


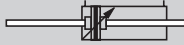

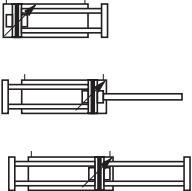
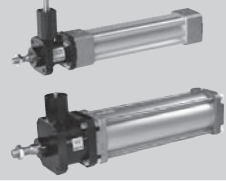








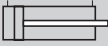

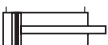


Overview

System	Fig.	Symbol	Series	Page
doppeltwirkend mit Dämpfung für berührungslose Positionserfassung			AZ5... AZZ5... DZ5...	46-49 52, 53, 58 60, 61 64-67
With through piston rod Double acting with cushioning For contactless position sensing			AZD5... DZD5...	46-49 52, 53, 58 60, 61 64-67
Non-rotating Double acting with cushioning For contactless position sensing			AZV5... AZ35... AZ45...	46,47 54-58
With locking unit Double acting with cushioning For contactless position sensing			AZF5... DZF5...	46, 47 50-53 58 60-63
Multiple Position Cylinder Double acting with cushioning For contactless position sensing			AZZ5.../.../...	46-49 52, 53 58
Double acting with cushioning			DZ1...	60, 61 64-67
With through piston rod Double acting with cushioning			DZD1... on request	60, 61 64-67
Double acting without cushioning			DZ2... on request	60, 61 64-67
Double acting without cushioning For contactless position sensing			DZ6... on request	60, 61 64-67


**Standard
Cylinders**
to ISO 15552
Series AZ....
Ø 32-100 mm
Series DZ....
Ø 125-320 mm

Standard Cylinder Ø 32-100mm

to ISO 15552
(ISO 6431)
VDMA 24562 and
CETOP RP43P

Series AZ....

Versions:

- double acting with cushioning
- for contactless position sensing
- ATEX-Version 

Special Versions:

- Viton version for high temperature range (+150°)
- With through piston rod
- With additional piston rod
- With locking unit
- Version H for hydraulic operation ($p_{max} = 10$ bar)
- Tie rod version
- With metal wiper
- Various piston rod extensions
- Various piston rod materials
- With adaptor plate for valve mounting

The delivery includes:

- 1 Cylinder
- 1 Hexagon nut for piston rod thread

Magnetic switches are not included - please order these separately.



Characteristics

Characteristics	Symbol	Unit	Description						
General Features									
Type	Cylinder								
Series	AZ								
System	Piston rod cylinder								
AZ5..., AZZ5...	Double acting with cushioning								
AZZ5.../.../...	Multi position cylinder								
AZD5...	With through piston rod Double acting with cushioning								
AZV5...	Non-rotating Double acting with cushioning								
AZ35...	Non-rotating, with through piston rod, double acting with cushioning								
AZ45...	Non-rotating, with through piston rod, double acting with cushioning								
Mounting	See drawing								
Tube connection	Thread								
Ambient temperature range	T_{min} T_{max}	°C	-20	Note: When using below freezing point (°C) it is necessary to consult us					
Medium temperature range	T_{max}	°C	+80						
Weight (mass)	kg		See table						
Installation	In any position								
Medium	Filtered and lubricated or filtered and unlubricated compressed air								
Lubrication	Oil mist lubrication compatible with Buna N								
Material									
Cylinder tube	Aluminium, anodized								
Front/Rear end caps	Cast Aluminium								
Piston rod	Steel, high-alloy – Series AZ Steel, hard-chrome plated – Series AZV								
Pneumatic Characteristics									
Nominal pressure	p_n	bar	6						
Operating pressure range	p_{min} p_{max}	bar bar	0,5 10						
Piston diameter	mm		32	40	50	63	80	100	
Port size			G1/8	G1/4	G1/4	G3/8	G3/8	G1/2	
Piston rod diameter									
Series AZ	mm		12	16	20	20	25	25	
Series AZV	mm		8	10	12	16	20	20	
Piston rod thread			M10 x1.25	M12 x1.25	M16 x1.5	M16 x1.5	M20 x1.5	M20 x1.5	
Stroke length	mm		For standard stroke lengths see order instructions max. 2000mm, longer strokes on request						
Piston force and air consumption	See page 9								
Compression force	AZV* AZ3* AZ4*	N	430 374 380	680 570 590	1060 890 940	1680 1510 1466	2714 2464 2375	4240 4002 3900	
Tensile force	AZV* AZ3* AZ4*	N	380 380 380	590 590 590	940 940 940	1466 1466 1466	2375 2375 2375	3900 3900 3900	
Cushioning	mm		At both ends, infinitely variable						
Cushioned stroke	Series AZ		mm	23	23	23	23	37	37
Cushioned stroke	Series AZV		mm	20	25	25	25	28	30

* 6 bar



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Weight (mass) kg

Cylinder version	Cylinder diameter											
	Ø32		Ø40		Ø50		Ø63		Ø80		Ø100	
	1*	2*	1*	2*	1*	2*	1*	2*	1*	2*	1*	2*
Standard Type AZ	0.770	0.220	1.200	0.340	1.740	0.480	2.500	0.610	3.680	0.880	5.200	1.130
with through piston rod Type AZD	0.960	0.250	1.520	0.490	2.260	0.720	3.060	0.850	4.540	1.260	6.190	1.500
non-rotating Type AZV	0.800	0.250	1.000	0.350	1.700	0.500	2.600	0.600	4.200	0.900	6.200	1.000
non-rotating with through piston rod Type AZ3	0.800	0.250	1.000	0.350	1.700	0.500	2.600	0.600	4.200	0.900	6.200	1.000
non-rotating with through piston rods Type AZ4	1.000	0.300	1.400	0.400	2.300	0.600	3.200	0.900	5.600	1.400	7.400	1.500
multiple pos. cyl. Typ AZZ	0.950	0.250	1.300	0.550	2.200	0.650	2.800	0.750	4.600	1.150	6.700	1.400

* 1 = Cylinder weight (100 mm stroke)
2 = Weight per further 100 mm stroke length

Mounting	Cylinder diameter					
	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
A	0.150	0.190	0.340	0.390	0.790	1.000
B	0.070	0.090	0.170	0.220	0.490	0.740
BA	0.100	0.130	0.210	0.300	0.570	0.910
BAS	0.100	0.150	0.220	0.320	0.560	0.860
C	0.100	0.120	0.230	0.280	0.620	0.780
D	0.100	0.120	0.230	0.280	0.620	0.780
EN	0.110	0.180	0.230	0.390	0.530	0.720
EN for series AZZ	0.110	0.290	0.330	0.650	0.830	1.560

Dimensions (mm) for Special Piston Rod Threads and Thread Length

Piston Rod with External Thread (mm)			
Cylinder-Ø	Special thread KK	Standard thread KK	SW
32	M10x1.5	M10x1.25	10
40	M12x1.75	M12x1.25	13
50	M16x2	M16x1.5	17
63	M16x2	M16x1.5	17
80	M20x2.5	M20x1.5	22
100	M20x2.5	M20x1.5	22
External Thread Length of the Piston Rod (mm)			
Cylinder-Ø	AM _{min.}	AM _{Standard}	AM _{max.}
32	12	22	99
40	16	24	99
50	20	32	99
63	20	32	99
80	25	40	99
100	25	40	99
Internal Thread Length of the Piston Rod (mm)			
Cylinder-Ø	Internal thread KK	Thread depth AF _{min.}	Core hole depth
32	M6x1	13	18
40	M8x1,25	16	23
50	M10x1,5	20	28
63	M10x1,5	20	28
80	M12x1,75	24	32
100	M12x1,75	24	32

Note:

In the configuration of a cylinder with through piston rod, Series AZD, the assumption is that both piston rods are identical. Only one is configured and this applies to both piston rods. If two different piston rods are required, a special cylinder must be ordered. Special cylinders are not configurable.

The new cylinder profile makes position sensing possible with magnetic switches in either dovetail slot version (Type RS, ES) or T-slot version (Type RST, EST).

One or more magnetic proximity sensors (depending on stroke length) can be mounted in the grooves in the cylinder profile, for sensing the end positions or intermediate positions of the piston.

Profile AZ Basic Cylinder

Ø 32



Ø 40



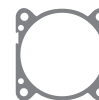
Ø 50



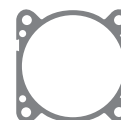
Ø 63



Ø 80

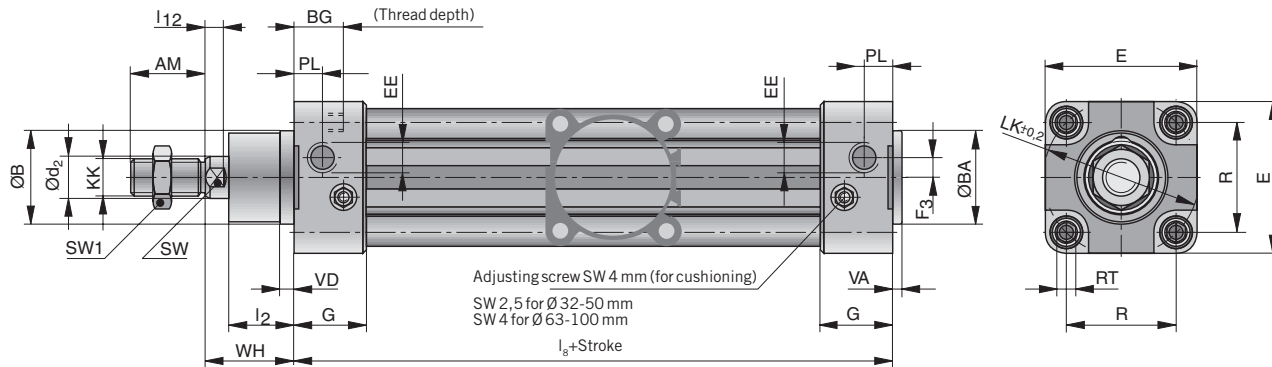


Ø 100

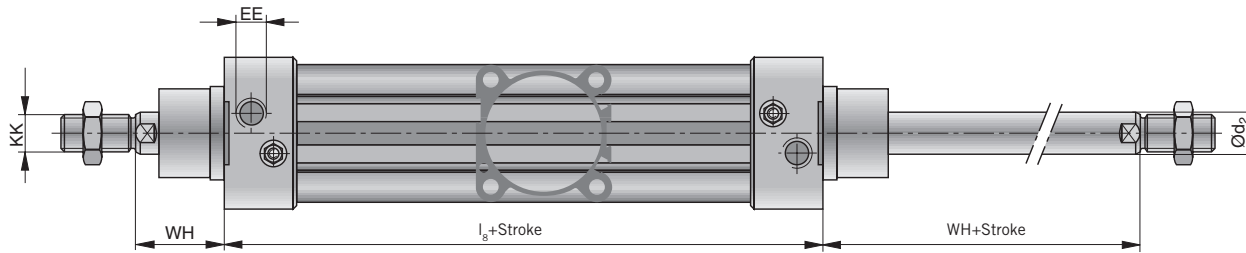


Piston force and air consumption see page 9, dimensions see page 48-57, order instructions see page 58, 59

Dimensions for Basic Cylinder, Series AZ..., Ø 32 – 100 mm



Dimensions – Basic Cylinder with Through Piston Rod, Series AZD..., Ø 32 – 100 mm



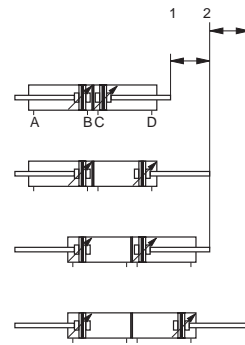
Dimension Table (mm) – Series AZ..., AZD..., AZZ...

Cyl. Ø	ØB _{d11}	Ød ₂	E	F ₃	G	l ₂	l ₈ +Stroke	l ₁₂	R	AM	ØBA _{d11}	BG
32	30	12	47	4.5	30.5	20	94	6	32.5	22	30	16
40	35	16	55	5.3	34	20.5	105	6.5	38	24	35	16
50	40	20	65	8.5	31	28	106	8	46.5	32	40	16
63	45	20	78	8	33	26	121	8	56.5	32	45	16
80	45	25	95	9	35.5	32.5	128	10	72	40	45	17
100	55	25	115	13	37	37.5	138	10	89	40	55	17

Multiple Position Cylinder

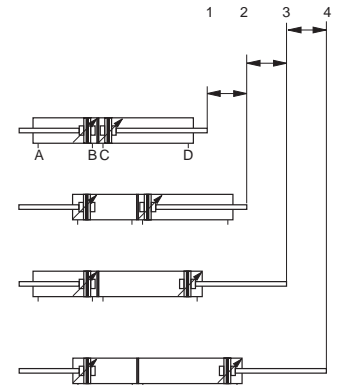
A three- or four-position cylinder consists of two separate cylinders whose piston rods extend in opposite directions. Depending on the control system and the division of the stroke length, this type of cylinder can provide up to four positions, with each position defined exactly by a stop. Note that when a piston rod end is fixed, the cylinder tube itself carries out the movement and therefore requires flexible air connections.

Arrangement for 3 positions



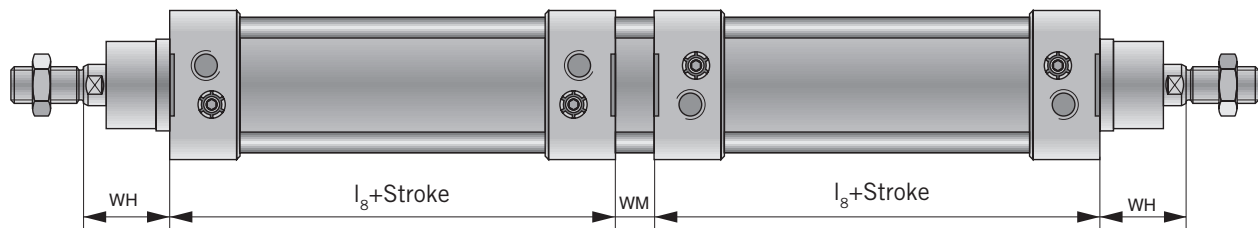
Two cylinders series AZ of the same stroke length are connected together.

Arrangement for 4 positions



Two cylinders series AZ of different stroke lengths are connected together.

Dimensions – Multiple Position Cylinder, Series AZZ..., Ø 32 – 100 mm



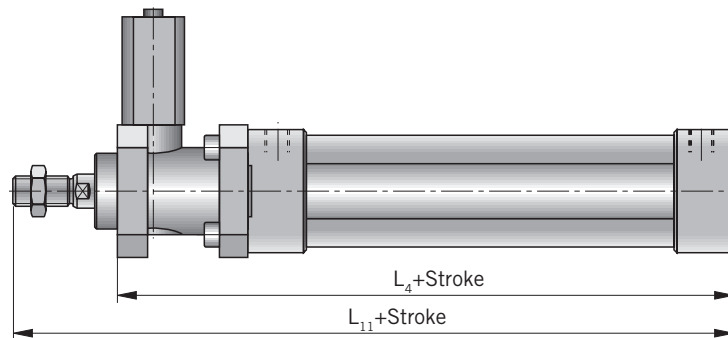
Cyl. Ø	EE	ØLK	KK	PL	RT	SW	SW ₁	VA	VD	WH	WM
32	G1/8	46	M10x1.25	20	M6	10	17	4	5	26	12
40	G1/4	54	M12x1.25	14.5	M6	13	19	4	4.5	30	12
50	G1/4	66	M16x1.5	16	M8	17	24	4	6	37	15
63	G3/8	80	M16x1.5	16	M8	17	24	4	6	37	14
80	G3/8	102	M20x1.5	20.5	M10	22	30	4	6	46	18
100	G1/2	126	M20x1.5	19	M10	22	30	4	6	51	18

Accessories

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Piston force and air consumption see page 9, mountings see page 52, 53, order instructions see page 58, 59

Dimensions of Cylinder with Locking Unit FSE..., Ø 32 – 100 mm



For all other dimensions for cylinders and cylinder mountings see page 48, 49, 52, 53

Dimension Table (mm) – for Locking Unit FSE... and Dimensions including Cylinder

Cyl. Ø	A ₁	A ₂	A ₃	A ₄	B	C	ØD ₁	ØD ₂	ØD ₃	ØD ₄	E	F	G ₁	G ₂	G ₃
32	32.5	40	4.2	16	48	50	30	20	10	6.6	22.5	25	M6	M5	M5
40	38	46	4.5	21	56	58	35	24	10	6.6	27.5	29	M6	M5	G1/8
50	46.5	54	11.5	24	68	70	40	30	15	8.5	32.5	35	M8	M6	G1/8
63	56.5	55	7.5	32	82	85	45	38	15	8.5	41	42.5	M8	M8	G1/8
80	72	70	10	44	100	105	45	40	19	11	49	52.5	M10	M8	G1/8
100	89	70	10	60	120	130	55	48	19	11	53	65	M10	M8	G1/8

Cyl. Ø	H ₁	H ₂	L ₁	L ₂	L ₃	L ₄ +Stroke	L ₅	L ₆	L ₇	L ₈	L ₉	L ₁₀	L ₁₁ +Stroke	SL	SW1	ØT
32	94	4	8	28	12	142	48	58	32	16	20.5	8	183	20	8	34
40	102.5	4	10	33	12	160	55	65	35.5	19.5	22.5	10	205	25	8	42
50	119.5	4	15	39	16	176	70	82	49	21	29.5	12	231	30	13	50
63	138	4	15	40	15	203	70	82	49	21	29.5	12	246	30	13	50
80	152	4	16	58	16	218	90	110	62	28	35.5	16	292	30	17	60
100	193.5	4	16	58	18	230	92	115	65	27	38.5	16	307	30	17	60

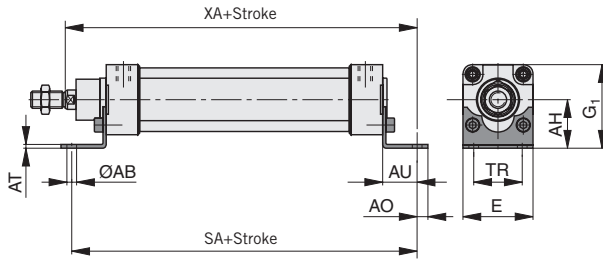
Accessories

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Piston force and air consumption see page 9, mountings see page 52, 53, order instructions see page 58, 59

Mountings – Basic Cylinder, Series AZ....., AZD....., AZZ....., Ø 32 – 100 mm

Dimensions for Mounting A



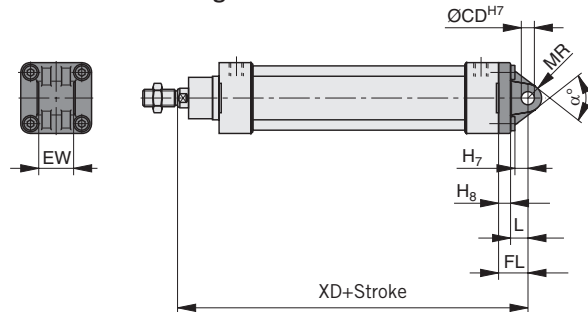
Material: steel passivated

Dimension Table (mm) – for Mounting A

Cyl. Ø	E	G ₁	ØAB	AH	AO	AT	AU	SA + Stroke	TR	XA +Stroke
32	47	55.5	7	32	8	4	24	142	32	144
40	53	62.5	9	36	10	4	28	161	36	163
50	65	77.5	9	45	10	5	32	170	45	175
63	75	87.5	9	50	10	5	32	185	50	190
80	95	110.5	12	63	14	6	41	210	63	215
100	115	128.5	14	71	15	6	41	220	75	230

Included in delivery: 2 foot brackets, 4 screws

Dimensions for Mounting BA



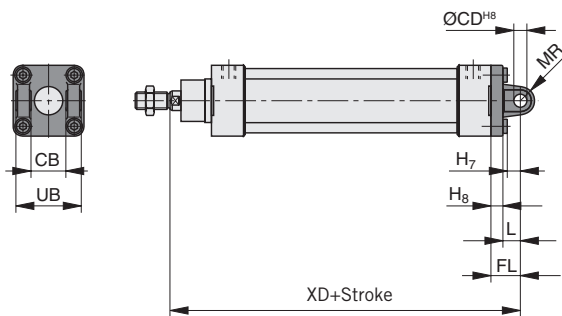
Material: cast aluminium

Dimension Table (mm) – for Mounting BA

Cyl. Ø	H ₇	H ₈	L	ØCD ^{H7}	EW	FL	MR	XD +Stroke	α°
32	10	10	12	10	26	22	10.5	142	60
40	13	10	15	12	28	25	13	160	60
50	12	11	16	12	32	27	13	170	70
63	17	11	21	16	40	32	17	190	60
80	16	15	21	16	50	36	17	210	70
100	20.5	16	25	20	60	41	21	230	70

Included in delivery: 1 rear trunnion mounting, 4 screws

Dimensions for Mounting B



Material: cast aluminium

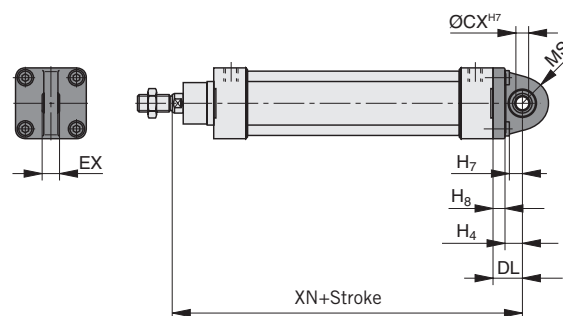
Dimension Table (mm) – for Mounting B

Cyl. Ø	H ₇	H ₈	L	ØCD ^{H8}	CB	FL	MR	UB	XD +Stroke
32	10	10	12	10	26	22	9	45	142
40	13	10	15	12	28	25	11	52	160
50	12	11	16	12	32	27	12	60	170
63	17	11	21	16	40	32	15	70	190
80	16	15	22	16	50	36	16	90	210
100	20.5	16	25	20	60	41	20	110	230

Included in delivery: 1 rear trunnion mounting, 4 screws

Dimensions for Mounting BAS

(rear trunnion mounting with spherical bearing)



Material: cast aluminium

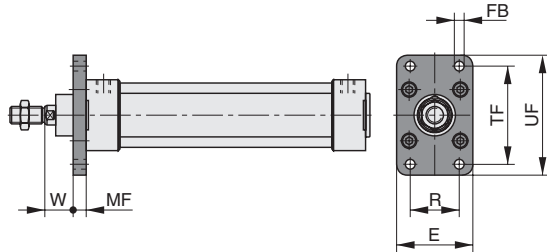
Dimension Table (mm) – for Mounting BAS

Cyl. Ø	H ₄	H ₆	H ₇	ØCX ^{H7}	DL	EX	MS	XN +Stroke
32	12	22	10	10	22	14	18	142
40	15	25	13	12	25	16	21	160
50	16	27	12	12	27	16	23	170
63	21	32	17	16	32	21	27	190
80	21	36	16	26	36	21	29	210
100	25	41	20.5	20	41	25	34	230

Included in delivery: 1 rear trunnion mounting with spherical bearing, 4 screws

Mounting – Basic Cylinder, Series AZ....., AZD....., AZZ....., Ø 32 – 100 mm

Dimensions for Mounting C



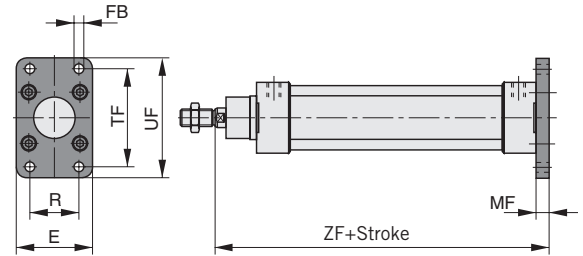
Material: cast aluminium

Dimension Table (mm) – for Mounting C

Cyl. Ø	E	R	ØFB	MF	TF	UF	W
32	50	32	7	10	64	79	16
40	56	36	9	10	72	90	20
50	70	45	9	12	90	110	25
63	77	50	9	12	100	120	25
80	100	63	12	16	126	153	30
100	120	75	14	16	150	178	35

Included in delivery: 1 flange, 4 screws

Dimensions for Mounting D



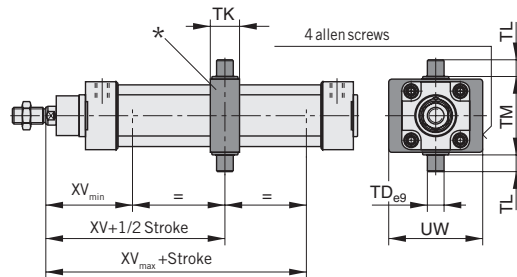
Material: cast aluminium

Dimension Table (mm) – for Mounting D

Cyl. Ø	E	R	ØFB	MF	TF	UF	ZF + Stroke
32	50	32	7	10	64	79	130
40	56	36	9	10	72	90	145
50	70	45	9	12	90	110	155
63	77	50	9	12	100	120	170
80	100	63	12	16	126	153	190
100	120	75	14	16	150	178	205

Included in delivery: 1 flange, 4 screws

Dimensions for Mounting EN for series AZ (profile cylinder barrel version)



Material: cast aluminium

* Position centre trunnion mounting

Standard position: Type EN1 – The taps of the EN attachment are horizontally aligned to the air supply

Option: Type EN2 – The taps of the EN attachment are vertically aligned to the air supply

Dimension Table (mm) – for Mounting EN

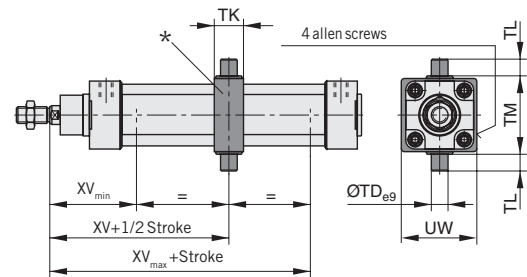
Cyl. Ø	ØTD _{e9}	TK	TL	TM	UW	XV _{min}	XV+ 1/2 Stroke	XV _{max} + Stroke
32	12	25	12	50	65	69	73	77
40	16	28	16	63	75	78	83	87
50	16	28	16	75	85	82	90	98
63	20	36	20	90	100	88	98	107
80	20	36	20	110	120	100	110	120
100	25	48	25	132	135	112	120	128

The trunnion mounting can be moved to any position between XV_{min} and XV_{max} after loosening the clamping screws.

Included in delivery: 1 rear trunnion mounting

As standard, the position of the T-slots and dovetail slots is on the same side as the air connections. Exception: Ø 32 has only T-slots on the same side as the air connections, with a dovetail slot on the underside.

Dimensions for Mounting EN for series AZZ (tie rod version)



Material: SG cast iron, chromated

* Position centre trunnion mounting

Standard position: Type EN1 – The taps of the EN attachment are horizontally aligned to the air supply

Option: Type EN2 – The taps of the EN attachment are vertically aligned to the air supply

Dimension Table (mm) – for Mounting EN

Cyl. Ø	ØTD _{e9}	TK	TL	TM	UW	XV _{min}	XV+ 1/2 Stroke	XV _{max} + Stroke
32	12	15	12	50	46	64	73	82
40	16	20	16	63	59	74	83	91
50	16	20	16	75	69	78	90	102
63	20	25	20	90	84	83	97,5	112
80	20	30	20	110	102	97	110	123
100	25	32	25	132	125	104	120	136

The trunnion mounting can be moved to any position between XV_{min} and XV_{max} after loosening the clamping screws.

Note on EN mounting: To avoid faulty switching, the magnetic switches should be fitted at least 10 to 20 mm away from the EN mounting, depending on cylinder diameter.

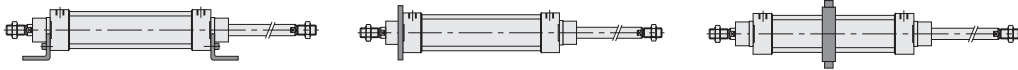
Included in delivery: 1 rear trunnion mounting

Mountings – Basic Cylinder with Through Piston Rod, Series AZD...., Ø 32 – 100 mm

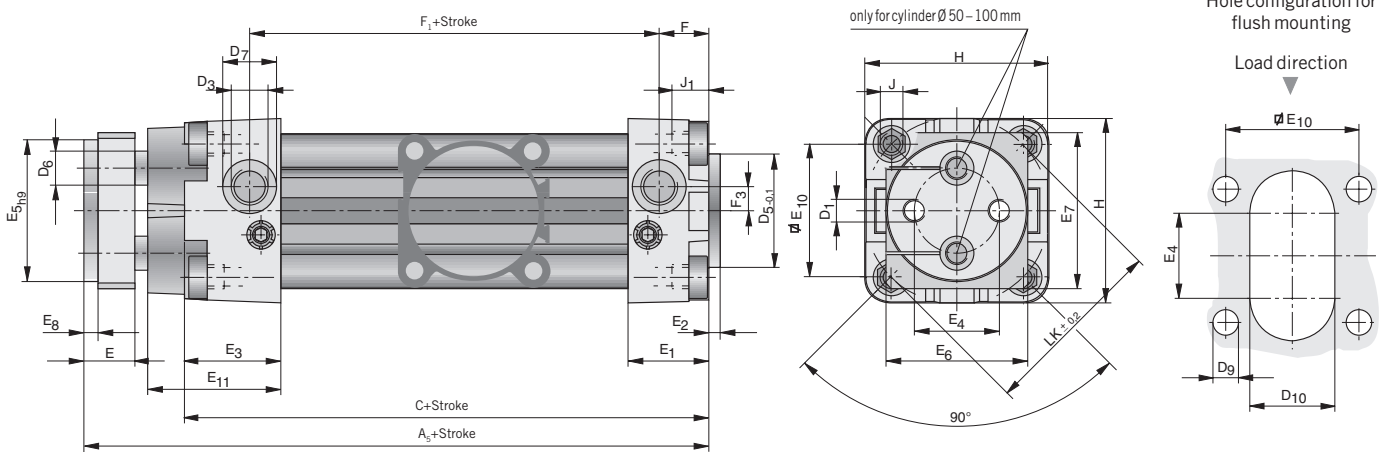
Foot mounting A

Front flange mounting C

Centre trunnion mounting EN



Dimensions – Basic Cylinder, non-rotating, Series AZV...., Ø 32 – 100 mm

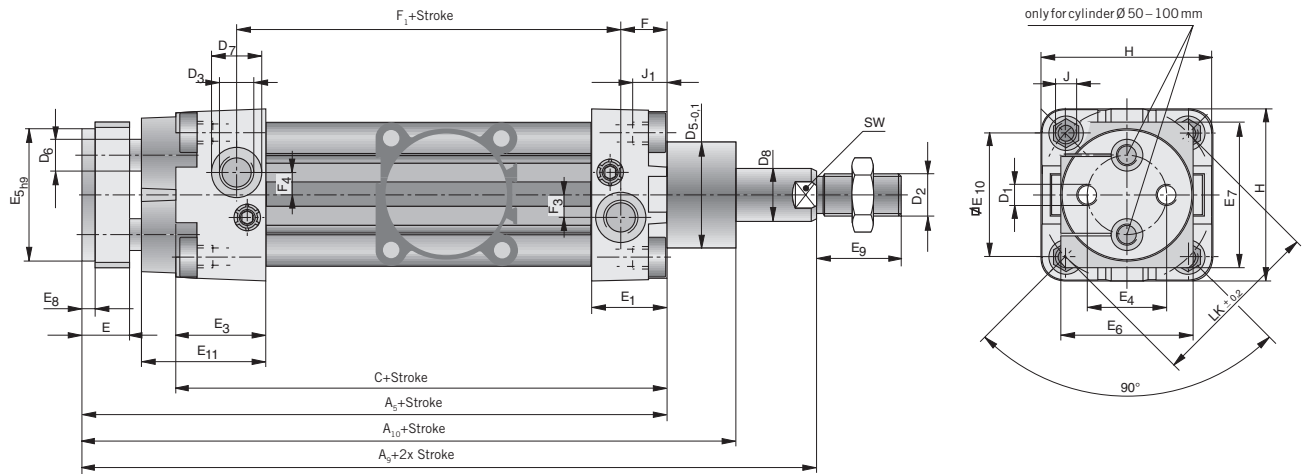


Dimension Table (mm) – Basic Cylinder AZV...., AZ3...., AZ4....

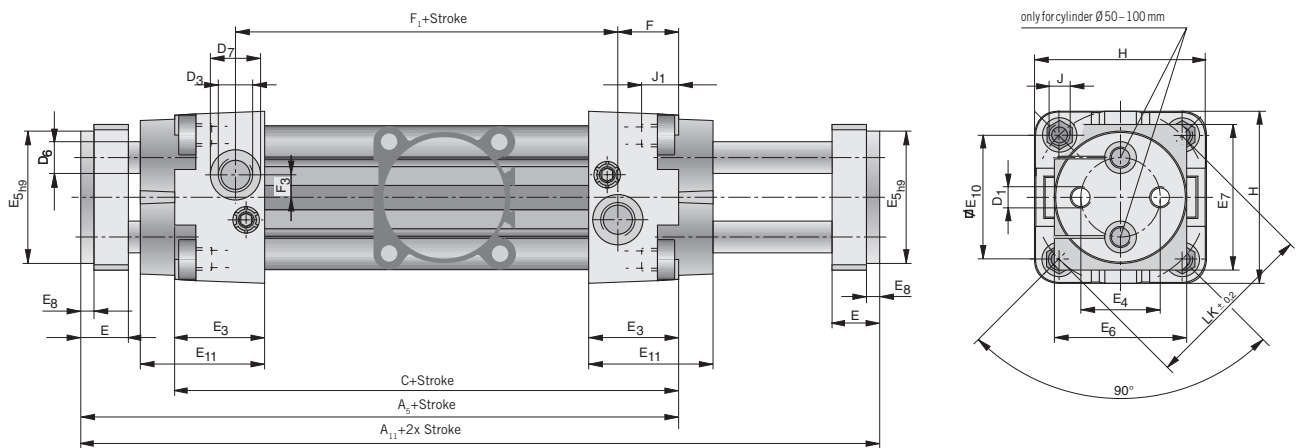
Cyl. Ø	A ₅ + Stroke	A ₉ + 2X Stroke	A ₁₀ + Stroke	A ₁₁ + 2X Stroke	C + Stroke	D ₁	D ₂	D ₃	ØD ₅	ØD ₆	ØD ₇	ØD ₈	ØD ₉	D ₁₀	E	E ₁	E ₂	E ₃
32	128	154	146	154	102	M 6	M10x1.25	G 1/8	30	8	15	12	7	23	15	29	4	26
40	142	172	163	172	112	M 8	M12x1.25	G 1/4	35	10	19	16	7	25	15	27	4	30
50	151	188	177	185	117	M 8	M16x1.5	G 1/4	40	12	19	20	9	30	18	29	4	34
63	161	198	187	197	125	M 10	M16x1.5	G 3/8	45	16	23	20	9	34	22	30	4	34
80	174	220	206	212	136	M 12	M20x1.5	G 3/8	45	20	23	25	10	38	22	34	4	39
100	181	232	218	219	143	M 12	M20x1.5	G 1/2	55	20	28	25	10	38	22	35	4	40

Piston force and air consumption see page 9, mountings see page 56, 57, order instructions see page 58, 59

Dimensions – Basic Cylinder, non-rotating, with through piston rod, series AZ3....., Ø 32 – 100 mm



Dimensions – Basic Cylinder, non-rotating, with through piston rods, series AZ4....., Ø 32 – 100 mm



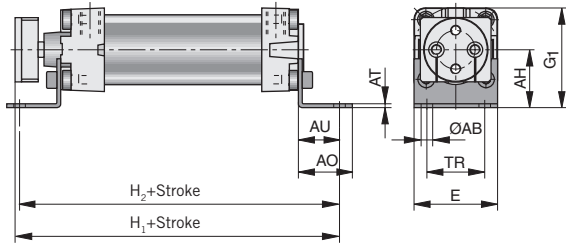
Cyl. Ø	ØE ₄	E _{5h9}	E ₆	E ₇	E ₈	E ₉	E ₁₀	E ₁₁	F AZV, AZ3	F AZ4	F ₁ +Stroke AZV, AZ3	F ₁ +Stroke AZ4	F ₃ AZV, AZ4	F ₃ AZ3	F ₄	J	J _{1max}	H	ØLK	SW
32	19	32	32	40	4	20	32.5	34	14.5	17.5	74	75	6	6	6	M6	16	47	46	10
40	22.5	40	40	45	4	24	38	42	16	19	77.5	75	7	7	7	M6	16	53	54	14
50	30	50	50	55	5	32	46.5	47	17.5	23	77	72	9.5	9.5	9.5	M8	16	65	66	17
63	38	63	63	70	5	32	56.5	45	17.5	21.5	87	83	10	10	10	M8	16	75	80	17
80	50	80	80	95	5	40	72	52	20.5	26	90	85	9	9	9	M10	16	95	102	22
100	70	100	100	115	5	40	89	53	19	24.5	100	95	13	13	13	M10	16	115	126	22

Accessories

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Mountings – Series AZV....., AZ3....., AZ4....., Ø 32 – 100 mm

Dimensions for Mounting A



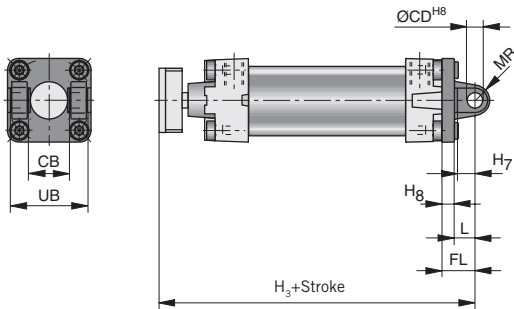
Material: steel, passivated

Dimension Table (mm) – for Mounting A

Cyl. Ø	E	G ₁	H ₁ + Stroke	H ₂ + Stroke	AH	ØAB	AO	AT	AU	TR
32	47	55.5	152	150	32	7	32	4	24	32
40	53	62.5	170	168	36	9	38	4	28	36
50	65	77.5	183	181	45	9	42	5	32	45
63	75	87.5	193	189	50	9	42	5	32	50
80	95	110.5	215	218	63	12	55	6	41	63
100	115	128.5	222	225	71	14	56	6	41	75

Included in delivery: 2 foot brackets, 4 screws

Dimensions for Mounting B



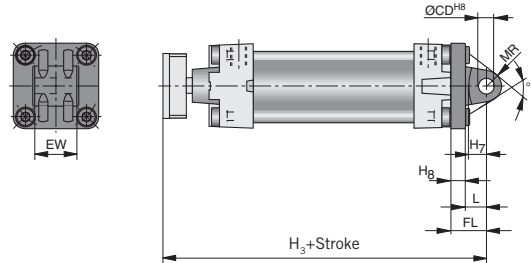
Material: cast aluminium

Dimension Table (mm) – for Mounting B

Cyl. Ø	H ₃ + Stroke	H ₇	H ₈	L	CB	ØCD ^{H8}	FL	MR	UB
32	150	10	10	12	26	10	22	9	45
40	167	13	10	15	28	12	25	11	52
50	178	12	11	16	32	12	27	12	60
63	193	17	11	21	40	16	32	15	70
80	210	16	15	22	50	16	36	16	90
100	222	20.5	16	25	60	20	41	20	110

Included in delivery: 1 rear trunnion mounting, 4 screws

Dimensions for Mounting BA



Material: cast aluminium

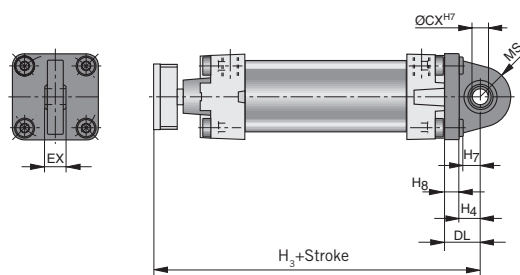
Dimension Table (mm) – for Mounting BA

Cyl. Ø	H ₃ + Stroke	H ₇	H ₈	L	ØCD ^{H8}	FL	MR	EW	α°
32	150	10	10	12	10	22	10.5	26	60
40	167	13	10	15	12	25	13	28	60
50	178	12	11	16	12	27	13	32	70
63	193	17	11	21	16	32	17	40	60
80	210	16	15	21	16	36	17	50	70
100	222	20.5	16	25	20	41	21	60	70

Included in delivery: 1 rear trunnion mounting, 4 screws

Dimensions for Mounting BAS

(Rear trunnion mounting with spherical bearing)



Material: cast aluminium

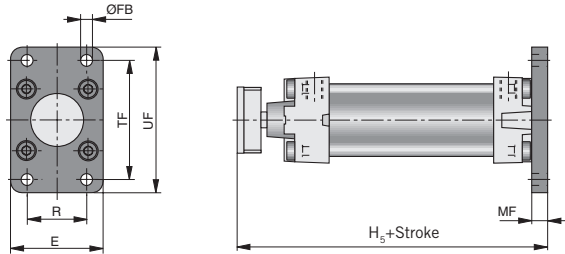
Dimension Table (mm) – for Mounting BAS

Cyl. Ø	H ₃ + Stroke	H ₄	H ₇	H ₈	ØCX ^{H7}	DL	EX	MS
32	150	12	10	10	10	22	14	18
40	167	15	13	10	12	25	16	21
50	178	16	12	11	12	27	16	23
63	193	21	17	11	16	32	21	27
80	210	21	16	15	16	36	21	29
100	222	25	20.5	16	20	41	25	34

Included in delivery: 1 rear trunnion mounting with spherical bearing, 4 screws

Mountings – Series AZV, AZ3....., AZ4....., Ø 32 – 100 mm

Dimensions for Mounting D



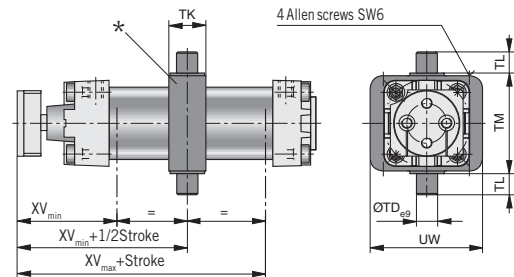
Material: cast aluminium

Dimension Table (mm) – for Mounting D

Cyl. Ø	E	H ₅ + Stroke	R	ØFB	MF	TF	UF
32	50	138	32	7	10	64	79
40	56	152	36	9	10	72	90
50	70	163	45	9	12	90	110
63	77	173	50	9	12	100	120
80	100	190	63	12	16	126	153
100	120	197	75	14	16	150	178

Included in delivery: 1 flange, 4 screws

Dimensions for Mounting EN
for series AZ (profile cylinder barrel version)



Material: cast aluminium

* Position centre trunnion mounting
Standard position: Type EN1 – The taps of the EN attachment are horizontally aligned to the air supply
Option: Type EN2 – The taps of the EN attachment are vertically aligned to the air supply

Dimension Table (mm) – for Mounting EN

Cyl. Ø	ØTD _{e9}	TK	TL	TM	UW	XV _{min}	XV ₊ 1/Stroke	XV _{max} + Stroke
32	12	25	12	50	65	64	76	87
40	16	28	16	63	75	75	87	99
50	16	28	16	75	85	84	95	106
63	20	36	20	90	100	89	101	112
80	20	36	20	110	120	96	109	121
100	25	48	25	132	135	99	112	125

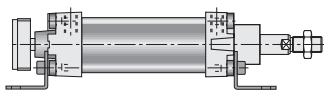
Included in delivery: 1 rear trunnion mounting

After loosening the locking screws, the trunnion mounting is infinitely variable between XV_{min} and XV_{max}.

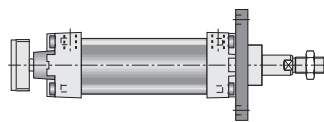
As standard, the position of the T-slots and dovetail slots is on the same side as the air connections. Exception: Ø 32 has only T-slots on the same side as the air connections, with a dovetail slot on the underside.

Dimensions – Basic Cylinder, with through piston rod, series AZ3....., Ø 32 – 100 mm

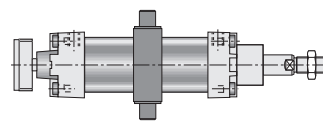
Foot mounting A



Rear flange mounting D

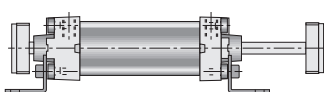


Centre trunnion mounting EN

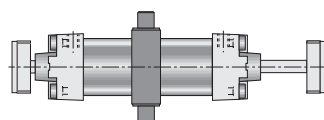


Dimensions – Basic Cylinder, with through piston rods, series AZ4....., Ø 32 – 100 mm

Foot mounting A



Centre trunnion mounting EN








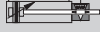
Piston force and air consumption see page 9, order instructions see page 58, 59

Order Instructions for Basic Cylinder Series AZ..., Ø 32 – 100 mm

AZ **5** **032** - **1000** / **000** - **0** **0** **0** **0** **0** **X** **-12**

Series	
AZ	Standard (profile cylinder barrel version)
AZZ	Tie rod version

Type of piston rod	
	Standard (with profile tube) 
D	With Through Piston Rod 
V	With non-rotating Piston Rod 
3	With through piston rod, non-rotating at one end 
4	With through piston rod, non-rotating at both ends 

Locking Unit	
	without (Standard)
F	with Locking Unit 

System	
5	Double acting with adjustable end cushioning, for contactless position sensing

*** Note for piston rod version:**
In the configuration of a cylinder with through piston rod, Series AZD, the assumption is that both piston rods are identical. Only one is configured and this applies to both piston rods. If two different piston rods are required, a special cylinder must be ordered. Special cylinders are not configurable.

Cylinder Diameter	
032	32 mm
040	40 mm
050	50 mm
063	63 mm
080	80 mm
100	100 mm

Stroke Length	
Length in mm (4-digit)	

Piston Rod Extension *	
Length in mm (3-digit)	

External Thread Length of the Piston Rod (optional) *	
Length (2-digit) in mm Details see page 47	
-12	for example 12 mm

Pneumatic cylinders for the Ex-Atmospheres (ATEX)	
X	See ATEX Certification 94/9/EG (ATEX 95)
0	Standard without Ex-Protection

Piston Rod Thread *	
0	External Thread (Standard)
1	Special – External Thread Details see page 47
2	Internal Thread

Piston Rod Material *	
0	Steel, high-alloy (Standard)
1	Steel, high-alloy (V2A)
3	Steel, unalloyed, hard-chrome plated (CK45)

Lubrication	
0	Grease (Standard)


Seal / Wiper	
0	Standard (NBR)
1	Viton (+150°C)
2	NBR with metal wiper
3	Hydraulic (10 bar) with metal wiper

Air connection	
0	Standard
1	at one end in rear end cap, Ø 40 – 100 mm
2	at one end in front end cap, Ø 40 – 100 mm
3	Cylinder tube – 90° rotated
4	Cylinder tube – 180° rotated
5	Cylinder tube – 270° rotated

Standard Stroke Length

0025, 0050, 0080, 0100, 0125, 0160, 0200, 0250, 0320, 0400, 0500 delivered preferably

Order Instructions – Multiple Position Cylinder Series AZZ..., Ø 32 – 100 mm

Order Instructions	AZZ5	PD.../.../...	
Series	AZZ5 with tie rod		
			
Piston Diameter (mm) Order-No.			
032	PD40351		
040	PD40354		
050	PD40249		
063	PD40357		
080	PD40216		
100	PD40360		
			Stroke Length Cylinder 1 and 2
			Length in mm
			Standard Stroke Length 0025, 0050, 0080, 0100, 0125, 0160, 0200, 0250, 0320, 0400, 0500 delivered preferably

Order Instructions:

For standard versions of basic cylinder, Series AZ, see price list (e.g. AZ5032-0125)

Ordering example for a configurable basic cylinder:

- Cylinder with through piston rod
- Double acting with cushioning
- for contactless position sensing
- Diameter 32 mm
- Stroke 125 mm
- Piston rod extension 15 mm (at both ends)
- Air connection at one end in rear end cap
- Viton seals (up to +150 °C)
- Standard lubrication
- Piston rod material, high alloy steel 1.4305
- Piston rod with external thread
- Without EX protection
- External thread length of piston rod 25 mm (at both ends)

Type designation per order code

AZ5032-0125/015-110100-25

Ordering example for a cylinder for use in potentially explosive atmospheres:

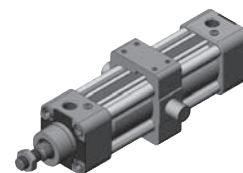
Standard Basic Cylinder, Ø 32 mm, ATEX, Series AZ:
AZ5032-0500/000-00000X

* Order information for cylinders with EN-mountings

When ordering, please indicate the position of the centre trunnion mounting

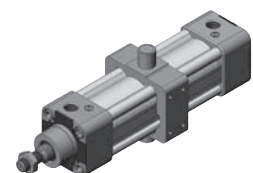
Standard position: Type EN1

The taps of the EN attachment are horizontally aligned to the air supply



Option: Type EN2

The taps of the EN attachment are vertically aligned to the air supply



Order Instructions for Cylinder Mountings and Accessories

Description	Order-No.					
	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
Foot mounting A-..	PD 27917	PD 27918	PD 28072	PD 28073	PD 28074	PD 28075
Rear trunnion mounting B-..	PD 22704	PD 22705	PD 22706	PD 22707	PD 22708	PD 22709
Rear trunnion mounting BA-..	PD 23412	PD 23413	PD 23414	PD 23415	PD 23416	PD 23417
Rear trunnion mounting BAS-..	PD 23843	PD 23844	PD 23845	PD 23846	PD 23847	PD 23848
Front flange mounting C-..	PD 23403	PD 23404	PD 23405	PD 23406	PD 23407	PD 23408
Rear flange mounting D-..	PD 23403	PD 23404	PD 23405	PD 23406	PD 23407	PD 23408
Centre trunnion mounting EN-..* (for the tie rod version AZZ)	KL9234	KL9235	KL9236	KL9237	KL9238	KL9239
Centre trunnion mounting EN-..* (for profile cylinder barrel version AZ)	PD 39195	PD 39196	PD 39197	PD 39198	PD 39199	PD 39200
Security bolt for mountings B, BA, BAS	KY6153	KY6154	KY6157	KY6156	KY6158	KY6159

Standard Cylinder Ø125-320mm

to ISO 15552
(ISO 6431)
CETOP RP53P

Series DZ....

Versions:
double acting with cushioning
for contactless position
sensing

ATEX-Version 
(Series DZ5...)

Special Versions:

- to CETOP RP53P
(piston rod thread
M24x2)
- with through piston rod
- longer cushion strokes
- on request
- without adjustable end
cushioning - on request
- versions for application at
approx. +80° to 150°C
- on request

Delivery includes:

- 1 Cylinder
- 1 Hexagon nut for
piston rod thread

Magnetic switches are not
included - please order these
separately.



Characteristics

Characteristics	Symbol	Unit	Description				
Type			Cylinder				
Series			DZ1, DZ5				
System			Piston rod cylinder Double acting with cushioning				
Mounting			See drawing				
Tube connection			Thread				
Ambient temperatur range	T_{min}	°C	-20	Note: When using below freezing point (°C) it is necessary to consult us			
	T_{max}	°C	+80				
Medium temperatur range	T_{max}	°C	+80				
Weight (mass)		kg	See table				
Installation			In any position				
Medium			Filtered and lubricated or filtered and unlubricated compressed air				
Lubrication			Oil mist lubrication compatible with Buna N				
Material							
	Cylinder tube		Aluminium, anodized				
	Front/Rear end caps		Aluminium, anodized				
	Piston rod		Steel, hard-chrome plated				
Pneumatic Characteristics							
Nominal pressure	p_n	bar	6				
Operating pressure range	p_{min}	bar	1				
	p_{max}	bar	10				
Piston diameter		mm	125	160	200	250	320
Port size			G 1/2	G 3/4	G 3/4	G 1	G 1
Piston rod diameter		mm	32	40	40	50	63
Piston rod thread			M27x2**	M36x2	M36x2	M42x2	M48x2
Stroke length		mm	For standard stroke lengths see order instruc- tions max. 2000mm, longer strokes on request				
Piston force and air consumption			See page 9				
Cushioning			At both ends, infinitely variable				
Cushioning stroke		Cyl. Ø	125	160	200	250	320
		mm	42	52	52	52	50

** Standard piston rod thread M27x2
- on request M24x2 to CETOP RP53P can also be delivered.

Piston force and air consumption see page 9, dimensions see page 61-65,
order instructions see page 66, 67

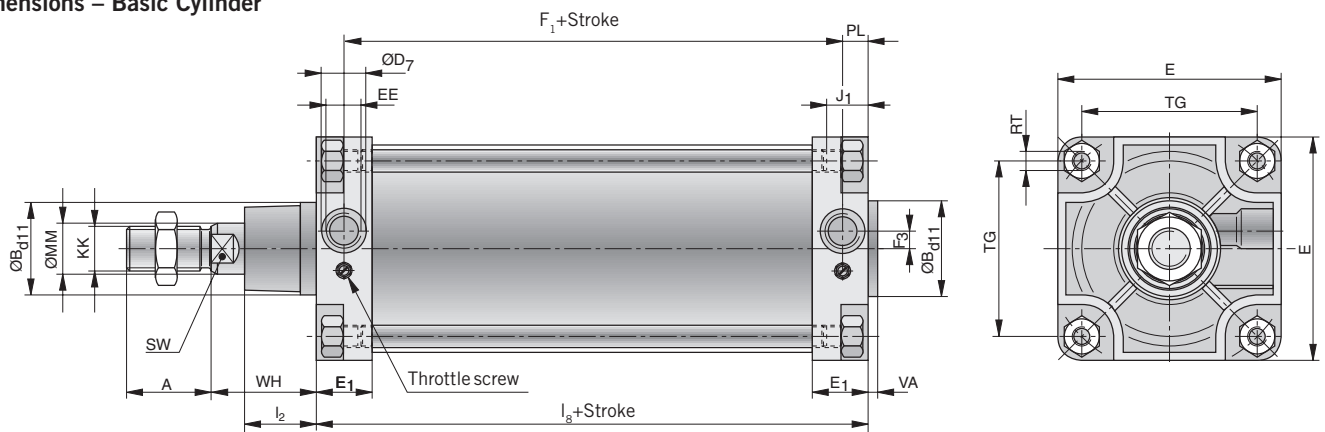
Weight (mass) kg

Cylinder version	Cylinder diameter									
	Ø125		Ø160		Ø200		Ø250		Ø320	
	1*	2*	1*	2*	1*	2*	1*	2*	1*	2*
Standard Type DZ	7.200	1.300	12.500	2.050	20.000	2.200	35.000	4.000	66.000	6.000

* 1 = Weight for cylinder with 100 mm stroke
 2 = Weight for further 100 mm stroke length

Mounting	Cylinder diameter				
	Ø125	Ø160	Ø200	Ø250	Ø320
A	2.100	3.800	5.000	9.700	17.000
B	1.400	2.600	4.100	7.100	31.000
BA	1.600	2.700	4.200	15.700	33.000
BAS	1.600	2.600	11.300	19.000	30.000
C	1.400	7.200	12.200	19.200	38.000
D	1.400	7.200	12.200	19.200	38.000
EN	3.300	6.100	8.100	14.800	16.000

Dimensions – Basic Cylinder



Dimension Table (mm) – for Basic Cylinder

Cyl. Ø	A	ØB _{d11}	ØD ₇	E	E ₁	F ₁ + Stroke	F ₃	J _{1 max.}	I ₂	I ₈ + Stroke	EE	KK	ØMM	PL	RT	SW	TG	VA	WH
125	54	60	28	140	35	122	11	18	45	160	G1/2	M27x2*	32	19	M12	27	110	6	65
160	72	65	33	180	45	130	11	23	50	180	G3/4	M36x2	40	25	M16	36	140	6	80
200	72	75	33	220	45	130	15	23	60	180	G3/4	M36x2	40	25	M16	36	175	6	95
250	84	90	40	280	64	136	21	27	70	200	G 1	M42x2	50	32	M20	46	220	10	105
320	96	110	44	340	55	158	-	28	89,5	220	G1	M48x2	63	31	M24	55	270	9,5	120

* Standard piston rod thread M27x2 - on request M24x2 to CETOP RP53P can also be delivered

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Standard Cylinder Ø 125 mm

Series DZ5.../...FSE

Version:
with locking unit – locks if
pressure drops

double acting with cushioning

for contactless position
sensing

For further technical informa-
tions and examples see page
114, 115

Characteristics

Characteristics	Symbol	Unit	Description
General			
Benennung			Cylinder with locking unit
Type			Piston rod cylinder
Series			DZ5125/...-FSE
Locking unit			FSE- locks if pressure drops
Material FSE			
Cartridge			Aluminium, anodised
Housing			Aluminium, anodised
Clamping jaw			Ms
Cylinder piston rod			Steel, high-alloy
FSE unlocking pressure		bar	≥4 to 10
Cylinder diameter		mm	125
Pilot air connection			G1/8
Locking force, static **)		N	7000

For all other dimensions for cylinders and cylinder mountings see page 60, 61

Weight (mass) kg

Description	Cylinder diameter (mm)
	125
Locking unit	1.80
Basic cylinder *)	7.87

*) with 100 mm stroke and longer piston rod

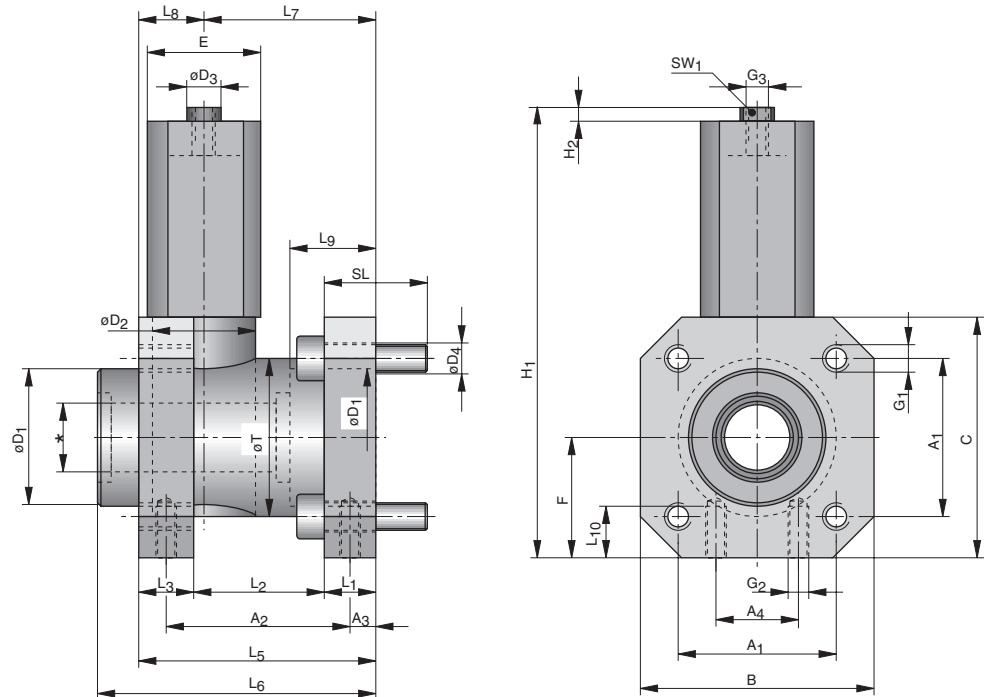
**) Note:

The holding force quoted relates to a static load. If this load is exceeded, slippage can occur. Any dynamic forces occurring in operation must not exceed the static holding force. In clamped operating mode, if the load is fluctuating, the clamping unit is not free from play. The cylinder is not suitable for positioning tasks.

Actuation:

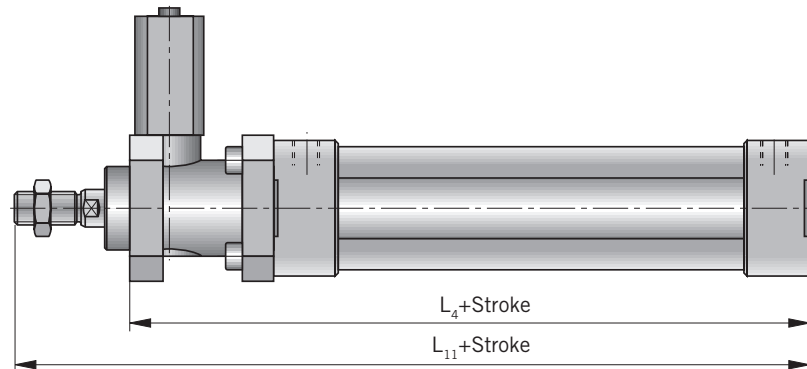
The clamping unit must only be released when both cylinder chambers are pressurised, otherwise there is danger of an accident from the jerky movement of the piston rod. Shutting off the compressed air supply at both ends with a 5/3 way valve provides adequate safety only for a short time.

Dimensions – Locking unit FSE-..., Ø125 mm



* Piston rod diameter

Dimensions of Cylinder with Locking Unit FSE-..., Ø125 mm



For all other dimensions for cylinders and cylinder mountings see page 61, 64-65

Dimensions Table (mm) – for Locking Unit FSE-... and Dimensions including Cylinder

Cyl. Ø	A ₁	A ₂	A ₃	A ₄	B	C	ØD ₁	ØD ₂	ØD ₃	ØD ₄	E	F	G ₁	G ₂	G ₃
125	110	95	11	75	140	150	60	65	19	13	65	75	M12	M10	G1/8

Cyl. Ø	H ₁	H ₂	L ₁	L ₂	L ₃	L ₄ +Stroke	L ₅	L ₆	L ₇	L ₈	L ₉	L ₁₀	L ₁₁ +Stroke	SL	SW1	ØT
125	223.5	4	25	70	27	314	122	154	85	37	45.5	20	384	45	17	80

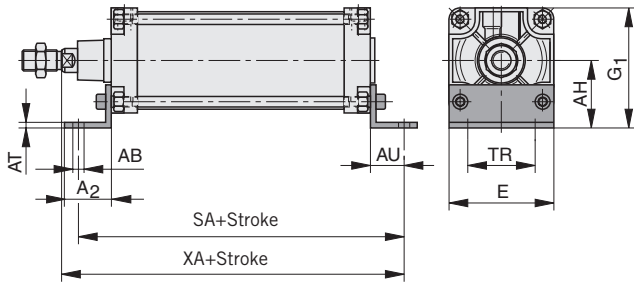
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Piston force and air consumption see page 9, mountings see page 64,65, order instructions see page 66,67

Mountings – Series DZ..., Ø 125 – 320 mm

Dimensions for Mounting A

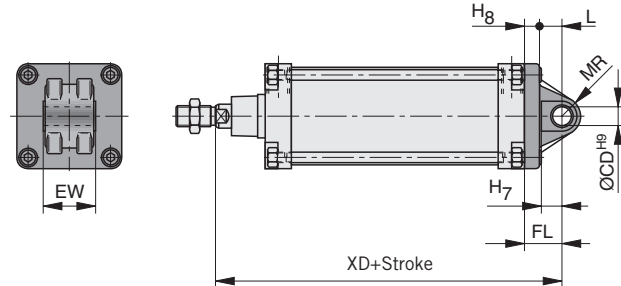


Material: steel, passivated

Dimensions Table (mm) – for Mounting A

Cyl. Ø	A ₂	E	G ₁	ØAB	AH	AT	AU	SA +Stroke	TR	XA +Stroke
125	60	140	160	16	90	8	45	250	90	270
160	80	180	205	18	115	8	60	300	115	320
200	100	220	245	22	135	9	70	320	135	345
250	110	280	305	26	165	10	75	350	165	380
320	130	353	370	35	200	23	85	390	200	425

Dimensions for Mounting BA

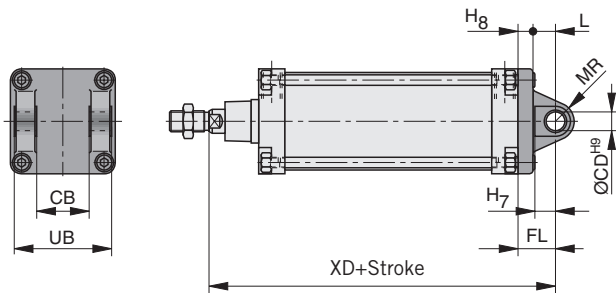


Material: cast aluminium

Dimensions Table (mm) – for Mounting BA

Cyl. Ø	H ₇	H ₈	L	ØCD ^{H9}	EW	FL	MR	XD +Stroke
125	27.5	20	30	25	70	50	25	275
160	28.5	20	35	30	90	55	30	315
200	28.5	25	35	30	90	60	31	335
250	39	25	45	40	110	70	41	375
320	26	30	50	45	120	80	46	420

Dimensions for Mounting B

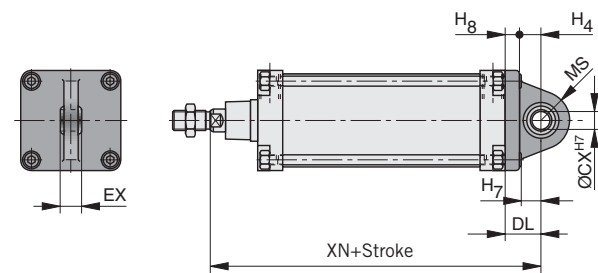


Material: cast aluminium

Dimensions Table (mm) – for Mounting B

Cyl. Ø	H ₇	H ₈	L	ØCD ^{H9}	CB	FL	MR	UB	XD +Stroke
125	27,5	20	30	25	70	50	25	130	275
160	28,5	20	35	30	90	55	30	170	315
200	28,5	25	35	30	90	60	31	170	335
250	25	25	45	40	110	70	41	200	375
320	26	30	50	45	120	80	46	220	420

Dimensions for Mounting BAS



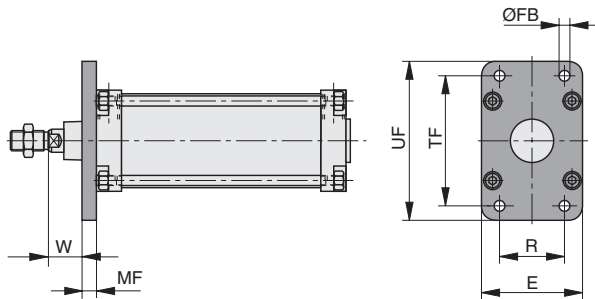
Material: cast aluminium

Dimensions Table (mm) – for Mounting BAS

Cyl. Ø	H ₄	H ₇	H ₈	ØCX ^{H7}	DL	EX	MS	XN +Stroke
125	30	27,5	20	25	50	31	40	275
160	35	28,5	20	30	55	37	48	315
200	36	33	24	35	60	43	47	335
250	42	39	28	40	70	49	53	375
320	50	26	30	50	80	60	63	420

Mountings – Series DZ..., Ø 125 – 320 mm

Dimensions for Mounting C

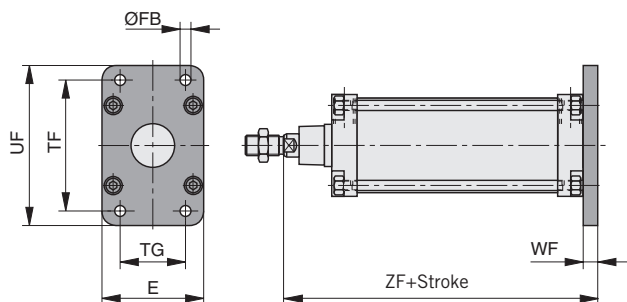


Material: Ø125 cast aluminium
Ø160 - Ø320 steel, passivated

Dimension Table (mm) – for Mounting C

Cyl. Ø	E	R	W	ØFB	MF	TF	UF
125	145	90	45	16	20	180	220
160	180	115	60	18	20	230	275
200	220	135	70	22	25	270	315
250	280	165	80	26	25	330	380
320	353	200	90	33	30	400	475

Dimensions for Mounting D

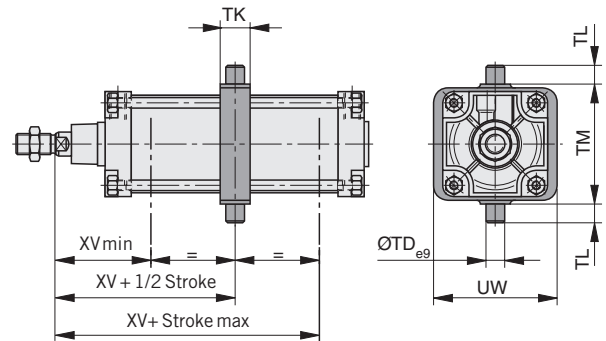


Material: Ø125 cast aluminium
Ø160 - Ø320 steel, passivated

Dimension Table (mm) – for Mounting D

Cyl. Ø	E	ØFB	TF	TG	UF	WF	ZF +Stroke
125	145	16	180	90	220	20	245
160	180	18	230	115	275	20	280
200	220	22	270	135	315	25	300
250	280	26	330	165	380	25	330
320	353	33	400	200	475	30	370

Dimensions for Mounting EN



Material: nodular graphite cast iron, passivated

* Position centre trunnion mounting

Standard position: Type EN1 – The taps of the EN attachment are horizontally aligned to the air supply

Option: Type EN2 – The taps of the EN attachment are vertically aligned to the air supply

Dimension Table (mm) – for Mounting EN

Cyl. Ø	ØTD _{e9}	TK	TL	TM	UW	XV _{min}	XV +1/2 Stroke	XV _{max} + Stroke
125	25	32	25	160	155	116	145	174
160	32	40	32	200	190	145	170	195
200	32	40	32	250	240	160	185	210
250	40	50	40	320	296	194	205	216
320	50	70	50	400	400	210	230	250



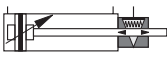
Note:

When ordering please give exact dimension XV+ 1/2 Hub. Mounting is assembled when delivered.

Instructions for mounting EN:

In order to avoid faulty operation of the magnetic switches, a min. distance of 10 to 20 mm has to be kept between switch and EN-mounting when fastening them to the cylinder.

Order Instructions – Basic Cylinder, Series DZ...., Ø 125 – 320 mm



System	Symbol	Standard	Piston-Ø	Order instructions	
				Type	Order-No.
Double acting with adjustable end cushioning		ISO	125	DZ1125/....	PA53530-....
		CETOP	125	DZ1125/....	PA53500-....
		ISO	160	DZ1160/....	PA54000-....
		ISO	200	DZ1200/....	PA54500-....
		ISO	250	DZ1250/....	PA55000-....
		ISO	320	DZ1320/....	PA55500-....
Double acting with adjustable end cushioning, for contactless position sensing		ISO	125	DZ5125/....	PA53540-....
		CETOP	125	DZ5125/....	PA53510-....
		ISO	160	DZ5160/....	PA54010-....
		ISO	200	DZ5200/....	PA54510-....
		ISO	250	DZ5250/....	PA55010-....
		ISO	320	DZ5320/....	PA55520-....
With locking unit Double acting with adjustable end cushioning, for contactless position sensing		ISO	125	DZ5125/....-FSE	PA64027-....
		CETOP	125	DZ5125/....-FSE	PA64017-....

Complete type designation and order no. with stroke length in mm

(4-digit)

Standard stroke length 0025, 0050, 0080, 0100, 0125, 0160, 0200, 0250, 0320, 0400, 0500 delivered preferably

Order Instructions – Cylinder with Mounting EN, Series DZ...., Ø 125 – 320 mm

System	Symbol	Standard	Piston-Ø	Order instructions	
				Type	Order-No.
Double acting with adjustable end cushioning		ISO	125	DZ1125EN/.../....	PA53536-....
		CETOP	125	DZ1125EN/.../....	PA53506-....
		ISO	160	DZ1160EN/.../....	PA54006-.../...
		ISO	200	DZ1200EN/.../....	PA54506-.../...
		ISO	250	DZ1250EN/.../....	PA55006-.../...
		ISO	320	DZ1320EN/.../....	PA55506-.../...
Double acting with adjustable end cushioning, for contactless position sensing		ISO	125	DZ5125EN/.../....	PA53546-.../...
		CETOP	125	DZ5125EN/.../....	PA53516-.../...
		ISO	160	DZ5160EN/.../....	PA54016-.../...
		ISO	200	DZ5200EN/.../....	PA54516-.../...
		ISO	250	DZ5250EN/.../....	PA55016-.../...
		ISO	320	DZ5320EN/.../....	PA55516-.../...

Complete type designation and order no. with stroke length in mm

(3-digits)

Give dimension XV+1/2Stroke with type designation and order no.

Cylinder-Ø 320 mm on request

Ordering Example:

Basic Cylinder: DZ5125/0500 PA 53510-0500

Order Instructions – Cylinder Mountings

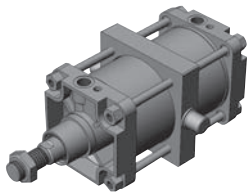
Description	Order-No.				
	Ø125	Ø160	Ø200	Ø250	Ø320
Foot mounting A-...	PD 22026	PD 22027	PD 24792	PD 25758	KL9139
Rear trunnion mounting B-...	PD 22034	PD 22035	PD 24990	PD 25710	KL9137
Rear trunnion mounting BA-...	PD 23418	PD 22628	PD 24999	PD 25759	KL9135
Rear trunnion mounting BAS-...	PD 23849	PD 23850	PD 25766	PD 25760	KL9136
Front flange mounting C-...	PD 23409	PD 23410	PD 24924	PD 25761	KL9140
Rear flange mounting D-...	PD 23409	PD 23410	PD 24924	PD 25761	KL9140
Centre trunnion mounting EN-...*	KL9240	KL9241	KL9242	KL9243	KL9138
Security bolt for mountings B, BA, BAS	PD 22598	PD 22599	PD 22599	KY8658	KL9141

* Order information for cylinders with EN-mountings

When ordering, please indicate the position of the centre trunnion mounting

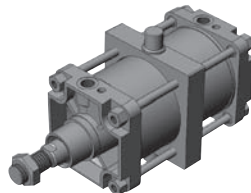
Standard position: Type EN1

The taps of the EN attachment are horizontally aligned to the air supply



Option: Type EN2

The taps of the EN attachment are vertically aligned to the air supply



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