

General

Profiled tube has two "T" slots on the three sides hosting sensors 1580._, MRS._, MHS._ without adaptors.

Construction characteristics

End plates	Series 1386 - 1388: high resistant thermoplastic material	Series 1396 - 1398: Die-casting aluminium
Rod	C43 chromed steel or stainless steel	
Barrel	anodised aluminium alloy	
Rod-guide bushing	self-lubricating sintered bronze	
Piston	acetal resin, aluminium on request	
Seal	standard: NBR Oil resistant rubber, PUR Piston rod seals (PUR seals available upon request)	
Cushion adjusting screws	brass	

Technical characteristics

Fluid	filtered and preferably lubricated air or not (If lubricated the lubrication must be continuous)
Max. pressure	10 bar
Operating temperature	-5°C - +70°C with standard seals -30°C - +80°C with PUR seals
Bore	Ø 32 - 40 - 50 - 63 - 80 - 100
Cushioning lenght	mm 27 - 31 - 31 - 37 - 40 - 44
Cushioning lenght "K" and "PK" version	mm 20 - 20 - 22 - 22 - 32 - 32

Please follow the suggestions below to ensure a long life for these cylinders:

- use clean and lubricated air
- correct alignment during assembly with regard to the applied load so as to avoid radial components or bending the rod;
- avoid high speeds together with long strokes and heavy loads: this would produce kinetic energy which the cylinder cannot absorb, especially if used as a limit stop (in this case use mechanical stop device and aluminium piston);
- evaluate the environmental characteristics of cylinder used (high temperature, hard atmosphere, dust, humidity etc.)

Please note: air must be dried for applications with lower temperature.

Use hydraulic oils H class (ISO VG32) for correct continued lubrication.
Our Technical Department will be glad to help.

Standard strokes (for all diameters)

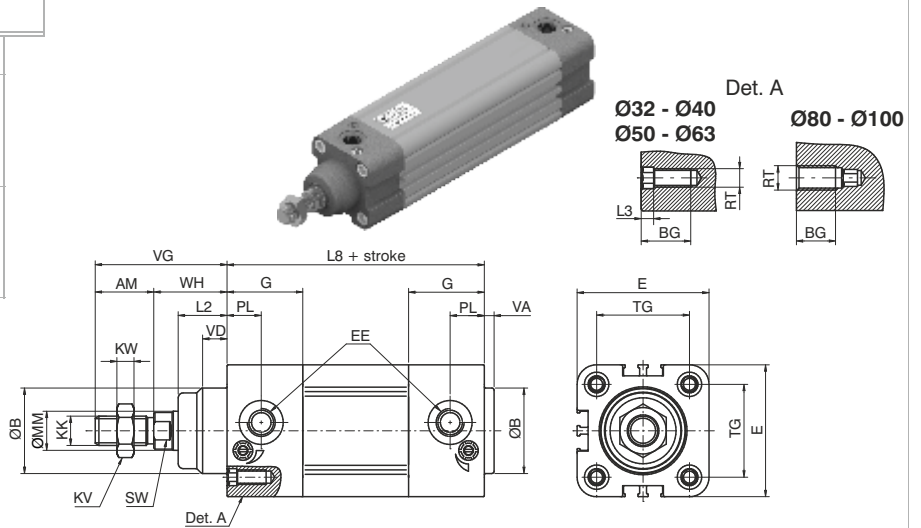
from 0 to 150, every 25 mm
from 150 to 500, every 50 mm
from 500 to 1000, every 100

Stroke tolerance (ISO 15552)

Bore	Stroke	Tolerance
32 - 40 - 50	up to 500	+2 0
	over 500 up to 1000	+3.2 0
63 - 80 - 100	up to 500	+2.5 0
	over 500 up to 1000	+4 0

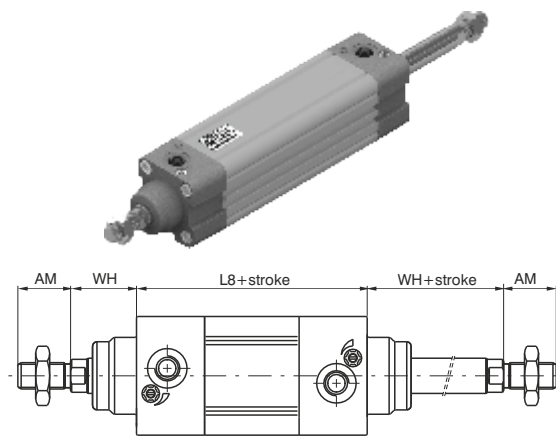
Basic version "01"

Ordering code
TECHNOPOLYMER COVERS
1386.Ø.stroke.01 Magnetic chromed rod
1387.Ø.stroke.01 Magnetic stainless steel rod
1388.Ø.stroke.01 Non magnetic chromed rod
ALUMINIUM COVERS
1396.Ø.stroke.01 Magnetic chromed rod
1397.Ø.stroke.01 Magnetic stainless steel rod
1398.Ø.stroke.01 Non magnetic chromed rod



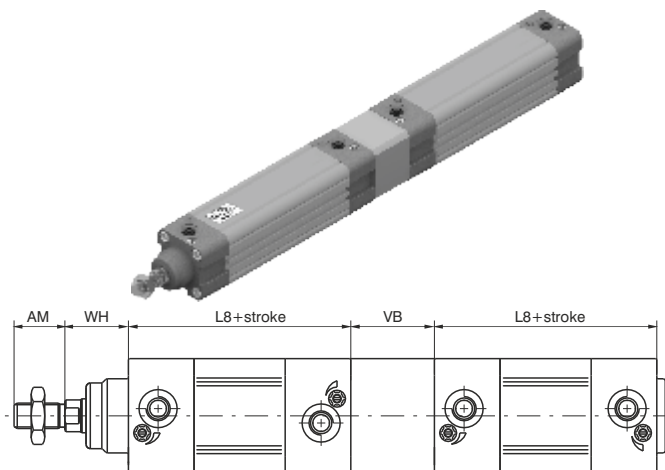
Push/pull version "02"

Ordering code
TECHNOPOLYMER COVERS
1386.Ø.stroke.02 Magnetic chromed rod
1387.Ø.stroke.02 Magnetic stainless steel rod
1388.Ø.stroke.02 Non magnetic chromed rod
ALUMINIUM COVERS
1396.Ø.stroke.02 Magnetic chromed rod
1397.Ø.stroke.02 Magnetic stainless steel rod
1398.Ø.stroke.02 Non magnetic chromed rod



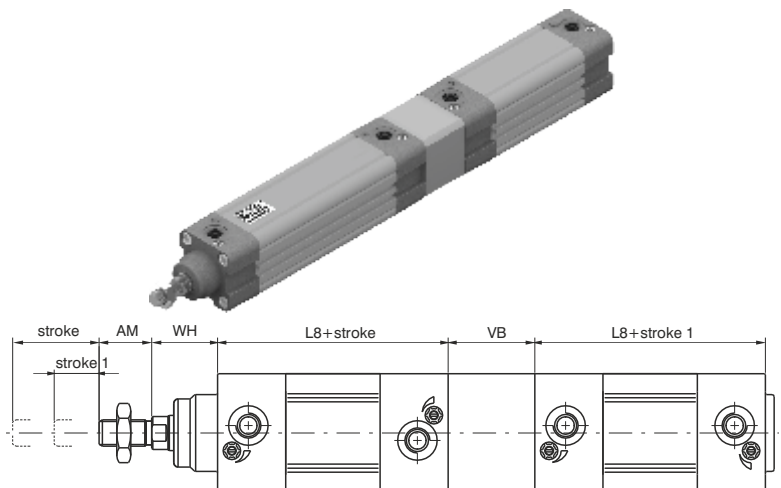
Tandem push with common rods "G"

Ordering code
TECHNOPOLYMER COVERS
1386.Ø.stroke.G Magnetic chromed rod
1387.Ø.stroke.G Magnetic stainless steel rod
1388.Ø.stroke.G Non magnetic chromed rod
ALUMINIUM COVERS
1396.Ø.stroke.G Magnetic chromed rod
1397.Ø.stroke.G Magnetic stainless steel rod
1398.Ø.stroke.G Non magnetic chromed rod



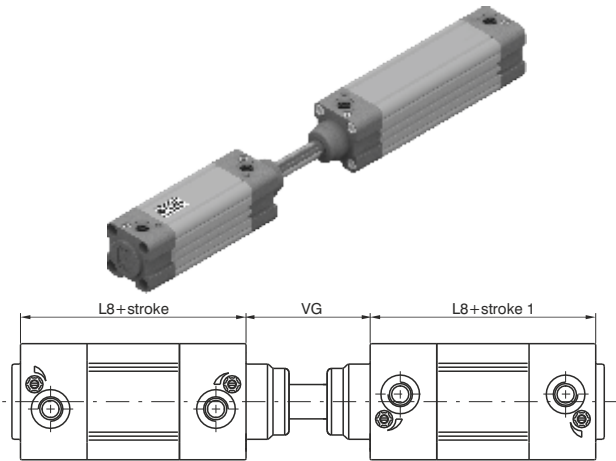
Tandem push with independent rods "F"

Ordering code
TECHNOPOLYMER COVERS
1386.Ø.stroke.stroke1.F Magnetic chromed rod
1387.Ø.stroke.stroke1.F Magnetic stainless steel rod
1388.Ø.stroke.stroke1.F Non magnetic chromed rod
ALUMINIUM COVERS
1396.Ø.stroke.stroke1.F Magnetic chromed rod
1397.Ø.stroke.stroke1.F Magnetic stainless steel rod
1398.Ø.stroke.stroke1.F Non magnetic chromed rod



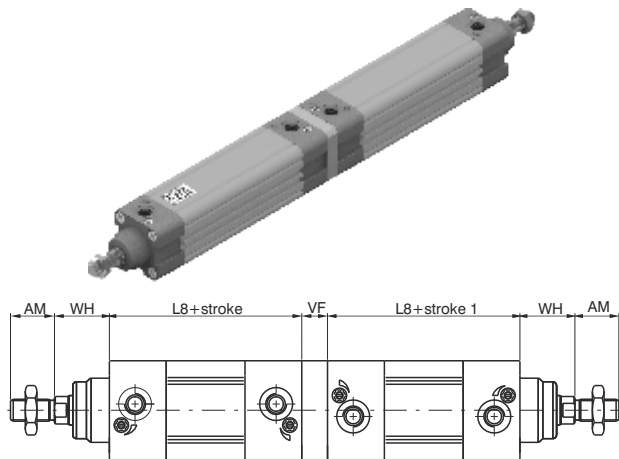
Opposed tandem with common rod "D"

Ordering code
TECHNOPOLYMER COVERS
1386.Ø.stroke.stroke1.D Magnetic chromed rod
1387.Ø.stroke.stroke1.D Magnetic stainless steel rod
1388.Ø.stroke.stroke1.D Non magnetic chromed rod
ALUMINIUM COVERS
1396.Ø.stroke.stroke1.D Magnetic chromed rod
1397.Ø.stroke.stroke1.D Magnetic stainless steel rod
1398.Ø.stroke.stroke1.D Non magnetic chromed rod



Tandem with opposed rods "E"

Ordering code
TECHNOPOLYMER COVERS
1386.Ø.stroke.stroke1.E Magnetic chromed rod
1387.Ø.stroke.stroke1.E Magnetic stainless steel rod
1388.Ø.stroke.stroke1.E Non magnetic chromed rod
ALUMINIUM COVERS
1396.Ø.stroke.stroke1.E Magnetic chromed rod
1397.Ø.stroke.stroke1.E Magnetic stainless steel rod
1398.Ø.stroke.stroke1.E Non magnetic chromed rod



Variants

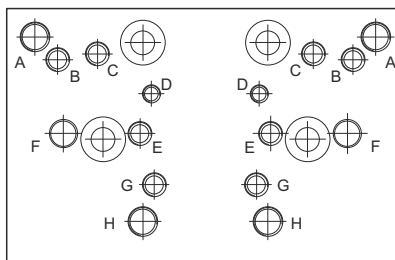
Ordering code
13_ _Ø.stroke._ _P = Version with PUR seals
13_ _Ø.stroke._ _K = Version with aluminium piston
13_ _Ø.stroke._ _PK = Version with PUR seals and aluminium piston

Table of dimensions

Bore		32	40	50	63	80	100	
AM		22	24	32	32	40	40	
B (d 11)		30	35	40	45	45	55	
BG		16	16	18	18	16	16	
E		46	54	65	77,5	95,5	115,5	
EE		G 1/8"	G 1/4"	G 1/4"	G 3/8"	G 3/8"	G 1/2"	
G		29	31	33	36	40	44	
KK		M10X1,25	M12X1,25	M16x1,5	M16x1,5	M20x1,5	M20x1,5	
KV		17	19	24	24	30	30	
KW		6	7	8	8	9	9	
L2		16	20	25	25	32	35	
L3		4	4	5	5	/	/	
L8		94	105	106	121	128	138	
MM		12	16	20	20	25	25	
PL		13	14	14	16	16	18	
RT		M6	M6	M8	M8	M10	M10	
SW		10	13	17	17	22	22	
TG		32,5	38	46,5	56,5	72	89	
VA		4	4	4	4	4	4	
VB		33	41	51	51	65	71	
VD		8	10	12	12	15	16	
VF		12	12	16	16	20	20	
VG		48	54	69	69	86	91	
WH		26	30	37	37	46	51	
Weight	Aluminium covers	stroke 0	550	690	1200	1590	2500	3670
gr.		every 10 mm	29	40	57	66	96	112
Weight	Technopolymer covers	stroke 0	470	590	1020	1320	2090	3010
gr.		every 10 mm	29	40	57	66	96	112

Distributor supports

This accessory permits to mount a valve or an electrovalve on a side of the cylinder. The plate can be fitted on the cylinder profiled barrel, and, on it, can be mounted either a threaded distributor or a base on which can be mounted an ISO distributor. Once installed the connections must be done with fittings and pipes. All of the threaded holes on the support plate are dedicated to different valves series as per attached drawing.

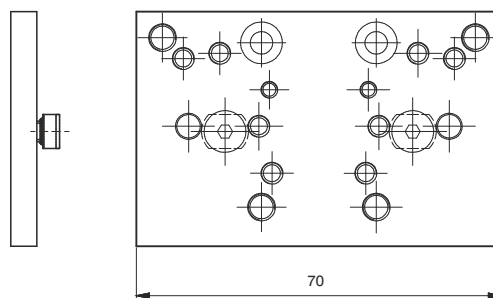
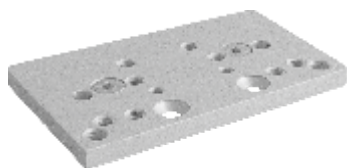


Fixing holes for valves series:

- A = 414/2
- B = 824
- C = 828, T488, 488, 484
- D = 2400
- E = 2600
- G = 858/2
- H = T424

Ordering code

1386.15

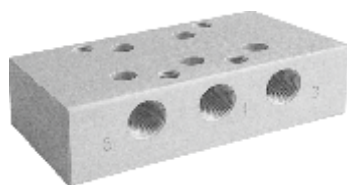
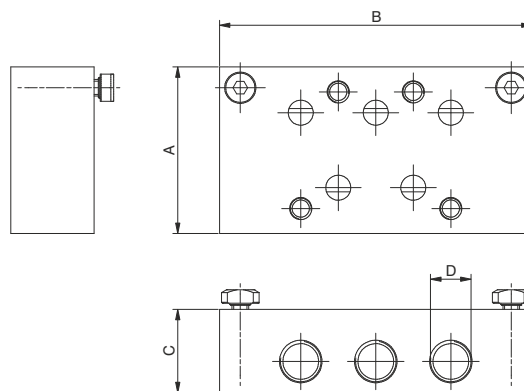


Attention: do not use ISO distributor for base mounting

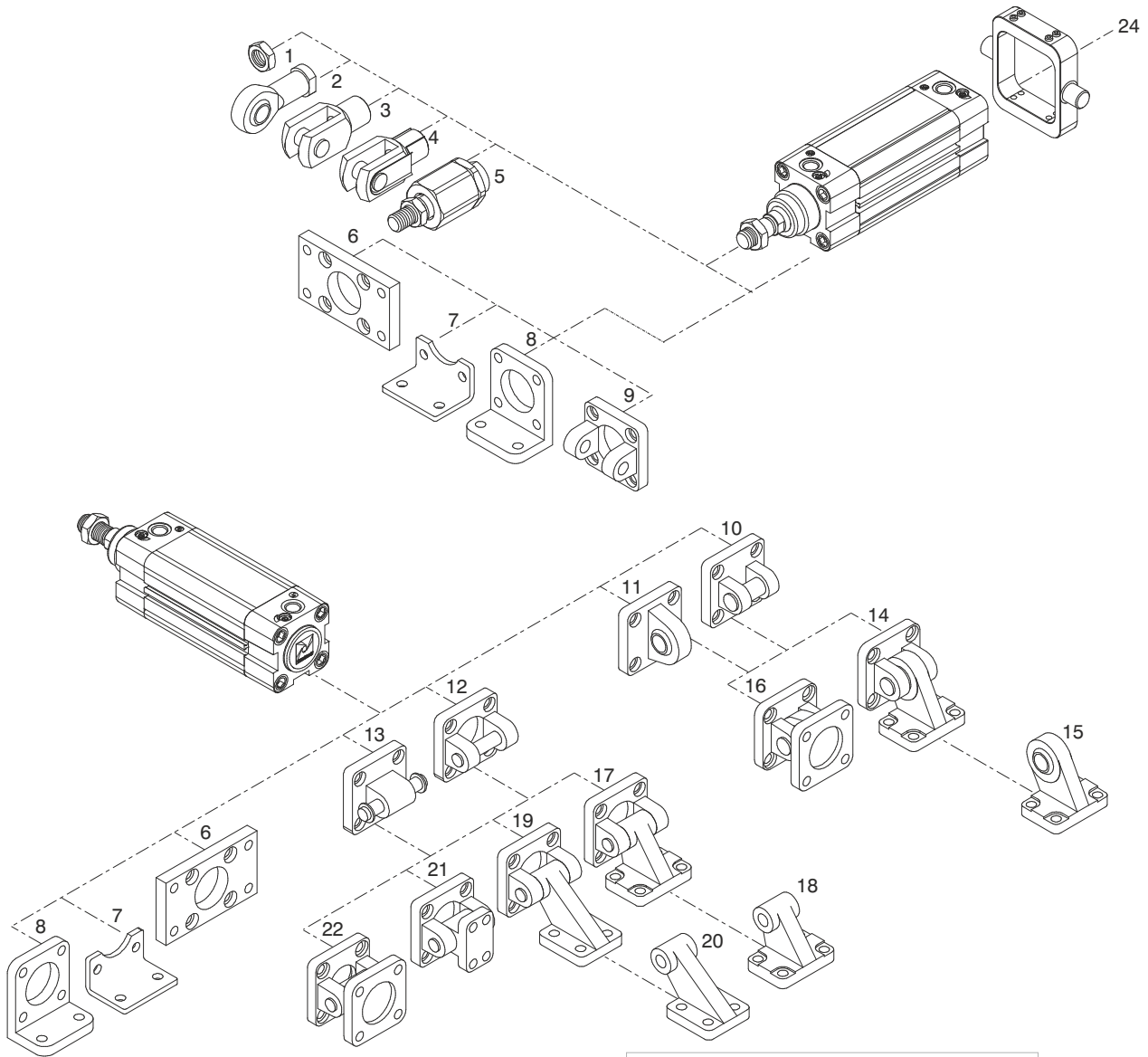
Bases for ISO distributors

Ordering code

1320.23	bases for ISO 1 electro distributor
1320.24	bases for ISO 2 electro distributor



	Dimensions			
	A	B	C	D
bases for ISO 1 electro distributor	40	75	15	G 1/8"
bases for ISO 2 electro distributor	50	95	20	G 1/4"



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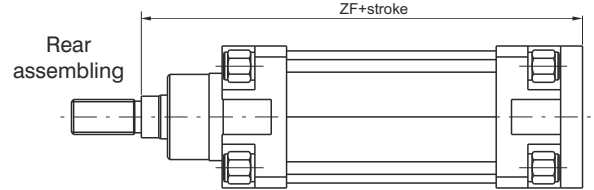
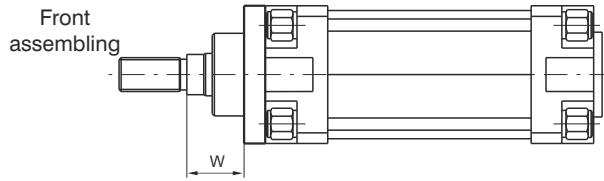
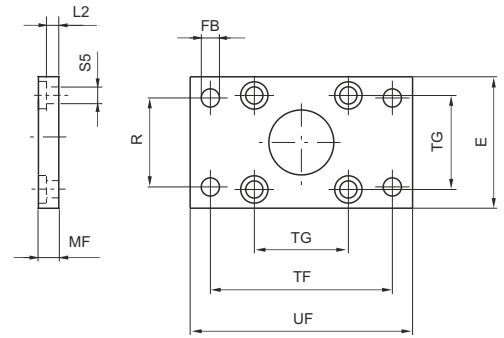
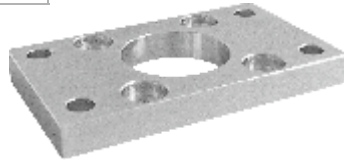
Pos.	Description	Ordering code	
		Aluminium	Steel
1	Rod nut	/	1320.Ø.18F
2	Ball joint	/	1320.Ø.32F
3	Forks	/	1320.Ø.13F
4	Fork with clips	/	1320.Ø.13/1F
5	Self-aligning joint	/	1320.Ø.33F
6	Flange (MF1-MF2)	1390.Ø.03F 1390.Ø.03FP	1380.Ø.03F
7	Short mounting foot brackets (in sheet metal MS1)	/	1320.Ø.05/1F
8	Standard mounting foot brackets	1320.Ø.05F	/
9	Front clevis	1380.Ø.08F	1320.Ø.19F
10	Rear narrow clevis (AB6)	1380.Ø.30F	1320.Ø.29F
11	Rear male clevis (with jointed head according to DIN 648K standard)	1380.Ø.15F	1320.Ø.25F
12	Rear female clevis (MP2)	1380.Ø.09F	1320.Ø.20F
13	Rear male clevis (MP4)	1380.Ø.09/1F	1320.Ø.21F
14	Complete square angle trunnion (pos.10 + pos.15)	/	1320.Ø.27F
15	Simple square counter clevis (pos.14)	/	1320.Ø.28F
16	Square angle trunnion with jointed head (pos.10 + pos.11)	1380.Ø.36F	1320.Ø.26F
17	Square angle trunnion (AB7) (pos.18 + pos.12)	1380.Ø.35F	1320.Ø.23F
18	Simple square counter clevis (pos.17)	1320.Ø.11/2F	1320.Ø.24F
19	Simple rear trunnion with support brackets (pos.20 + pos.12)	1380.Ø.11F	/
20	Simple square counter clevis (pos.19)	1320.Ø.11/1F	/
21	Standard trunnion	1380.Ø.10F	/
22	Standard complete trunnion (pos.12 + pos.13)	1380.Ø.22F	1320.Ø.22F
24	1386 - 1388 / 1396 - 1398 EcoPlus series Intermediate trunnion	/	1386.Ø.12F

Front and rear flanges (MF1 - MF2)

Ordering code

Steel : **1380.Ø.03F** (Ø32 - Ø200)
Aluminium : **1390.Ø.03F** (Ø32 - Ø100)
Die-casting aluminium: **1390.Ø.03FP** (Ø32 - Ø100)

Plate which allows anchorage of the cylinder at a right angle to the plane. It is made of zinc-plated extruded steel.

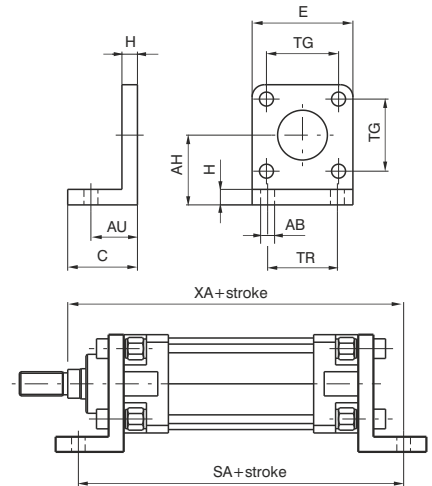


Bore	E	FB (H 13)	MF (JS 14)	R (JS 14)	TF (JS 14)	TG	UF	ZF	W	L2	S5	Weight(gr.) steel	Weight(gr.) aluminium	Weight(gr.) Die-casting aluminium
32	45	7	10	32	64	32,5	80	130	16	5	6,6	190	65	60
40	52	9	10	36	72	38	90	145	20	5	6,6	250	90	69
50	65	9	12	45	90	46,5	110	155	25	6,5	9	480	170	130
63	75	9	12	50	100	56,5	120	170	25	6,5	9	620	220	170
80	95	12	16	63	126	72	150	190	30	8	11	1430	500	345
100	115	14	16	75	150	89	170	205	35	8	11	1990	690	485
125	140	16	20	90	180	110	205	245	45	10,5	14	3750	/	/
160	180	18	20	115	230	140	260	280	60	9,5	18	6350	/	/
200	220	22	25	135	270	175	300	300	70	12,5	18	11350	/	/

Standard mounting foot brackets

Ordering code

Aluminium: **1320.Ø.05F**
(1 piece)

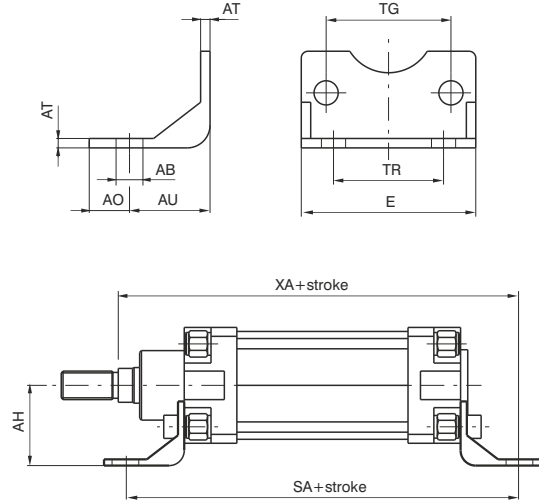


Elements used to anchor the cylinder parallel to the mounting plane. They are made of cast aluminium, painted black.

Bore	32	40	50	63	80	100	125	160	200
AB (H 14)	7	9	9	9	12	14	16	18	22
AH (JS 15)	32	36	45	50	63	71	91	115	135
AU (±0,2)	24	28	32	32	41	41	45	60	70
C	35	35	45	45	55	56	68	82	90
E	45	52	65	75	95	115	140	180	220
H	8	8	10	10	12	12	16	20	20
SA	142	161	170	185	210	220	250	300	320
TG	32,5	38	46,5	56,5	72	89	110	140	175
TR (JS 14)	32	36	45	50	63	75	90	115	135
XA	144	163	175	190	215	230	270	320	345
Weight gr.	45	65	140	175	380	470	920	2300	3200

Short mounting foot brackets (in sheet metal MS1)

Ordering code
Steel: 1320.0.05/1F (1 piece)

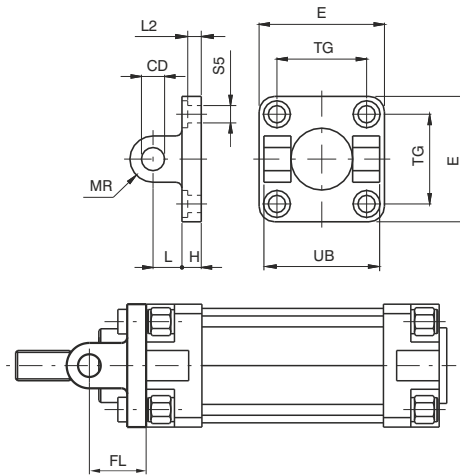
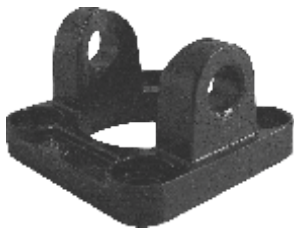


Elements used to anchor the cylinder parallel to the mounting plane. They are made of steel, and painted black.

Bore	32	40	50	63	80	100	125	160	200
AB (H 14)	7	9	9	9	12	14	16	18	22
AH (JS 15)	32	36	45	50	63	71	90	115	135
AU (± 0.2)	24	28	32	32	41	41	45	60	70
AO (± 0.2)	11	8	15	13	14	16	25	15	30
E	45	52	65	75	95	115	140	180	220
AT	4	4	5	5	6	6	8	9	12
SA	142	161	170	185	210	220	250	300	320
TG	32,5	38	46,5	56,5	72	89	110	140	175
TR (JS 14)	32	36	45	50	63	75	90	115	135
XA	144	163	175	190	215	230	270	320	345
Weight gr.	65	80	170	190	380	452	1090	1190	3450

Front clevis (not specified by ISO-VDMA standards)

Ordering code
Aluminium: 1380.0.08F
Steel: 1320.0.19F



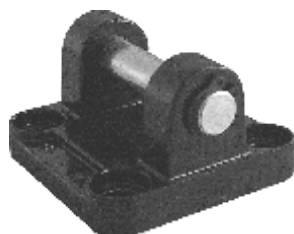
Used to mount the cylinder either parallel or at a right angle to the mounting plane; allows the cylinder to self-align under load. Made of aluminium alloy or steel (see ordering code) and painted black.

Bore	32	40	50	63	80	100	125	160	200
CD (H9)	10	12	12	16	16	20	25	30	30
E	Aluminium	45	52	65	75	95	115	140	220
	Steel	45	55	65	75	95	115	140	220
FL (±0,2)	22	25	27	32	36	41	50	55	60
H	Aluminium	9	9	11	11	14	14	20	25
	Steel	10	10	10	12	14	16	20	20
L	Aluminium	13	16	16	21	22	27	30	35
	Steel	12	15	17	20	22	25	30	40
MR	10	12	12	16	16	20	25	25	25
TG	32,5	38	46,5	56,5	72	89	110	140	175
UB (h14)	45	52	60	70	90	110	130	170	170
L2(±0,5)	5,5	5,5	6,5	6,5	10	10	10	10	11
S5 (H13)	6,6	6,6	9	9	11	11	14	18	18
Weight gr.	Aluminium	50	75	125	190	380	620	1180	2900
	Steel	150	235	340	550	1010	1710	3360	8960

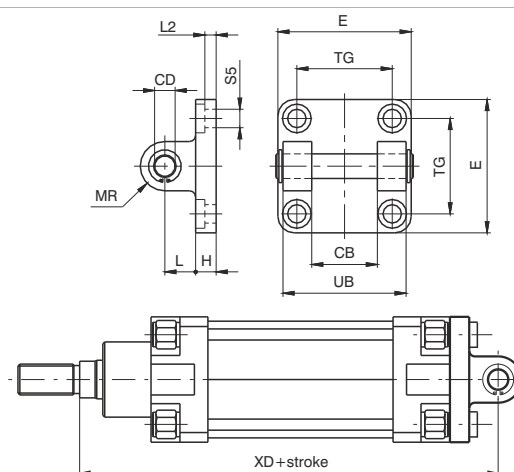
Rear clevis (MP2)

Ordering code

Aluminium: **1380.Ø.09F**
Steel: **1320.Ø.20F**



Similar to type 08 but includes a hinge pin. This type of mounting allows anchorage of the cylinder either parallel or right angle to plane; the cylinder rod can oscillate and self-align as necessary when under load. Made of aluminium alloy or steel (see ordering code) and painted black.

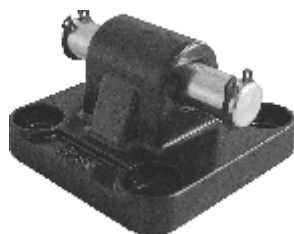


Bore		32	40	50	63	80	100	125	160	200
CB (H 14)		26	28	32	40	50	60	70	90	90
CD		10	12	12	16	16	20	25	30	30
E	Aluminium	45	52	65	75	95	115	140	180	220
	Steel	45	55	65	75	95	115	140	180	220
H	Aluminium	9	9	11	11	14	14	20	20	25
	Steel	10	10	10	12	14	16	20	20	20
L	Aluminium	13	16	16	21	22	27	30	35	35
	Steel	12	15	17	20	22	25	30	35	40
MR		10	12	12	16	16	20	25	25	25
TG		32,5	38	46,5	56,5	72	89	110	140	175
UB (h14)		45	52	60	70	90	110	130	170	170
XD		142	160	170	190	210	230	275	315	335
L2(±0,5)		5,5	5,5	6,5	6,5	10	10	10	10	11
S5		6,6	6,6	9	9	11	11	14	18	18
Weight	Aluminium	80	130	185	310	530	910	1710	2760	3820
	Steel	180	290	400	670	1160	2000	3890	6730	9880

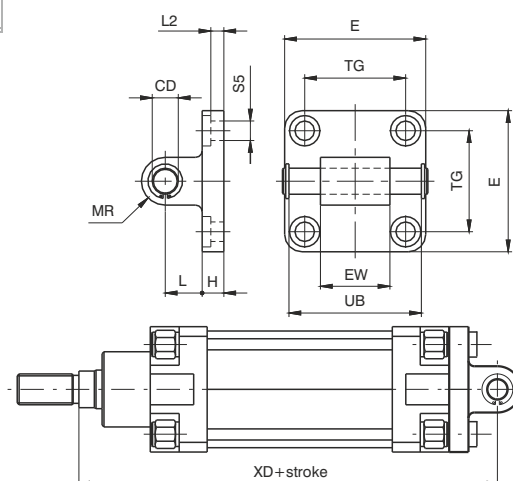
Rear male clevis (MP4)

Ordering code

Aluminium: **1380.Ø.09/1F**
Steel: **1320.Ø.21F**



Similar to 09 clevis except for the connection, which is male rather than female. Used to mount the cylinder either parallel or at a right angle to the plane; the cylinder rod can oscillate and self-align as necessary when under load. Made of aluminium alloy or steel (see ordering code) and painted black.

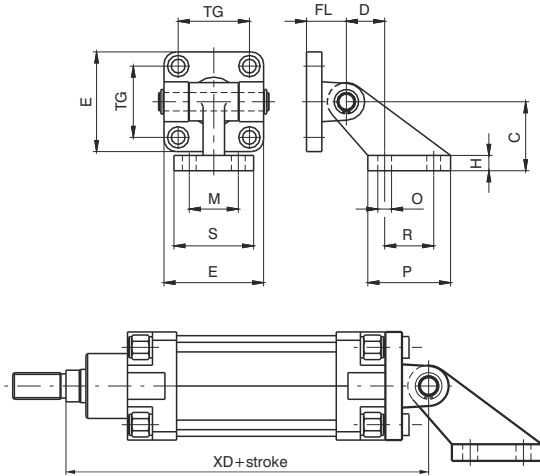


Bore		32	40	50	63	80	100	125	160	200
CD		10	12	12	16	16	20	25	30	30
E	Aluminium	45	52	65	75	95	115	140	180	220
	Steel	45	55	65	75	95	115	140	180	220
EW		26 ^(-0,2/-0,6)	28 ^(-0,2/-0,6)	32 ^(-0,2/-0,6)	40 ^(-0,2/-0,6)	50 ^(-0,2/-0,6)	60 ^(-0,2/-0,6)	70 ^(-0,5/-1,2)	90 ^(-0,5/-1,2)	90 ^(-0,5/-1,2)
H	Aluminium	9	9	11	11	14	14	20	20	25
	Steel	10	10	10	12	14	16	20	20	20
L	Aluminium	13	16	16	21	22	27	30	35	35
	Steel	12	15	17	20	22	25	30	35	40
MR		10	12	12	16	16	20	25	25	25
TG		32,5	38	46,5	56,5	72	89	110	140	175
UB (3,5)		46	53	61	71	91	111	132	171,5	171,5
XD		142	160	170	190	210	230	275	315	335
L2 (±0,5)		5,5	5,5	6,5	6,5	10	10	10	10	11
S5		6,6	6,6	9	9	11	11	14	18	18
Weight	Aluminium	90	130	190	340	580	960	1890	2830	3940
	Steel	210	330	430	810	1350	2400	4300	6880	8560

Simple rear trunnion with support brackets (not specified by ISO-VDMA standards)

Ordering code

Aluminium: **1380.Ø.11F**
Counter clevis can be ordered separately with code 1320.Ø.11/1F



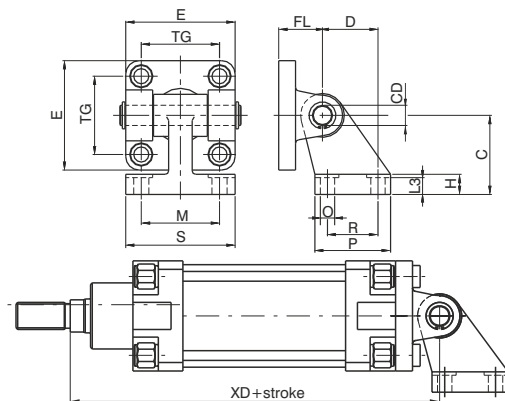
Used to mount cylinders parallel to the plane to which the counter clevis is attached. Allows self-alignment of the cylinder rod under load with an oscillation up to 90 degrees from the mounting plane.

Bore	32	40	50	63	80	100	125	160	200
C (±0,2)	32	45	45	63	63	90	90	140	140
D (±0,5)	18	25	25	32	32	40	40	50	50
E	45	52	65	75	95	115	140	180	220
H	8	10	10	12	12	17	17	20	20
FL	22	25	27	32	36	41	50	55	60
M (JS 14)	25	32	32	40	40	50	50	63	63
TG	32,5	38	46,5	56,5	72	89	110	140	175
O (H 13)	7	9	9	11	11	14	14	18	18
P	37	54	54	75	75	103	103	154	154
R (JS 14)	20	32	32	50	50	70	70	110	110
S	41	52	52	63	63	80	80	110	110
XD	142	160	170	190	210	230	275	315	335
Weight gr.	130	260	330	600	820	1560	2530	4735	5795

Square angle trunnion

Ordering code

Aluminium: **1380.Ø.35F**
Counter clevis can be ordered separately with code 1320.Ø.11/2F
Steel: **1320.Ø.23F** (Ø32-Ø100)
Counter clevis can be ordered separately with code 1320.Ø.24F

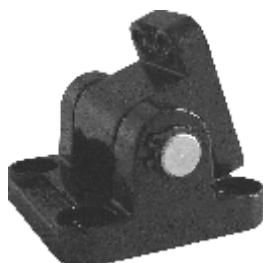


Bore		32	40	50	63	80	100	125	160	200
E	Aluminium	45	52	65	75	95	115	140	180	220
	Steel	45	55	65	75	95	115	140	180	220
TG		32,5	38	46,5	56,5	72	89	110	140	175
FL		22	25	27	32	36	41	50	55	60
D (JS14)		21	24	33	37	47	55	70	97	105
CD		10	12	12	16	16	20	25	30	30
C (JS15)		32	36	45	50	63	71	90	115	135
H	Aluminium	8	10	12	14	14	17	20	25	30
	Steel	8	10	12	12	14	15	/	/	/
L3	Aluminium	6,4	8,4	10,4	12,4	11,5	14,5	16,8	21	26
	Steel	6,5	8,5	10,5	10,5	11,5	12,5	/	/	/
R (JS14)		18	22	30	35	40	50	60	88	90
P		31	35	45	50	60	70	90	126	130
O (H13)		6,6	6,6	9	9	11	11	14	14	18
S		51	54	65	67	86	96	124	156	162
M (JS14)		38	41	50	52	66	76	94	118	122
XD		142	160	170	190	210	230	275	315	335
Weight gr.	Aluminium	120	180	225	435	730	1220	2325	3780	4950
	Steel	340	500	640	1250	2100	3500	/	/	/

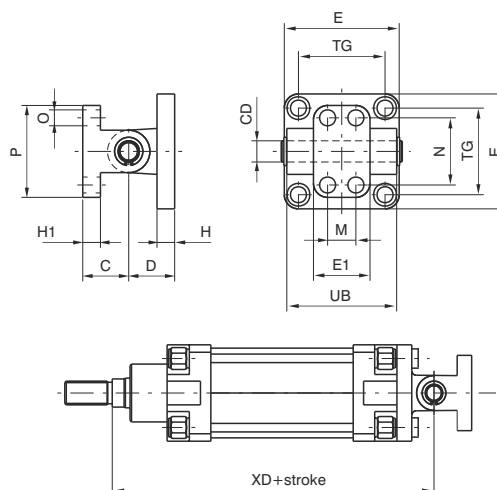
Standard trunnion (not specified by ISO-VDMA standards)

Ordering code

Aluminium: **1380.Ø.10F**



Mounting consists of clevis 09 and counter clevis. Used to mount cylinders at a right angle to the plane to which the counter clevis is attached. Allows self-alignment of the cylinder rod under load with an oscillation of ± 60 degrees.

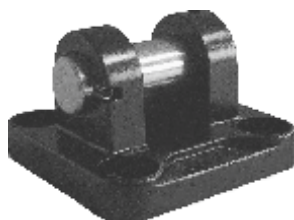


Bore	32	40	50	63	80	100	125	160	200
C (± 0.2)	18	26	26	34	34	41	41	55	55
CD	10	12	12	16	16	20	25	30	30
D	22	25	27	32	36	41	50	55	60
E	45	52	65	75	95	115	140	180	220
E1	25	32	32	46	46	56	56	71	71
H	10	10	12	12	16	16	20	20	25
H1	8	10	10	12	12	16	16	20	20
M (± 0.2)	-	16	16	25	25	32	32	43	43
N (± 0.2)	28	38	38	54	54	90	90	150	150
O	7	9	9	11	11	14	14	18	18
P	40	52	52	75	75	115	115	180	180
TG	32.5	38	46.5	56.5	72	89	110	140	175
UB	45	52	60	70	90	110	130	170	170
XD	142	160	170	190	210	230	275	315	335
Weight gr.	110	190	240	490	710	1290	2090	3690	4810

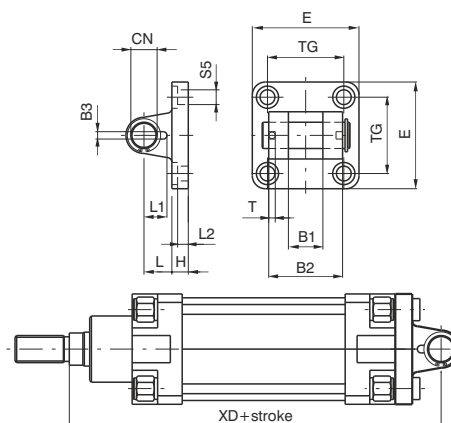
Rear narrow clevis

Ordering code

Aluminium: **1380.Ø.30F**
Steel: **1320.Ø.29F** ($\text{Ø}32\text{-}\text{Ø}125$)



Utilised with clevis 15F allows the cylinder to oscillate in all directions. Made of aluminium alloy or steel (see ordering code) and painted black.

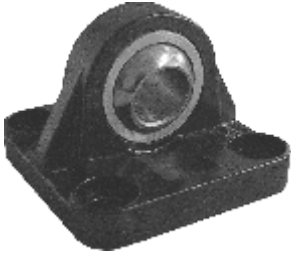


Bore	32	40	50	63	80	100	125	160	200	
B1 (H 14)	14	16	21	21	25	25	37	43	43	
B2 (d 12)	34	40	45	51	65	75	97	122	122	
B3 (± 0.2)	3,3	4,3	4,3	4,3	4,3	6,3	6,3	6,3	6,3	
CN	10	12	16	16	20	20	30	35	35	
E	Aluminium	45	52	65	75	95	115	140	180	220
	Steel	45	55	65	75	95	115	140	180	220
H	Aluminium	9	9	11	11	14	14	20	20	25
	Steel	10	10	10	12	14	16	20	/	/
L	Aluminium	13	16	16	21	22	27	30	35	35
	Steel	12	15	17	20	22	25	30	/	/
L1	11,5	12	14	14	16	16	24	26,5	26,5	
L2 ($\pm 0,5$)	5,5	5,5	6,5	6,5	10	10	10	10	11	
S5	6,6	6,6	9	9	11	11	14	18	18	
T	3	4	4	4	4	4	6	6	6	
TG	32,5	38	46,5	56,5	72	89	110	140	175	
XD	142	160	170	190	210	230	275	315	335	
Weight gr.	Aluminium	70	115	200	290	570	820	1710	3010	4380
	Steel	160	270	370	670	1110	2100	4150	/	/

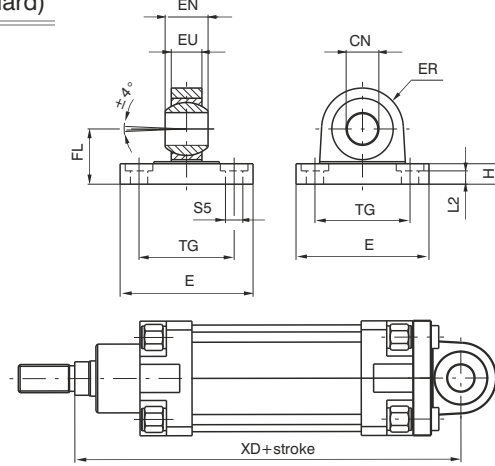
Rear male clevis (with jointed head according to DIN 648K standard)

Ordering code

Aluminium: **1380.Ø.15F**
Steel: **1320.Ø.25F(Ø32-Ø125)**



Utilised with clevis 30F allows the cylinder to oscillate in all directions. Made of aluminium alloy or steel (see ordering code) and painted black.



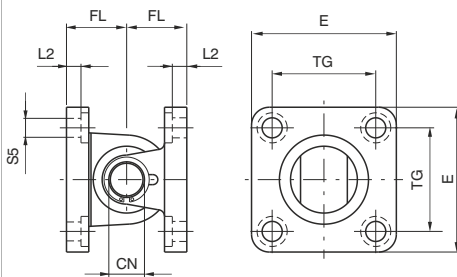
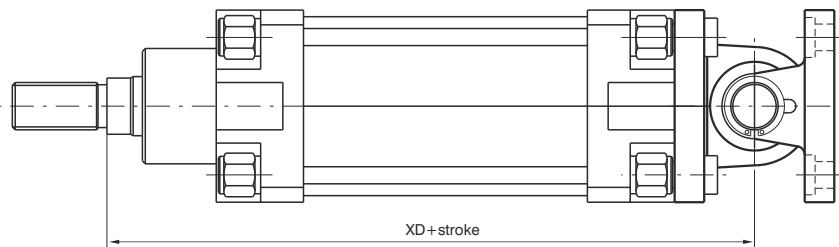
Bore		32	40	50	63	80	100	125	160	200
CN (H 7)		10	12	16	16	20	20	30	35	35
E	Aluminium	45	52	65	75	95	115	140	180	220
	Steel	45	55	65	75	95	115	140	180	220
EN (-0.1)		14	16	21	21	25	25	37	43	43
ER	Aluminium	16	19	21	24	28.5	30	40	45	48
	Steel	15	18	20	23	27	30	40	/	/
EU		10.5	12	15	15	18	18	25	28	28
FL (JS 15)		22	25	27	32	36	41	50	55	60
H	Aluminium	9	9	11	11	14	14	20	20	25
	Steel	10	10	10	12	14	16	20	/	/
L2 (±0.5)		5.5	5.5	6.5	6.5	10	10	10	10	11
S5		6.6	6.6	9	9	11	11	14	18	18
TG		32.5	38	46.5	56.5	72	89	110	140	175
XD		142	160	170	190	210	230	275	315	335
Weight gr.	Aluminium	60	100	180	245	480	650	1410	2420	3840
	Steel	210	310	400	710	1350	2400	4000	/	/

Complete standard trunnion (with jointed head according to DIN 648K standards)

Ordering code

Aluminium: **1380.Ø.36F**
Counter clevis can be ordered separately with code 1380.Ø.15F

Steel: **1320.Ø.26F (Ø32-Ø125)**
Counter clevis can be ordered separately with code 1320.Ø.25F



Bore		32	40	50	63	80	100	125	160	200
CN		10	12	16	16	20	20	30	35	35
E	Aluminium	45	52	65	75	95	115	140	180	220
	Steel	45	55	65	75	95	115	140	180	220
FL (JS 15)		22	25	27	32	36	41	50	55	60
L2 (±0.5)		5.5	5.5	6.5	6.5	10	10	10	10	11
S5		6.6	6.6	9	9	11	11	14	18	18
TG		32.5	38	46.5	56.5	72	89	110	140	175
XD		142	160	170	190	210	230	275	315	335
Weight gr.	Aluminium	130	215	380	535	1050	1470	3120	5430	8220
	Steel	380	580	770	1380	2460	4500	8150	/	/

Standard complete trunnion

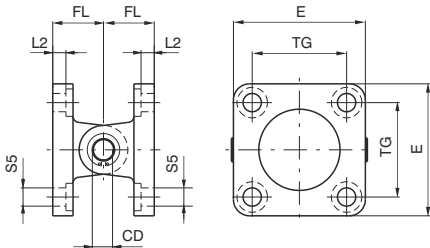
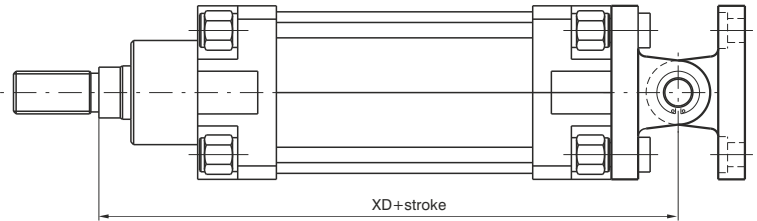
Ordering code

Aluminium: **1380.Ø.22F**

Mounting consists of rear clevis code 1380.Ø.09F
+ rear male clevis code 1380.Ø.09/1F
(ordering separately)

Steel: **1320.Ø.22F**

Mounting consists of rear clevis code 1320.Ø.20F
+ rear male clevis code 1320.Ø.21F
(ordering separately)



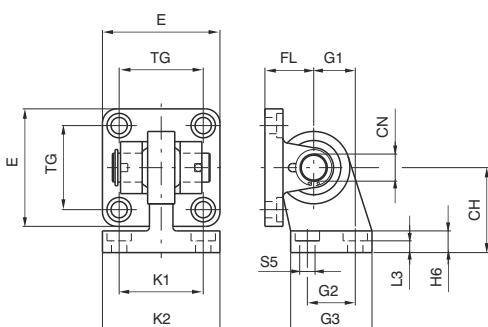
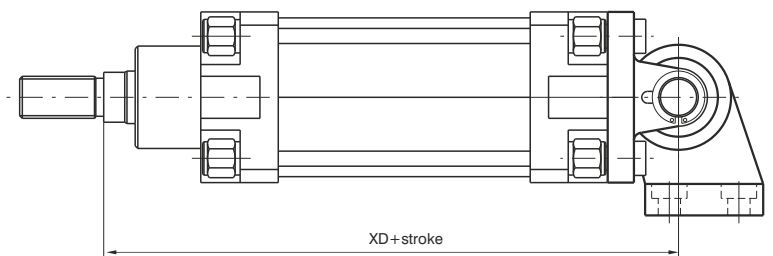
Bore	32	40	50	63	80	100	125	160	200
CD	10	12	12	16	16	20	25	30	30
E	45	55	65	75	95	115	140	180	220
FL	22	25	27	32	36	41	50	55	60
L2 (±0.5)	5,5	5,5	6,5	6,5	10	10	10	10	11
S5	6,6	6,6	9	9	11	11	14	18	18
TG	32,5	38	46,5	56,5	72	89	110	140	175
XD	142	160	170	190	210	230	275	315	335
Weight gr.	360	580	780	1370	2370	4110	7670	12650	17480

Complete square angle trunnion (with joined head according to DIN 648K standards)

Ordering code

Steel: **1320.Ø.27F**

Mounting consists of rear clevis narrow code 1320.Ø.29F
+ simple counter clevis code 1320.Ø.28F
(ordering separately)

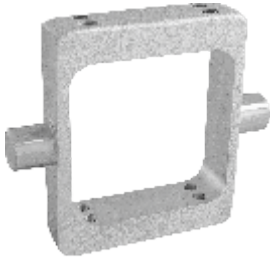


Bore	32	40	50	63	80	100	125
CH (JS 15)	32	36	45	50	63	71	90
CN	10	12	16	16	20	20	30
E	45	55	65	75	95	115	140
FL (JS 15)	22	25	27	32	36	41	50
G1 (JS 15)	21	24	33	37	47	55	70
G2 (JS 14)	18	22	30	35	40	50	60
G3	31	35	45	50	60	70	90
H6	10	10	12	12	14	15	20
K1 (JS 14)	38	41	50	52	66	76	94
K2	51	54	65	67	86	96	124
L3 (*0,5)	8,5	8,5	10,5	10,5	11,5	12,5	17
S5	6,6	6,6	9	9	11	11	14
TG	32,5	38	46,5	56,5	72	89	110
XD	142	160	170	190	210	230	275
Weight gr.	330	480	830	1220	2100	3580	7000

Intermediate trunnion Series 1386 - 1388 - 1396 - 1398

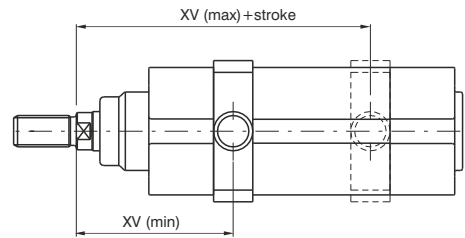
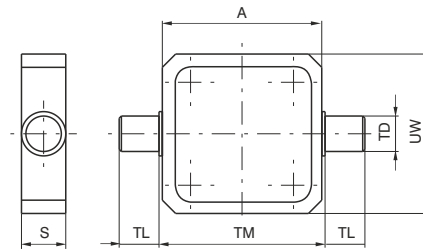
Ordering code

Steel: **1386.Ø.12F**



Clevis to be mounted on the barrel to have the centre of rotation of the hinge pin at a point between the end plates of the cylinder. It is attached to the barrel by means of eight pointed grains. In the case of anchorage subject to heavy use, it is recommended to connect the clevis once the right position has been found.

Attention: mounting of the clevis with contact to the end plates does not allow the use of the magnetic sensors as the switch limits.

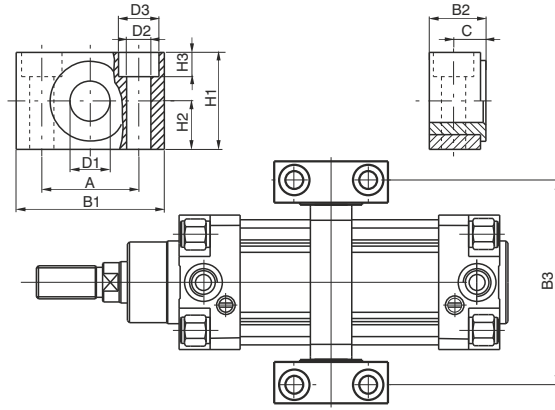
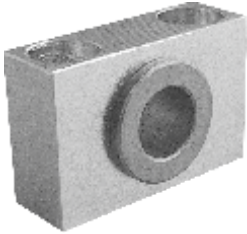


Bore	32	40	50	63	80	100
A	49.8	62.6	74.1	89.1	109.1	130.1
S	18	21	21	27	27	30
TD (e 9)	12	16	16	20	20	25
TL (h 14)	12	16	16	20	20	25
TM (h 14)	50	63	75	90	110	132
UW	70	78	91	94	130	145
XV (max.)	80	91.5	97.5	106.5	118.5	127
XV (min.)	66	73.5	82.5	88.5	101.5	113
Weight gr.	195	350	430	565	1035	1450

Support for intermediate trunnion

Ordering code

1320.Ø.12/1F
(1 piece)



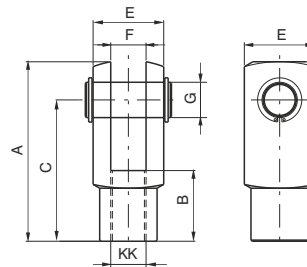
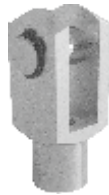
Combining two supports to the intermediate trunnion it is possible to fix the cylinder on plane surface.

Bore	32	40	50	63	80	100	125	160	200
A (±0.2)	32	36	36	42	42	50	50	60	60
B1	46	55	55	65	65	75	75	92	92
B2	18	21	21	23	23	28.5	28.5	40	40
B3	71	87	99	116	136	164	192	245	295
C	10.5	12	12	13	13	16	16	22.5	22.5
D1 (F7)	12	16	16	20	20	25	25	32	32
D2	6.6	9	9	11	11	14	14	18	18
D3	11	15	15	18	18	20	20	26	26
H1	30	36	36	40	40	50	50	60	60
H2 (±0.1)	15	18	18	20	20	25	25	30	30
H3	7	9	9	11	11	13	13	17	17
Weight gr. (1 piece)	100	150	150	235	235	435	435	850	850

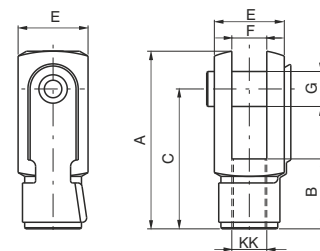
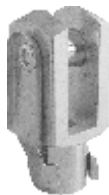
Rod forks and nuts

Ordering code

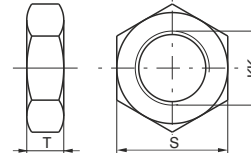
1320.Ø.13F



1320.Ø.13/1F
(from ø32 to ø100)



1320.Ø.18F



Fork:
Element that when screwed to the rod consents a regular functioning even when there are significant lateral forces as the connection point. Made of zinc-plated steel.

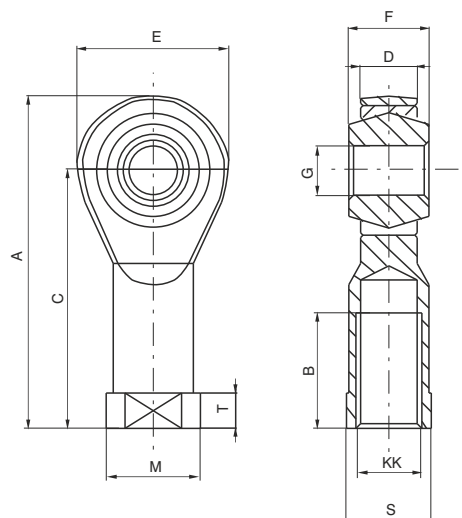
Nut:
Used to block the position of the fork.

Bore	32	40	50	63	80	100	125	160	200
A	52	62	83	83	105	105	148	188	188
B	20	24	32	32	40	40	56	72	72
C	40	48	64	64	80	80	110	144	144
E	20	24	32	32	40	40	55	70	70
F(B12)	10	12	16	16	20	20	30	35	35
G	10	12	16	16	20	20	30	35	35
S	17	19	24	24	30	30	41	55	55
T	6	7	8	8	9	9	12	18	18
KK	M10X1.25	M12X1.25	M16X1.5	M16X1.5	M20X1.5	M20X1.5	M27X2	M36X2	M36X2
Weight	forks	100	140	340	340	680	680	2500	4000
gr.	nut	15	20	20	20	40	40	100	210

Ball joint

Ordering code

1320.Ø.32F

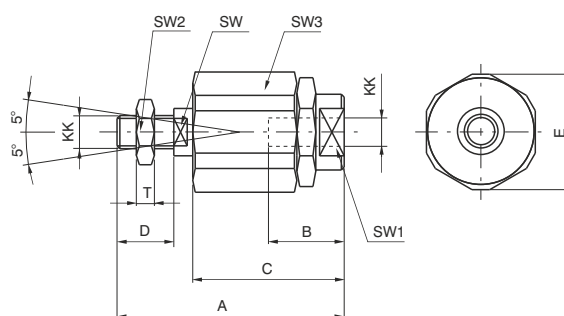


Bore	32	40	50	63	80	100	125	160	200
A	57	66	85	85	102	102	145	165	165
B	20	22	28	28	33	33	51	56	56
C	43	50	64	64	77	77	110	125	125
D (-0.1)	10.5	12	15	15	18	18	25	28	28
E	28	32	42	42	50	50	70	80	80
F	14	16	21	21	25	25	37	43	43
G (H 7)	10	12	16	16	20	20	30	35	35
KK	M10x1.25	M12x1.25	M16x1.5	M16x1.5	M20x1.5	M20x1.5	M27x2	M36x2	M36x2
M	19	22	27	27	34	34	50	58	58
S	17	19	22	22	30	30	41	50	50
T	6.5	6.5	8	8	10	10	15	17	17
Weight gr.	76	110	220	220	410	410	1200	1600	1600

Self-aligning joint

Ordering code

1320.Ø.33F



Bore	32	40	50	63	80	100
A	71	75	103	103	119	119
B	20	20	32	32	40	40
C	46	46	63	63	71	71
D	20	24	32	32	40	40
E	32	32	45	45	45	45
KK	M10x1.25	M12x1.25	M16x1.5	M16x1.5	M20x1.5	M20x1.5
SW	12	12	20	20	20	20
SW1	19	19	27	27	27	27
SW2	17	19	24	24	30	30
SW3	30	30	41	41	41	41
T	6	7	8	8	9	9
Weight gr.	220	230	660	660	700	700

Construction characteristics

Body	extruded shape anodized aluminium alloy 6060
Bushings	sintered bronze
Wiper	oil resitant NBR rubber
Rods	chromed C43 steel
Plate	plated zinc steel
Mounting block	plated zinc steel

Technical characteristics

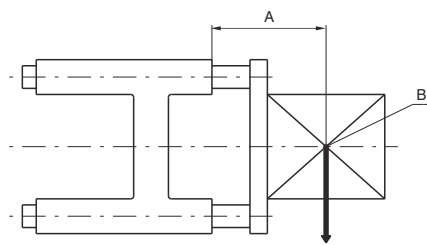
Max. suggested strokes for 1200 series:

Diameter	20	25
Stroke mm	200	250

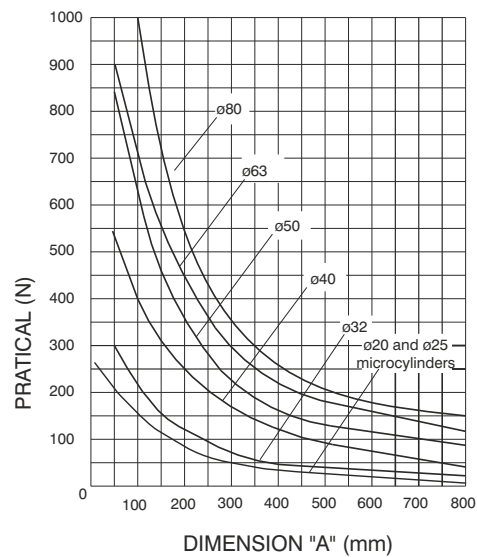
Max. suggested strokes for 1320 series:

Diameter	32	40	50	63	80
Stroke mm	300	350	450	500	550

Loading diagram based on dimension "A"



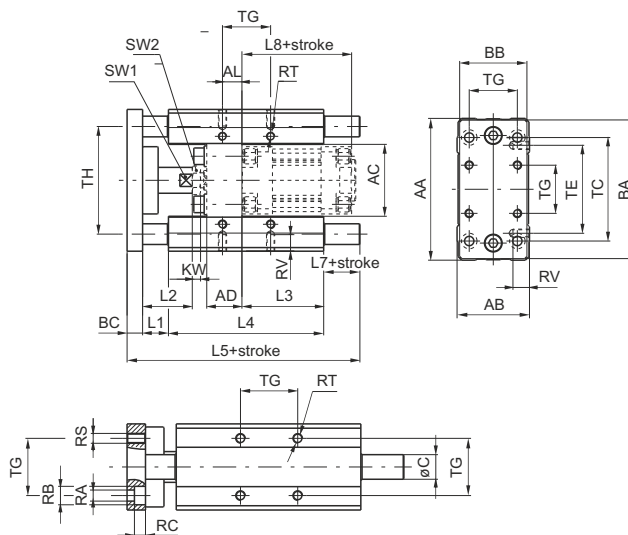
A = Protusion
B = Load centre of gravity



Use and maintenance

Follow the indication of the above diagram as far as loads are concerned. A large quantity of grease is placed between the two wipers during assembly, therefore the linear control units should not require special maintenance.

Dimensions for microcylinders ISO 15552



Ordering code

1320.Ø.stroke.GLB
(Cylinders must be ordered separately)

	Bore	Ø32	Ø40	Ø50	Ø63	Ø80
Weight	stroke 100	1720	2900	4700	6000	11300
gr.	every 50 mm	91	159	159	250	380

Bore	AA	AB	AC	AD	AL	BA	BB	BC	C	KW	L1	L2	L3	L4	L5
32	97	49	50	24	4.3	93	45	12	12	6	25	39	76	125	187
40	115	58	57.5	28	11	112	55	12	16	7	25	44	81	140	207
50	137	70	69.5	34	18.8	134	65	15	20	8	25	48	79	150	225
63	152	85	84.5	34	15.3	149	80	15	20	8	25	48	111	182	242
80	189	105	106	34	21	180	100	20	25	9	25	53	128	215	302

Bore	L7	L8	RA	RB	RC	RS	RT	RV	SW1	SW2	TC	TE	TG	TH
32	25	94	6.6	11	6.5	M6	M6	12	15	17	78	61	32.5	74
40	30	105	6.6	11	6.5	M6	M6	14	15	19	84	69	38	87
50	35	106	9	15	9	M8	M8	16	22	24	100	85	46.5	104
63	20	121	9	15	9	M8	M8	16	22	24	105	100	56.5	119
80	42	128	11	18	11	M10	M10	20	27	24	130	130	72	148

Standard strokes

- Ø 32 100 - 150 - 200 - 250 - 300 mm
- Ø 40 100 - 150 - 200 - 250 - 300 - 350 mm
- Ø 50 100 - 150 - 200 - 250 - 300 - 350 - 400 - 450 mm
- Ø 63 100 - 150 - 200 - 250 - 300 - 350 - 400 - 450 - 500 mm
- Ø 80 100 - 150 - 200 - 250 - 300 - 350 - 400 - 450 - 500 - 550 mm

General

The piston rod lock devices are clamping units mounted on the microcylinders front head. They allow the piston rod to lock in any position.

Piston rod clamping is mechanically obtained by springs actuated purpose-made jaws. This method allows to lock the cylinder in the desired position, should the air pressure drop.

The piston rod lock device is not a safety device.

Construction characteristics

Mounting bracket	anodised aluminium
Body	anodised aluminium
Clamping jaws	hardened alloy copper
Piston	acetal resin
Seal	NBR Oil resistant rubber
Springs	springs steel

Technical characteristics

Fluid	filtered and lubricated air						
Working pressure	3 bar - 6 bar						
Working temperature	-5°C - +70°C						
Functioning	mechanical double jaws						
Locking	axial, two-direction (normally locked)						
Unlocking	pneumatic						
Clamping force with static load (microcylinders)	$\frac{\varnothing 12}{180N}$	$\frac{\varnothing 16}{180N}$	$\frac{\varnothing 20}{350N}$	$\frac{\varnothing 25}{350N}$	$\frac{\varnothing 32}{600N}$		
Clamping force with static load (cylinders)	$\frac{\varnothing 32}{600N}$	$\frac{\varnothing 40}{1000N}$	$\frac{\varnothing 50}{1400N}$	$\frac{\varnothing 63}{2000N}$	$\frac{\varnothing 80}{5000N}$	$\frac{\varnothing 100}{5000N}$	$\frac{\varnothing 125}{7000N}$

"Attention: Dry air must be used for application below 0°C"

Use and maintenance

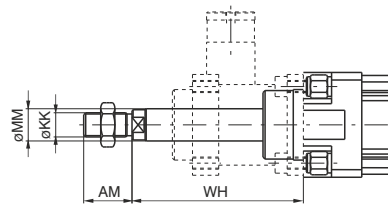
Operate within the specified technical characteristics.

The piston rod lock does not require maintenance if properly utilised.

The working inlet port has to be pressurised for assembling the piston rod lock device on cylinder. Alternatively adjust the jaws with screw located on connection.

Spare parts are not available.

Cylinders for piston rod lock



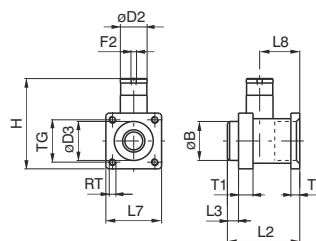
Ordering code

Order piston rod lock separately. Do not use with stainless steel piston rod.

13 -- -ø.stroke. -- -B

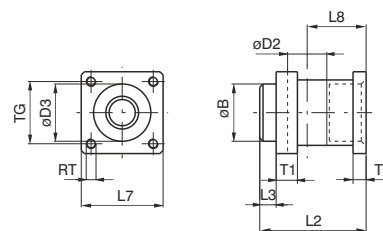
Piston rod lock complete

Do not use as safety device



Ordering code	Ø	32	40	50	63	80	100	125
1320.Ø.51BS	Weight gr.	191	276	535	852	1772	2412	5250

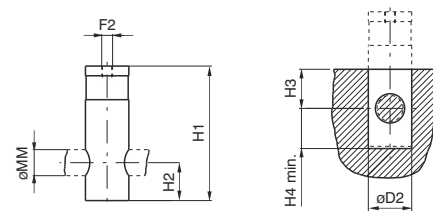
Piston rod lock bracket



Ordering code	Ø	32	40	50	63	80	100	125
1320.Ø.51S	Weight gr.	142	171	360	486	1060	1700	3500

Piston rod lock and housing

Do not use as safety device



Ordering code	Ø	32	40	50	63	80	100	125
1320.Ø.51B	Weight gr.	49	105	175	366	712	712	1750

Table of dimensions (series 1300)

Bore	AM	B	D2	D3	F2	H	H1	H2	H3	H4	KK	L2	L3	L7	L8	MM	RT	T1	T2	TG	WH
32	22	30	20	30.5	M5	67	62	17.5	18	18.5	M10x1.25	58	10	45	31.5	12	M6	13	8	32.5	74
40	24	35	24	35	G 1/8"	86	83	22	22	23	M12x1.25	65	10	50	36	16	M6	13	8	38	85
50	32	40	30	40	G 1/8"	105	100	25	25	26	M16x1.5	82	12	60	45.5	20	M8	16	15	46.5	107
63	32	45	38	45	G 1/8"	121	116	30	30	31	M16x1.5	82	12	70	49.5	20	M8	16	15	56.5	107
80	40	45	48	45	G 1/8"	164	155	36	36	37	M20x1.5	110	20	90	61	25	M10	20	18	72	126
100	40	55	48	55	G 1/8"	172	155	36	36	37	M20x1.5	115	23	105	65	25	M10	20	18	89	143
125	54	60	65	60	G 1/8"	210	195	56	55	56	M27x2	167	45	140	86.5	32	M12	30	22	110	187

Sensor with 2.5 m. cable

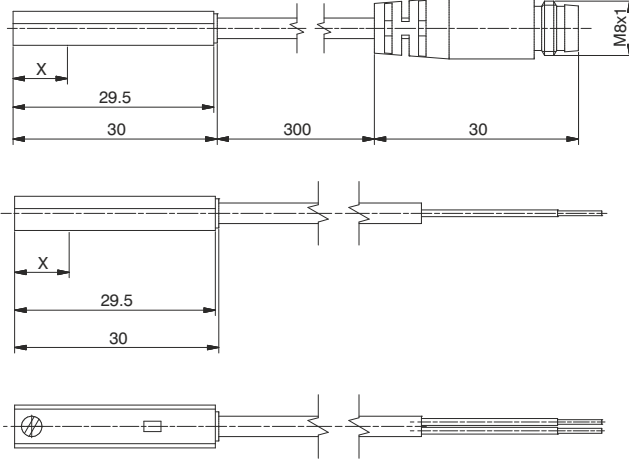


Weight gr. 27

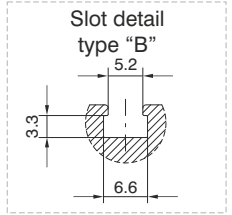
Sensor with cable and M8 connector



Weight gr. 15



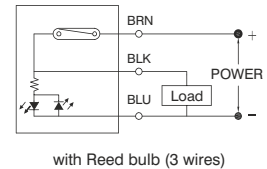
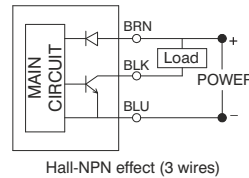
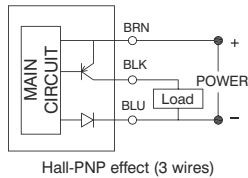
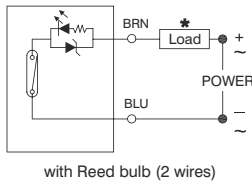
X= point of commutation



Sensor ordering codes

Ampulla Reed sensors, with led, Universal, N.O. (Normally open)		X=point of commutation
1580.U	(2 wires) cable 2.5 mt.	15 mm
MRS.U	(2 wires) cable 300 mm, M8 connector (use MC1 or MC2 connectors)	15 mm
1580.UAP	PNP (3 wires) cable 2.5 mt.	15 mm
MRS.UAP	PNP (3 wires) cable 300 mm, M8 connector (use MCH1 or MCH2 connectors)	15 mm
Hall effect sensors, with led, DC, N.O. (Normally open)		X=point of commutation
1580.HAP	PNP (3 wires) cable 2.5 mt.	8 mm
1580.HAN	NPN (3 wires) cable 2.5 mt.	8 mm
MHS.P	PNP (3 wires) cable 300 mm, M8 connector (use MCH1 or MCH2 connectors)	8 mm

Diagrams and connections



* The load (LOAD) can be connected either to negative or positive pole

Technical characteristics	1580.U	MRS.U	1580.UAP	MRS.UAP	1580.HAP	1580.HAN	MHS.P
Type of contact	N.O.						
Output type	PNP			NPN		PNP	
Maximum current	100mA						
Maximum permanent power	14 VA - 10 W		4 VA - 3 W		3 W		
Voltage range	5 - 230V DC/AC	5 - 30V DC/AC	10 - 30 V DC/AC		10 - 30 V DC		
Working temperature	-10°C - +70°C						
Maximum voltage drop	3.5 V		0V **		2 V		
Cable section (mm ²)	2 x 0.14 Ø3.3mm PUR	2 x 0.14 Ø3.3mm PUR	3 x 0.14 Ø3.3 mm PUR		3 x 0.14 Ø3.3 mm PUR		
Degree of protection	IP 67						

** Even if one sensor generates a voltage drop very close to 0 Volts, we suggest to connect no more than 30 sensors in series.

Cable ordering code

Connection 2 wires

- MC1** cable 2 wires l=2.5m with M8 connector
- MC2** cable 2 wires l=5m with M8 connector
- MC3** cable 2 wires l=10m with M8 connector

Connector



Sensor



- 1 Brown (+)
- 4 Blue (-)
- 3 Not use

Connection 3 wires

- MCH1** cable 3 wires l=2.5m with M8 connector
- MCH2** cable 3 wires l=5m with M8 connector
- MCH3** cable 3 wires l=10m with M8 connector

Connector



Sensor



- 1 Brown (+)
- 4 Black (signal)
- 3 Blue (-)