

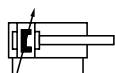
Technical details

Operating pressure	1 ... 10 bar
Temperature range	-20°C ... +80°C (0 ... +150°C für high temperature version)
Max. stroke	1.000 mm
Medium	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.
Materials	cylinder tube: AISI 304 (1.4301) or AISI 316 (1.4401) End caps: AISI 304 (1.4301) or AISI 316 (1.4401) Piston rod: AISI 304 (1.4301) or AISI 316 (1.4401) Seals: PU, NBR, PBT, PTFE
	Cylinders in accordance with 2014/34/EU (ATEX) available. (page 13)

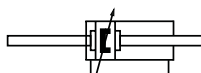


Double acting cylinder with integrated sensor grooves, adjustable cushions and magnetic piston for proximity sensors.

Versions



000, 002, 004, 0V0, 0V2, 0V4
double acting, adjustable cushioning,
with magnetic piston



400, 403, 404, 4V0, 4V2, 4V4
double acting, double end piston rod, adjustab-
le cushioning, with magnetic piston

Order code

Series, Version		Options	
XM	AISI 304 (1.4301)	ATEX	cylinders in accordance with 2014/34/ EU (ATEX)
XM4	AISI 316 (1.4401)		
XMH	AISI 304, high temperature version		
XM4H	AISI 316, high temperature version		
Piston Ø		Versions	
032	32 mm	000	standard version
040	40 mm	004	piston rod seal FKM
050	50 mm	002	high temperature version (with mag- netic piston up to +80°C)
063	63 mm	0V0	piston rod AISI 316 (1.4401)
080	80 mm	0V4	piston rod seal FKM, piston rod AISI 316 (1.4401)
100	100 mm	0V2	high temperature version (with mag- netic piston up to +80°C), piston rod AISI 316 (1.4401)
125	125 mm	4V2	
		Stroke (mm)	
		XXXX	max. 1.000 mm

Not all combinations are possible and available.

Series XM

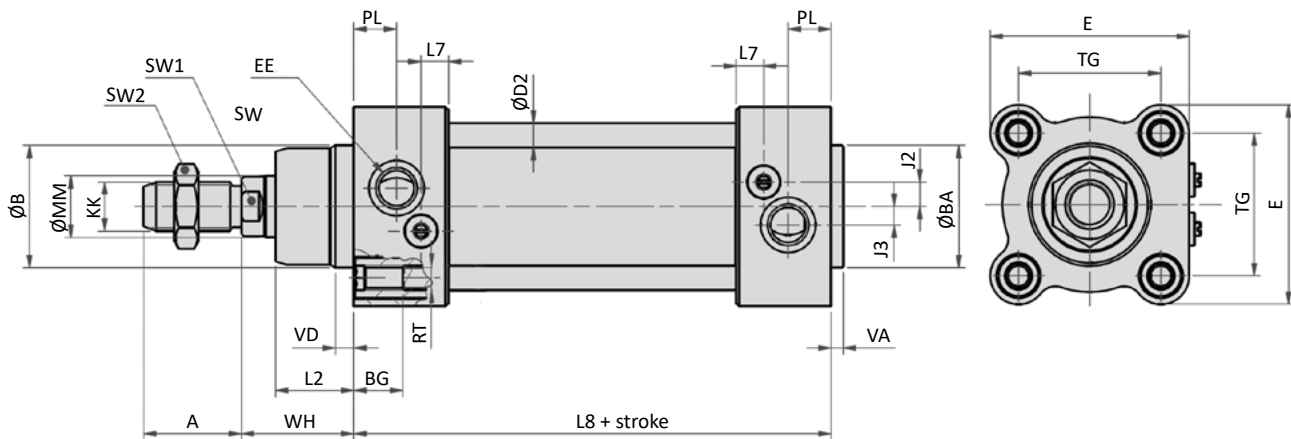
ISO 15552, double acting



Technical data

Model-no.:		XM-032-...	XM-040-...	XM-050-...	XM-063-...	XM-080-...	XM-100-...	XM-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
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	22	25	25	35	35	35

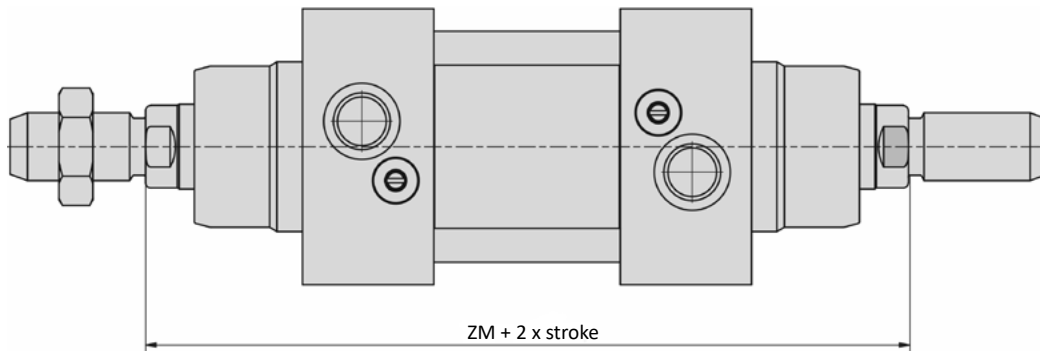
Dimensions series XM



Piston Ø	A	Ø B	Ø BA	BG	Ø D2	E	EE	J2	J3	KK	L2
32	22	30	30	16	6	48	G1/8	6.6	5.3	M10 x 1.25	18
40	24	35	35	16	6	52	G1/4	8.5	5	M12 x 1.25	22
50	32	40	40	16	8	65	G1/4	8	6	M16 x 1.5	25.5
63	32	45	45	16	8	75	G3/8	10	6.5	M16 x 1.5	26
80	40	45	45	18	10	95	G3/8	8	8	M20 x 1.5	32
100	40	55	55	18	10	115	G1/2	15	7	M20 x 1.5	38
125	54	60	60	20	12	140	G1/2	13	7	M27 x 2	46

Piston Ø	L7	L8	Ø MM	PL	RT	SW1	SW2	TG	VA	VD	WH
32	7.2	94	12	13	M6	10	17	32.5	4	5	26
40	9.2	105	16	14	M6	13	19	38	4	5	30
50	9	106	20	14	M8	17	24	46.5	4	6	37
63	9.5	121	20	16	M8	17	24	56.5	4	6	37
80	11	128	25	16	M10	22	30	72	4	7	46
100	12	138	25	18	M10	22	30	89	4	7	51
125	12	160	32	18	M12	27	41	110	6	10	65

Piston Ø (mm)	32	40	50	63	80	100	125
Weight (kg) 0 mm stroke	0.960	1.455	2.370	2.550	6.030	9.420	14.550
Weight (kg) each 100 mm stroke	0.240	0.290	0.430	0.480	1.050	1.200	2.200

Dimensions series XM (addition at double end piston rod)


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

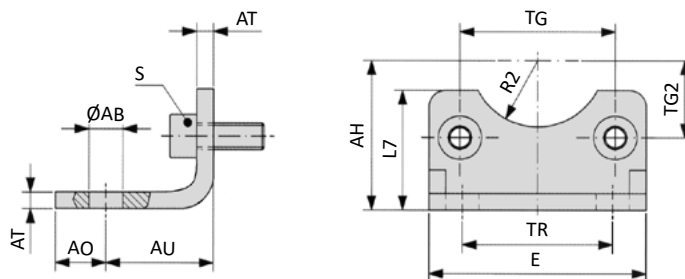
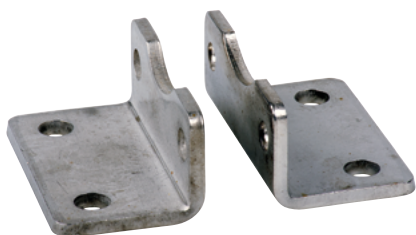
Piston Ø (mm)	32	40	50	63	80	100	125
Weight (kg)							
0 mm stroke	1.086	1.615	2.677	3.930	6.561	10.180	15.868
each 100 mm stroke	0.330	0.480	0.810	0.850	1.440	1.930	2.920

Series XM

Mounting accessories



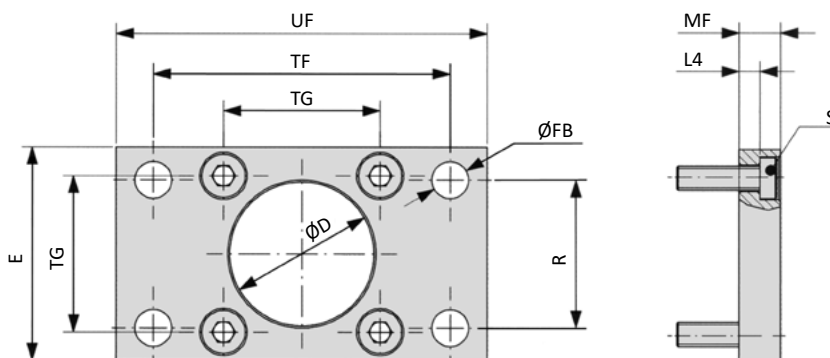
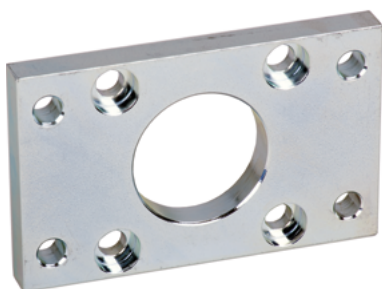
CXM-xxx-01 Foot mount



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

Material: stainless steel AISI 304 (1.4301); 2 x 2 screws in accordance with EN ISO 4762 are included.

CXM-xxx-02 Flange mount



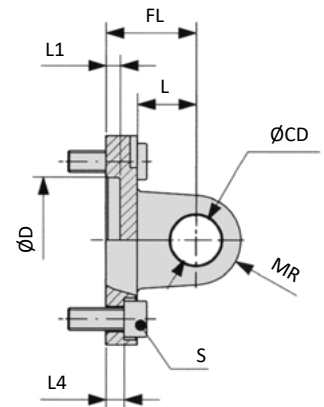
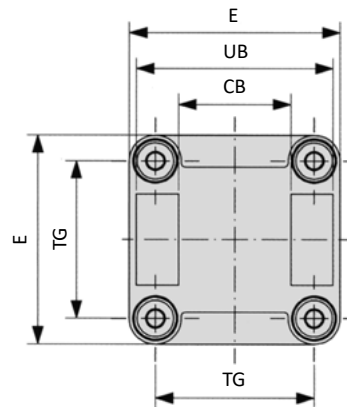
Model-no.:	Ø D	E	Ø FB	L4	MF	R	S	TF	TG	UF
CXM-032-02	30	45	7	5	10	32	M6 x 20	64	32.5	80
CXM-040-02	35	52	9	5	10	36	M6 x 20	72	38	90
CXM-050-02	40	65	9	6.5	12	45	M8 x 20	90	46.5	110
CXM-063-02	45	75	9	6.5	12	50	M8 x 20	100	56.5	120
CXM-080-02	45	95	12	9	16	63	M10 x 25	126	72	150
CXM-100-02	55	115	14	9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

Material: stainless steel AISI 304 (1.4301); 2 x 2 screws in accordance with DIN 7984 are included.

CXM-xxx-03 Gabel



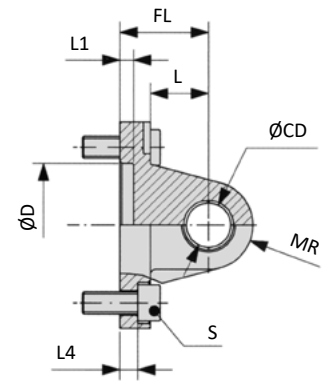
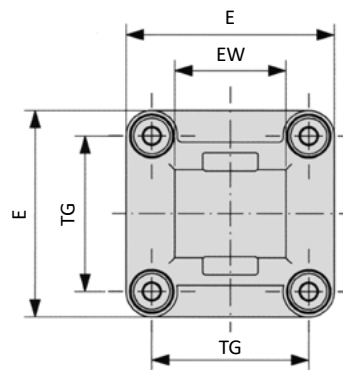
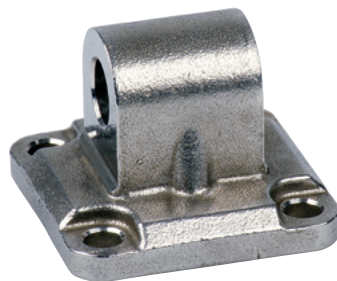
Inclusive clevis pin
order no.: **CXM-xxx-38**



Model-no.:	CB	Ø CD	Ø D	E	FL	L	L1	L4	MR	S	TG	UB
CXM-032-03	26	10	30	45	22	13	5	5.5	10	M6 x 20	32.5	45
CXM-040-03	28	12	35	52	25	16	5	5.5	12	M6 x 20	38	52
CXM-050-03	32	12	40	65	27	16	5	6.5	12	M8 x 20	46.5	60
CXM-063-03	40	16	45	75	32	21	5	6.5	16	M8 x 20	56.5	70
CXM-080-03	50	16	45	95	36	22	5	10	16	M10 x 25	72	90
CXM-100-03	60	20	55	115	41	27	5	10	20	M10 x 25	89	110
CXM-125-03	70	25	60	140	50	30	7	10	25	M12 x 25	110	130

Material: stainless steel AISI 304 (1.4301); 4 screws in accordance with EN ISO 4762 are included.

CXM-xxx-05 Swivel mount



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

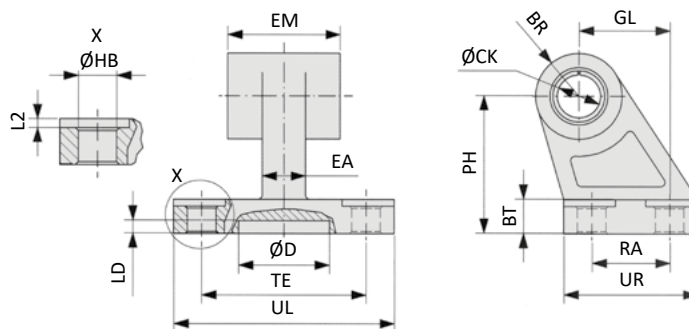
Material: stainless steel AISI 304 (1.4301); 4 screws in accordance with EN ISO 4762 are included.

Series XM

Mounting accessories



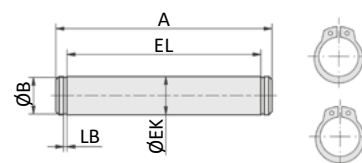
CXM-xxx-06 Swivel mount 90°



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

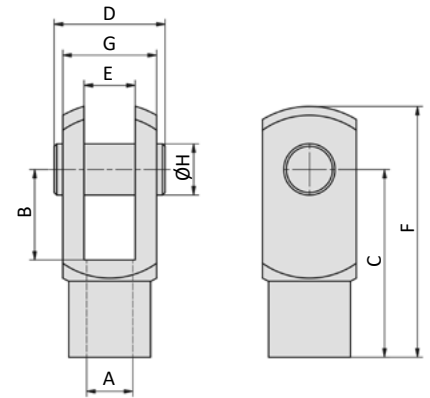
Material: stainless steel AISI 304 (1.4301)

CXM-xxx-08 Clevis pin



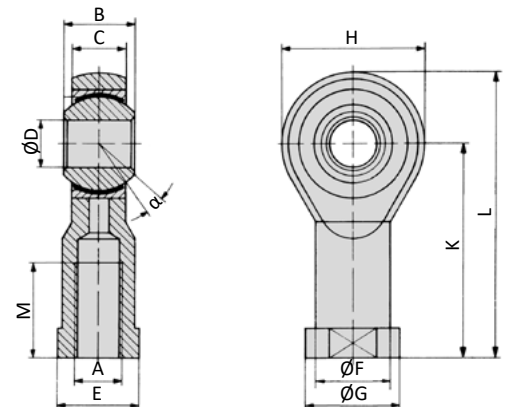
Model-no.:	A	Ø B	Ø EK	EL	LB
CXM-032-08	53	9.6	10	46	1.1
CXM-040-08	60	11.5	12	53	1.1
CXM-050-08	68	11.5	12	61	1.1
CXM-063-08	78	15.2	16	71	1.1
CXM-080-08	98	15.2	16	91	1.1
CXM-100-08	118	19	20	111	1.3
CXM-125-08	139	23.9	25	132*	1.3

Material: stainless steel AISI 304 (1.4301); 2 snap rings are included.

PD-xx Rod clevis


Model-no.:	for cylinder	A	B	C	D	E	F	G	Ø H
PD-25	XM-032	M10 x 1.25	20	40	26	10	52	20	10
PD-40	XM-040	M12 x 1.25	24	48	32	12	62	24	12
PD-63	XM-050, XM-063	M16 x 1.5	32	64	40	16	83	32	16
PD-80	XM-080, XM-100	M20 x 1.5	40	80	50	20	105	40	20

Material: stainless steel AISI 303 (1.4305)

PO-xx Rod eye


Model-no.:	for cylinder	A	B	C	Ø D	E	Ø F	Ø G	H	K	L	M	α
PO-25	XM-032	M10 x 1.25	14	10.5	10	17	15	19	28	43	57	20	13°
PO-40	XM-040	M12 x 1.25	16	12	12	19	17.5	22	32	50	66	22	13°
PO-63	XM-050, XM-063	M16 x 1.5	21	15	16	22	22	27	42	64	85	28	15°
PO-80	XM-080, XM-100	M20 x 1.5	25	18	20	30	27.5	34	50	77	102	33	14°

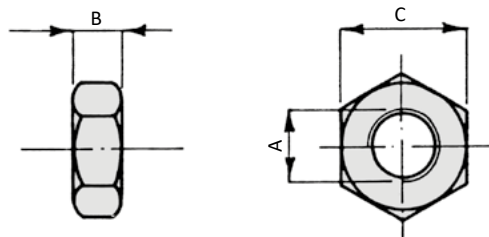
Materials: stainless steel AISI 331 (1.4057), bearing stainless steel AISI 316 Ti, PTFE coated, bushing stainless steel AISI 420 (1.4034)

Series XM

Mounting accessories

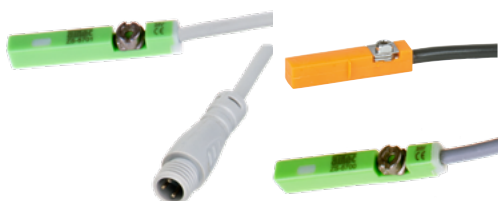


PL-xxx Piston rod nut

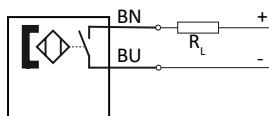


Model-no.:	for cylinder	A	B	C
PL-25	XM-032	M10 x 1.25	5	17
PL-40	XM-040	M12 x 1.25	6	19
PL-63	XM-050, XM-063	M16 x 1.5	8	24
PL-80	XM-080, XM-100	M20 x 1.5	10	30
PL-125	XM-125	M27 x 2	13.5	41
Material: stainless steel AISI 304 (1.4301)				

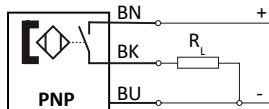
Proximity sensors



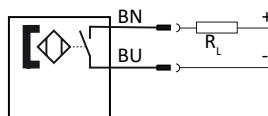
Proximity sensors with cable



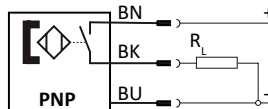
ZS-6600


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

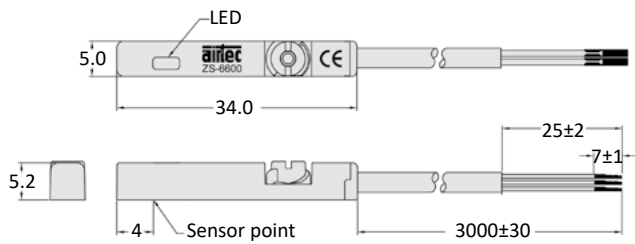
Model-no.:	ZS-7300	ZS-7302
		
Design	3-pole inductive	3-pole inductive
Contact function	NO	NO
Output	PNP	PNP
Rated operational voltage	10 ... 30 V DC	10 ... 30 V DC
Rated operational current I_E	≤ 100 mA	≤ 100 mA
Max. voltage drop at I_E	≤ 2.5	≤ 2.5
Breaking capacity	3 W	3 W
Cable length	6 m	0.3 m with M12 connection
Temperature range	-20 ... +60°C	-20 ... +60°C
Protection	IP 67	IP 67
Switching status indication	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

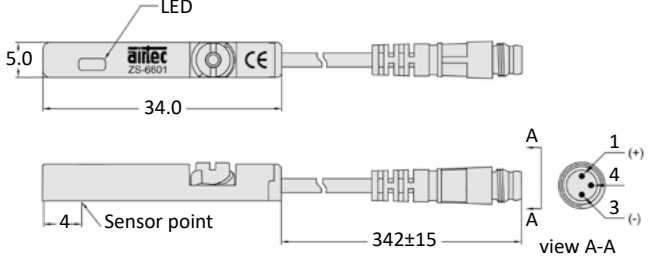
Proximity sensors

Dimensions

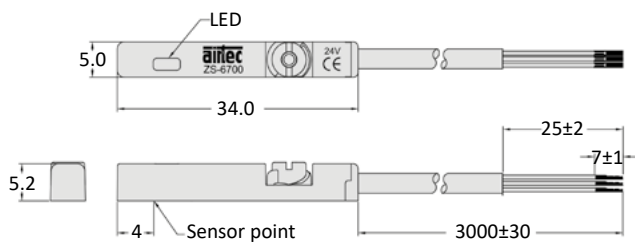
ZS-6600



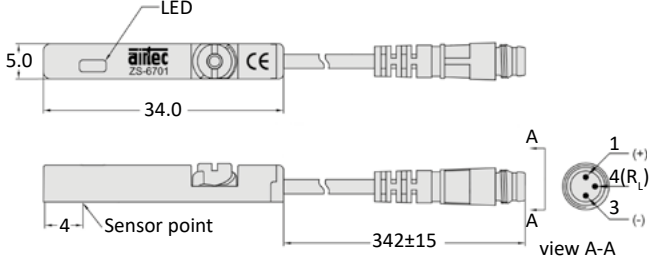
ZS-6601



ZS-6700



ZS-6701



Mounting

A separate bracket is required for mounting this series.

Mounting brackets for proximity sensors

Model-no.:

NT-550



Design

sensor mounting

For series

HM, HMU, HE, CM, XM, XG, XLZ

Connection cable M8

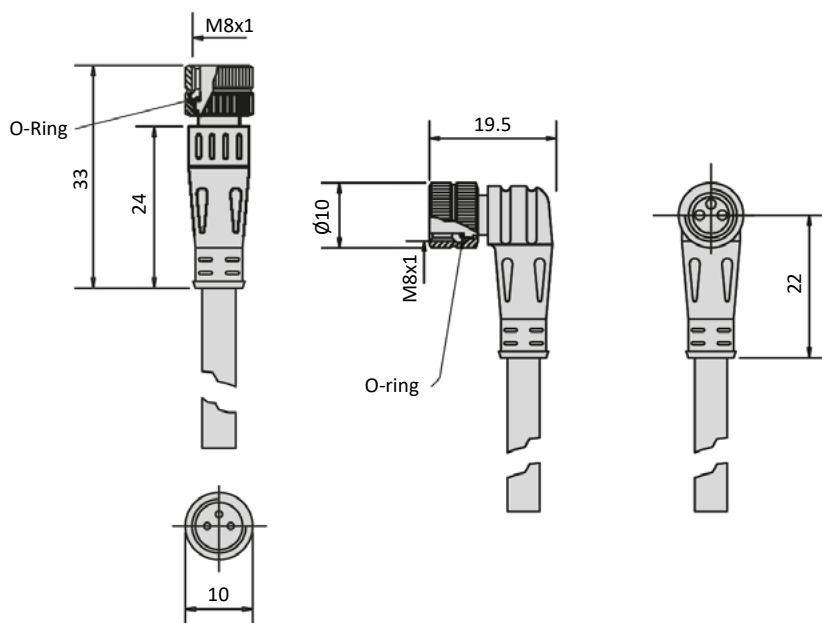
Contacts	M8 Plug socket
Protection	IP 67 according to EN 60529 in conjunction with suitable connection plug
Duty cycle	100 %
Temperature range*	-25°C...+90°C
max. voltage	60 V AC / DC
Use for	Solenoids with M8 plug, cylinder switch with M8 plug



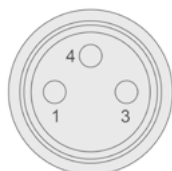
Model-no.:	KA-10-01	KA-30-01	KA-50-01	KA-100-01
Contacts	M8 Socket, straight	M8 Socket, straight	M8 Socket, straight	M8 Socket, straight
Mounting	Coupling nut	Coupling nut	Coupling nut	Coupling nut
Cable	3-pin	3-pin	3-pin	3-pin
Length (L)	1 m	3 m	5 m	10 m

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

Dimensions



Pin assignment



1 = brown
3 = blue
4 = black

Version code

Cylinder - * * * - xxxx		
Cylinder double acting	Piston rod versions	Seals, Air connection
0 piston rod on one side with magnetic piston adjustable cushioning	0 piston rod stainless steel male thread	0 standard seals (PUR, NBR) air connection G thread
1 piston rod on one side adjustable cushioning	1 piston rod stainless steel female thread	1 standard seals (PUR, NBR) air connection NPT thread
2 piston rod on one side with magnetic piston	2 piston rod stainless steel female thread with guide and non rotating	2 high temperature version (FKM) air connection G thread
3 piston rod on one side	3 piston rod stainless steel male thread non rotating	3 high temperature version (FKM) air connection NPT thread
4 double end piston rod with magnetic piston adjustable cushioning	4 piston rod stainless steel female thread non rotating	4 standard seals (NBR) piston rod seal FKM air connection G thread
5 double end piston rod adjustable cushioning	5 piston rod steel hard chrome plated male thread	5 standard seals (NBR) piston rod seal FKM air connection NPT thread
6 double end piston rod with magnetic piston	6 piston rod steel hard chrome plated female thread	
7 double end piston rod	7 Doppelkolbenstange	
8 double end piston rod through hollow with magnetic piston	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 [#]	
	Bxxx piston rod stainless steel female thread lengthened by xxx mm	
	Cxxx piston rod steel hard chrome plated male thread lengthened by xxx mm [#]	
	Dxxx piston rod steel hard chrome plated female thread lengthened by xxx mm [#]	
	Exxx piston rod stainless steel without thread lengthened by xxx mm [#]	
	Fxxx piston rod steel hard chrome plated without thread lengthened by xxx mm [#]	
	V piston rod stainless steel AISI 316 (1.4401) male thread	
	[#] with a double end piston rod, only one side is extended	

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

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

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

Device marking

Piston rod cylinders are marked as follows:

II 2G Ex h IIB T4 Gb
 II 2D Ex h IIIC T120°C Db
 -20°C T_{amb} +80°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
XM	XM, XM4, XMH, XM4H

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 _{max} 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.

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

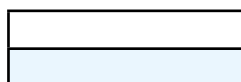
Piston-Ø	Pressure in bar						
	2	3	4	5	6	7	8
32	0.24	0.32	0.40	0.48	0.56	0.64	0.72
40	0.38	0.50	0.63	0.75	0.88	1.01	1.13
50	0.59	0.79	0.98	1.18	1.37	1.57	1.77
63	0.94	1.25	1.56	1.87	2.18	2.49	2.81
80	1.51	2.01	2.51	3.02	3.52	4.02	4.52
100	2.36	3.14	3.93	4.71	5.50	6.28	7.07
125	3.72	4.96	6.21	7.42	8.64	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			145	217	289	362	434	506	579
	XM	12	124	187	249	311	373	435	497
40			226	339	452	565	678	791	904
	XM	16	190	285	380	475	570	665	760
50			353	530	707	883	1060	1236	1413
	XM	20	297	445	593	742	890	1039	1187
63			561	841	1122	1402	1682	1963	2243
	XM	20	504	756	1009	1261	1513	1765	2017
80			904	1356	1809	2261	2713	3165	3617
	XM	25	816	1224	1632	2040	2448	2856	3264
100			1413	2120	2826	3533	4239	4946	5652
	XM	25	1325	1987	2649	3312	3974	4636	5299
125			2208	3312	4416	5520	6623	7727	8831
	XM	32	2063	3095	4126	5158	6189	7221	8252

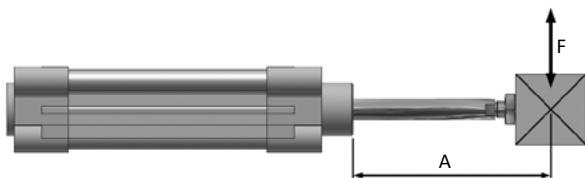


extension force*

retraction force*

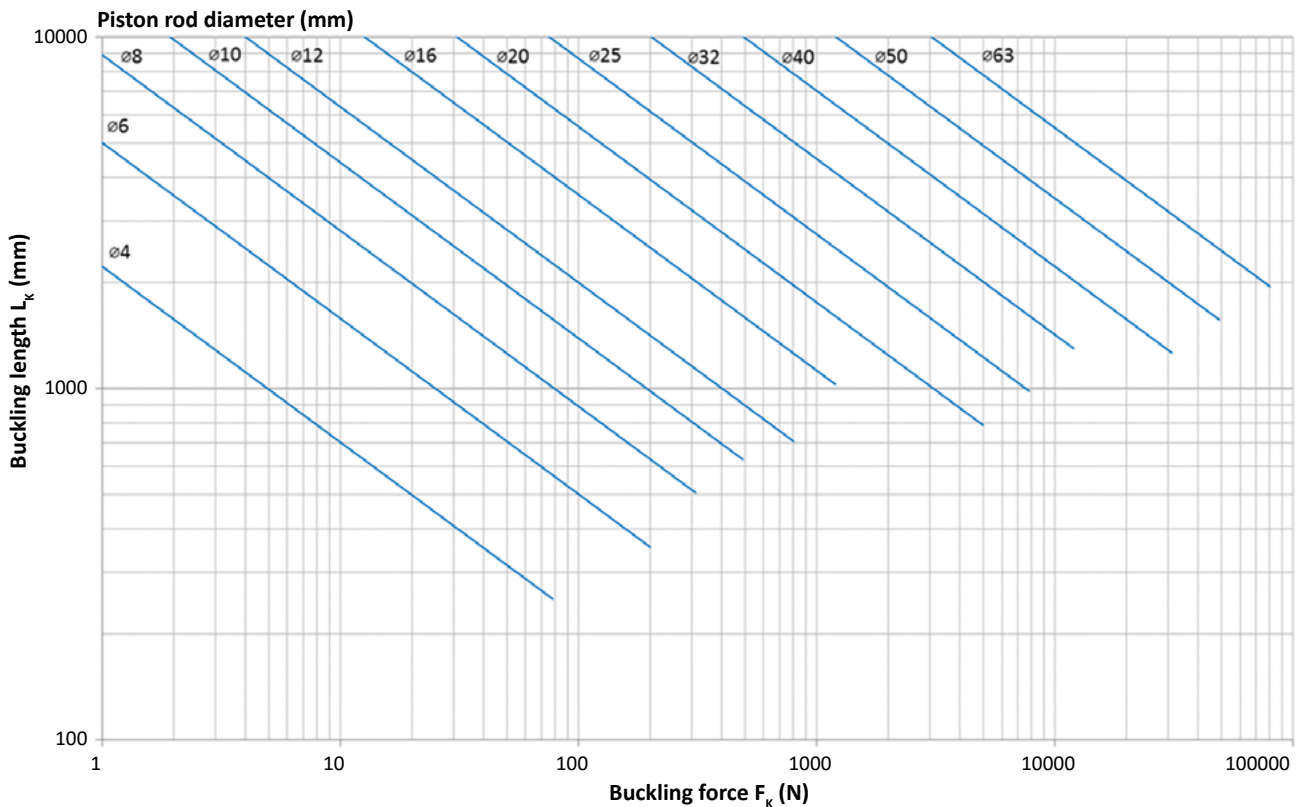
* A correction factor of 0.9 for the internal friction is already calculated.

Permissible side load F (N), series XM

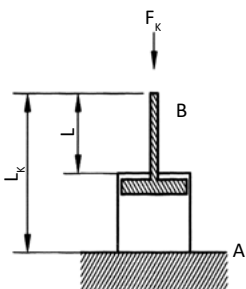


Piston-Ø	Distance A (mm)											
	25	40	50	80	100	125	160	200	250	320	400	500
32	75	55	50	40	34	28	23	20	16	12	9	7
40	175	150	130	105	91	78	62	55	45	35	28	21
50 + 63	220	180	170	130	120	105	90	80	65	52	43	33
80 + 100	500	450	400	350	310	270	230	205	180	150	125	100
125	810	710	680	590	520	470	420	390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

Critical load diagram for the piston rod

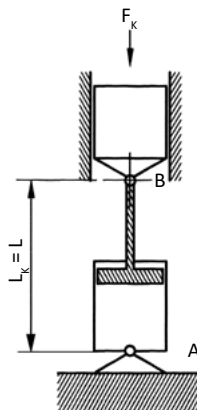


First elastic case of buckling



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

Second elastic case of buckling



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

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.