

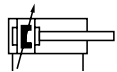
Technical details

Operating pressure	1 ... 10 bar
Temperature range	-20°C ... +80°C
Max. stroke	1.500 mm
Speed	30 ... 500 mm/s
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Cylinder tube: Al (anodized) End caps: Al-die-cast (painted) Piston rod: steel hard chrome plated Seals: PU, NBR

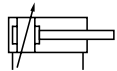


Double acting cylinder with adjustable cushions and magnetic piston for proximity sensors. Additional lengths on request.

Versions

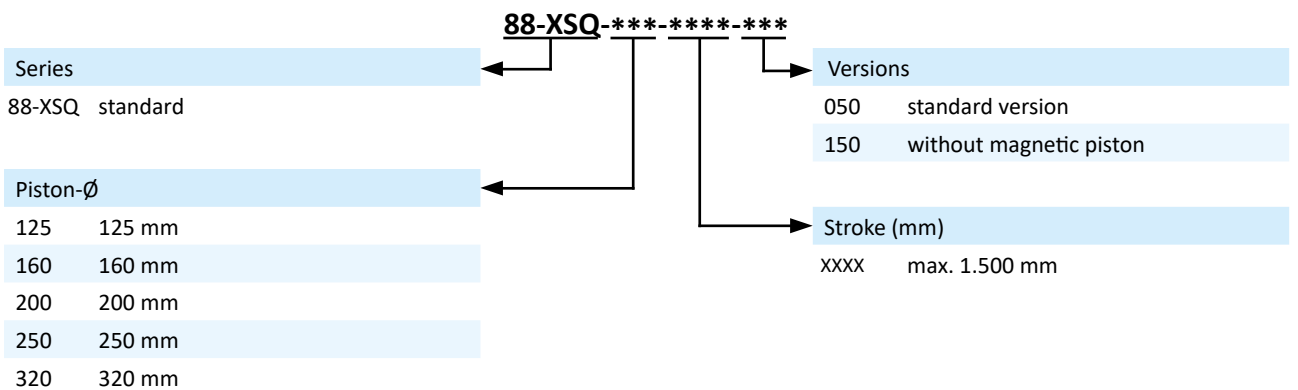


050
double acting, adjustable cushioning,
with magnetic piston



150
double acting, adjustable cushioning

Order code



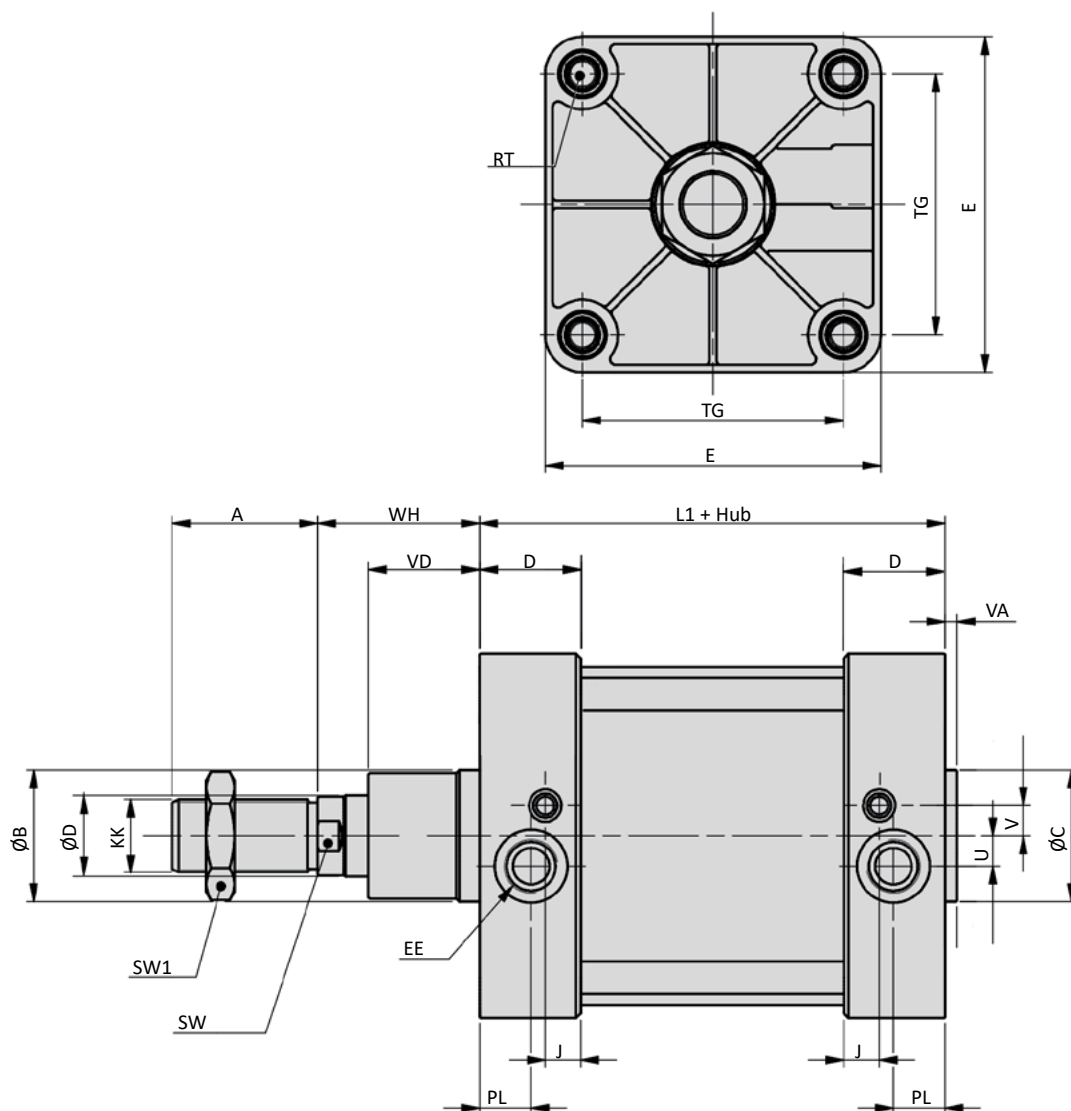
Technical data

Model-no.:	88-XSQ-125-...	88-XSQ-160-...	88-XSQ-200-...	88-XSQ-250-...	88-XSQ-320-...	
Piston Ø (mm)	125	160	200	250	320	
Force at 6 bar (N)	Extension	6623	10852	16956	26494	43407
	Retraction	6189	10174	16278	25434	41725
Connection	G1/2	G3/4	G3/4	G1	G1	
Piston rod thread	M27 x2	M36 x 2	M36 x 2	M42 x 2	M48 x 2	
Cushioning length (mm)	40	50	50	50	50	

Series 88-XSQ

ISO 1552, double acting

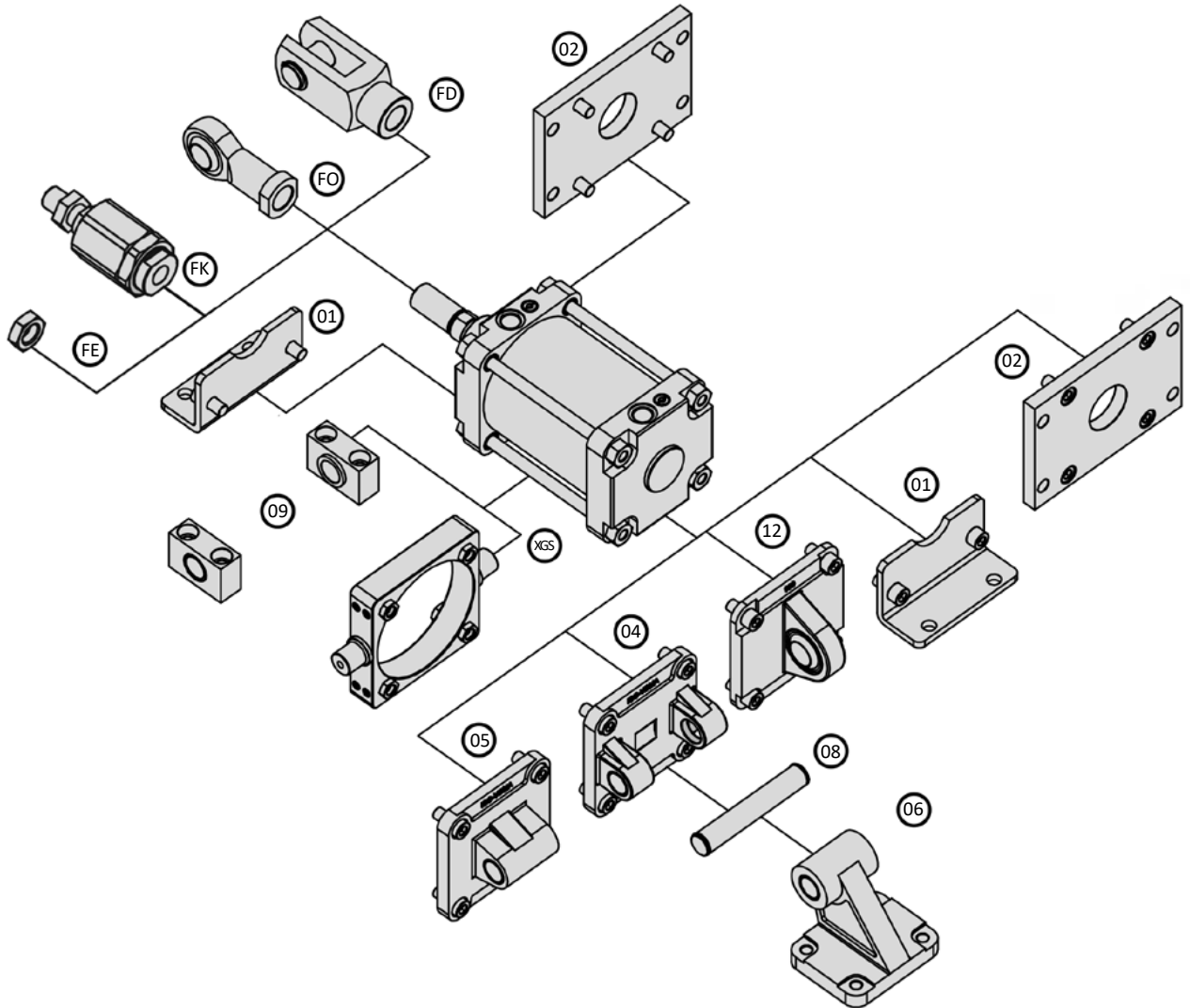
Dimensions series 88-XSQ



Piston Ø	A	Ø B	Ø C	Ø D	D	E	EE	J	KK	L1
125	54	60	60	32	46	140	G1/2	12	M27 x 2	160
160	72	65	65	40	50	178	G3/4	12	M36 x 2	180
200	72	75	75	40	50	220	G3/4	12	M36 x 2	180
250	84	90	90	50	60	270	G1	10	M42 x 2	200
320	96	110	110	63	65	350	G1	15	M48 x 2	220

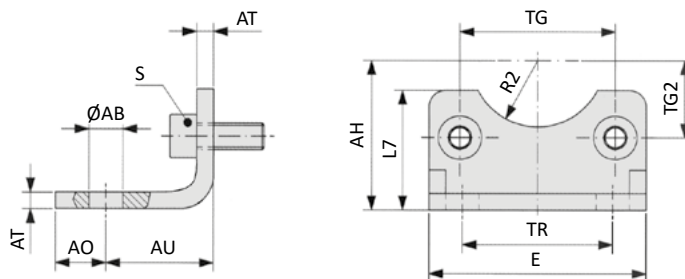
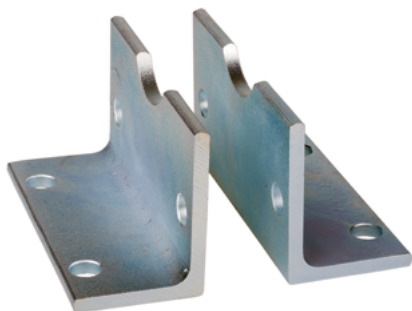
Piston Ø	PL	RT	SW	SW1	TG	U	V	VA	VD	WH
125	23	M12	27	41	110	14	14	4	45	65
160	25	M16	36	55	140	15	20	6	58	80
200	25	M16	36	55	175	15	20	5	67	95
250	30	M20	45	65	220	20	25	8	75	105
320	31	M24	55	75	270	35	35	10	90	120

Mounting accessories VLB-xxx-yy



Series XG Mounting accessories

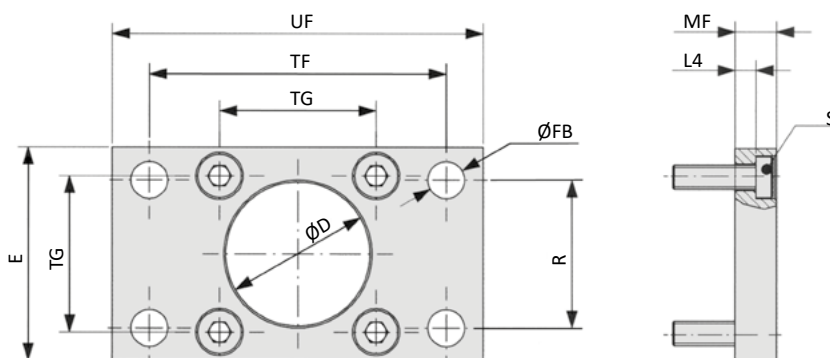
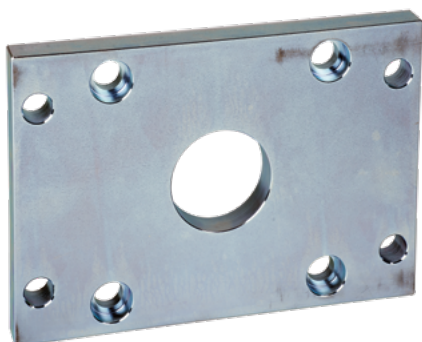
VLB-xxx-01 Foot mount



Model-no.:	Ø AB	AH	AO	AU	AT	E	L7	R2	S	TG	TG2	TR
VLB-160-01	18	115	15	60	9	180	100	32.5	M16 x 30	140	70	115
VLB-200-01	22	135	30	70	12	220	100	37.5	M16 x 30	175	87.7	135
VLB-250-01	26	165	25	75	14	270	150	45	M20 x 40	220	110	165
<i>tolerances and adjustments</i>	H14	JS16		± 0.2	± 1			H15		± 0.3		JS14

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

VLB-xxx-02 Flange mount



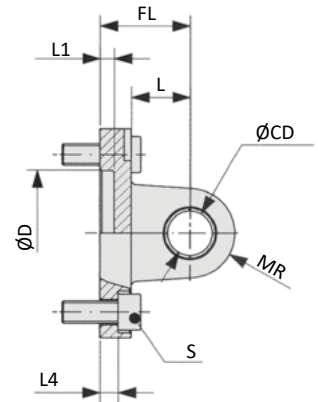
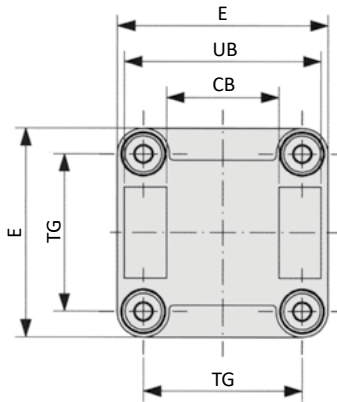
Model-no.:	Ø D	E	Ø FB	L4	MF	R	S	TF	TG	UF
VLB-160-02	65	180	18	9.5	20	115	M16 x 30	230	140	260
VLB-200-02	75	220	22	12.5	25	135	M16 x 30	270	175	300
VLB-250-02	90	285	26	10.5	25	165	M20 x 30	330	220	400
VLB-320-02	110	350	33	15	30	200	M24 x 40	400	270	470
<i>tolerances and adjustments</i>	H11		H13	0 - 0.5	JS14	JS14		JS14	± 0.3	

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

VLB-xxx-04 Clevis mount with bushing



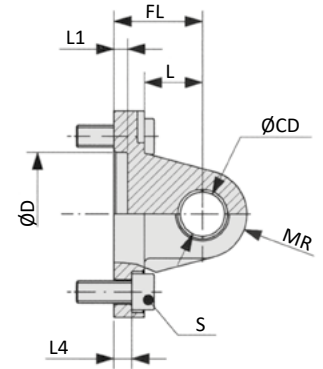
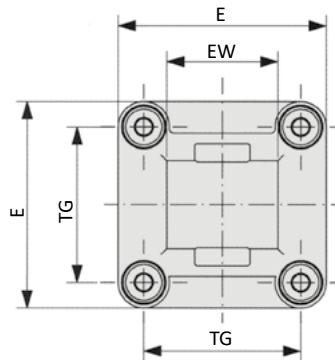
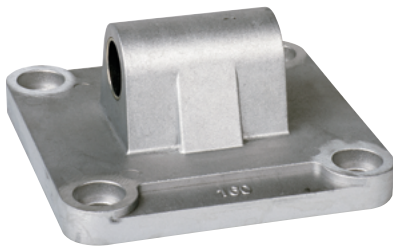
Inclusive clevis pin
order no: **VLB-xxx-48**



Model-no.:	CB	Ø CD	Ø D	E	FL	L	L1	L4	MR	S	TG	UB
VLB-160-04	90	30	65	180	55	35	7	10	25	M16 x 30	140	170
VLB-200-04	90	30	75	220	60	35	7	11	25	M16 x 30	175	170
VLB-250-04	110	40	90	270	70	45	-	11	40	M20 x 30	220	200
VLB-320-04	120	45	110	350	80	50	-	15	45	M24 x 40	270	220
<i>tolerances and adjustments</i>	H14	H9	H11		± 0.2			± 0.5			± 0.3	h13

materials: Al, bushing steel and PTFE (Ø 250 and 320 without bushing); 4 screws in accordance with EN ISO 4762 are included

VLB-xxx-05 Swivel mount

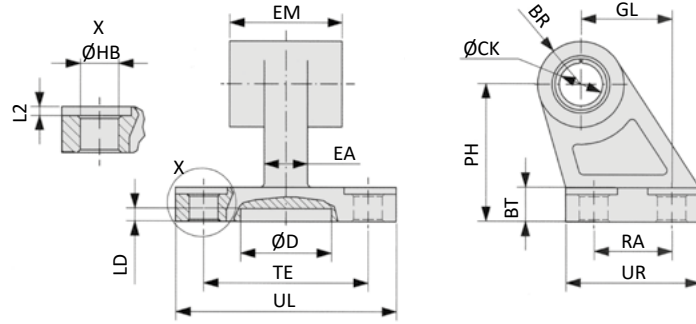


Model-no.:	Ø CD	Ø D	E	EW	FL	L	L1	L4	MR	S	TG
VLB-160-05	30	65	180	90	55	35	7	10	25	M16 x 30	140
VLB-200-05	30	75	220	90	60	35	7	11	25	M16 x 30	175
VLB-250-05	40	90	270	110	70	45	11	11	40	M20 x 30	220
VLB-320-05	45	110	350	120	80	50	15	15	45	M24 x 40	270
<i>tolerances and adjustments</i>	H9	H11		-0.5 -1.2	± 0.2			± 0.5			± 0.3

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

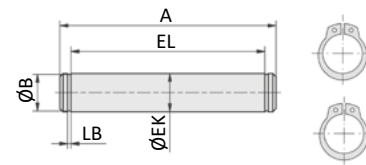
Series XG Mounting accessories

VLB-xxx-06 Swivel mount 90°



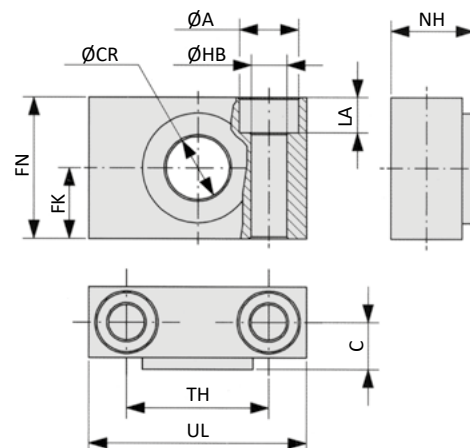
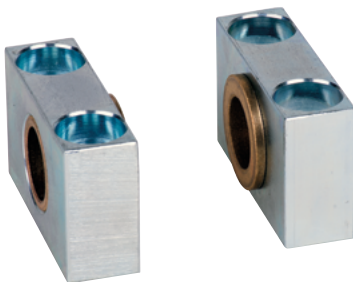
Model-no.:	BR	BT	Ø CK	Ø D	EA	EM	GL	Ø HB	L2	LD	PH	RA	TE	UL	UR
VLB-160-06	31.5	25	30	31	36	90	97	14	4	5	115	88	118	156	126
VLB-200-06	31.5	30	30	31	40	90	105	18	4	5	135	90	122	162	130
<i>tolerances and adjustments</i>			H9			-0.5 -1.5	JS14	H13			JS15	JS14	JS14		
material: Al															

VLB-xxx-08 Clevis pin



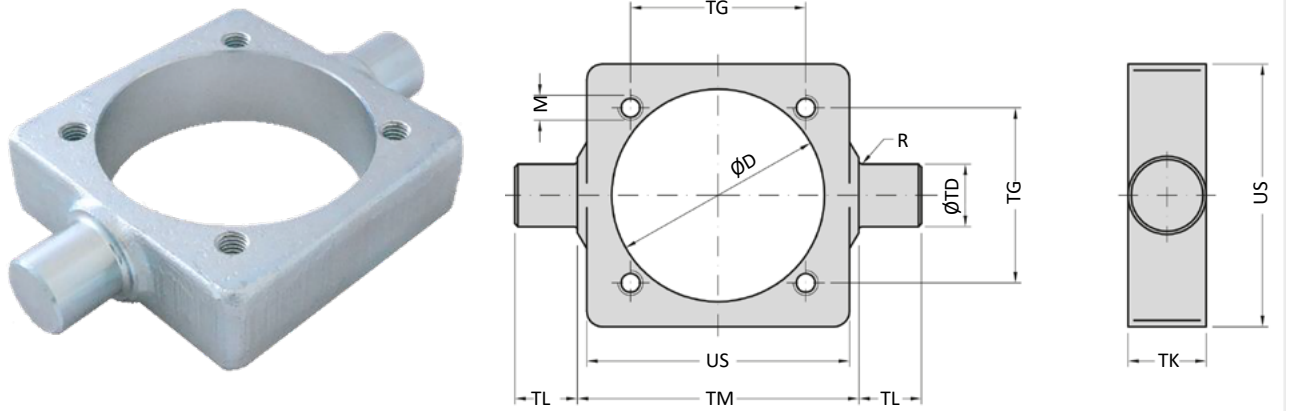
Model-no.:	A	Ø B	Ø EK	EL	LB
VLB-200-08	178	28.6	30	171.5	1.60
VLB-250-08	211	37.5	40	202	1.85
VLB-320-08	234	42.5	45	222	1.85
<i>tolerances and adjustments</i>			e8	+3 0	
material: steel, zinc plated; 2 snap rings are included					

VLB-xxx-09 Bearing block



Model-no.:	Ø A	C	Ø CR	FK	FN	Ø HB	LA	NH	TH	UL
VLB-200-09	26	22.5	32	30	60	18	17	40	60	92
VLB-250-09	33	31	40	35	70	22	20	56	70	140
<i>tolerances and adjustments</i>			H9	± 0.2		H13			± 0.3	
materials: Al, bronze bushing										

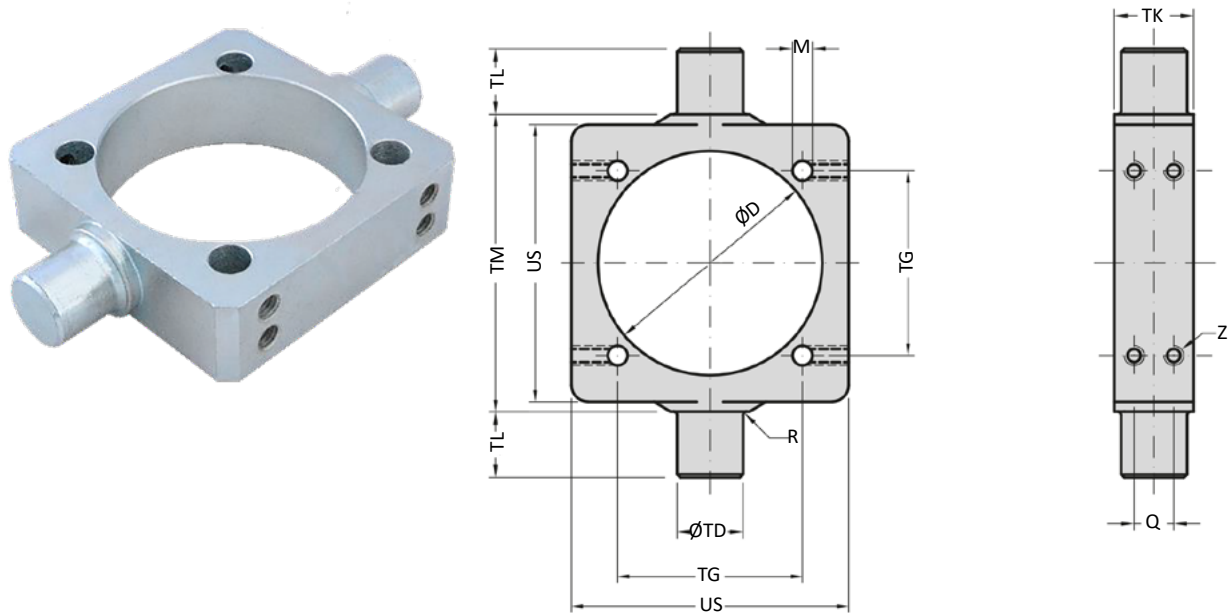
VLB-xxx-10 Trunnion mount, mounting on tie rods with thread



Model-no.:	Ø D	M	R	Ø TD	TG	TK	TL	TM	US
VLB-160-10	171	M16	2,5	32	140	46	32	200	198
VLB-200-10	214	M16	2,5	32	175	46	32	250	245
VLB-250-10	268	M20	2,5	40	220	56	40	320	304
VLB-320-10*	343	M24	2,5	50	270	70	50	400	370
<i>tolerances and adjustments</i>	+ 0,2 0		max	e9	± 0,2	max	h14	h14	max

material: steel, black plated, *delivery on request

VLB-xxx-10-A Trunnion mount, mounting with clamping



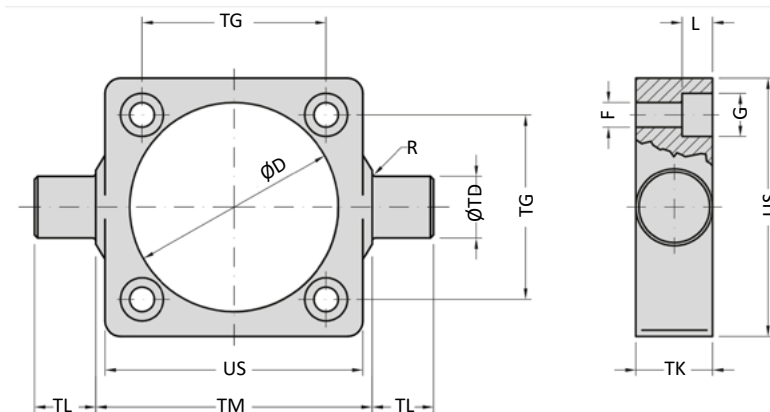
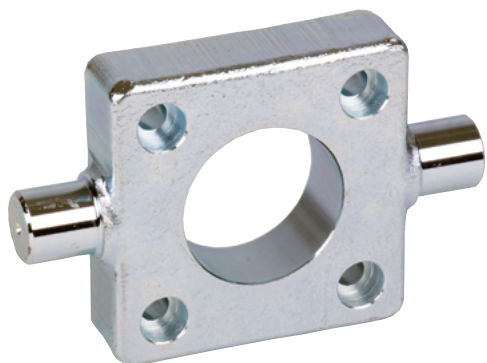
Model-no.:	Ø D	M	Q	R	ØTD	TG	TK	TL	TM	US	Z
VLB-160-10-A	171,6	16,25	18	2,5	32	140	40	32	200	190	M12
VLB-200-10-A	214	16,25	18	2,5	32	175	40	32	250	240	M12
<i>tolerances and adjustments</i>	+ 0,2 0	+ 0,2 0	± 0,2	max	e9	± 0,2	max	h14	h14	max	

material: steel, zinc plated

Series XG

Mounting accessories

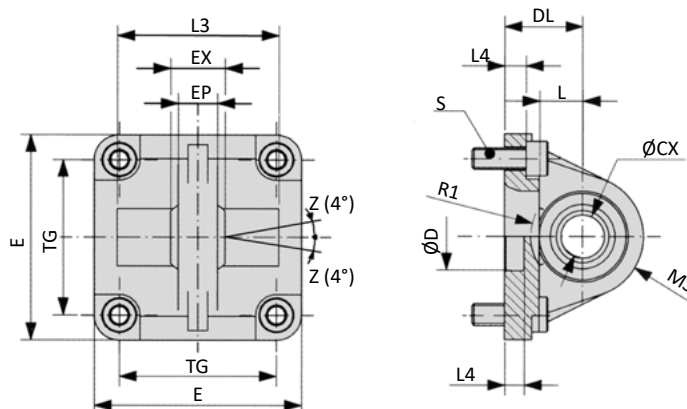
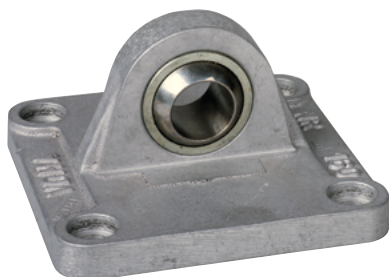
VLB-xxx-11 Trunnion mount



Model-no.:	Ø D	F	G	L	R	Ø TD	TG	TK	TL	TM	US
VLB-160-11	170	17	25	16	2,5	32	140	40	32	200	190
VLB-200-11	211	17	25	16	2,5	32	175	40	32	250	240
<i>tolerances and adjustments</i>	+0,2 0	H13	H13	+0,5 0	max	e9	± 0,2	max	h14	h14	max

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

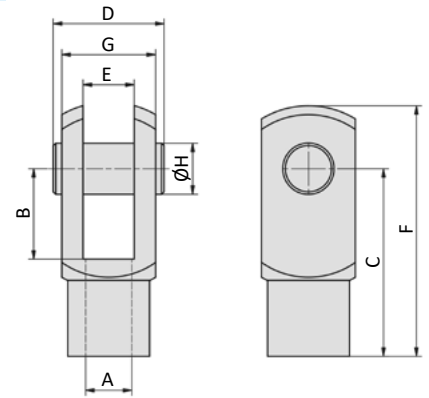
VLB-xxx-12 Swivel mount with spherical bearing



Model-no.:	Ø CX	Ø D	DL	E	EP	EX	L	L1	L3	L4	MS	R1	S	TG
VLB-160-12	35	65	55	180	28	43	35	7	-	10	45	-	M16 x 30	140
VLB-200-12	35	75	60	220	28	43	35	7	-	11	48	-	M16 x 30	175
<i>tolerances and adjustments</i>	H7	H11	± 0,2											± 0,3

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

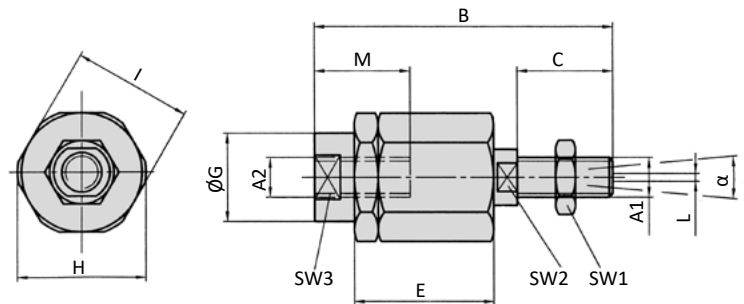
FD-xxx Rod clevis



Model-no.:	for cylinder	A	B	C	D	E	F	G	H
FD-200	XG-160, XG-200	M36 x 2	72	144	84	35	188	70	35
FD-250	XG-250	M42 x 2	84	168	104.5	40	232	85	40
FD-320	XG-320	M48 x 2	96	192	117.5	50	265	96	50

material: steel, zinc plated

FK-xxx Flexible coupling



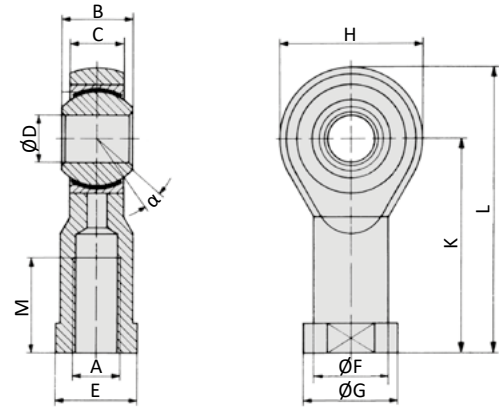
Model-no.:	for cylinder	A1, A2	B	C	D	E	ØG	H	I	L	M	SW1	SW2	SW3	α
FK-200	XG-160, XG-200	M36 x 2	190	72	15.5	77	57	75	70	2	68	32	54	55	8°

material: steel, zinc plated

Series XG

Mounting accessories

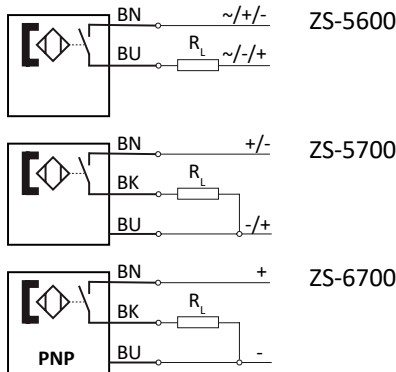
FO-xxx Rod eye



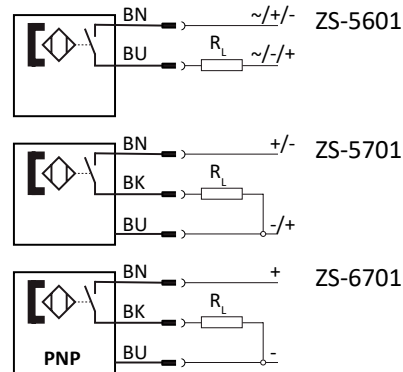
Model-no.:	for cylinder	A	B	C	ØD	E	ØF	ØG	H	K	L	M	α
FO-160/200	XG-160, XG-200	M36 x 2	43	28	35	50	46	58	80	125	165	56	16°
FO-250	XG-250	M42 x 2	49	33	40	55	53	65	91	142	187	60	16°
FO-320	XG-320	M48 x 2	60	45	50	60	65	75	117	162	218	65	14°

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

Proximity sensors with cable



Proximity sensors with plug



Technical data

Model-no.:	ZS-5600	ZS-5601	ZS-5700	ZS-5701
Design	2-pole Reed sensor	2-pole Reed sensor	3-pole Reed sensor	3-pole Reed sensor
Contact function	NO	NO	NO	NO
Rated operational voltage	5 ... 240 V AC / DC	5 ... 60 V AC / DC	5 ... 30 V DC	5 ... 30 V DC
Rated operational current I_E	3 ... 100 mA	3 ... 100 mA	≤ 500 mA	≤ 500 mA
Max. voltage drop at I_E	≤ 2.5	≤ 2.5	≤ 0.1	≤ 0.1
Breaking capacity	10 W	10 W	10 W	10 W
Cable length	3 m	0.3 m with M8 connection	5 m	0.3 m with M8 connection
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 yellow	LED yellow

Model-no.:	ZS-6700	ZS-6701
Mounting	T-Nut	T-Nut
Design	3-pole inductive	3-pole inductive
Contact function	NO	NO
Output	PNP	PNP
Rated operational voltage	5 ... 30 V DC	5 ... 30 V DC
Rated operational current I_E	≤ 200 mA	≤ 200 mA
Max. voltage drop at I_E	≤ 1.0	≤ 1.0
Breaking capacity	6 W	6 W
Cable length	3 m	0.3 m with M8 connection
Temperature range	-10 ... +70°C	-10 ... +70°C
Protection	IP 67	IP 67
Switching status indication	LED green	LED green

Series ZS

Proximity sensors


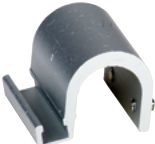
Cable with bushing for proximity sensors

Model-no.:	KA-30	KA-50	KA-51	KA-100	KA-101
Connection	M8, snap-in	M8, snap-in	M8, snap-in	M8, snap-in	M8, snap-in
Version	straight	straight	elbow 90°	straight	elbow 90°
Cable length	3 m	5 m	5 m	10 m	10 m

Mounting

For this cylinder series separate mounting brackets are necessary for the sensor mounting.

Mounting brackets for proximity sensors

Model-no.:	NT-250	HTM-080/100-1
		
Design	Sensor mounting	Mounting bracket for tie rod design
For series	88-XSQ	88-XSQ-160, 88-XSQ-200