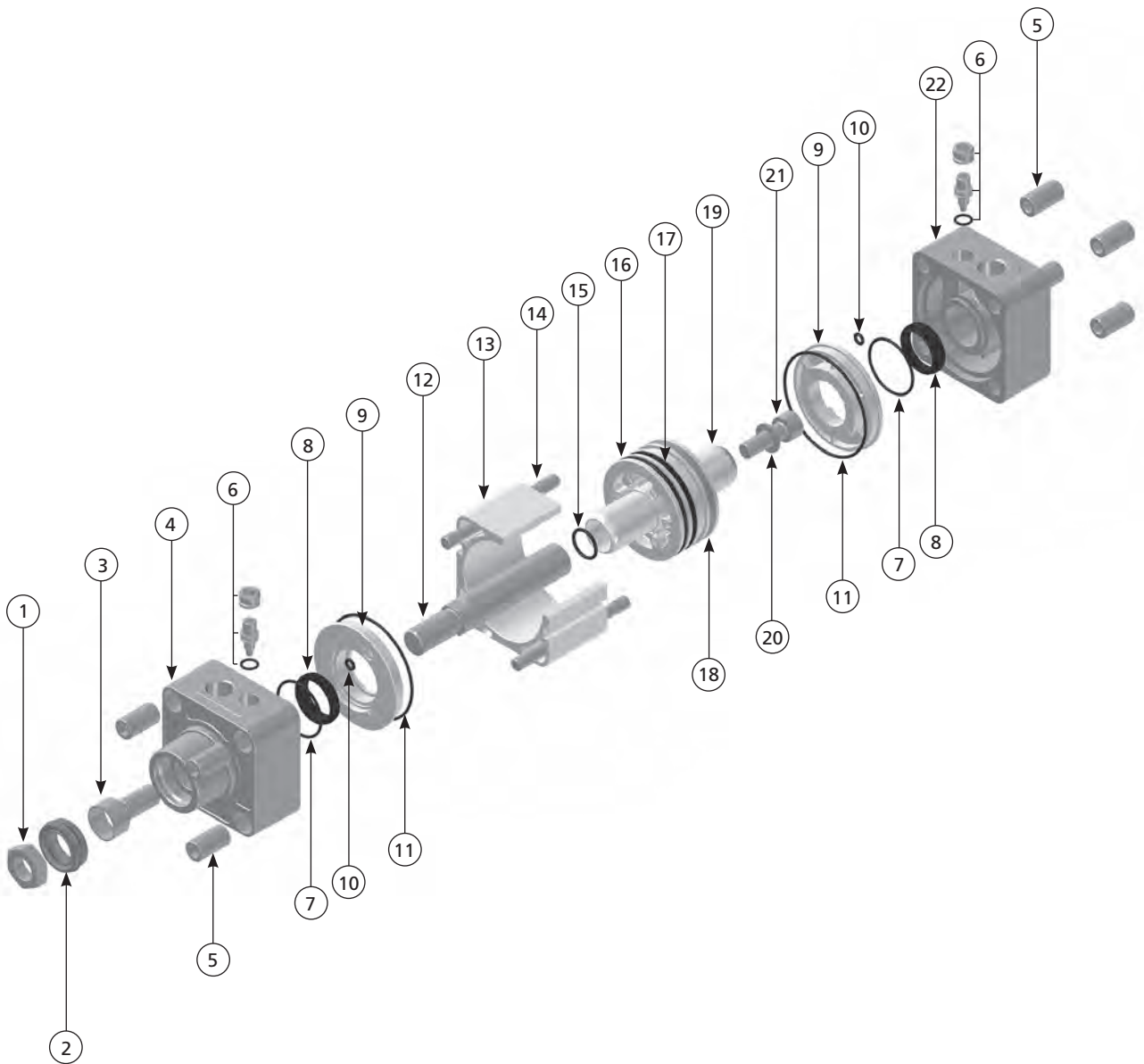
This clean and simple design facilitates the easy supply of versions for high and low temperature applications.

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<sub>a</sub> < 50°C.

## Technical Data

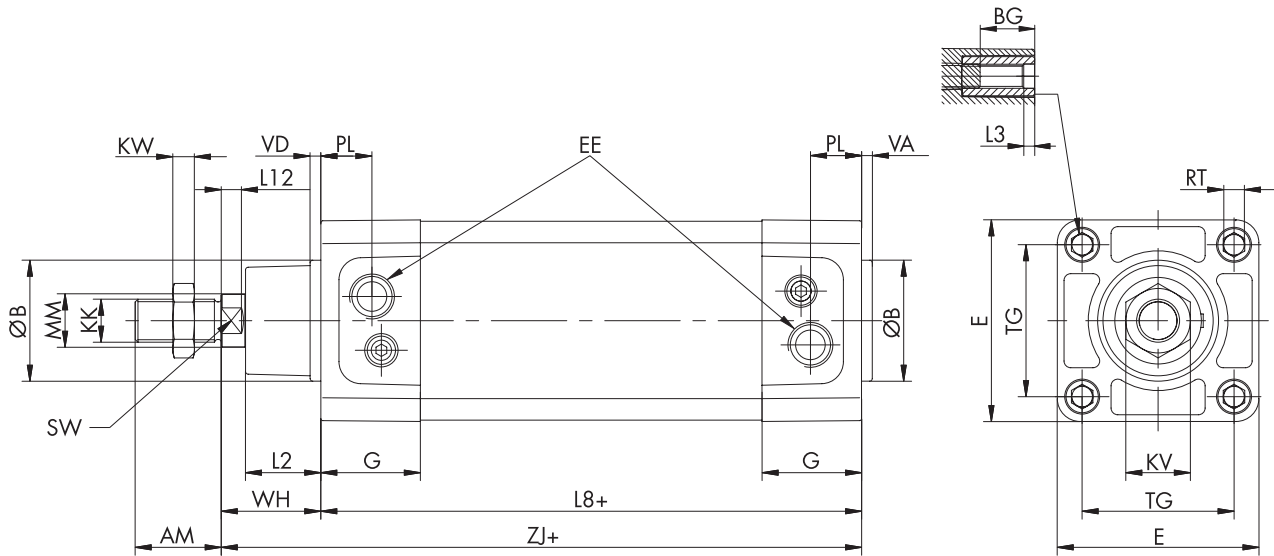
Piston diameters:	Ø 32, 40, 50, 63, 80, 100 (mm)							
Ports:	Ø 32 = G1/8; Ø 40, Ø 50 = G1/4; Ø 63, Ø 80 = G3/8; Ø 100 = G1/2							
End plates:	Painted aluminium alloy casting							
Piston rod:	C45 chromium plated steel (upon request stainless steel)							
Profiled tube:	Aluminium alloy anodised 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 <sup>±11</sup>	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

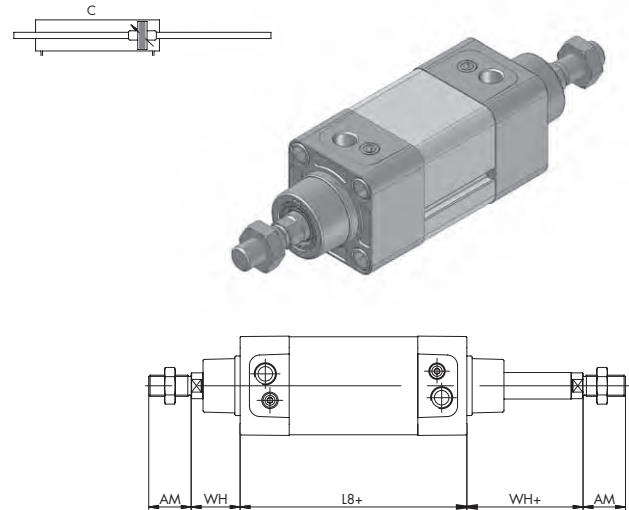
yyyy: please add stroke of the second cylinder only on versions C, E, F

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

**Through Piston Rod** TYPE B

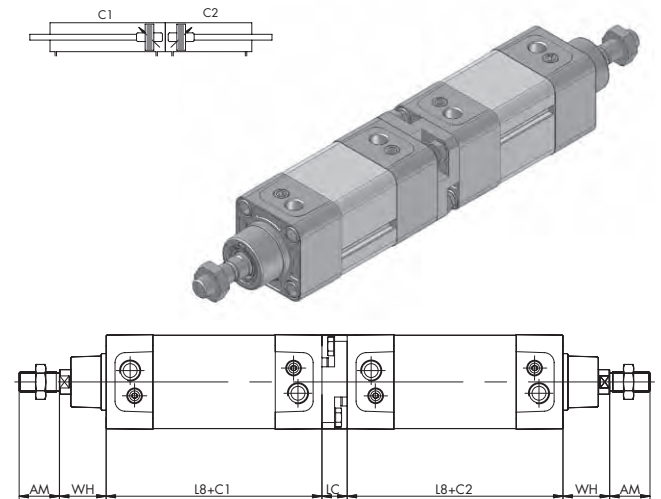
This is a double acting cylinder with piston rod coming out from both end covers. Piston rod extends away from pressurised port.



$\varnothing$	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.

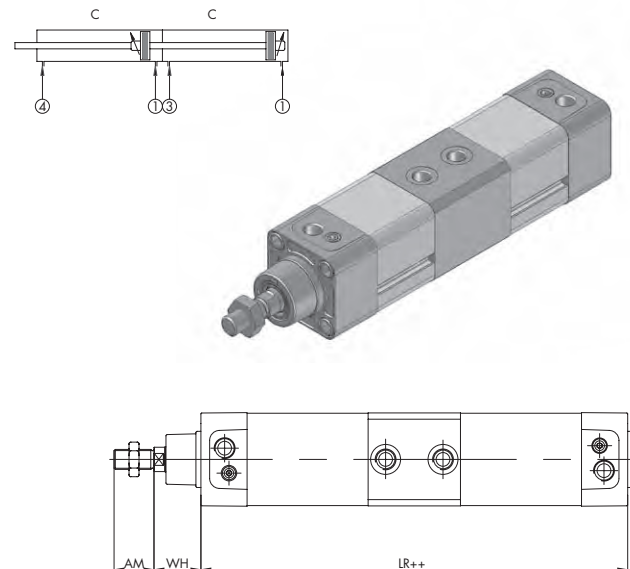


$\varnothing$	AM	WH	L8+	LC
32	22	26	94	15
40	24	30	105	15
50	32	37	106	20
63	32	37	121	20
80	40	46	128	25
100	40	51	138	25

**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).



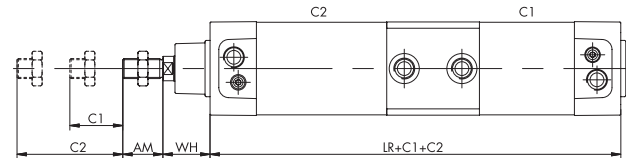
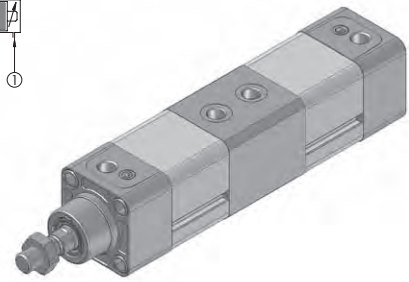
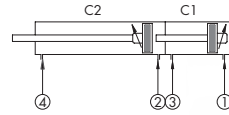
$\varnothing$	AM	WH	LR++
32	22	26	188
40	24	30	210
50	32	37	212
63	32	37	242
80	40	46	256
100	40	51	276

### 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).



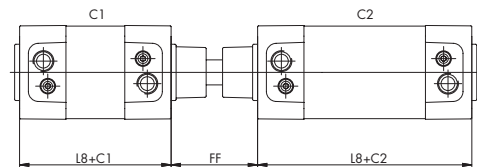
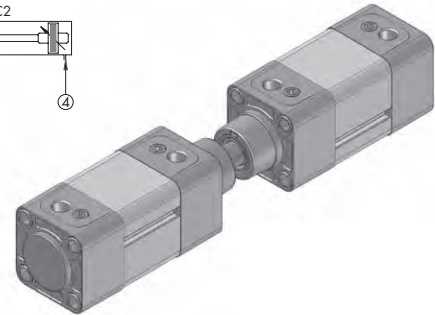
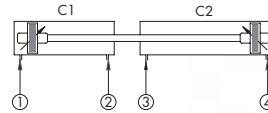
∅	AM	WH	LR
32	22	26	188
40	24	30	210
50	32	37	212
63	32	37	242
80	40	46	256
100	40	51	276

### Multi-position Tandem (C1 independent of C2)

TYPE F

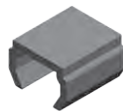
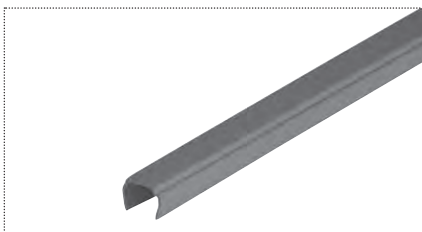
By coupling the piston rods of two cylinders with 2 different strokes (face-to-face) it is possible to reach up to three positions (we don't consider the rod in position, called zero setting, when both cylinders are pressurised in 2 and 3). Strokes are independent of each other.

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.



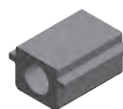
∅	FF	L8+
32	48	94
40	54	105
50	69	106
63	69	121
80	86	128
100	91	138

### Cylinder Groove Cover



Code	Description
20.001	Groove cover for use with position transmitter

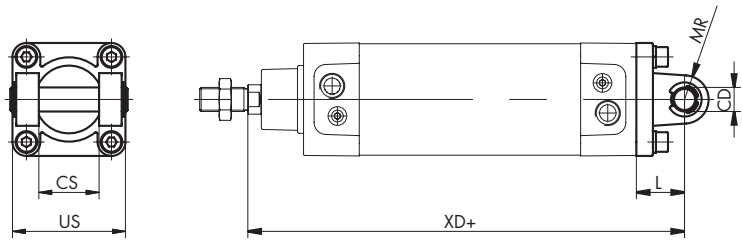
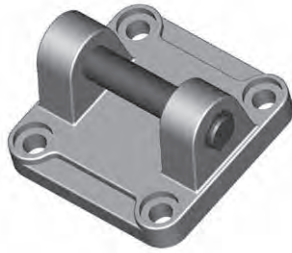
Note: The cylinder groove cover is 2 m in length and can be cut to size.



Code	Description
20.002	Standard groove cover

Note: Specify length. Cover supplied cut to size.

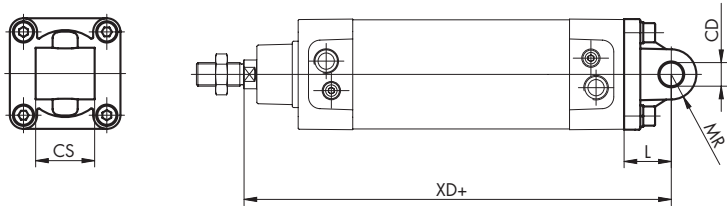
### Female Trunnion



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.

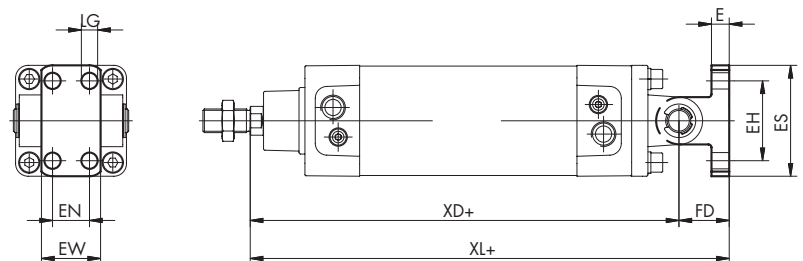
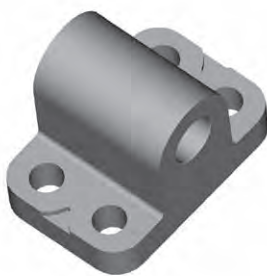
### Male Trunnion



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

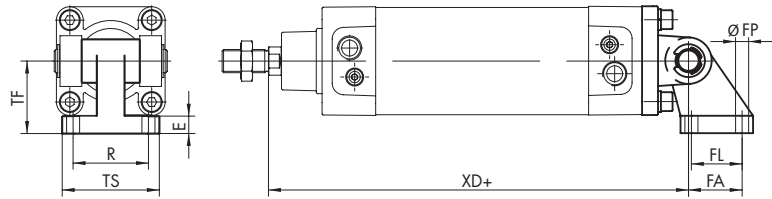


Code	∅	LG	EN	EW	XL+	XD+	FD	EH	ES	E
18.003.01	32	7	-	25	160	142	18	28	40	8
18.003.02	40	9	16	28	186	160	26	38	52	10
18.003.03	50	9	16	32	196	170	26	38	52	10
18.003.04	63	11	25	40	224	190	34	54	75	12
18.003.05	80	11	25	50	244	210	34	54	75	12
18.003.06	100	14	32	60	271	230	41	90	115	16

Note: Cetop standard, for use with female trunnion.



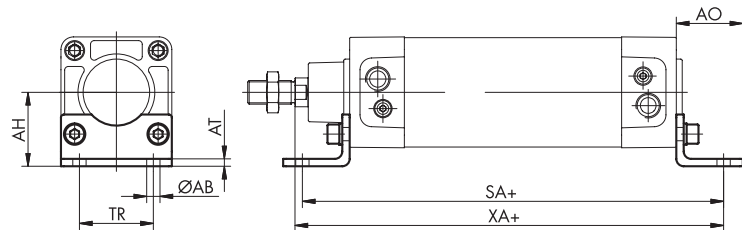
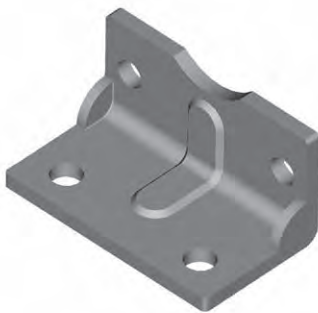
### Square Angle Trunnion Mounting Bracket



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.

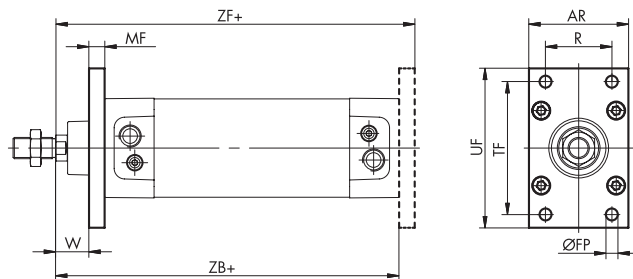
### Mounting Bracket



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.

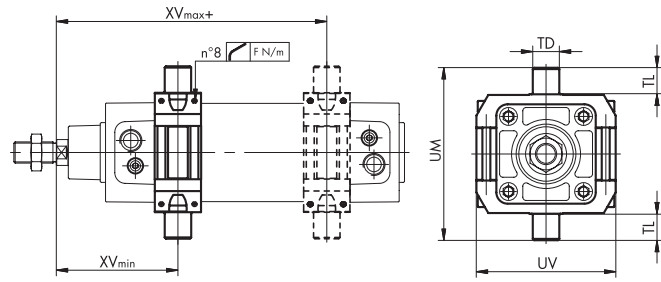
### Mounting Plate



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.

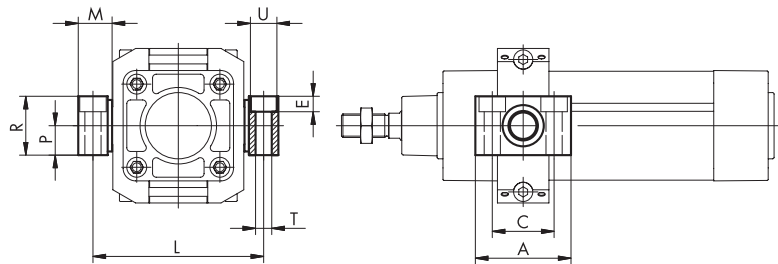
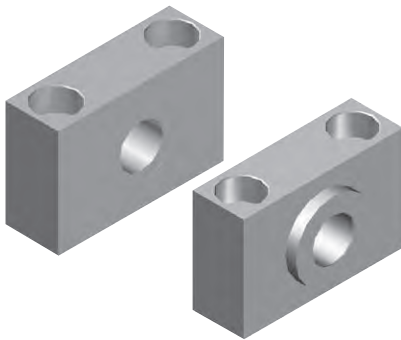
## Swivel Bearing



Code	∅	TD e <sup>9</sup>	TL h <sup>14</sup>	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.

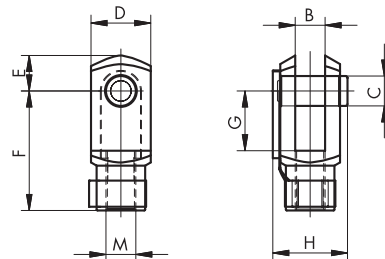
## Swivel Bearing Support



Code	∅	A	C	P	R	M	L	∅T	∅U	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.

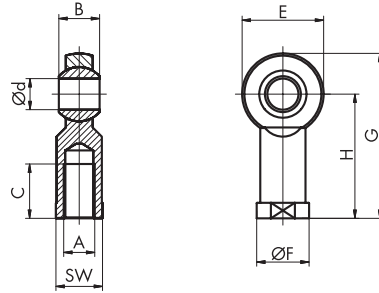
## Clevis



Code	∅	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

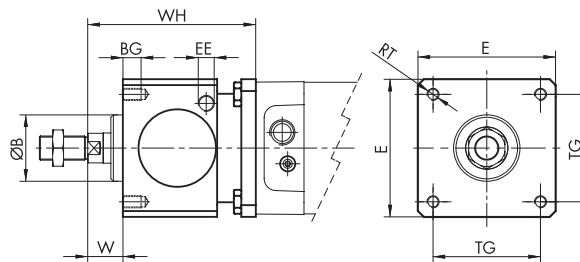
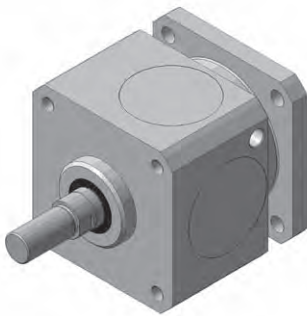
Note: Lockable pin included.

**Rod End - Spherical Bearing**



Code	Ø	A	B	C	d <sup>H7</sup>	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

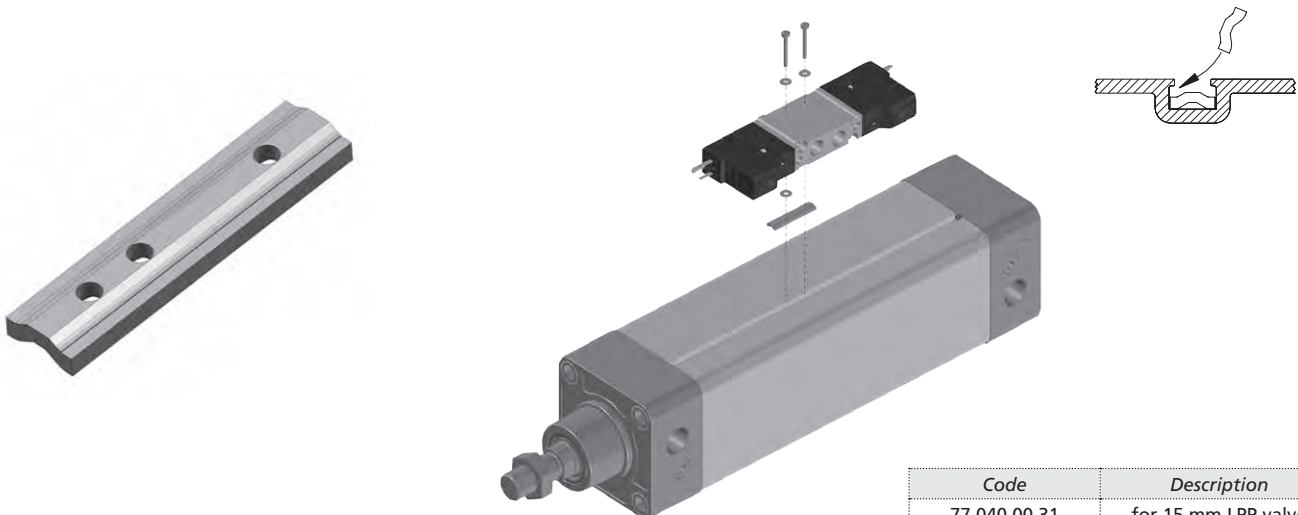
**Piston Rod Lock device**



Code	Ø	B	BG	E	EE	RT	TG	W	WH	F <sub>max</sub> [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.

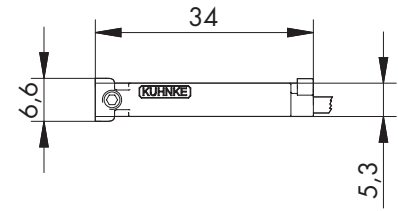
**LPP Valve (Series 77) Mounting Bracket**



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

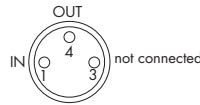
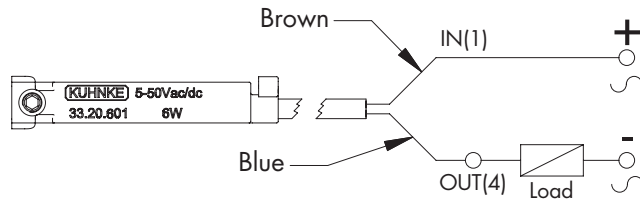
Note: Kit includes 10 brackets and mounting screws.

**Position Transmitter**



**Position Transmitter REED (2 pole)**

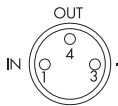
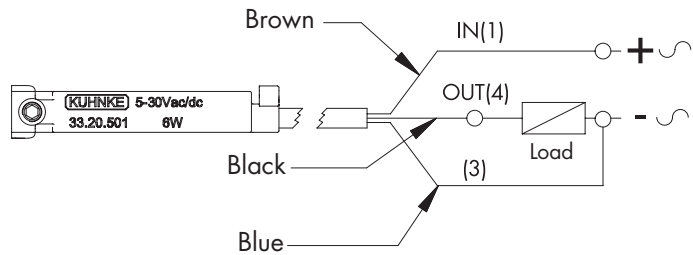
Contact type: N.O.  
 Cable: 2 x 0.14 mm<sup>2</sup>  
 Switching capacity: max 6 W  
 Switching voltage: 5-50 V AC/DC  
 Switching current: max 200 mA  
 Voltage drop: 3 V  
 Switching time: 0.6 ms  
 Switching rate: max 400 Hz  
 Service life: 10<sup>7</sup> operations, depending on the load  
 Ambient 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)**

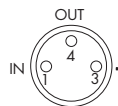
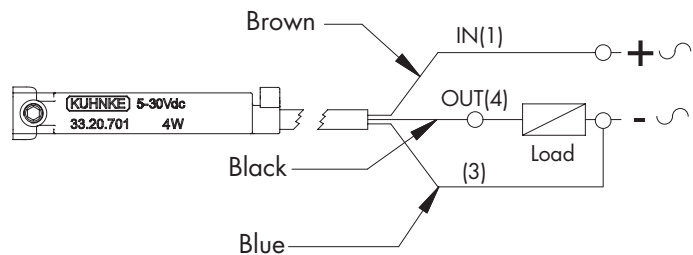
Contact type: N.O.  
 Cable: 3 x 0.14 mm<sup>2</sup>  
 Switching capacity: max 6 W  
 Switching voltage: 5-30 V AC/DC  
 Switching current: max 500 mA  
 Voltage drop: 0.1 V  
 Switching time: 0.6 ms  
 Switching rate: max 400 Hz  
 Service life: 10<sup>7</sup> operations, depending on the load  
 Ambient 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

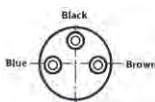
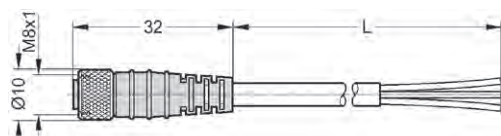
**Electronic Position Transmitter**

Contact Type: PNP (N.O.)  
 Cable: 3 x 0.14 mm<sup>2</sup>  
 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: 10<sup>11</sup> operations, depending on the load  
 Ambient temperature range: -5°C to +75°C  
 Protection class: IP67  
 Status indicator: LED  
 Housing material: plastic



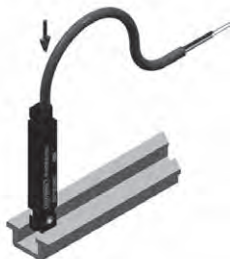
Code	Description
33.20.701	with cable L = 2000 mm
33.20.781	socket M8, cable L = 300 mm

**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.

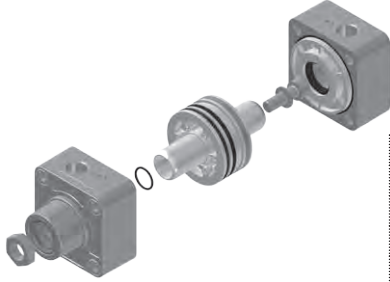


3. Lift the transmitter from the groove.



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.

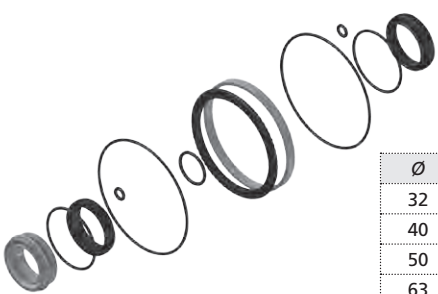
### Piston Rod



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

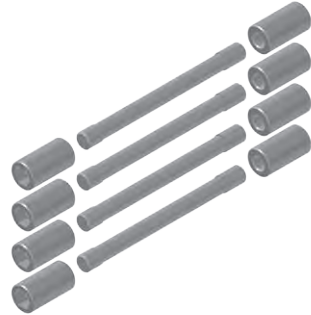
Note: xxxx = please add stroke.

### 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

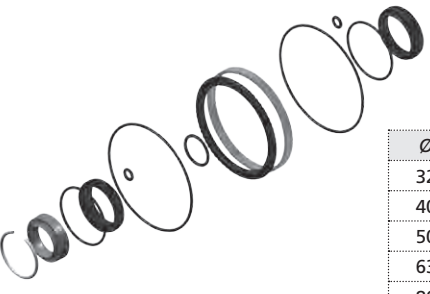
### Tie-rods Kit



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

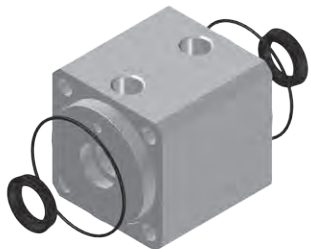
Note: xxxx = please add stroke.

### 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



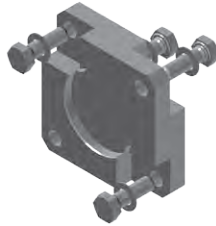
Ø	Code
32	21.1R.82
40	21.2R.82
50	21.3R.82
63	21.4R.82
80	21.5R.82
100	21.6R.82

### 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