

**Technical details**

<b>Operating pressure</b>	1 ... 10 bar
<b>Temperature range</b>	-20°C ... +80°C
<b>Max. stroke</b>	2.800 mm
<b>Working speed</b>	50 ... 800 mm/s
<b>Medium</b>	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Differing the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
<b>Materials</b>	cylinder tube: Al (anodized) End caps: Al-Druckguß, (painted) Piston rod: steel hard chrome plated (optional 1.4301) Seals: PU, NBR
	Cylinders in accordance with 2014/34/EU (ATEX) available. (page 29)

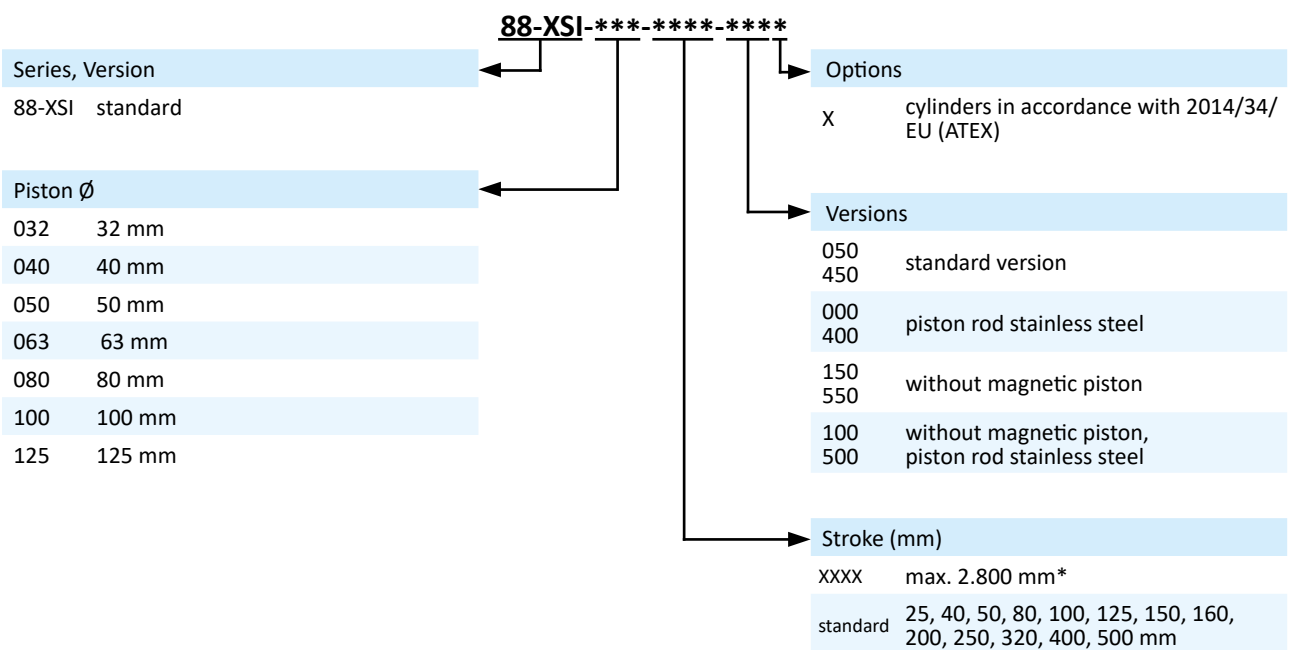


Double acting Al-profile cylinder with integrated sensor grooves, adjustable cushions and magnetic piston for proximity sensors. The sensors can be installed directly into the sensor grooves of the Al-profile. Standard stroke lengths in table below, additional lengths on request.

**Versions**

	050, 000 double acting, adjustable cushioning, with magnetic piston		450, 400 double acting, double end piston rod, adjustable cushioning, with magnetic piston
	150, 100 double acting, adjustable cushioning		550, 500 double acting, double end piston rod, adjustable cushioning

**Order code**



\* For longer stroke lengths please check the max buckling load.

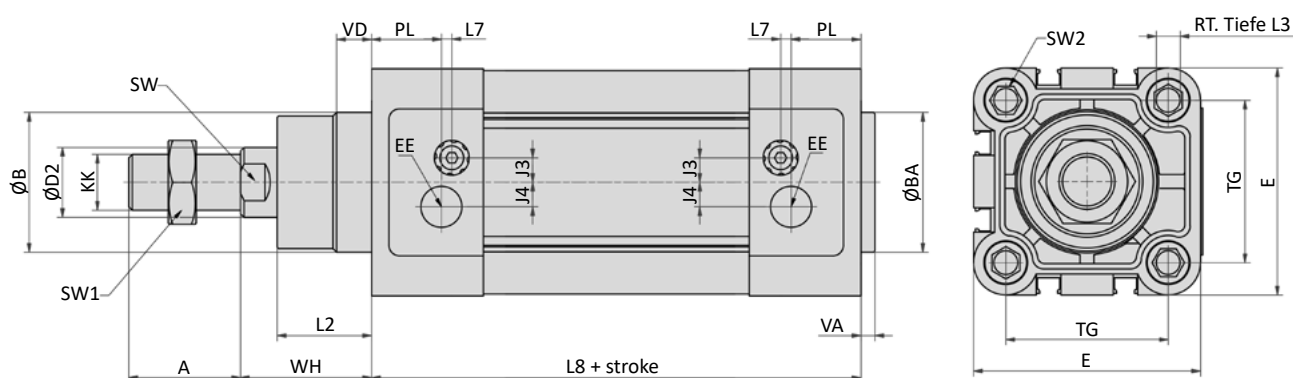
## Series 88-XSI

### ISO 15552, double acting

#### Technical data

Model-no.:	88-XSI-032-...	88-XSI-040-...	88-XSI-050-...	88-XSI-063-...	88-XSI-080-...	88-XSI-100-...	88-XSI-125-...
Piston $\varnothing$ (mm)	32	40	50	63	80	100	125
Force at 6 bar (N)	Extension	434	678	1060	1682	2713	6623
	Retraction	373	570	890	1513	2448	6189
Connection	G1/8	G1/4	G1/4	G3/8	G3/8	G1/2	G1/2
Piston rod thread	M10 x 1.25	M12 x 1.25	M16 x 1.5	M16 x 1.5	M20 x 1.5	M20 x 1.5	M27 x 2
Cushioning length (mm)	20	20	20	20	26	26	26

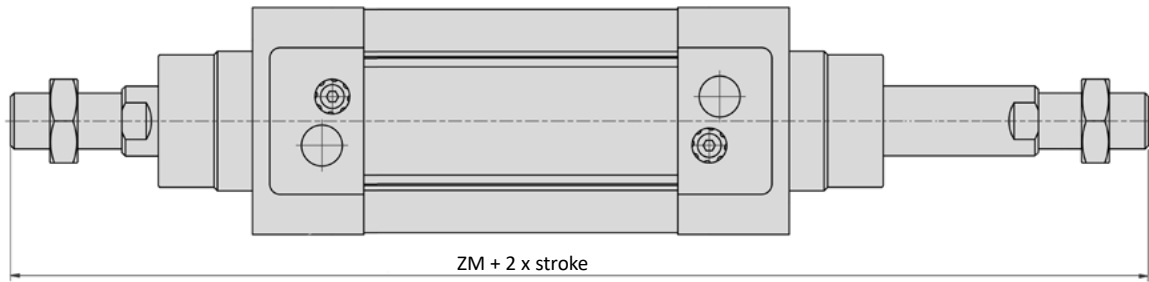
#### Dimensions series 88-XSI



Piston $\varnothing$	A	$\varnothing$ B	$\varnothing$ BA	$\varnothing$ D2	E	EE	J3	J4	KK	L2	L3
32	22	30	30	12	45	G1/8	6.5	5	M10 x 1.25	16	12
40	24	35	35	16	52	G1/4	7	7	M12 x 1.25	20	12
50	32	40	40	20	65	G1/4	9	7	M16 x 1.5	27	12
63	32	45	45	20	76	G3/8	9	8	M16 x 1.5	26	12
80	40	45	45	25	94	G3/8	12	10	M20 x 1.5	35	15
100	40	55	55	25	112	G1/2	14	10	M20 x 1.5	40	15
125	54	60	60	32	134	G1/2	14	10	M27 x 2	46	20

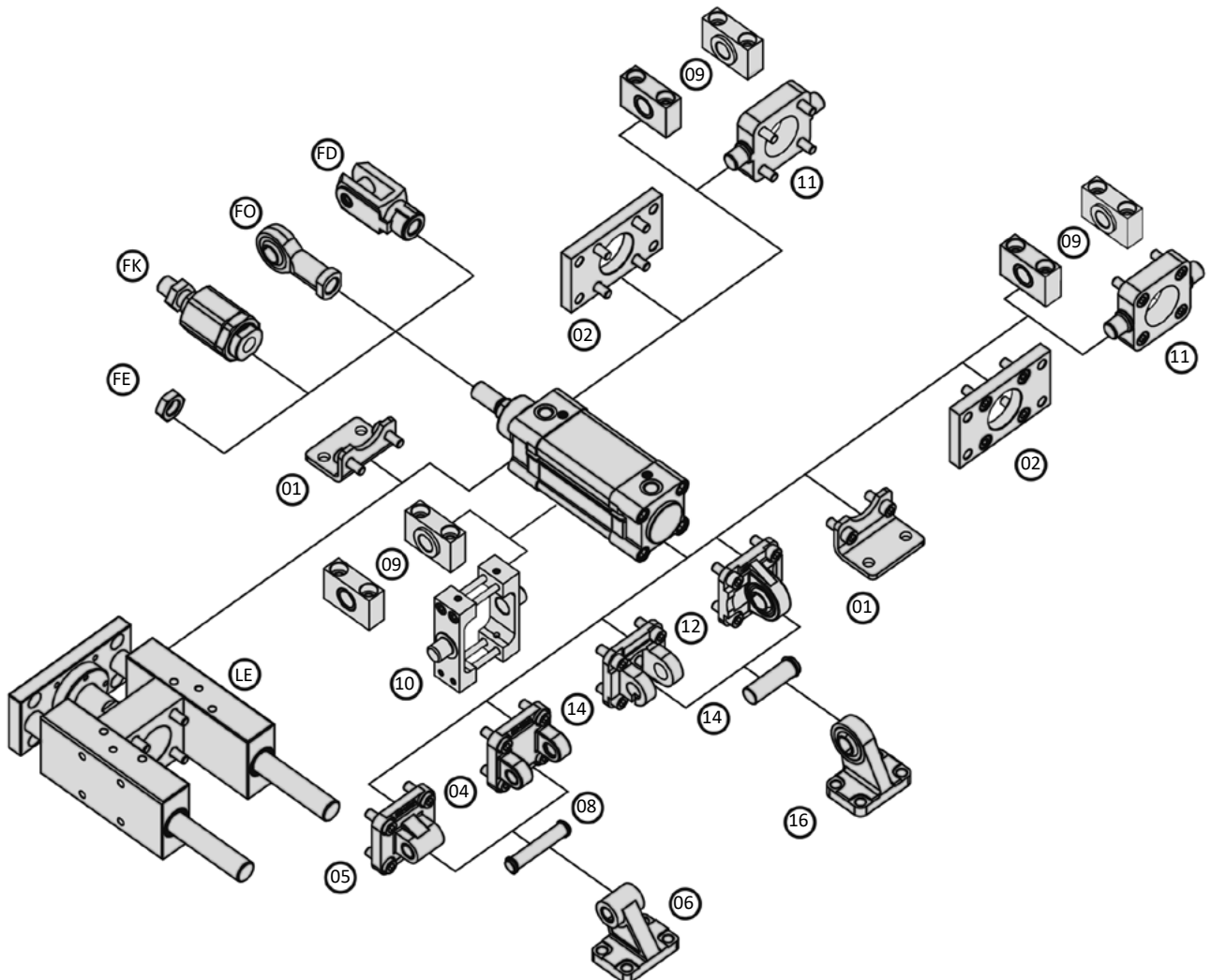
Piston $\varnothing$	L7	L8	PL	RT	SW	SW1	SW2	TG	VA	VD	WH
32	3	94	15	M6	10	17	6	32.5	4	10	27
40	3	105	17.5	M6	13	19	6	38	4	10	30
50	3	106	20	M8	17	24	8	46.5	4	10	37.5
63	5	121	22	M8	17	24	8	56.5	4	10	36
80	5	128	23	M10	22	30	10	72	5	10	48
100	5	138	26	M10	22	30	10	89	6	10	52
125	5	160	29	M12	27	41	12	110	7	10	63

**Dimensions series 88-XSI (addition at double end piston rod)**



Piston Ø (mm)	32	40	50	63	80	100	125
ZM	146	165	180	195	220	240	290

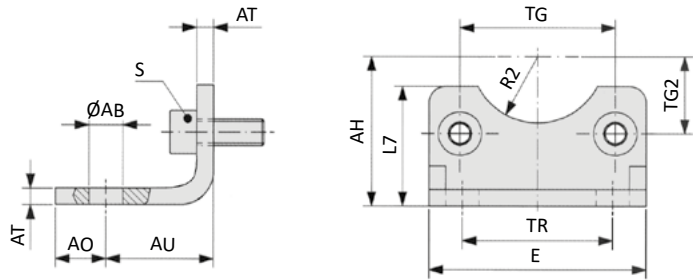
**Mounting the add-on parts XLB-xxx-yy**



## Series SLX, XL and 88-XSI

### Mounting accessories

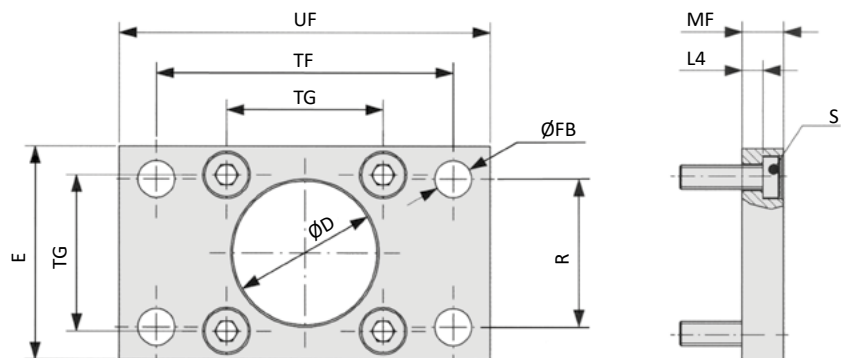
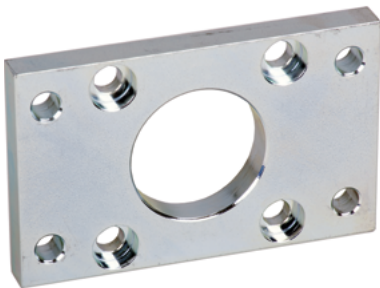
#### XLB-xxx-01 Foot mount



Model-no.:	Ø AB	AH	AO	AU	AT	E	L7	R2	S	TG	TG2	TR
XLB-032-01	7	32	11	24	4	45	30	15	M6 x 16	32.5	16.25	32
XLB-040-01	10	36	8	28	4	52	30	17.5	M6 x 16	38	19	36
XLB-050-01	10	45	15	32	5	65	36	20	M8 x 20	46.5	23.25	45
XLB-063-01	10	50	13	32	5	75	35	22.5	M8 x 20	56.5	28.25	50
XLB-080-01	12	63	14	41	6	95	47	22.5	M10 x 20	72	36	63
XLB-100-01	14.5	71	16	41	6	115	53	27.5	M10 x 20	89	44.5	75
XLB-125-01	16.5	90	25	45	8	140	70	30	M12 x 25	110*	55	90
<i>tolerances and adjustments</i>	H14	JS16		± 0.2				H15		± 0.2 *± 0.3		JS14

Materials: steel, zinc plated; 2 x 2 screws in accordance with EN ISO 4762 are included.

#### XLB-xxx-02 Flange mount



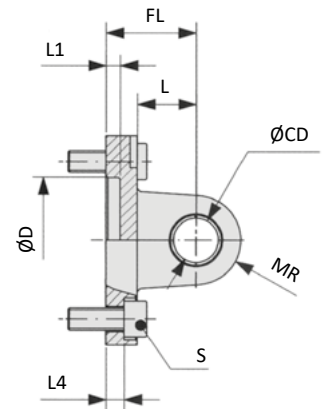
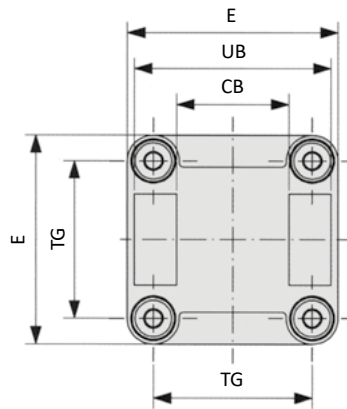
Model-no.:	Ø D	E	Ø FB	L4	MF	R	S	TF	TG	UF
XLB-032-02	30	45	7	5	10	32	M6 x 20	64	32.5	80
XLB-040-02	35	52	9	5	10	36	M6 x 20	72	38	90
XLB-050-02	40	65	9	6.5	12	45	M8 x 20	90	46.5	110
XLB-063-02	45	75	9	6.5	12	50	M8 x 20	100	56.5	120
XLB-080-02	45	95	12	9	16	63	M10 x 25	126	72	150
XLB-100-02	55	115	14	9	16	75	M10 x 25	150	89	170
XLB-125-02	60	140	16	10.5	20	90	M12 x 25	180	110*	205
<i>tolerances and adjustments</i>	H11		H13	- 0.5	JS14	JS14		JS14	± 0.2 *± 0.3	

Materials: steel, zinc plated; 4 screws in accordance with DIN 7984 are included.

**XLB-xxx-04 Clevis mount with bushing**



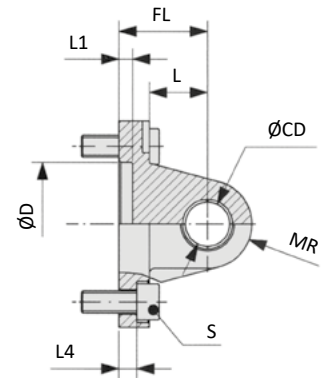
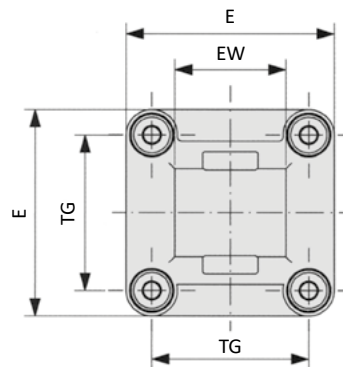
Inclusive clevis pin  
order no.: XLB-xxx-48



Model-no.:	CB	Ø CD	Ø D	E	FL	L	L1	L4	MR	S	TG	UB
<b>XLB-032-04</b>	26	10	30	45	22	13	5	5.5	10	M6 x 20	32.5	45
<b>XLB-040-04</b>	28	12	35	52	25	16	5	5.5	12	M6 x 20	38	52
<b>XLB-050-04</b>	32	12	40	65	27	16	5	6.5	12	M8 x 20	46.5	60
<b>XLB-063-04</b>	40	16	45	75	32	21	5	6.5	16	M8 x 20	56.5	70
<b>XLB-080-04</b>	50	16	45	95	36	22	5	10	16	M10 x 25	72	90
<b>XLB-100-04</b>	60	20	55	115	41	27	5	10	20	M10 x 25	89	110
<b>XLB-125-04</b>	70	25	60	140	50	30	7	10	25	M12 x 25	110*	130
<i>tolerances and adjustments</i>	H14	H9	H11		± 0.2			± 0.5			± 0.2 *± 0.3	h13

Materials: Al, bushing steel and PTFE; 4 screws in accordance with EN ISO 4762 are included.

**XLB-xxx-05 Swivel mount**



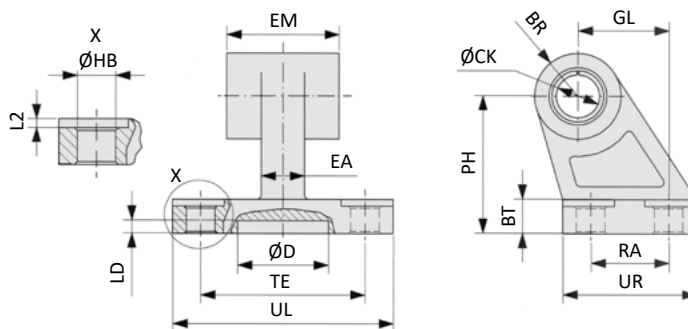
Model-no.:	Ø CD	Ø D	E	EW	FL	L	L1	L4	MR	S	TG
<b>XLB-032-05</b>	10	30	45	26	22	13	5	5.5	10	M6 x 20	32.5
<b>XLB-040-05</b>	12	35	52	28	25	16	5	5.5	12	M6 x 20	38
<b>XLB-050-05</b>	12	40	65	32	27	16	5	6.5	12	M8 x 20	46.5
<b>XLB-063-05</b>	16	45	75	40	32	21	5	6.5	16	M8 x 20	56.5
<b>XLB-080-05</b>	16	45	95	50	36	22	5	10	16	M10 x 25	72
<b>XLB-100-05</b>	20	55	115	60	41	27	5	10	20	M10 x 25	89
<b>XLB-125-05</b>	25	60	140	70	50	30	7	10	25	M12 x 25	110*
<i>tolerances and adjustments</i>	H9	H11			± 0.2			± 0.5			± 0.2 *± 0.3

Materials: Al, bushing steel and PTFE; 4 screws in accordance with EN ISO 4762 are included.

## Series SLX, XL and 88-XSI

### Mounting accessories

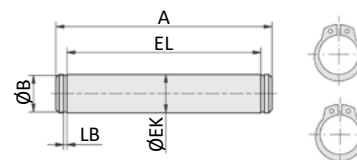
#### XLB-xxx-06 Swivel mount 90°



Model-no.:	BR	BT	ØCK	Ø D	EA	EM	GL	ØHB	L2	LD	PH	RA	TE	UL	UR
<b>XLB-032-06</b>	10	8	10	21	10	26	21	6.6	1.6	3	32	18	38	51	31
<b>XLB-040-06</b>	11	10	12	21	15	28	24	6.6	1.6	3	36	22	41	54	35
<b>XLB-050-06</b>	13	12	12	21	16	32	33	9	1.6	3	45	30	50	65	45
<b>XLB-063-06</b>	15	14	16	21	16	40	37	9	1.6	3	50	35	52	67	50
<b>XLB-080-06</b>	15	14	16	21	20	50	47	11	2.5	3	63	40	66	86	60
<b>XLB-100-06</b>	19	17	20	11	20	60	55	11	2.5	3	71	50	76	96	70
<b>XLB-125-06</b>	22.5	20	25	21	30	70	70	14	3.2	3	90	60	94	124	90
<i>tolerances and adjustments</i>			H9				JS14	H13			JS15	JS14	JS14		

Materials: Al, bushing steel and PTFE

#### XLB-xxx-08 Clevis pin



Model-no.:	A	Ø B	Ø EK	EL	LB
<b>XLB-032-08</b>	53	9.6	10	46	1.1
<b>XLB-040-08</b>	60	11.5	12	53	1.1
<b>XLB-050-08</b>	68	11.5	12	61	1.1
<b>XLB-063-08</b>	78	15.2	16	71	1.1
<b>XLB-080-08</b>	98	15.2	16	91	1.1
<b>XLB-100-08</b>	118	19	20	111	1.3
<b>XLB-125-08</b>	139	23.9	25	132*	1.3
<i>tolerances and adjustments</i>			e8	+2 *+3	

Materials: steel, zinc plated; 2 snap rings are included.

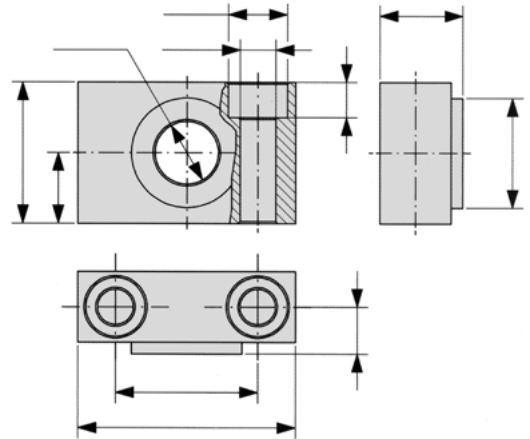
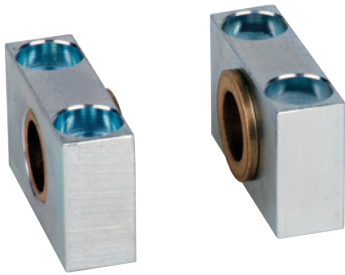
Model-no.:	SW1	SW2	Ø TD	TK	TL	TM	UW
<b>XLB-032-10</b>	3	2.5	12	25	12	50	65
<b>XLB-040-10</b>	3	3	16	25	16	63	75
<b>XLB-050-10</b>	3	4	16	30	16	75	95
<b>XLB-063-10</b>	3	4	20	30	20	90	105
<b>XLB-080-10</b>	3	4	20	30	20	110	130
<b>XLB-100-10</b>	4	5	25	40	25	132	145
<b>XLB-125-10</b>	4	6	25	40	25	160	175

*tolerances and adjustments*

			e9		h14		
--	--	--	----	--	-----	--	--

## Series SLX, XL and 88-XSI Mounting accessories

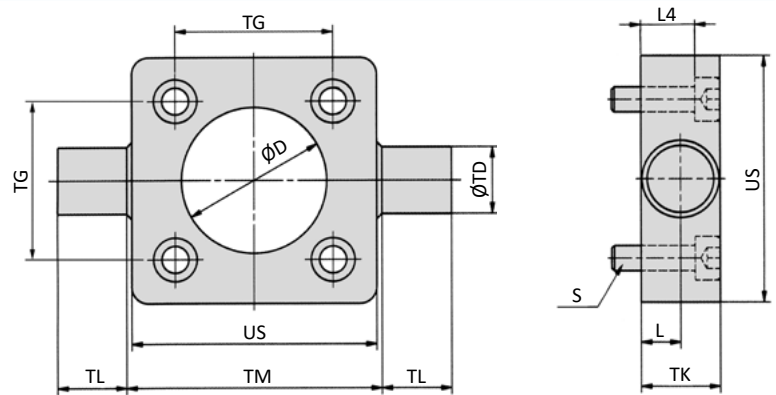
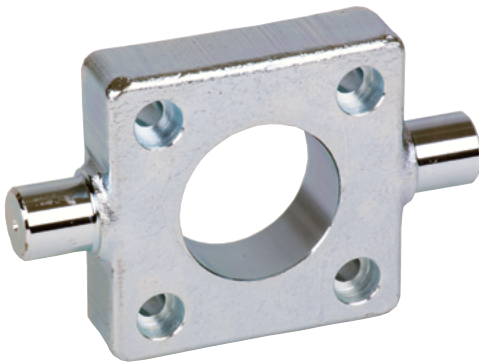
### XLB-xxx-09 Bearing block



Model-no.:	for cylinder Ø	Ø A	Ø B	C	Ø CR	FK	FN	Ø HB	LA	NH	TH	UL
<b>XLB-032-09</b>	32	11	22	10.5	12	15	30	6.6	7	18	32	46
<b>XLB-040-09</b>	40, 50	15	28	12	16	18	36	9	9	21	36	55
<b>XLB-063-09</b>	63, 80	18	32	13	20	20	40	11	11	23	42	65
<b>XLB-100-09</b>	100, 125	20	39	16	25	25	50	14	13	28.5	50	75
<i>tolerances and adjustments</i>					H9	± 0.1		H13			± 0.2	

Materials: steel, zinc plated; bronze bushing

### XLB-xxx-11 Trunnion mount



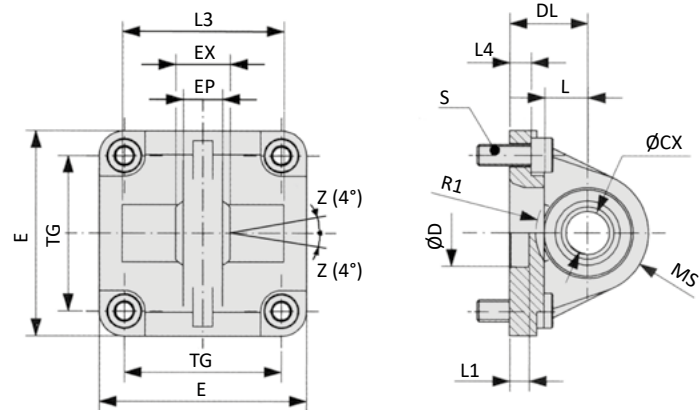
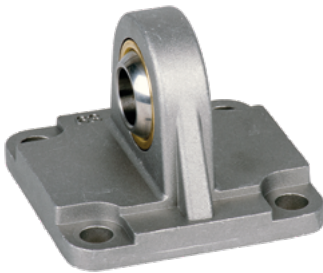
Model-no.:	Ø D	L	L4	S	Ø TD	TG	TK	TL	TM	US
<b>XLB-032-11</b>	30	6.5	8	M6 x 20	12	32.5	14	12	50	46
<b>XLB-040-11</b>	35	9	13	M6 x 25	16	38	19	16	63	59
<b>XLB-050-11</b>	40	9	11	M8 x 25	16	46.5	19	16	75	69
<b>XLB-063-11</b>	45	11.5	16	M8 x 30	20	56.5	24	20	90	84
<b>XLB-080-11</b>	45	11.5	14	M10 x 30	20	72	24	20	110	102
<b>XLB-100-11</b>	55	14	19	M10 x 35	25	89	29	25	132	125
<b>XLB-125-11</b>	60	15	18	M12 x 35	25	110*	30	25	160	150
<i>tolerances and adjustments</i>	H 11	+ 0.2			e9	± 0.2 *± 0.3		h14	h14	

Materials: steel, zinc plated; 4 screws in accordance with EN ISO 4762 are included.

## Series SLX, XL and 88-XSI

### Mounting accessories

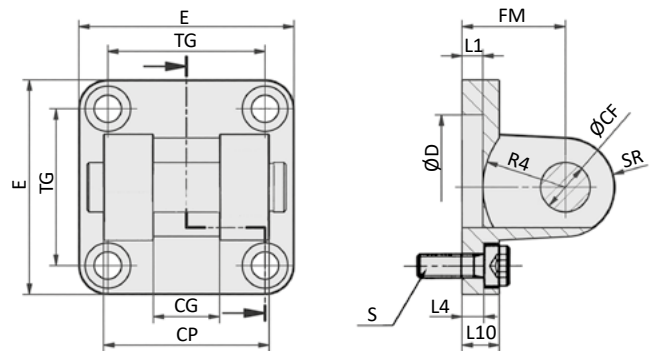
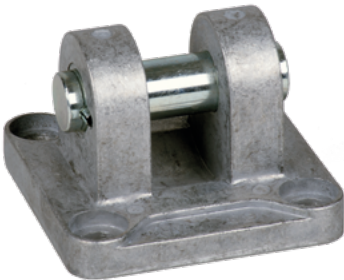
#### XLB-xxx-12 Swivel mount with spherical bearing



Model-no.:	Ø CX	Ø D	DL	E	EP	EX	L	L1	L3	L4	MS	R1	S	TG
<b>XLB-032-12</b>	10	30	22	45	10.5	14	12	7	-	5.5	16	-	M6 x 20	32.5
<b>XLB-040-12</b>	12	35	25	52	12	16	15	7	-	5.5	18	-	M6 x 20	38
<b>XLB-050-12</b>	16	40	27	65	15	21	15	7	51	6.5	21	19	M8 x 20	46.5
<b>XLB-063-12</b>	16	45	32	75	15	21	20	7	-	6.5	23	-	M8 x 20	56.5
<b>XLB-080-12</b>	20	45	36	95	18	25	20	9	74	10	28	24	M10 x 25	72
<b>XLB-100-12</b>	20	55	41	115	18	25	25	9	-	10	30	-	M10 x 25	89
<b>XLB-125-12</b>	30	60	50	140	25	37	30	9	-	10	40	-	M12 x 25	110*
<i>tolerances and adjustments</i>	H7	H11	± 0.2			± 0.1				± 0.5				± 0.2 *± 0.3

Materials: Al, bearing steel, bronze bushing; 4 screws in accordance with EN ISO 4762 are included.

#### XLB-xxx-14 Clevis mount small with pin

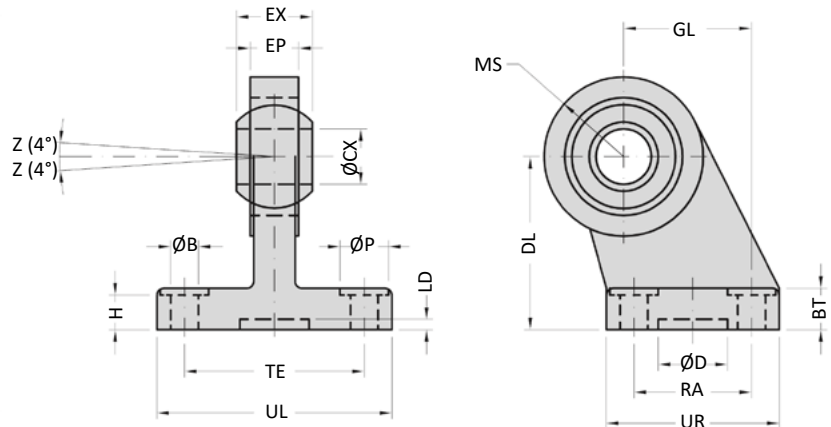
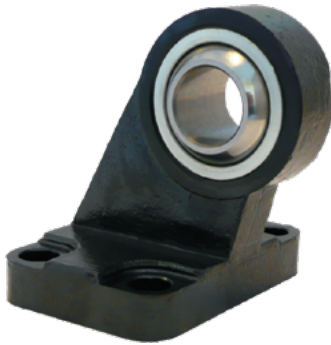


Model-no.:	Ø CF	CG	CP	Ø D	E	FM	L1	L4	L10	R4	S	SR	TG
<b>XLB-032-14</b>	10	14	34	30	45	22	5	5.5	9	17	M6 x 20	10	32.5
<b>XLB-040-14</b>	12	16	40	35	52	25	5	5.5	9	20	M6 x 20	12	38
<b>XLB-050-14</b>	16	21	45	40	65	27	5	6.5	11	22	M8 x 20	14	46.5
<b>XLB-063-14</b>	16	21	51	45	75	32	5	6.5	11	25	M8 x 20	18	56.5
<b>XLB-080-14</b>	20	25	65	45	95	36	5	10	14	30	M10 x 25	20	72
<b>XLB-100-14</b>	20	25	75	55	115	41	5	10	14	32	M10 x 25	22	89
<b>XLB-125-14</b>	30	37	97	60	140	50	7	10	20	42	M12 x 25	25	110*
<i>tolerances and adjustments</i>	F7	D10	d12	H11		± 0.2		± 0.5					± 0.2 *± 0.3

Materials: Al, clevis pin steel, zinc plated; 4 screws in accordance with EN ISO 4762 are included.

## Series SLX, XL and 88-XSI Mounting accessories

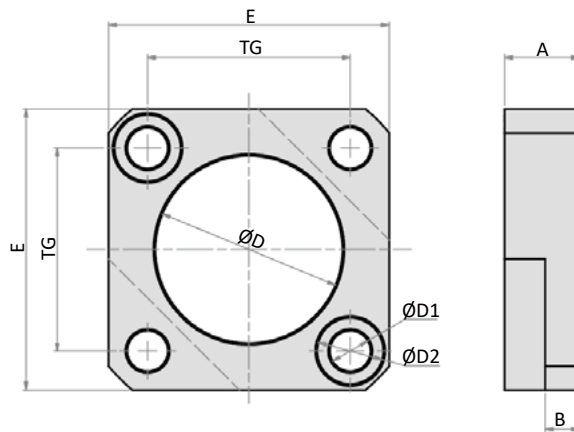
### XLB-xxx-16 Swivel mount with spherical bearing 90°



Model-no.:	Ø B	BT	ØCX	ØD	DL	EP	EX	GL	H	LD	MS	ØP	RA	TE	UL	UR
XLB-032-16	6.6	10	10	20	32	10.5	14	21	8.5	3	15	11	18	38	51	31
XLB-040-16	6.6	10	12	20	36	12	16	24	8.5	3	18	11	22	41	54	35
XLB-050-16	9	12	16	20	45	15	21	33	10.5	3	20	15	30	50	65	45
XLB-063-16	9	12	16	20	50	15	21	37	10.5	3	23	15	35	52	67	50
XLB-080-16	11	14	20	20	63	18	25	47	11.5	3	27	18	40	66	86	60
XLB-100-16	11	15	20	20	71	18	25	55	12.5	3	30	18	50	76	96	70
XLB-125-16	13.5	20	30	20	90	25	37	70	17	3	40	20	60	94	124	90
<i>tolerances and adjustments</i>	H13		H7	H13	JS15	max	0 - 0.1	JS15	+0.5 0		max	H13	JS14	JS14	max	max

Materials: steel, bearing steel, bronze bushing

### XLB-xxx-23 Multi positioning adapter



Model-no.:	A	B	Ø D	Ø D1	Ø D2	E	TG
XLB-032-23	12	5.5	30	6.5	10.6	45	32.5
XLB-040-23	12	5.5	35	6.5	10.6	50	38
XLB-050-23	16	7.5	40	8.5	13.5	65	46.5
XLB-063-23	16	7.5	45	8.5	13.5	75	56.5
XLB-080-23	20	9	45	10.5	16.5	90	72
XLB-100-23	20	10.5	55	10.5	16.5	105	89
XLB-125-23	30	15	68	12.5	18.5	130	110

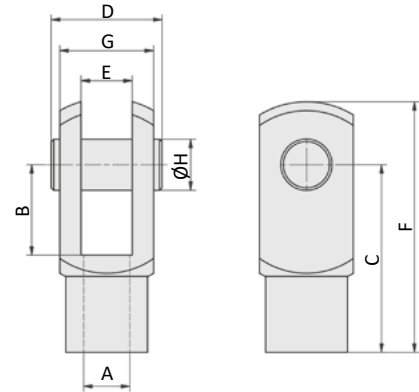
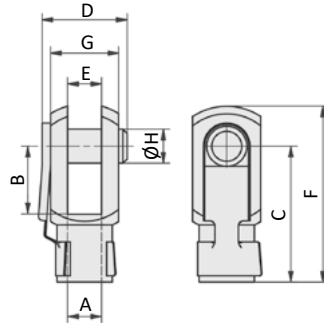
Materials: Al  
Mounting material is part of the delivery.

## Series SLX, XL and 88-XSI Mounting accessories

### RD-xx, FD-xxx Rod clevis

Spring loaded pin (RD-25, FD-40...80)

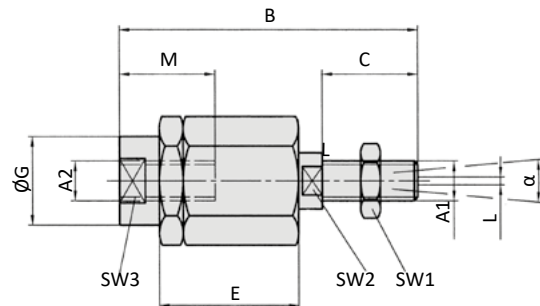
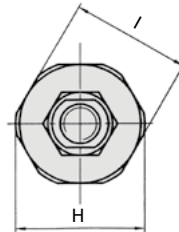
Clevis pin with snap rings (FD-125)



Model-no.:	for cylinder Ø	A	B	C	D	E	F	G	Ø H
RD-25	32	M10 x 1.25	20	40	26	10	52	20	10
FD-40	40	M12 x 1.25	24	48	32	12	62	24	12
FD-63	50, 63	M16 x 1.5	32	64	40	16	83	32	16
FD-80	80, 100	M20 x 1.5	40	80	50	20	105	40	20
FD-125	125	M27 x 2	54	110	65	30	148	55	30

Materials: steel, zinc plated

### FK-xxx Flexible coupling

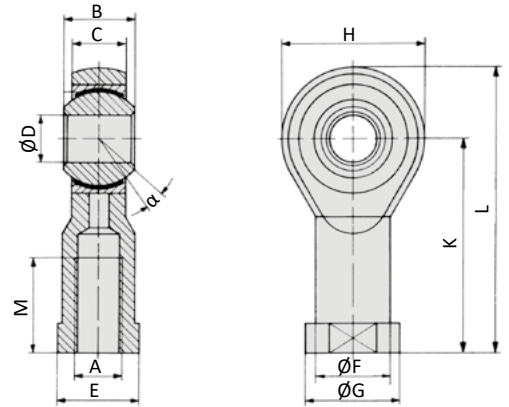


Model-no.:	for cylinder Ø	A1, A2	B	C	D	E	Ø G	H	I	L	M	SW1	SW2	SW3	α
FK-32	32	M10 x 1.25	71.5	20	7.5	35	22	32	30	2	22	17	12	19	8°
FK-40	40	M12 x 1.25	75	24	7.5	35	22	32	30	2	22	19	12	19	8°
FK-63	50, 63	M16 x 1.5	104	32	10	53	32	45	41	2	30	24	20	27	6°
FK-80	80, 100	M20 x 1.5	119	40	10	53	32	45	41	2	37	30	20	30	6°
FK-125	125	M27 x 2	147	54	10	60	57	70	65	2	48	41	24	54	8°

Materials: steel, zinc plated

## Series SLX, XL and 88-XSI Mounting accessories

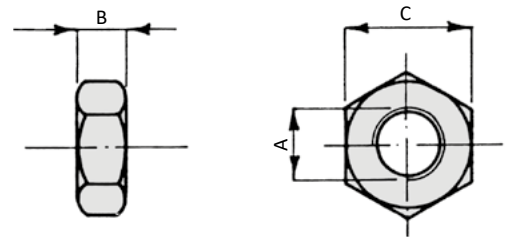
### RO-xx, FO-xxx Rod eye



Model-no.:	for cylinder Ø	A	B	C	Ø D	E	Ø F	Ø G	H	K	L	M	α
RO-25	32	M10 x 1.25	14	10.5	10	17	15	19	28	43	57	20	13°
FO-40	40	M12 x 1.25	16	12	12	19	17.5	22	32	50	66	22	13°
FO-63	50, 63	M16 x 1.5	21	15	16	22	22	27	42	64	85	28	15°
FO-80	80, 100	M20 x 1.5	25	18	20	30	27.5	34	50	77	102	33	14°
FO-125	125	M27 x 2	37	25	30	41	40	50	70	110	145	51	17°

Materials: steel, zinc plated, bearing steel, bronze bushing

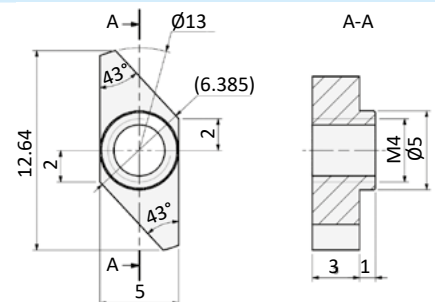
### RL-xx, FE-xxx Piston rod nut



Model-no.:	for cylinder Ø	A	B	C
RL-25	32	M10 x 1.25	5	17
FE-40	40	M12 x 1.25	6	19
FE-63	50, 63	M16 x 1.5	8	24
FE-80	80, 100	M20 x 1.5	10	30
FE-125	125	M27 x 2	13.5	41

Materials: steel, zinc plated

### NST-T-4-U Slot nut

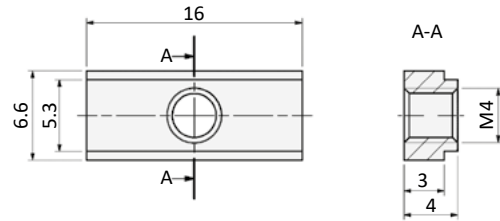


Materials: steel, zinc plated

## Series SLX, XL and 88-XSI

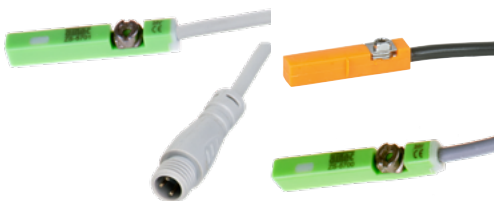
Mounting accessories

### NST-T-4-V Slot nut



Materials: steel, zinc plated

### Proximity sensors



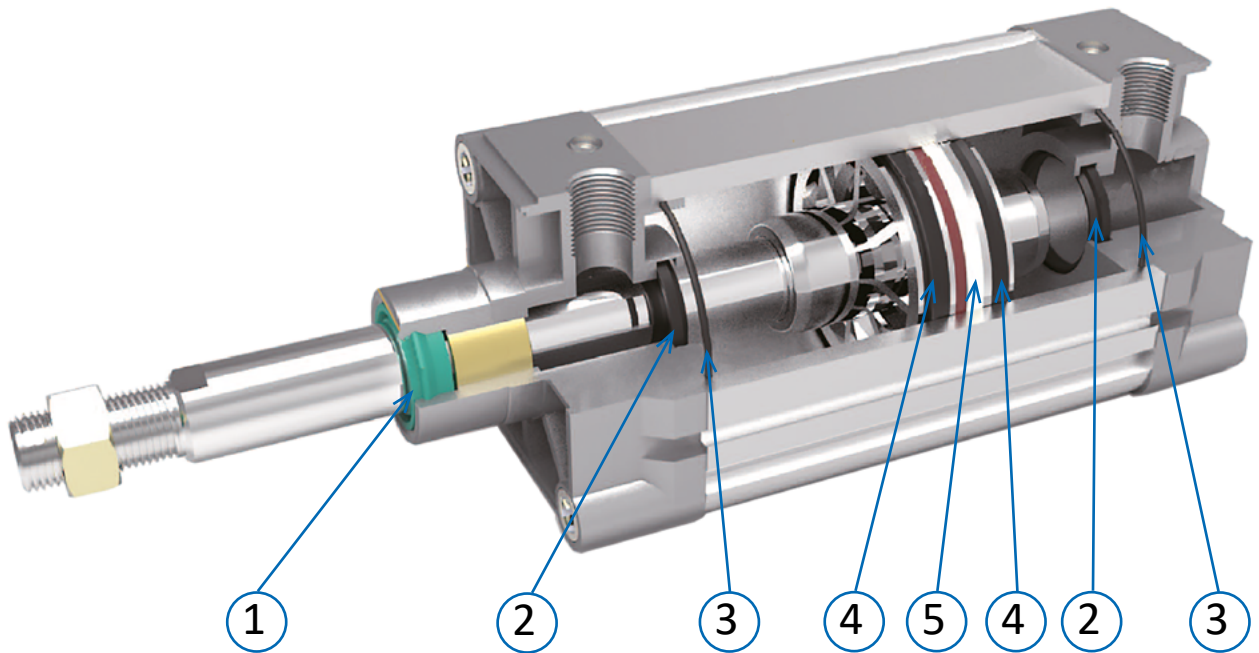
**Order code**

Series		Versions	
VS-88-XSI repair kit for series 88-XSI		01	standard version

Piston Ø	
032	32 mm
040	40 mm
050	50 mm
063	63 mm
080	80 mm
100	100 mm
125	125 mm

**Content**



**Standard version**

Position	Product description	Quantity
1	piston rod seal (PUR)	1
2	damping seal (NBR)	2
3	O-ring, cylinder tube (NBR)	2
4	piston seal (NBR)	2
5	guide ring (PTFE)	1

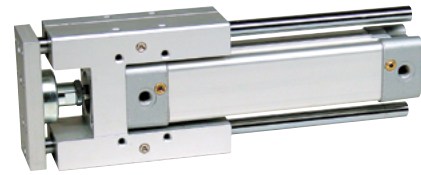
Please grease the running surfaces after fitting the seals. We recommend our assembly grease 21-MP-01-00030-50.



## Series LE Linear guides

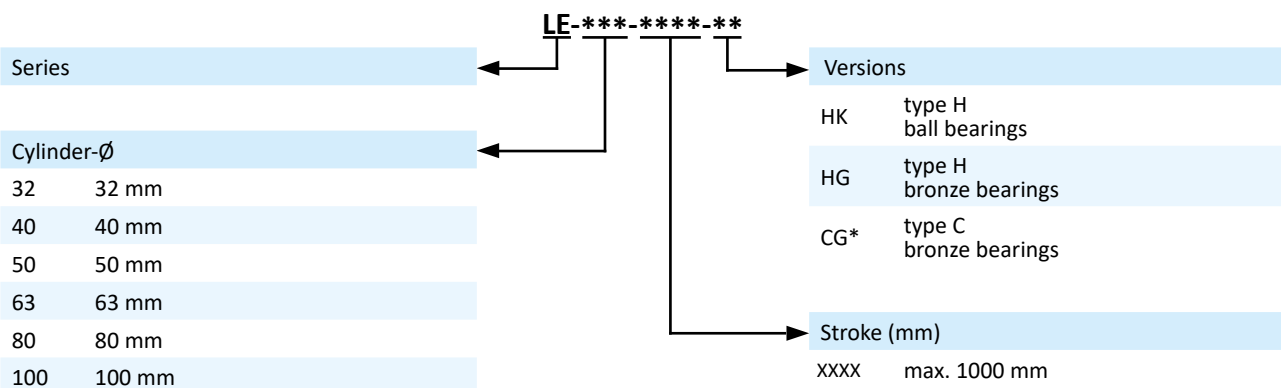
### Technical details

<b>Operating pressure</b>	1 ... 10 bar	
<b>Temperature range</b>	-30°C ... +100°C	
<b>Max. stroke</b>	1000 mm	
<b>Materials</b>	Body:	Al (anodized)
	Guide rod:	steel hard chrome plated (bronze bearing) steel, getempert (ball bearings)
	Bearing:	sintered bronze (bronze bearing) steel (ball bearings)
	Seals:	NBR



Linear guide for piston rod cylinders in accordance with ISO 15552.

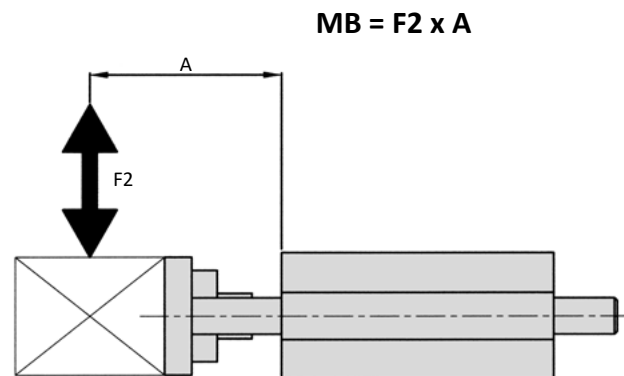
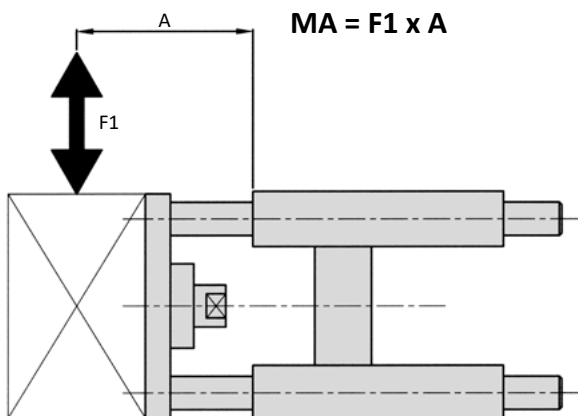
### Order code



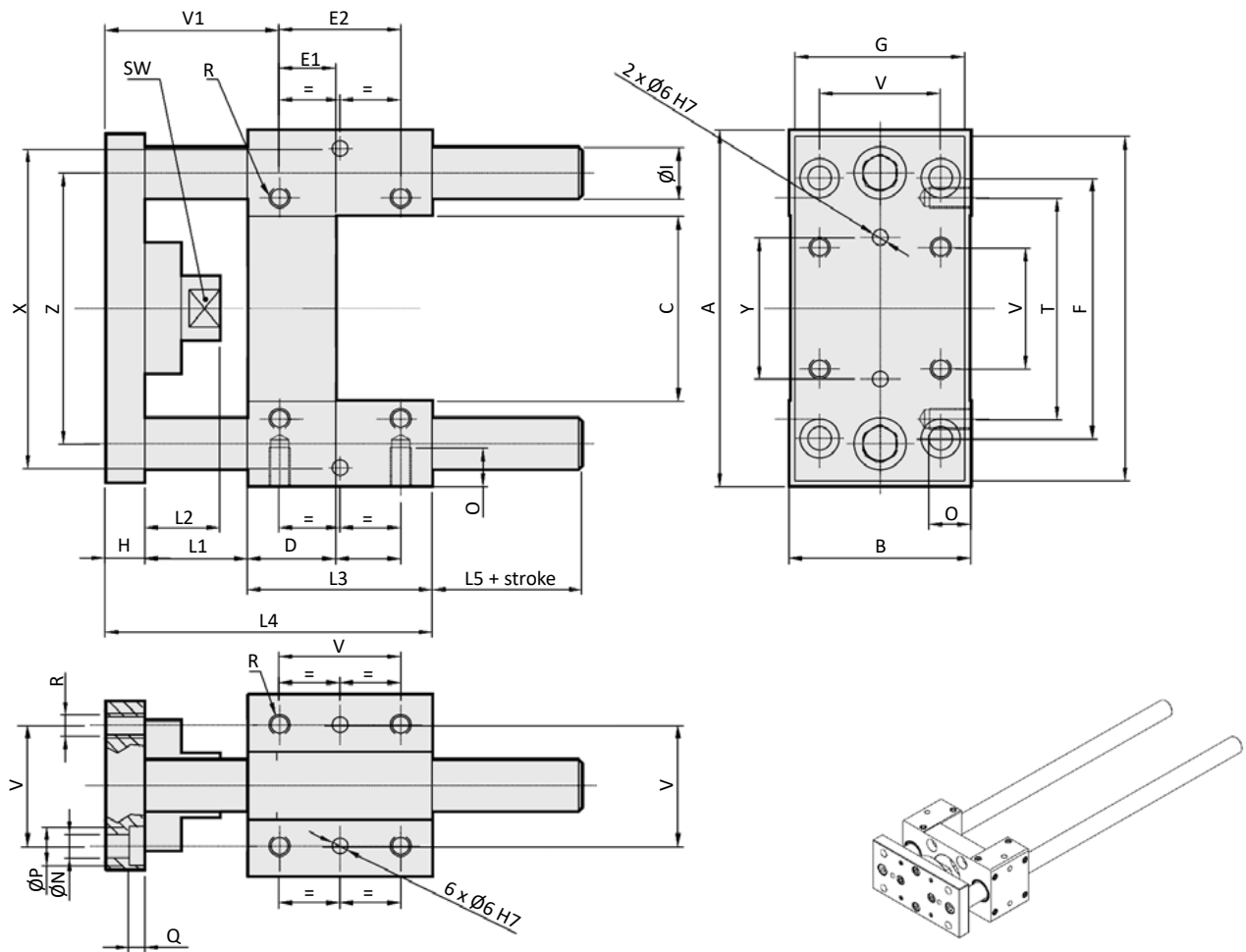
\* only up to Ø 63 mm

### Technical information

Version	Piston Ø (mm)	32	40	50	63	80	100
CG	max. load MA (Nm)	13	21	21	26	-	-
	max. load MB (Nm)	12	19	19	23	-	-
HG	max. load MA (Nm)	20	35	50	60	72	80
	max. load MB (Nm)	18	32	45	54	65	72
HK	max. load MA (Nm)	16	29	42	48	60	60
	max. load MB (Nm)	14	16	38	43	54	54



**Dimensions type CG**



Piston-Ø	A	B	C	D	E	E1	E2	F	G	H	Ø I	L1	L2	L3
32	97	49	51	17	9.25	9.25	32.5	93	45	12	12	42	25	48
40	115	58	58.2	21	11	11	38	112	55	12	16	43	25	58
50	137	70	70.2	25	18.8	18.8	46.5	134	65	15	20	49	29	59
63	152	85	85.2	25	15.3	15.3	56.5	147	80	15	20	49	29	76

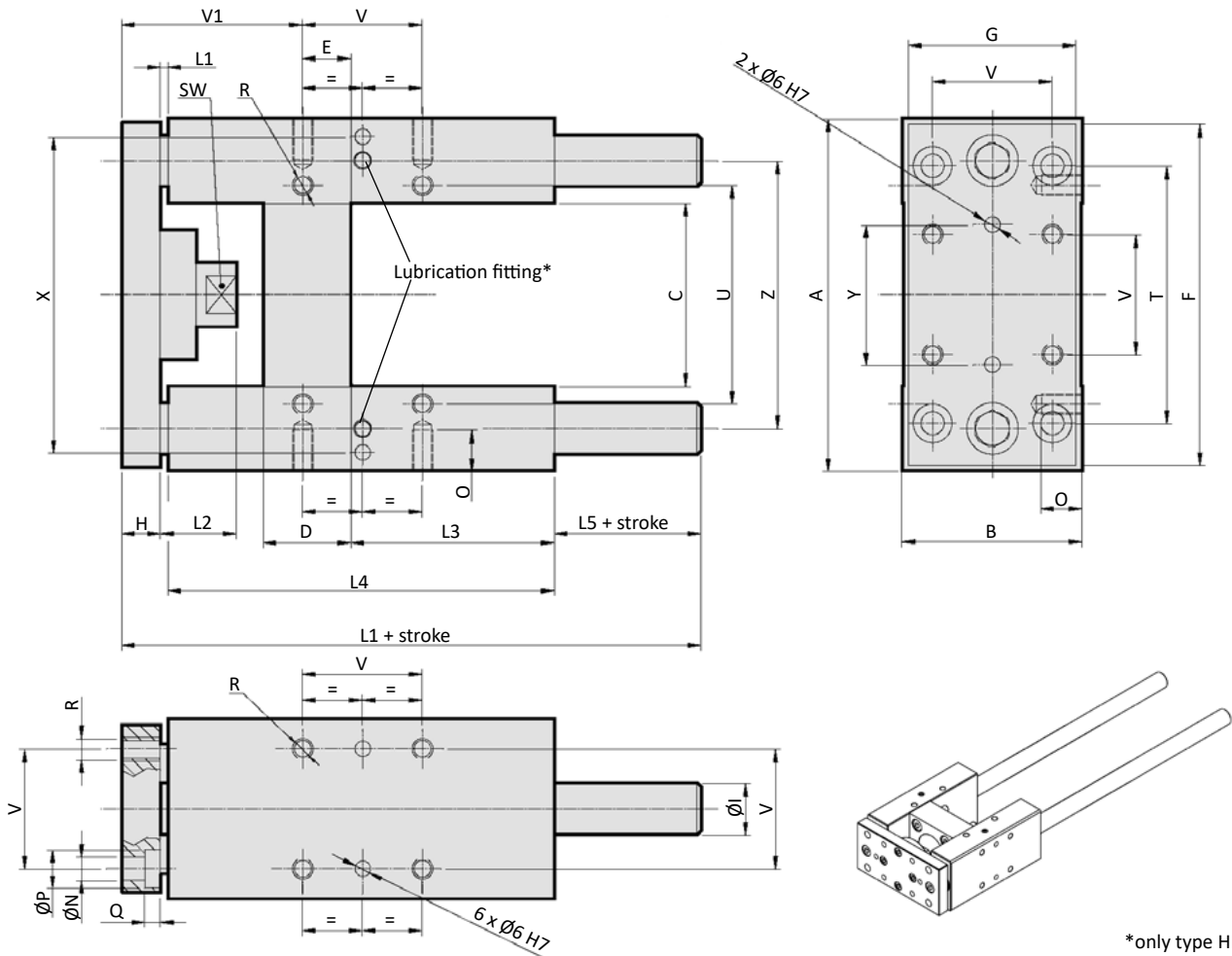
Piston-Ø	L4	L5	Ø N	O	Ø P	Q	R	SW	T	U	V	X	Y	Z
32	102	18	6.6	12	11	6.5	M6	15	78	61	32.5	81	50	74
40	113	17	6.6	12	11	6.5	M6	15	84	69	38	99	54	87
50	123	20	9	16	15	8.5	M8	20	100	85	46.5	119	72	104
63	140	21	9	16	15	9	M8	20	105	100	56.5	132	82	119

Piston-Ø (mm)		32	40	50	63
Weight	0 mm stroke	0.80	1.30	2.30	3.00
HG (kg)	each 100 mm stroke	0.18	0.32	0.50	0.50

# Series LE

## Linear guides

### Dimensions type HG. HK



\*only type HK

Piston-Ø	A	B	C	D	E	F	G	H	Ø I	L1	L2	L3	L4
32	97	49	51	24	4.3	93	45	12	12	187	19	75	125
40	115	58	58.2	28	11	112	55	12	16	207	24	80	140
50	137	70	70.2	34	18.8	134	65	15	20	223	27	78	148
63	152	85	85.2	34	15.3	147	80	15	20	243	27	106	178
80	189	105	105.5	50	25	180	100	20	25	267	27	111	195
100	213	130	130.5	55	30	206	120	20	25	290	27	128	218

Piston-Ø	L5	Ø N	O	Ø P	Q	R	SW	T	U	V	X	Y	Z
32	47	6.6	12	11	6.5	M6	15	78	61	32.5	81	50	74
40	52	6.6	12	11	6.5	M6	15	84	69	38	99	54	87
50	57	9	16	15	8.5	M8	20	100	85	46.5	119	72	104
63	47	9	16	15	9	M8	20	105	100	56.5	132	82	119
80	49	11	20	18	11	M10	26	130	130	72	166	106	148
100	49	11	20	18	11	M10	26	150	150	89	190	131	173

Piston-Ø (mm)		32	40	50	63	80	100
Weight	0 mm stroke	1.29	2.40	3.50	4.60	8.40	11.80
HG (kg)	each 100 mm stroke	0.18	0.32	0.50	0.50	0.77	0.77
Weight	0 mm stroke	1.20	2.30	3.40	4.40	8.20	11.60
HK (kg)	each 100 mm stroke	0.18	0.32	0.50	0.50	0.77	0.77

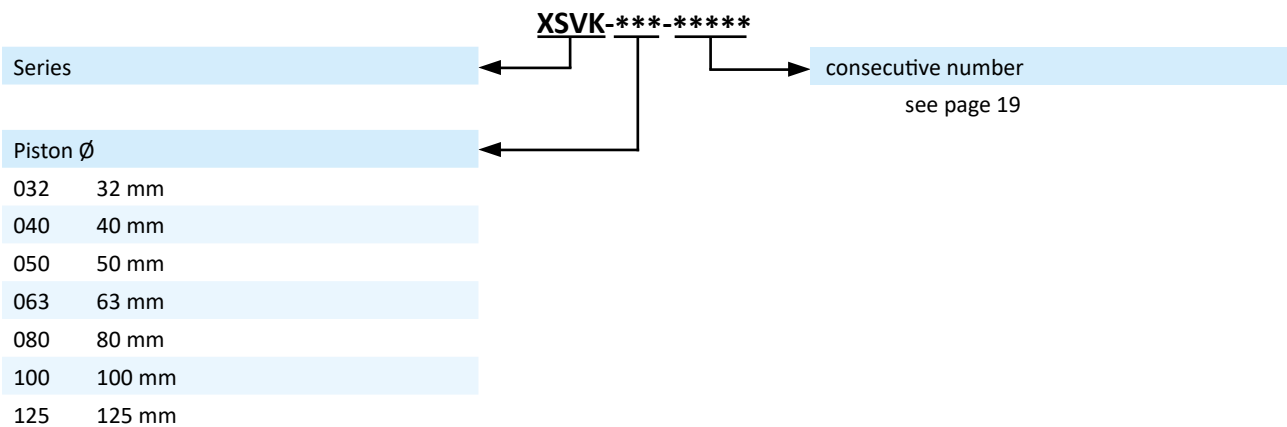
**Technical details**

<b>Series cylinder</b>	88-XSI
<b>Series valve</b>	86-MV-5-28 (up to Ø 63 mm), 86-MV-5-38 (uo from Ø 80 mm)
<b>Operating pressure</b>	1,5 ... 10 bar
<b>Temperature range</b>	-10°C ... +70°C
<b>Max. stroke</b>	1.500 mm
<b>Medium</b>	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Differing the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
<b>Protection</b>	IP 65 according to EN 60529



Double acting AI-profile cylinder with integrated sensor grooves, adjustable cushions and magnetic piston for proximity sensors. The sensors can be installed directly into the sensor grooves of the AI-profile. Standard stroke lengths in table below, additional lengths on request.

**Order code**

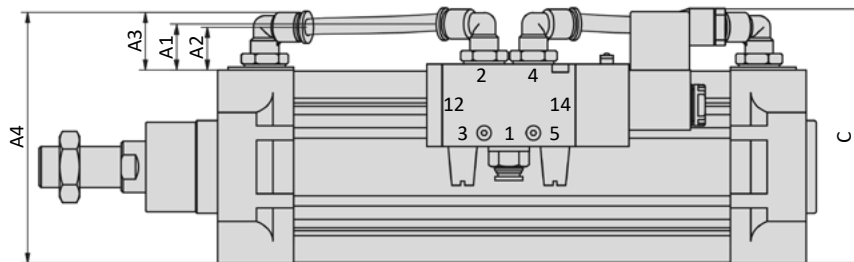
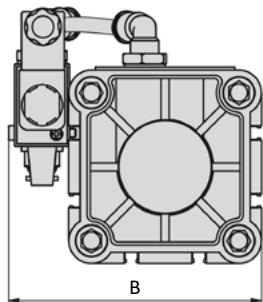


\* For longer stroke lengths please check the max buckling load.

# Series XSVK

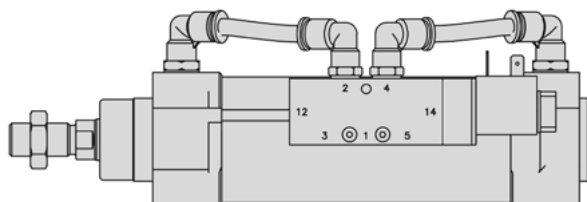
ISO 15552

## Dimensions

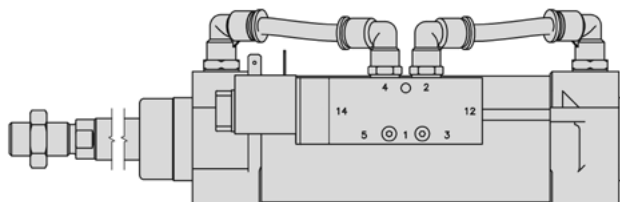


Piston Ø	A1	A2	A3	A4	B	C
32	20.3	22.5	29.7	75	70	74
40	15.5	23.5	30.7	83	76	73
50	20.4	23.1	30.3	95	89	80
63	10.4	20.2	27.4	103	100	81
80	22.4	20.9	28.1	122	123	125
100	24.2	27.3	36.6	149	141	137
125	20.7	26.8	36.1	170	164	156

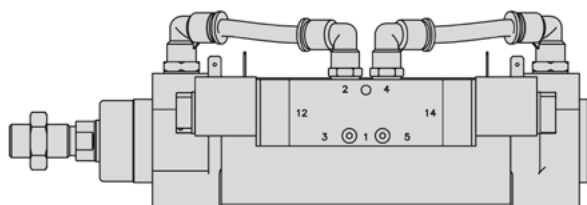
### single solenoid valve, normally retracted



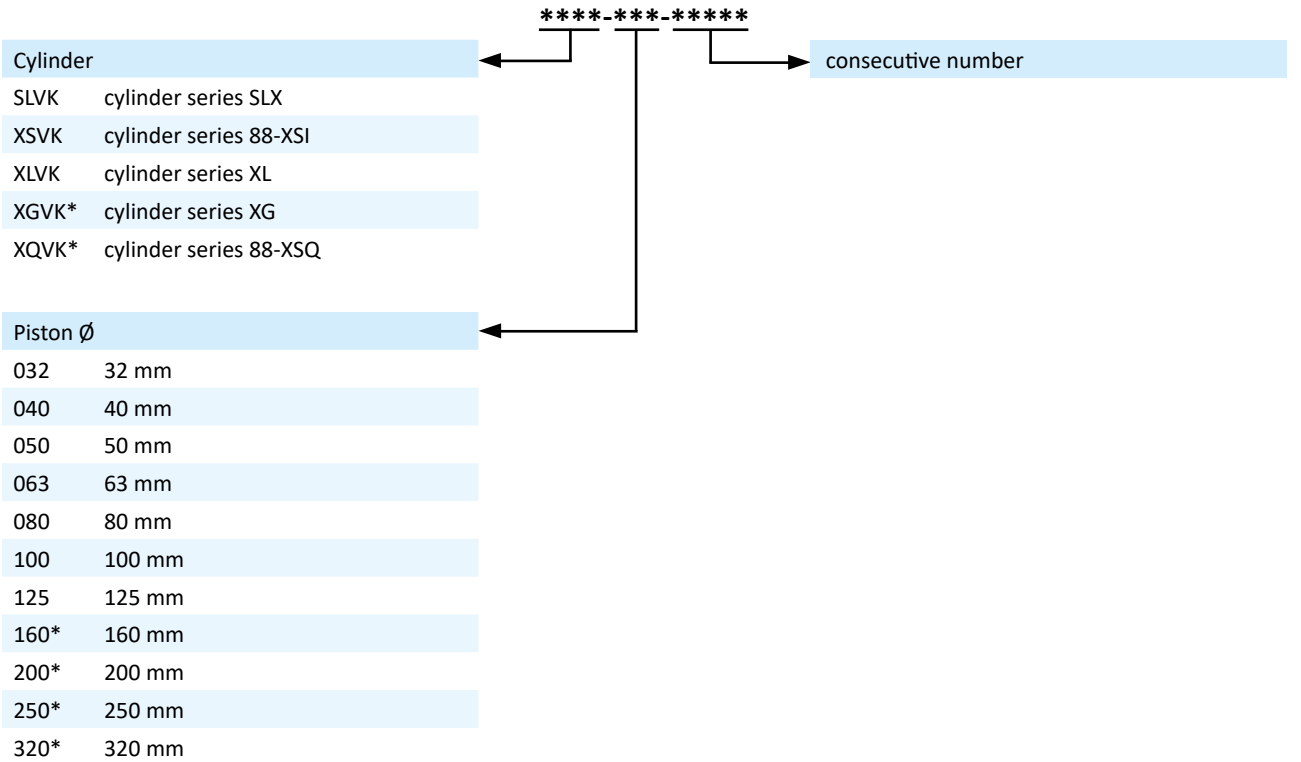
### single solenoid valve, normally extended



### double solenoid valve, 5/3-way valve



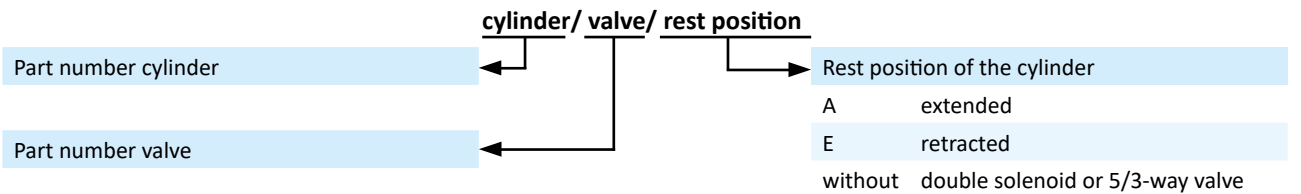
## Part number



\* Cylinder-valve combinations with large cylinders Ø 160 mm to 320 mm are possible (also with fixed pipework). For information on the possible versions, please contact us at [info@airtec.de](mailto:info@airtec.de).

## Order code

### Code 1: Basic configuration



# Cylinder/ valve combinations

## ISO 15552

### Order code

### Code 2: Supplements

#### Fittings/Flow controls, Silencers/Add-on parts/Accessories

##### Description of the screw connection in port 1 of the valve

- Gxx straight fitting for tube  $\varnothing$  xx
- Wxx elbow fitting for tube  $\varnothing$  xx

##### Description of the assembly in ports 3 and 5 of the valve

- SDS sintered bronze silencer
- SDK plastic silencers
- DRS sintered bronze silencer with flow control
- DRK plastic silencers with flow control
- Gxx straight fitting for tube  $\varnothing$  xx
- Wxx elbow fitting for tube  $\varnothing$  xx

##### Description of the assembly in the cylinder connections

- without elbow fitting
- ARH flow-regulator, outlet with external adjusting screw
- ARS flow-regulator, outlet with internal adjusting screw

##### Description of the add-on parts

- B01 foot mount
- B02 flange mount
- B04 clevis mount
- B48 clevis mount with clevis pin
- B05 swivel mount
- B06 swivel mount 90°
- B09 bearing block (1pair)
- B10 trunnion mount
- B11 trunnion mount
- B12 swivel mount with spherical bearing
- B14 clevis mount small with pin
- B16 swivel mount with spherical bearing 90°
- FD rod clevis
- FK flexible coupling
- FO rod eye

##### Mounting the add-on parts

- V front
- H rear
- VH front and rear
- V90 front, 90° rotated
- H90 rear, 90° rotated
- VH90 front and rear, 90° rotated
- L attached

##### Description of the accessories

- STxx plug socket for valve, version xx
- VL fitting accessories, enclosed
- RxKy 2 proximity sensors, Reed sensor, x-pole, y-cable length (e.g.: ZS-5600, ZS-5700)
- SxKy 2 proximity sensors, inductive, x-pole, y-cable length (e.g.: ZS-6600, ZS-6700, ZS-MZT8-10, ZS-7300)
- SxS 2 proximity sensors, inductive, x-pole, 0,3 mcable with connection (e.g.: ZS-6601, ZS-6701, ZS-7302)
- KSM additional piston rod nut

**Example****Part number: XSVK-063-00003****Code 1 (text line 1): 88-XSI-063-0500-050X/KM-09-510-HN-V12/A**

cylinder 88-XSI-063-0500-050X

valve KM-09-510-HN-V12

rest position extended

**Code 2 (text line 2): G08/DRS/S3K3/KSM**G08 straight fitting for  $\varnothing$  8 mm tubing, mounted in connection 1 of the valve

DRS sintered bronze silencer with flow control, mounted in connections 3 and 5 of the valve

S3K3 2 proximity sensors, inductive, 3-pole, 3 m-cable length (here due to ATEX: ZS-7300)

KSM additional piston rod nut

# Series XLBH, XSIBH, SLXBH

## ISO 15552

### Technical details

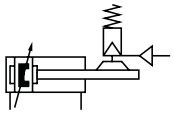
<b>Operating pressure</b>	Bremse: 3 ... 6 bar
<b>Temperature range</b>	-5°C ... +80°C
<b>Max. stroke</b>	2.800 mm
<b>Medium</b>	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Differing the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
<b>Materials</b>	cylinder tube: Al (anodized) End caps: Al-die-cast (painted) Piston rod: steel hard chrome plated Seals: PU, NBR Rod lock: Al (anodized), steel, steel, zinc plated, bronze, PU, NBR, Delrin



A BH rod lock with mechanical clamping is mounted on the front cylinder head. The rod lock is activated by spring force when at rest and is released by pressurisation.

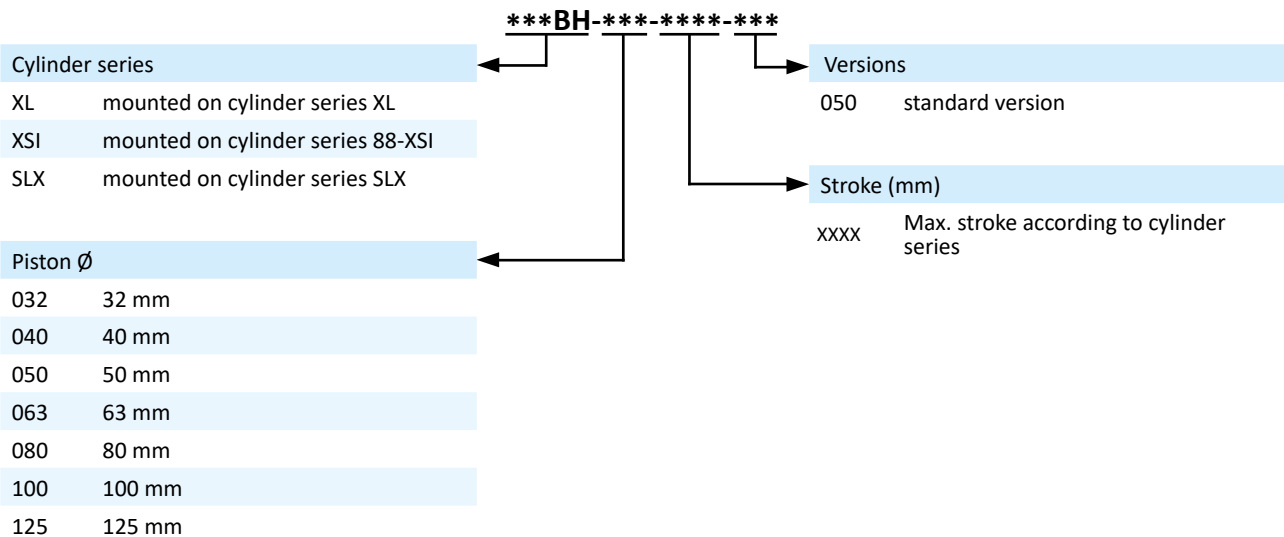
Rod lock's functioning is of static type (cylinder rod must be stopped). It is necessary to stop the cylinder rod before locking it.

### Versions



XLBH, XSIBH, SLXBH  
rod lock, cylinder double acting, adjustable cushioning, with magnetic piston

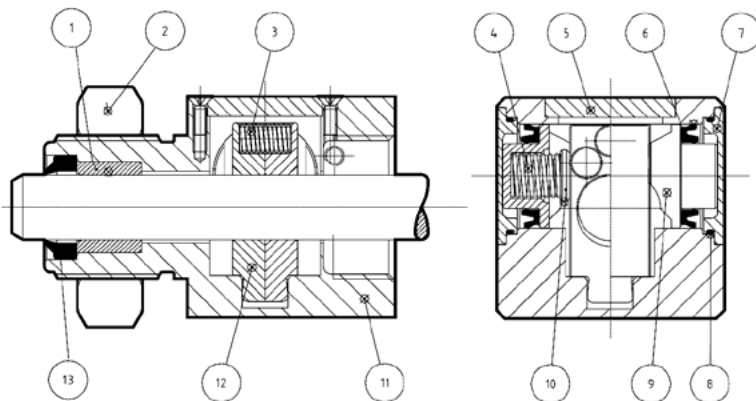
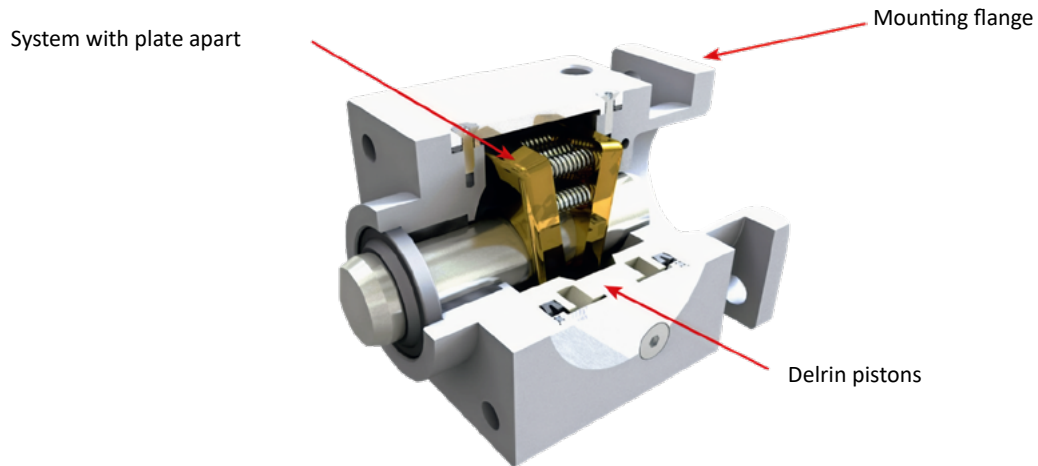
### Order code



**Design and function**

The BH series rod lock is a mechanical device that can be used for all ISO 15552 and ISO 6432 cylinders. It is used to lock the piston rod of the cylinder in any position.

This solution makes it possible to block the stroke of the cylinder each time an unexpected pressure drop occurs. The blocking force is always greater than that developed by the corresponding cylinder at 10 bar.



Position	Description	Material
1	guide bush	Delrin
2	nut (only for BH-20 and BH-25)	steel
3	spring	steel
4	spring	steel
5	cover	aluminium
6	piston seal	PUR
7	cover	aluminium
8	O ring	NBR
9	piston	Delrin
10	spring cover	Delrin
11	body	aluminium
12	jaws	bronze
13	piston rod seal	NBR

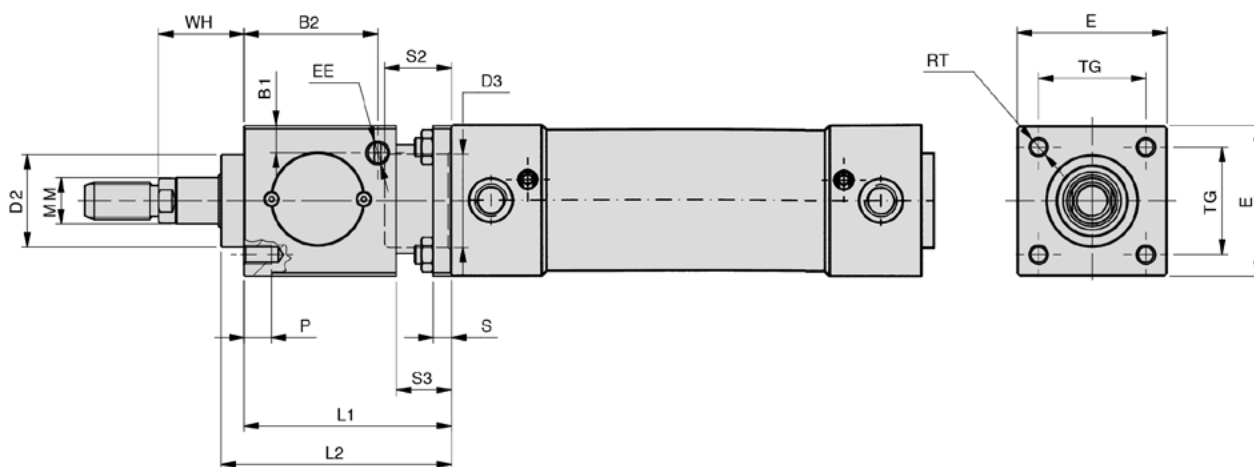
# Series XLBH, XSIBH, SLXBH

## ISO 15552

### Technical data

Model-no.:	***BH-032	***BH-040	***BH-050	***BH-063	***BH-080	***BH-100	***BH-125	
Piston Ø (mm)	32	40	50	63	80	100	125	
Force at 6 bar (N)	Extension	434	678	1060	1682	2713	4239	6623
	Retraction	373	570	890	1513	2448	3974	6189
Clamp force (N)	790	1240	1930	3060	5400	7700	12040	
Operating pressure cylinder (bar)	3 ... 6	3 ... 6	3 ... 6	3 ... 6	3 ... 6	3 ... 6	3 ... 6	
Release pressure (bar)	> 4.5	> 4.5	> 4.5	> 4.5	> 4.5	> 4.5	> 4.5	

### Dimensions series XLBH, SLBH, XSIBH

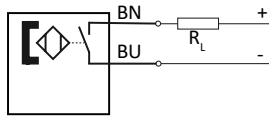


EE = port to release the rod lock

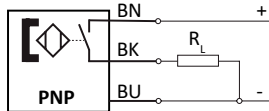
Piston Ø	B1	B2	ØD2	D3	E	EE	L1	L2
32	9	33.25	30	30.5	47	G1/8	60	67.5
40	9	42.5	34.9	35.5	54	G1/8	70	80
50	12.5	58	40	40.5	65	G1/8	90	100
63	17.5	59	45	45.5	75	G1/8	90	100
80	17.5	69	45	45.5	95	G1/4	110	120
100	20	69	55	55.5	114	G1/4	110	120
125	19	84.5	60	60.5	138	G1/4	140	156

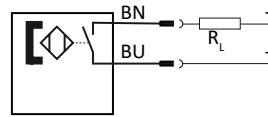
Piston Ø	ØMM	P	RT	S	S2	S3	TG	VL*	WH
32	12	8	M6	6	19.5	20	32.5	56	22
40	16	8	M6	6	22.5	20	38	70	30
50	20	12	M8	8	29	24	46.5	90	37
63	20	12	M8	8	29	24	56.5	90	37
80	25	16	M10	12	37	32	72	110	46
100	25	16	M10	12	39	32	89	110	51
125	32	20	M12	20	51.5	45	110	140	65

\* The dimension VL is the required piston rod extension for the cylinder.

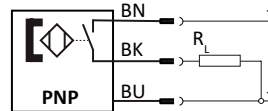
**Proximity sensors with cable**


ZS-6600


 ZS-6700  
 88-ZS-C-6700-03  
 ZS-7300

**Proximity sensors with plug**


ZS-6601


 ZS-6701  
 88-ZS-C-6701  
 ZS-7302

**Technical data**

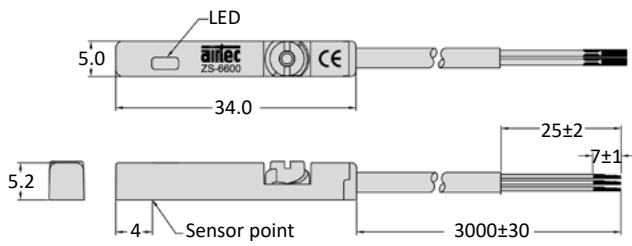
Model-no.:	ZS-6600	ZS-6601	ZS-6700	ZS-6701
<b>Design</b>	2-pole inductive	2-pole inductive	3-pole inductive	3-pole inductive
<b>Contact function</b>	NO	NO	NO	NO
<b>Output</b>	NO	NO	PNP	PNP
<b>Rated operational voltage</b>	10 ... 30 V DC	10 ... 30 V DC	5 ... 30 V DC	5 ... 30 V DC
<b>Rated operational current I<sub>E</sub></b>	≤ 50 mA	≤ 50 mA	≤ 100 mA	≤ 100 mA
<b>Max. voltage drop at I<sub>E</sub></b>	≤ 2.65	≤ 2.65	≤ 1.0	≤ 1.0
<b>Breaking capacity</b>	1,4 W	1,4 W	3 W	3 W
<b>Sensitivity</b>	40 ~ 800 Gauss	40 ~ 800 Gauss	40 ~ 800 Gauss	40 ~ 800 Gauss
<b>Cable length</b>	3 m	0.3 m with M8 connection	3 m	0.3 m with M8 connection
<b>Reverse polarity protection</b>	nein	nein	ja	ja
<b>Temperature range</b>	-10 ... +70°C	-10 ... +70°C	-10 ... +70°C	-10 ... +70°C
<b>Protection</b>	IP 67	IP 67	IP 67	IP 67
<b>Switching status indication</b>	LED red	LED red	LED red	LED red

Model-no.:	ZS-7300	ZS-7302
<b>Design</b>	3-pole inductive	3-pole inductive
<b>Contact function</b>	NO	NO
<b>Output</b>	PNP	PNP
<b>Rated operational voltage</b>	10 ... 30 V DC	10 ... 30 V DC
<b>Rated operational current I<sub>E</sub></b>	≤ 100 mA	≤ 100 mA
<b>Max. voltage drop at I<sub>E</sub></b>	≤ 2.5	≤ 2.5
<b>Breaking capacity</b>	3 W	3 W
<b>Cable length</b>	6 m	0.3 m with M12 connection
<b>Temperature range</b>	-20 ... +60°C	-20 ... +60°C
<b>Protection</b>	IP 67	IP 67
<b>Switching status indication</b>	LED yellow	LED yellow
	II 3G Ex nA T4 II 3D Ex tD A22 IP67 T 125°C	II 3D Ex tc IIIC T125°C Dc X

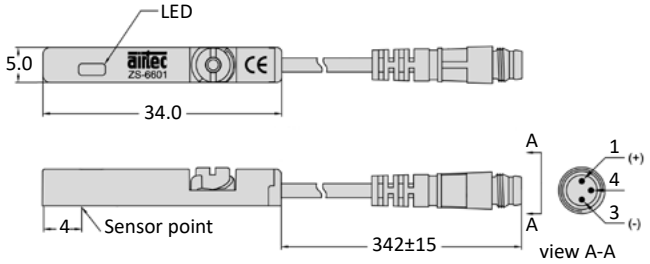
## Series ZS Proximity sensors

### Dimensions

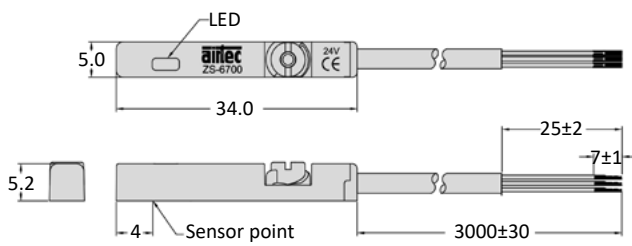
#### ZS-6600



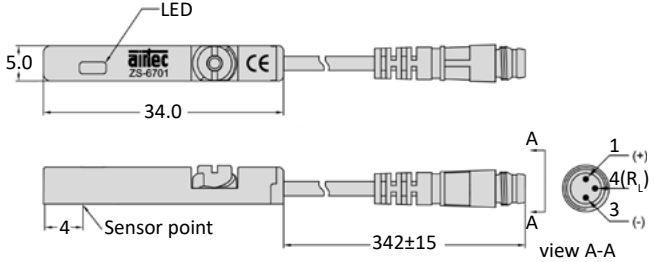
#### ZS-6601



#### ZS-6700



#### ZS-6701



### Mounting

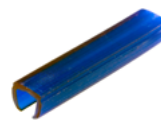
The sensors are mounted at the groove of the cylinder profile. It is fixed by turning the fixing screw at the sensor clockwise. The cover stripe XLB-011 (see below) can be used for protecting the sensor cable.

A direct sensor mounting is possible for following series:

**Series SLX, Series XL, Series 88-XSI**

### Cover for sensor groove

Model-no.:	XLB-011
Design	plastic profile, 50 cm length, blue
For series	XL, NXD, NXE, NYD, NYE, NYSE, LX



**Connection cable M8**

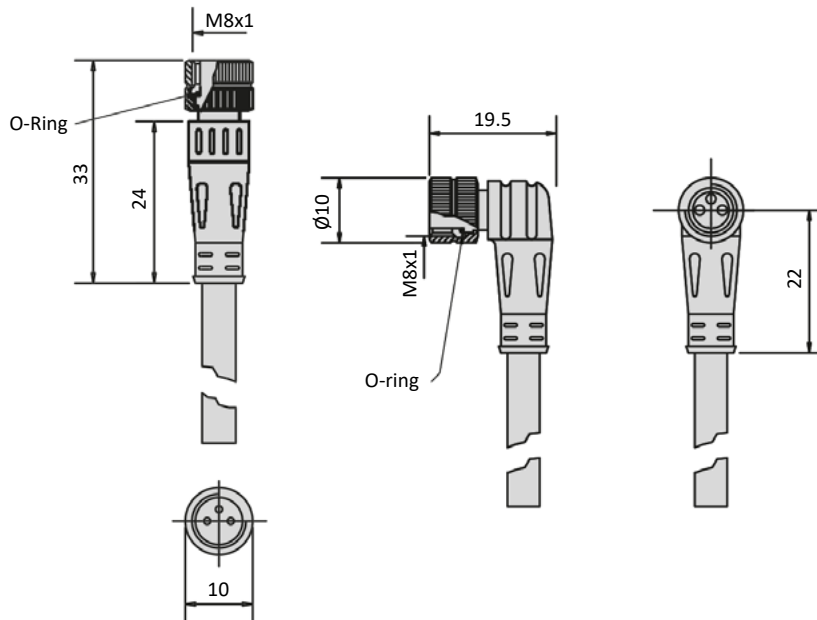
<b>Contacts</b>	M8 Plug socket
<b>Protection</b>	IP 67 according to EN 60529 in conjunction with suitable connection plug
<b>Duty cycle</b>	100 %
<b>Temperature range*</b>	-25°C...+90°C
<b>max. voltage</b>	60 V AC / DC
<b>Use for</b>	Solenoids with M8 plug, cylinder switch with M8 plug



Model-no.:	KA-10-01	KA-30-01	KA-50-01	KA-100-01
<b>Contacts</b>	M8 Socket, straight	M8 Socket, straight	M8 Socket, straight	M8 Socket, straight
<b>Mounting</b>	Coupling nut	Coupling nut	Coupling nut	Coupling nut
<b>Cable</b>	3-pin	3-pin	3-pin	3-pin
<b>Length (L)</b>	1 m	3 m	5 m	10 m

Model-no.:	KA-11-01	KA-31-01	KA-51-01	KA-101-01
<b>Contacts</b>	M8 Socket, elbow 90°	M8 Socket, elbow 90°	M8 Socket, elbow 90°	M8 Socket, elbow 90°
<b>Mounting</b>	Coupling nut	Coupling nut	Coupling nut	Coupling nut
<b>Cable</b>	3-pin	3-pin	3-pin	3-pin
<b>Length (L)</b>	1 m	3 m	5 m	10 m

**Dimensions**



**Pin assignment**



- 1 = brown
- 3 = blue
- 4 = black

## Version code

### Cylinder - \* \* \* - xxxx

Cylinder double acting	
0	piston rod on one side with magnetic piston adjustable cushioning
1	piston rod on one side adjustable cushioning
2	piston rod on one side with magnetic piston
3	piston rod on one side
4	double end piston rod with magnetic piston adjustable cushioning
5	double end piston rod adjustable cushioning
6	double end piston rod with magnetic piston
7	double end piston rod
8	double end piston rod through hollow with magnetic piston

Cylinder single acting	
0	piston rod on one side with magnetic piston normally retracted
1	piston rod on one side normally retracted
2	piston rod on one side with magnetic piston normally extended
3	piston rod on one side normally extended
4	double end piston rod with magnetic piston
5	double end piston rod

Piston rod versions	
0	piston rod stainless steel male thread
1	piston rod stainless steel female thread
2	piston rod stainless steel female thread with guide and non rotating
3	piston rod stainless steel male thread non rotating
4	piston rod stainless steel female thread non rotating
5	piston rod steel hard chrome plated male thread
6	piston rod steel hard chrome plated female thread
7	Doppelkolbenstange
8	piston rod stainless steel without thread
9	piston rod steel hard chrome plated female thread with guide and non rotating
Axxx	piston rod stainless steel male thread lengthened by xxx mm <sup>#</sup>
Bxxx	piston rod stainless steel female thread lengthened by xxx mm
Cxxx	piston rod steel hard chrome plated male thread lengthened by xxx mm <sup>#</sup>
Dxxx	piston rod steel hard chrome plated female thread lengthened by xxx mm <sup>#</sup>
Exxx	piston rod stainless steel without thread lengthened by xxx mm <sup>#</sup>
Fxxx	piston rod steel hard chrome plated without thread lengthened by xxx mm <sup>#</sup>
V	piston rod stainless steel AISI 316 (1.4401) male thread

<sup>#</sup> with a double end piston rod, only one side is extended

Seals, Air connection	
0	standard seals (PUR, NBR) air connection G thread
1	standard seals (PUR, NBR) air connection NPT thread
2	high temperature version (FKM) air connection G thread
3	high temperature version (FKM) air connection NPT thread
4	standard seals (NBR) piston rod seal FKM air connection G thread
5	standard seals (NBR) piston rod seal FKM air connection NPT thread

xxxx - Additions*	
ATEX EX X	cylinders in accordance with 2014/34/EU (ATEX)
E8	piston rod seal E8, two-part, with plastic scraper

\* Use taking into account the maximum length of 20 characters for an article number

### Exceptions

Round cylinders are described by the designation of the series. A design code is only used if there are deviations from the standard described.

If it is not possible to describe the version of the cylinder using the version code, a project number in the form Pxxxx should be used.

*Not all options are suitable for all cylinder series*

## Piston rod cylinders

### Device marking

Piston rod cylinders are marked as follows:

II 2G Ex h IIC T5 Gb  
 II 2D Ex h IIIC T100°C Db  
 -20°C T<sub>amb</sub> +40°C

Marking according to DIN EN ISO 80079-36/ -37.

Piston rod cylinders conform to Equipment category 2 and can be used in Zone 1 respectively Zone 21.

### Available cylinders

Series	Versions
88-XSI	

## Piston rod cylinders

Piston rod cylinders according ATEX are marked with following suffix:

**-ATEX**  
**-EX**  
**-X**

### Accessories for piston rod cylinders

The cylinders are intended to be used with the following accessories:

Accessories	series
Flexible coupling	FK-Ø
Rod eye	FO-Ø, RO-Ø, PO-Ø (v <sub>max</sub> 1 m/s)
Rod clevis	FD-Ø, RD-Ø, PD-Ø
Piston rod nut	FE-Ø, RL-Ø, PL-Ø
Mounting accessories XL	XLB-Ø-01, XLB-Ø-02, XLB-Ø-03, XLB-Ø-04, XLB-Ø-05, XLB-Ø-06, XLB-Ø-07, XLB-Ø-08, XLB-Ø-09, XLB-Ø-10, XLB-Ø-11, XLB-Ø-12, XLB-Ø-13, XLB-Ø-14,
Mounting accessories XG	VLB-Ø-01, VLB-Ø-02, VLB-Ø-03, VLB-Ø-04, VLB-Ø-05, VLB-Ø-06, VLB-Ø-08, VLB-Ø-09, VLB-Ø-12
Mounting accessories HM	RA-Ø, RC-Ø, RG-Ø, RH-Ø, RB-Ø, RM-Ø
Mounting accessories CM	PA-Ø, PC-Ø, PB-Ø, PM-Ø

## Proximity switches

Model-No.	Classification / Identification marking
ZS-7300	II 3G Ex nA T4 II 3D Ex tD A22 IP67 T 125°C
ZS-7302	II 3D Ex tc IIIC T125°C Dc X



The operating instructions for the valve and the electrical equipment must be taken into account before putting into operation. These are included with each valve and are available at [www.airtec.de](http://www.airtec.de).

**Air consumption cylinder (NI for a single stroke of 100 mm, based upon extension)**

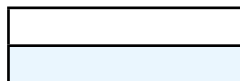
Piston-Ø	Pressure in bar						
	2	3	4	5	6	7	8
32	0.24	0.32	0.40	0.48	0.56	0.64	0.72
40	0.38	0.50	0.63	0.75	0.88	1.01	1.13
50	0.59	0.79	0.98	1.18	1.37	1.57	1.77
63	0.94	1.25	1.56	1.87	2.18	2.49	2.81
80	1.51	2.01	2.51	3.02	3.52	4.02	4.52
100	2.36	3.14	3.93	4.71	5.50	6.28	7.07
125	3.72	4.96	6.21	7.42	8.64	9.91	11.14

**Required flow rate (NI/min at p = 6 bar)**

Piston-Ø	speed (m/s)				
	0.25	0.5	1	1.5	2
32	84	169	338	506	675
40	132	264	528	791	1055
50	206	412	824	1236	1649
63	327	654	1309	1963	2617
80	528	1055	2110	3165	4220
100	824	1649	3297	4946	6594
125	1288	2576	5152	7727	10303

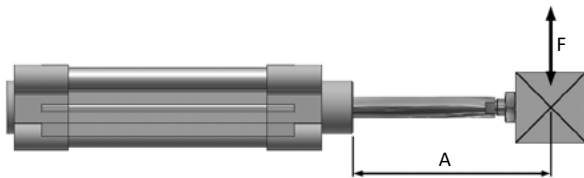
**Force chart cylinders (N)**

Piston-Ø	Series	Piston rod Ø (mm)	Pressure in bar						
			2	3	4	5	6	7	8
32	88-XSI	12	145	217	289	362	434	506	579
			124	187	249	311	373	435	497
40	88-XSI	16	226	339	452	565	678	791	904
			190	285	380	475	570	665	760
50	88-XSI	20	353	530	707	883	1060	1236	1413
			297	445	593	742	890	1039	1187
63	88-XSI	20	561	841	1122	1402	1682	1963	2243
			504	756	1009	1261	1513	1765	2017
80	88-XSI	25	904	1356	1809	2261	2713	3165	3617
			816	1224	1632	2040	2448	2856	3264
100	88-XSI	25	1413	2120	2826	3533	4239	4946	5652
			1325	1987	2649	3312	3974	4636	5299
125	88-XSI	32	2208	3312	4416	5520	6623	7727	8831
			2063	3095	4126	5158	6189	7221	8252



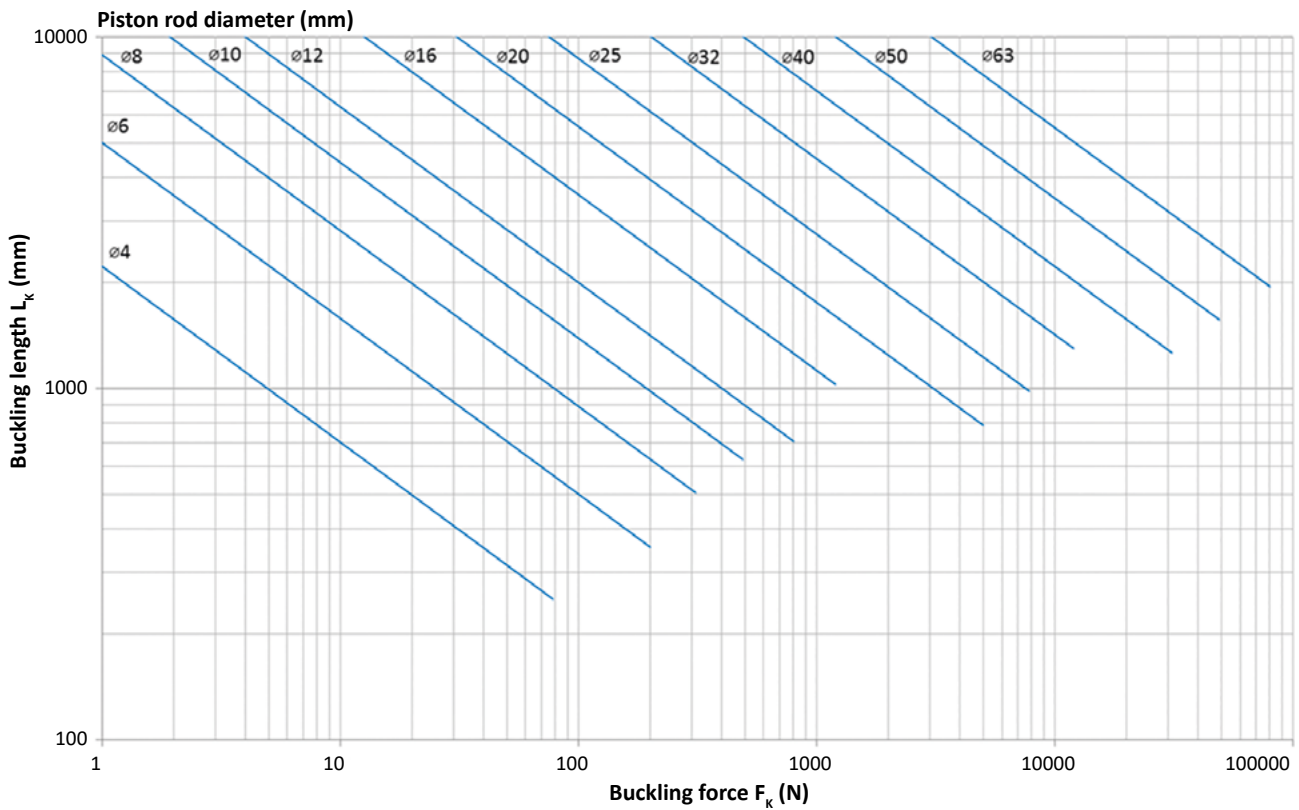
extension force\*  
retraction force\*

\* A correction factor of 0.9 for the internal friction is already calculated.

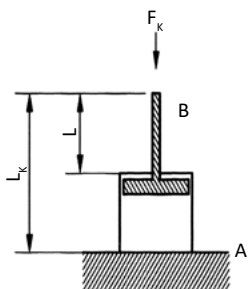
**Permissible side load F (N), series 88-XSI**


Piston-Ø	Distance A (mm)											
	25	40	50	80	100	125	160	200	250	320	400	500
32	75	55	50	40	34	28	23	20	16	12	9	7
40	175	150	130	105	91	78	62	55	45	35	28	21
50 + 63	220	180	170	130	120	105	90	80	65	52	43	33
80 + 100	500	450	400	350	310	270	230	205	180	150	125	100
125	810	710	680	590	520	470	420	390	330	270	230	200

### Critical load diagram for the piston rod

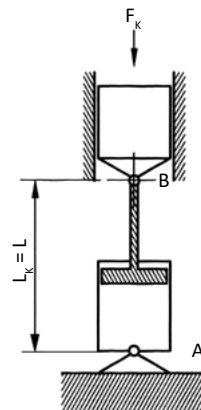


#### First elastic case of buckling



A: fixed restraint  
 B: open end  
 $L_k \approx 4 * \text{cylinder stroke length}$

#### Second elastic case of buckling



A: joint  
 B: joint  
 $L_k \approx 2 * \text{cylinder stroke length}$

Knowing the actual buckling case, either 1 or 2, and knowing the requested stroke length you can calculate the buckling length  $L_k$ . If you know the buckling force  $F_k$  (compressive force) you determine in the diagram above the intersection of both data. Choose the next graph line above to get the necessary rod diameter.