

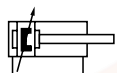
**Technical details**

<b>Operating pressure</b>	1 ... 10 bar
<b>Temperature range</b>	-20°C ... +70°C
<b>Max. stroke</b>	1.500 mm
<b>Speed</b>	30 ... 500 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. Alternatively 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

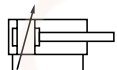


Double acting cylinder with adjustable cushions and magnetic piston for proximity sensors. Additional lengths on request.

**Versions**

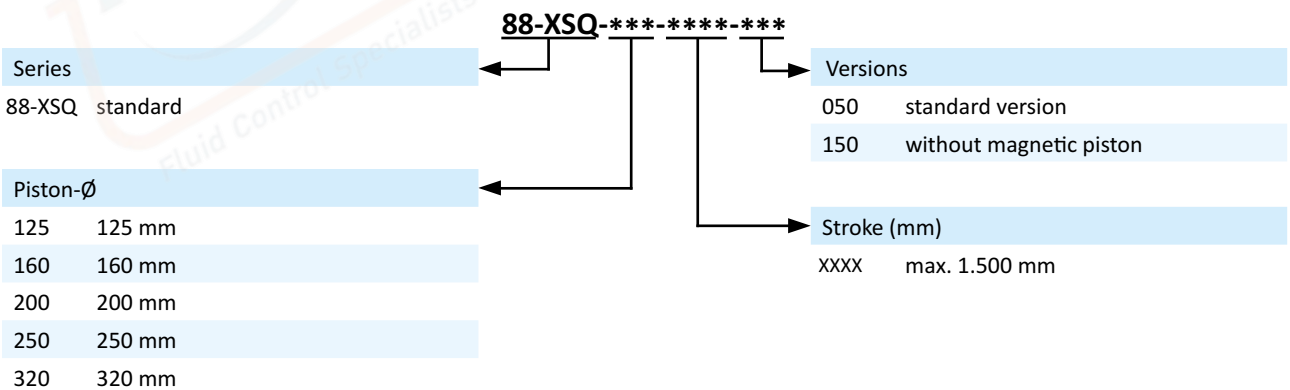


050  
double acting, adjustable cushioning,  
with magnetic piston



150  
double acting, adjustable cushioning

**Order code**

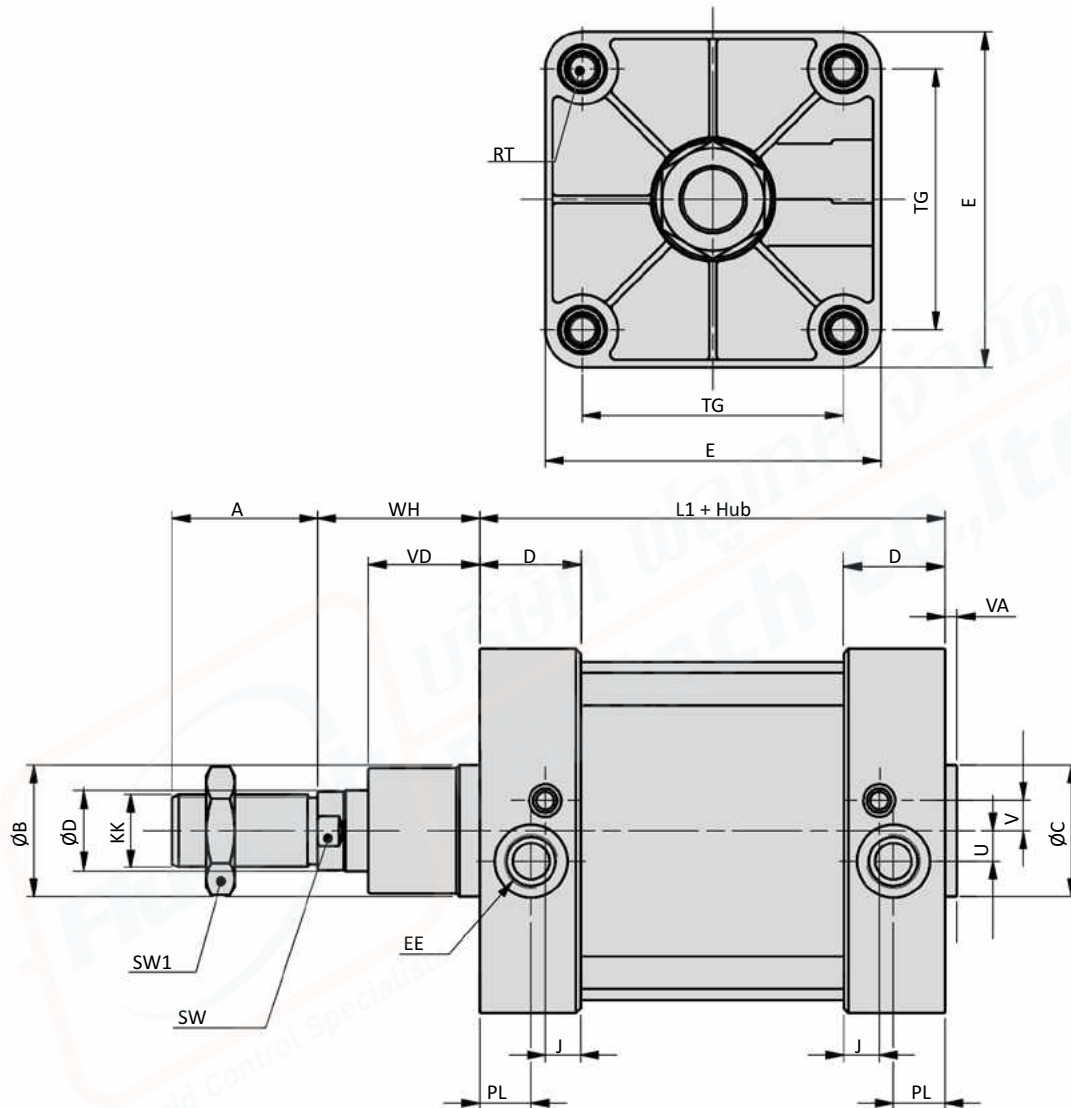


**Technical data**

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

**Series 88-XSQ**  
ISO 15552, double acting

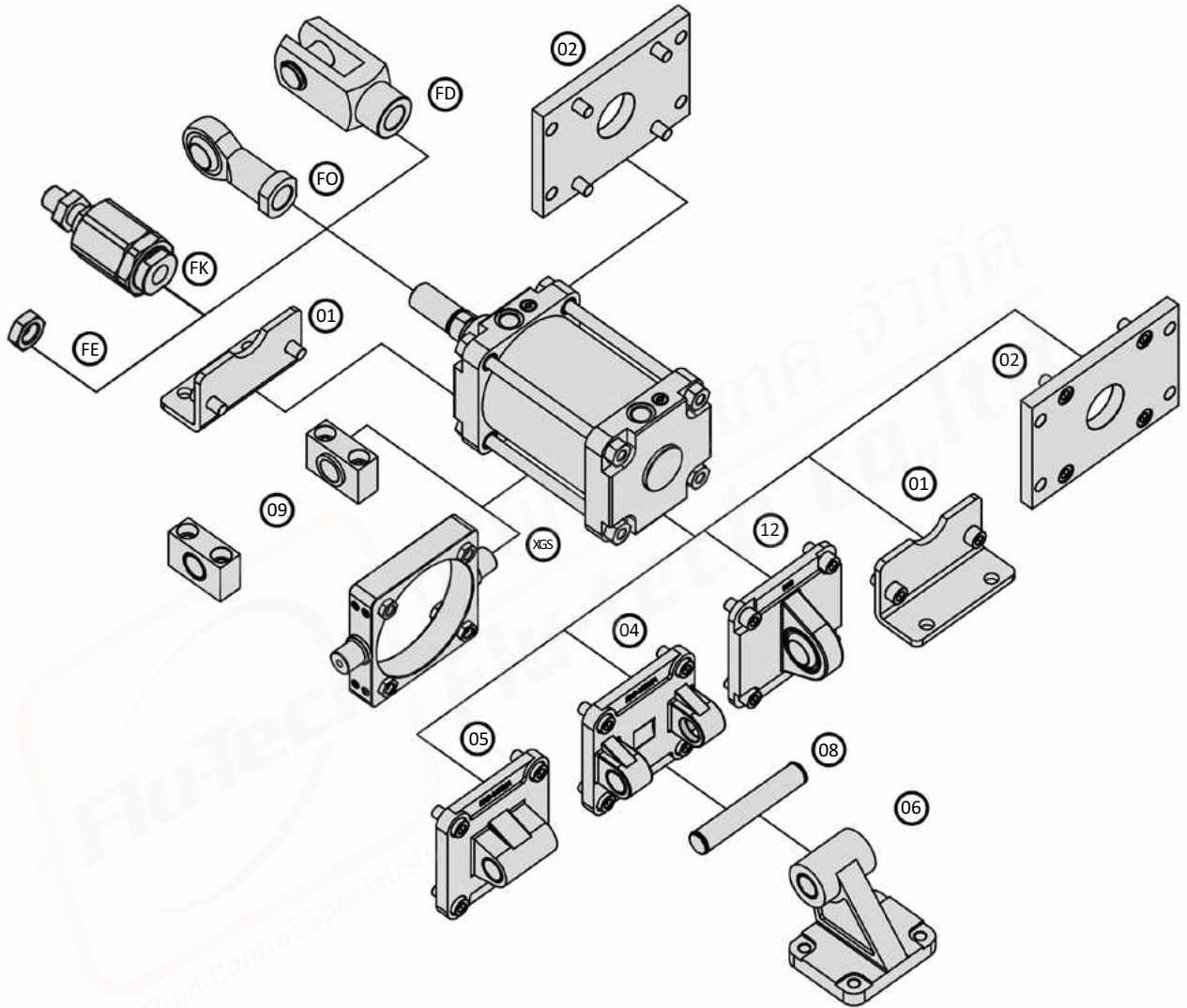
Dimensions series 88-XSQ



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

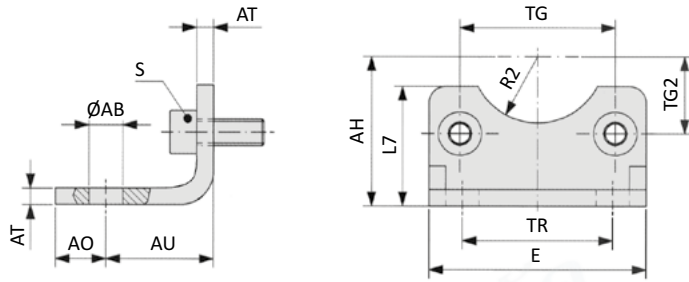
Piston Ø	PL	RT	SW	SW1	TG	U	V	VA	VD	WH
125	23	M12	27	41	110	14	14	4	45	65
160	25	M16	36	55	140	15	20	6	58	80
200	25	M16	36	55	175	15	20	5	67	95
250	30	M20	45	65	220	20	25	8	75	105
320	31	M24	55	75	270	35	35	10	90	120

Mounting accessories VLB-xxx-yy



## Series XG Mounting accessories

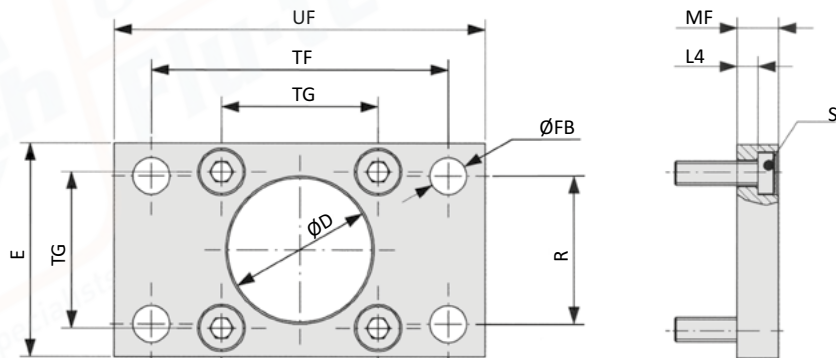
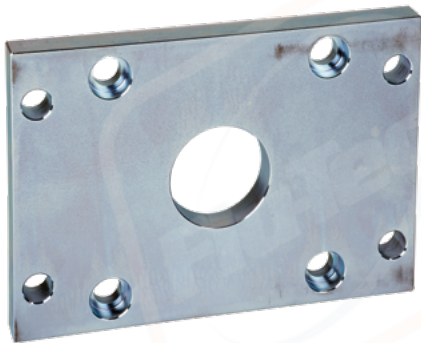
### VLB-xxx-01 Foot mount



Model-no.:	Ø AB	AH	AO	AU	AT	E	L7	R2	S	TG	TG2	TR
<b>VLB-160-01</b>	18	115	15	60	9	180	100	32.5	M16 x 30	140	70	115
<b>VLB-200-01</b>	22	135	30	70	12	220	100	37.5	M16 x 30	175	87.7	135
<b>VLB-250-01</b>	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



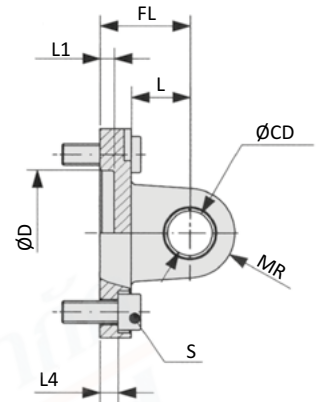
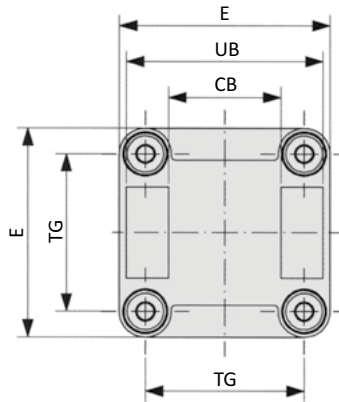
Model-no.:	Ø D	E	Ø FB	L4	MF	R	S	TF	TG	UF
<b>VLB-160-02</b>	65	180	18	9.5	20	115	M16 x 30	230	140	260
<b>VLB-200-02</b>	75	220	22	12.5	25	135	M16 x 30	270	175	300
<b>VLB-250-02</b>	90	285	26	10.5	25	165	M20 x 30	330	220	400
<b>VLB-320-02</b>	110	350	33	15	30	200	M24 x 40	400	270	470
<i>tolerances and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



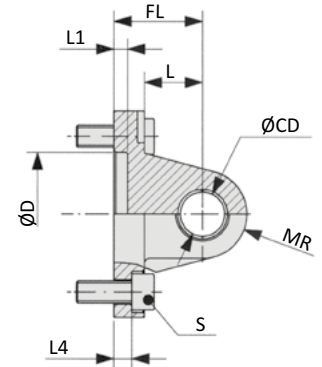
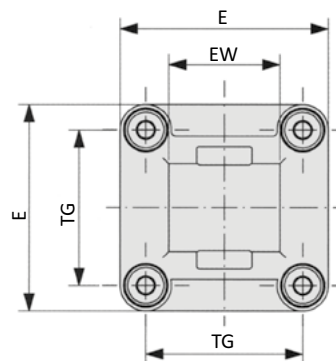
Inclusive clevis pin  
order no: **VLB-xxx-48**



Model-no.:	CB	Ø CD	Ø D	E	FL	L	L1	L4	MR	S	TG	UB
<b>VLB-160-04</b>	90	30	65	180	55	35	7	10	25	M16 x 30	140	170
<b>VLB-200-04</b>	90	30	75	220	60	35	7	11	25	M16 x 30	175	170
<b>VLB-250-04</b>	110	40	90	270	70	45	-	11	40	M20 x 30	220	200
<b>VLB-320-04</b>	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**



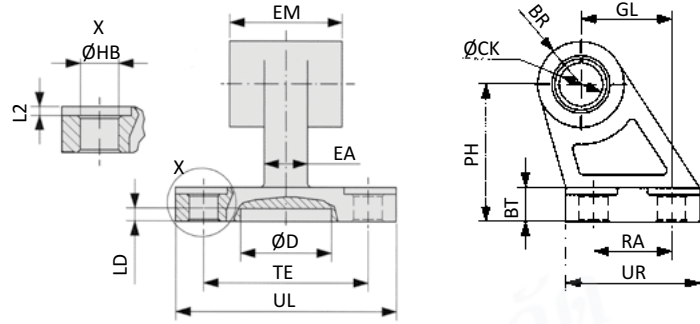
Model-no.:	Ø CD	Ø D	E	EW	FL	L	L1	L4	MR	S	TG
<b>VLB-160-05</b>	30	65	180	90	55	35	7	10	25	M16 x 30	140
<b>VLB-200-05</b>	30	75	220	90	60	35	7	11	25	M16 x 30	175
<b>VLB-250-05</b>	40	90	270	110	70	45	11	11	40	M20 x 30	220
<b>VLB-320-05</b>	45	110	350	120	80	50	15	15	45	M24 x 40	270
<i>tolerances and adjustments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



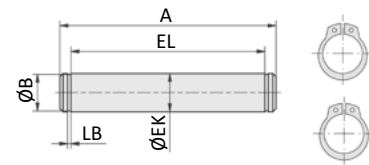
## Series XG Mounting accessories

### VLB-xxx-06 Swivel mount 90°



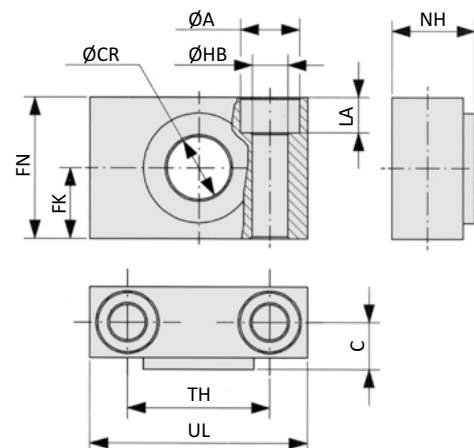
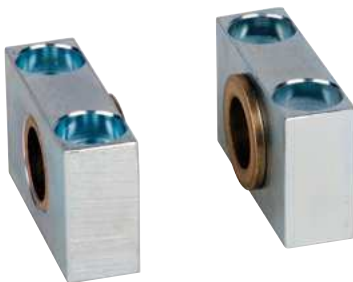
Model-no.:	BR	BT	Ø CK	Ø D	EA	EM	GL	Ø HB	L2	LD	PH	RA	TE	UL	UR
<b>VLB-160-06</b>	31.5	25	30	31	36	90	97	14	4	5	115	88	118	156	126
<b>VLB-200-06</b>	31.5	30	30	31	40	90	105	18	4	5	135	90	122	162	130
<i>tolerances and adjustments</i>			H9			-0.5 -1.5	JS14	H13			JS15	JS14	JS14		
	material: Al														

### VLB-xxx-08 Clevis pin



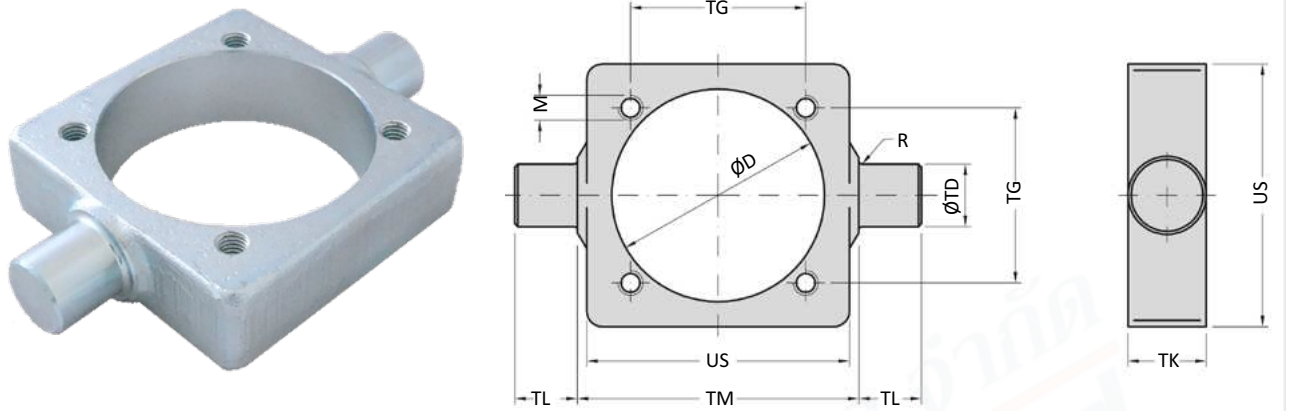
Model-no.:	A	Ø B	Ø EK	EL	LB
<b>VLB-200-08</b>	178	28.6	30	171.5	1.60
<b>VLB-250-08</b>	211	37.5	40	202	1.85
<b>VLB-320-08</b>	234	42.5	45	222	1.85
<i>tolerances and adjustments</i>			e8	+3 0	
	material: steel, zinc plated; 2 snap rings are included				

### VLB-xxx-09 Bearing block



Model-no.:	Ø A	C	Ø CR	FK	FN	Ø HB	LA	NH	TH	UL
<b>VLB-200-09</b>	26	22.5	32	30	60	18	17	40	60	92
<b>VLB-250-09</b>	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									

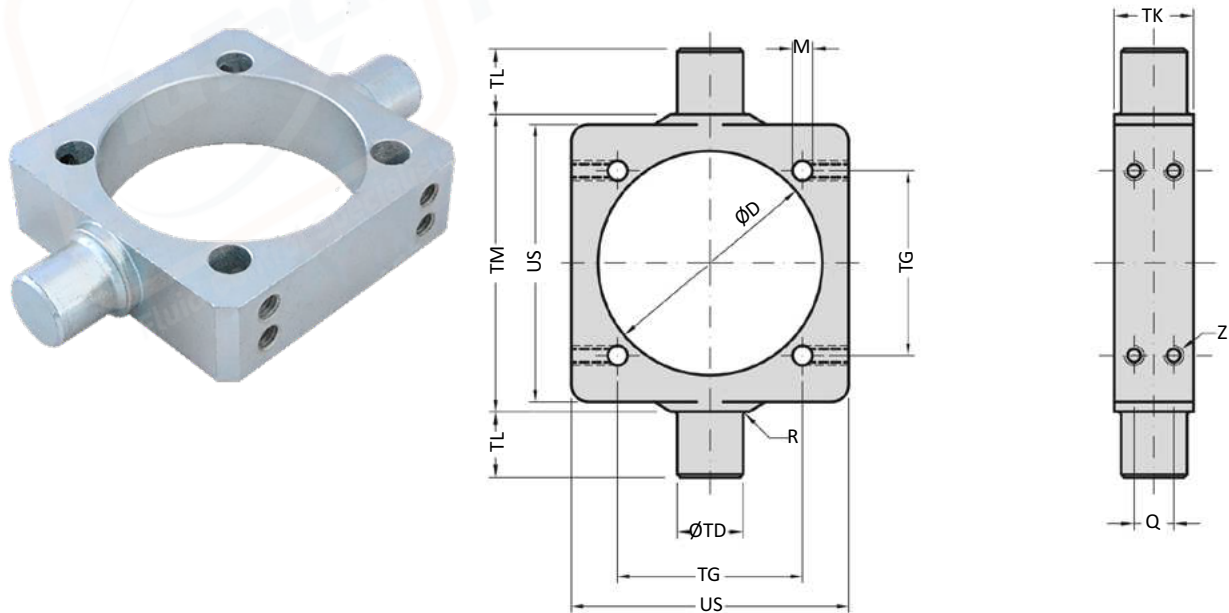
**VLB-xxx-10 Trunnion mount, mounting on tie rods with thread**



Model-no.:	Ø D	M	R	Ø TD	TG	TK	TL	TM	US
<b>VLB-160-10</b>	171	M16	2,5	32	140	46	32	200	198
<b>VLB-200-10</b>	214	M16	2,5	32	175	46	32	250	245
<b>VLB-250-10</b>	268	M20	2,5	40	220	56	40	320	304
<b>VLB-320-10*</b>	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**

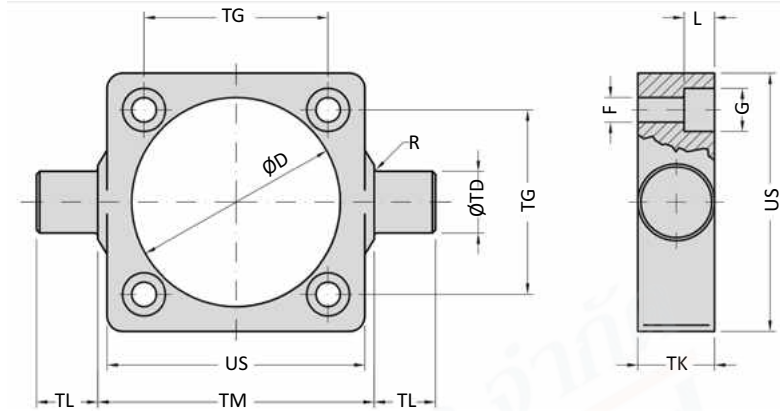


Model-no.:	Ø D	M	Q	R	ØTD	TG	TK	TL	TM	US	Z
<b>VLB-160-10-A</b>	171,6	16,25	18	2,5	32	140	40	32	200	190	M12
<b>VLB-200-10-A</b>	214	16,25	18	2,5	32	175	40	32	250	240	M12
<i>tolerances and adjustments</i>	+ 0,2 0	+ 0,2 0	± 0,2	max	e9	± 0,2	max	h14	h14	max	

material: steel, zinc plated

## Series XG Mounting accessories

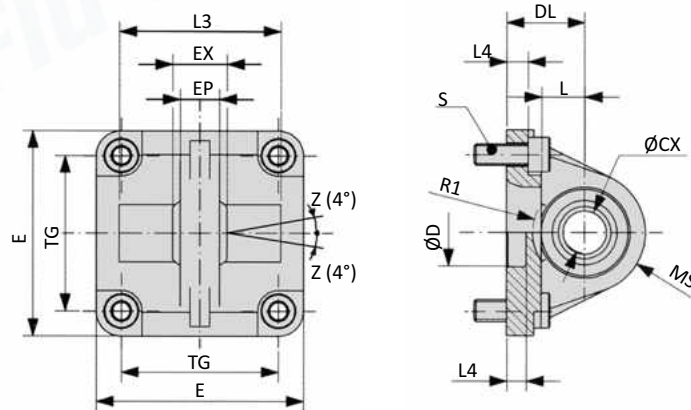
### VLB-xxx-11 Trunnion mount



Model-no.:	Ø D	F	G	L	R	Ø TD	TG	TK	TL	TM	US
<b>VLB-160-11</b>	170	17	25	16	2,5	32	140	40	32	200	190
<b>VLB-200-11</b>	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

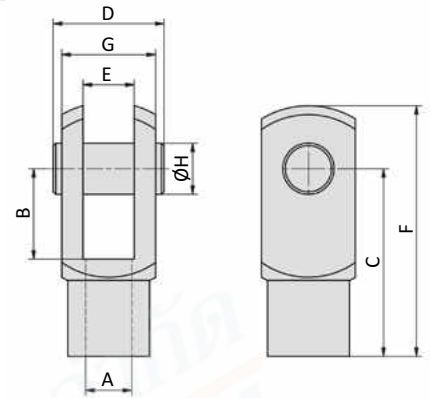


Model-no.:	Ø CX	Ø D	DL	E	EP	EX	L	L1	L3	L4	MS	R1	S	TG
<b>VLB-160-12</b>	35	65	55	180	28	43	35	7	-	10	45	-	M16 x 30	140
<b>VLB-200-12</b>	35	75	60	220	28	43	35	7	-	11	48	-	M16 x 30	175
<i>tolerances and adjustments</i>	H7	H11	± 0,2											± 0,3

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



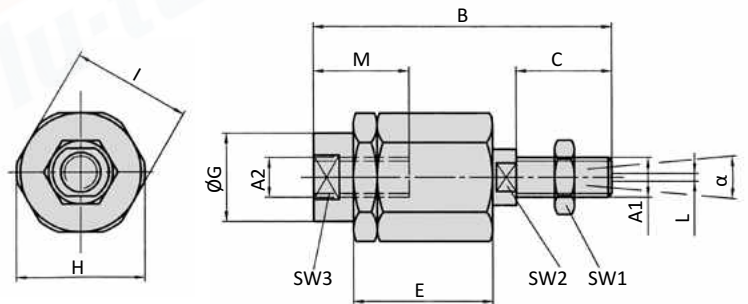
**FD-xxx Rod clevis**



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

material: steel, zinc plated

**FK-xxx Flexible coupling**



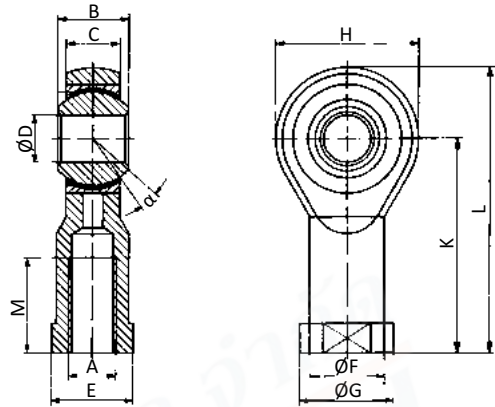
Model-no.:	for cylinder	A1, A2	B	C	D	E	ØG	H	I	L	M	SW1	SW2	SW3	α
<b>FK-200</b>	XG-160, XG-200	M36 x 2	190	72	15.5	77	57	75	70	2	68	32	54	55	8°

material: steel, zinc plated

## Series XG

Mounting accessories

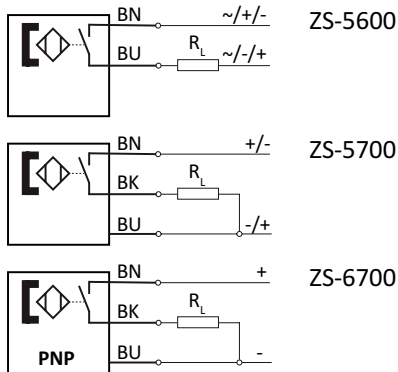
### FO-xxx Rod eye



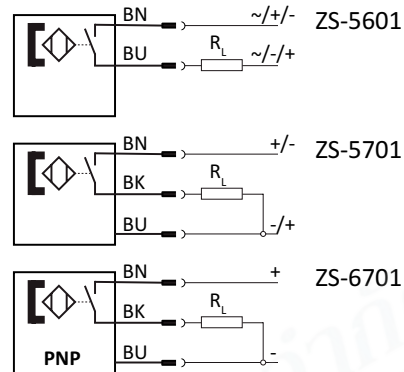
Model-no.:	for cylinder	A	B	C	ØD	E	ØF	ØG	H	K	L	M	α
<b>FO-160/200</b>	XG-160, XG-200	M36 x 2	43	28	35	50	46	58	80	125	165	56	16°
<b>FO-250</b>	XG-250	M42 x 2	49	33	40	55	53	65	91	142	187	60	16°
<b>FO-320</b>	XG-320	M48 x 2	60	45	50	60	65	75	117	162	218	65	14°

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
<b>Design</b>	2-pole Reed sensor	2-pole Reed sensor	3-pole Reed sensor	3-pole Reed sensor
<b>Contact function</b>	NO	NO	NO	NO
<b>Rated operational voltage</b>	5 ... 240 V AC / DC	5 ... 60 V AC / DC	5 ... 30 V DC	5 ... 30 V DC
<b>Rated operational current <math>I_E</math></b>	3 ... 100 mA	3 ... 100 mA	$\leq 500$ mA	$\leq 500$ mA
<b>Max. voltage drop at <math>I_E</math></b>	$\leq 2.5$	$\leq 2.5$	$\leq 0.1$	$\leq 0.1$
<b>Breaking capacity</b>	10 W	10 W	10 W	10 W
<b>Cable length</b>	3 m	0.3 m with M8 connection	5 m	0.3 m with M8 connection
<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 yellow	LED yellow

Model-no.:	ZS-6700	ZS-6701
<b>Mounting</b>	T-Nut	T-Nut
<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>	5 ... 30 V DC	5 ... 30 V DC
<b>Rated operational current <math>I_E</math></b>	$\leq 200$ mA	$\leq 200$ mA
<b>Max. voltage drop at <math>I_E</math></b>	$\leq 1.0$	$\leq 1.0$
<b>Breaking capacity</b>	6 W	6 W
<b>Cable length</b>	3 m	0.3 m with M8 connection
<b>Temperature range</b>	-10 ... +70°C	-10 ... +70°C
<b>Protection</b>	IP 67	IP 67
<b>Switching status indication</b>	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