



CYLINDERS

1

We move more than air



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Selected items are available in ATEX certified version for explosion hazardous environment. Please refer to catalogue No. 8.



Selected items are available in stainless steel. Please refer to catalogue No. 6.



Cylinders series Knorr can be found in catalogue No. 3.

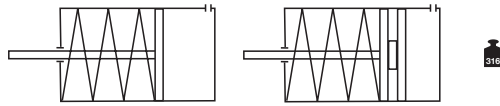
All numbers without units are generally in mm.



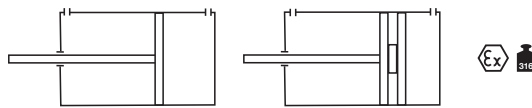
JOYNER applied a continuous improvement process. Therefore products and specifications can be improved all the time without any further notice.

Round cylinders ISO 6432 single and double acting

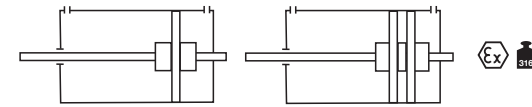
REI 8 to REI 25
REIM 8 to REIM 25
E = single acting
M = magnetic piston



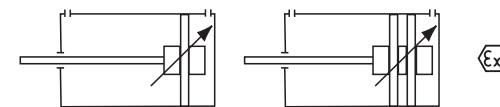
RI 8 to RI 25
RIM 8 to RIM 25
M = magnetic piston



RIB 8 to RIB 25
RIBM 8 to RIBM 25
B = through piston rod
M = magnetic piston



RID 16 to RID 25
RIDM 16 to RIDM 25
D = adj. cushioning
M = magnetic piston



Technical information

General	
Design	round cylinder
Function	single and double acting
Piston-Ø	8 to 25 mm
Stroke	10 to 320 mm, single acting to 50 mm
Ports	M5 – G 1/8"
Fixing	acc. to ISO 6535
Position	any
Temperature range	Ø 8-10-12: -20 °C to +80 °C Ø 16: -20 °C to +80 °C Ø 20-25: -35 °C to +80 °C
Materials	heads: aluminum anodized piston rod: stainless AISI 303 tube: stainless AISI 304 seals: Ø 8-12: PU and NBR Ø 16-25: PU
Pneumatic information	
Media	air-quality 7-4-4 for particles-water-oil acc. ISO 8573-1:2010
Operating pressure	1 to 10 bar

Standard strokes

Double acting	
Piston-Ø [mm]	Standard strokes [mm]
8 to 10	10, 25, 50, 80, 100, 125
12 to 16	10, 25, 50, 80, 100, 125, 160, 200
20 to 25	10, 25, 50, 80, 100, 125, 160, 200, 250, 320
Single acting	
Piston-Ø [mm]	Standard strokes [mm]
8 to 25	10, 25, 50

Below 0 °C dried air only

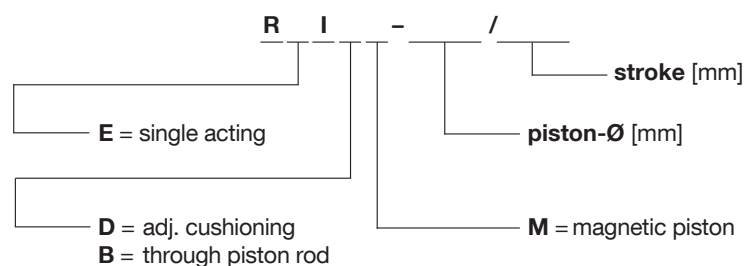


Cylinder piston-Ø 16 to 25 mm are available in stainless steel!

Delivery contains fixing nut on head as well as on piston rod.

Available on request: -40 °C-version, +150 °C-version, alternative materials for the piston rod, special strokes, cylinders with spring pushing the rod out.

Order code

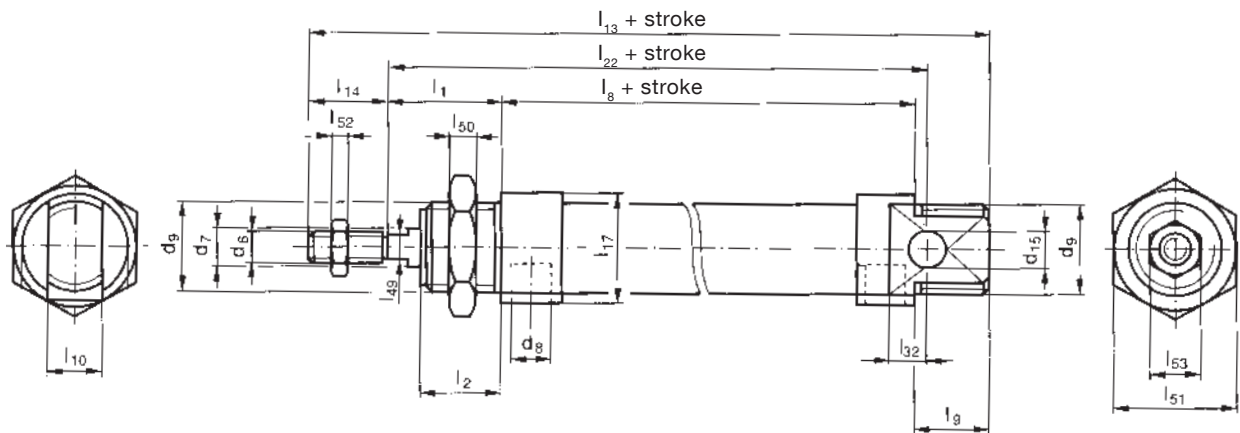


Unused positions to be deleted.



Round cylinders ISO 6432 single and double acting

RI../... RIM../...
REI../... REIM../...
RID../... RIDM../...



Dimensions

Piston-Ø	l_1	l_2	l_8	l_9	l_{10}	l_{13}	l_{14}	l_{17}	l_{22}	l_{32}
8 mm	16	12	46	12	8	86	12	16	64	6
10 mm	16	12	46	12	8	86	12	16	64	6
12 mm	22	18	48	18	12	104	16	19	75	9
16 mm	22	18	53	18	12	109	16	19	82	9
20 mm	24	20	67	20	16	131	20	27	95	12
25 mm	28	22	68	22	16	140	22	30	104	12

Dimensions

Piston-Ø	l_{49}	l_{50}	l_{51}	l_{52}	l_{53}	d_6	d_7	d_8	d_9	d_{15}
8 mm	–	6	19	3,2	7	M4	4	M5	M12 x 1,25	4
10 mm	–	6	19	3,2	7	M4	4	M5	M12 x 1,25	4
12 mm	5	8	22	5,0	10	M6	6	M5	M16 x 1,5	6
16 mm	5	8	22	5,0	10	M6	6	M5	M16 x 1,5	6
20 mm	7	8	27	6,5	13	M8	8	G1/8	M22 x 1,5	8
25 mm	9	8	27	8,0	17	M10 x 1,25	10	G1/8	M22 x 1,5	8

Max. stroke single acting cylinders: 50 mm.

Forces [N] for cylinders type REI

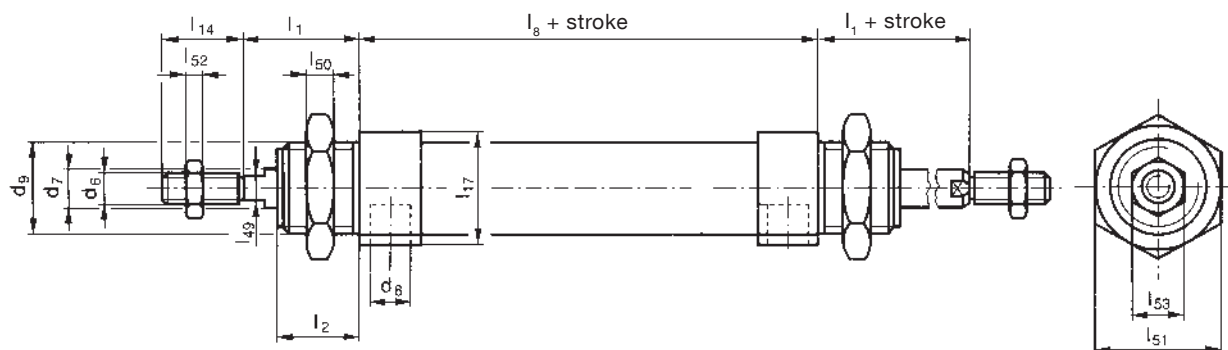
Piston-Ø	Stroke					
	10 mm		25 mm		50 mm	
	F1	F2	F1	F2	F1	F2
8, 10 mm	4,1 N	4,6 N	3,4 N	4,6 N	2,2 N	4,6 N
12 mm	5,6 N	6,0 N	5,5 N	6,0 N	4,1 N	6,0 N
16 mm	19,2 N	21,5 N	15,7 N	21,5 N	9,8 N	21,5 N
20 mm	20,4 N	22,5 N	17,3 N	22,5 N	11,5 N	22,5 N
25 mm	17,5 N	18,8 N	15,6 N	18,8 N	12,4 N	18,8 N

F1 = Force piston in F2 = Force piston out



Round cylinders ISO 6432 single and double acting

RIB../... RIBM../...



Dimensions cylinders with trough piston rod

Piston-Ø	l_1	$22l_2$	l_8	l_{14}	l_{17}	l_{49}	l_{50}	l_{51}	l_{52}
8 mm	16	12	46	12	16	–	6	19	3,2
10 mm	16	12	46	12	16	–	6	19	3,2
12 mm	22	18	48	16	19	5	8	22	5,0
16 mm	22	18	53	16	19	5	8	22	5,0
20 mm	24	20	67	20	27	7	8	27	6,5
25 mm	28	22	68	22	30	9	8	27	8,0

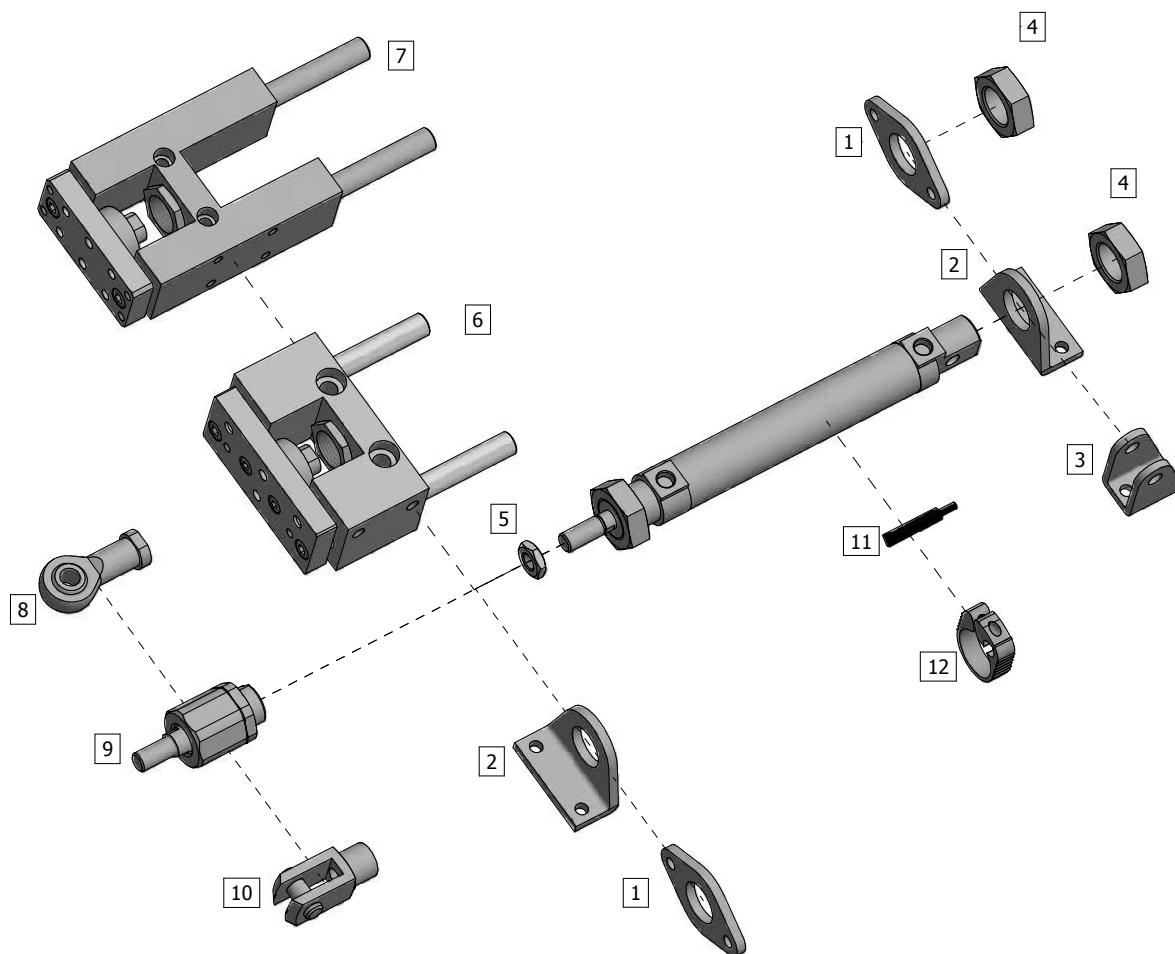
Piston-Ø	l_{53}	d_6	d_7	d_8	d_9
8 mm	7	M4	4	M5	M12 x 1,25
10 mm	7	M4	4	M5	M12 x 1,25
12 mm	10	M6	6	M5	M16 x 1,5
16 mm	10	M6	6	M5	M16 x 1,5
20 mm	13	M8	8	G1/8	M22 x 1,5
25 mm	17	M10 x 1,25	10	G1/8	M22 x 1,5

Theoretical force [N] of double acting cylinders at 6 bar

Piston-Ø	double acting type RI(M)		though piston rod type RIB(M)
	in	out	both
8 mm	23 N	30 N	23 N
10 mm	40 N	47 N	40 N
12 mm	51 N	68 N	51 N
16 mm	104 N	121 N	104 N
20 mm	158 N	189 N	158 N
25 mm	247 N	295 N	247 N



Mounting accessories for round cylinders ISO 6432



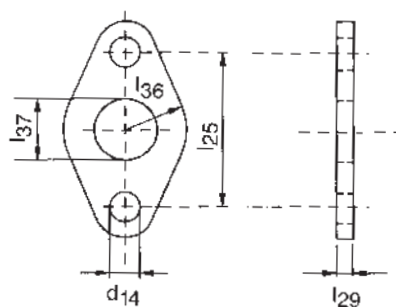
Pos.	Mounting accessory	Type	
1	Flange	MF8	page 7
2	Foot mounting – 1 piece	MS3	page 7
3	Female hinge	LB	page 7
4	Fixing nut for cylinder	GT	page 7
5	Nut at piston rod	DS	page 60
6	Guide unit – short	LFAC	chapter 1.5.4
7	Guide unit - long	LFAH	chapter 1.5.4
8	Rod eye female thread	GS	page 58
9	Self-aligning coupling	FK	page 59
10	Clevis with lockable pin	GF	page 57
11	Proximity switch	M60/M70	chapter 1.5.3
12	Fastener for proximity switch	BR	chapter 1.5.3



Mounting accessories for round cylinders

ISO 6432

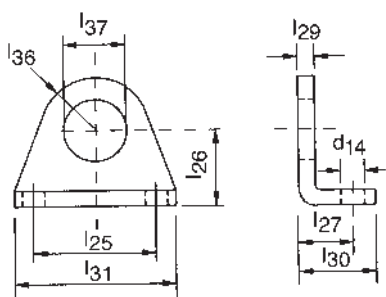
Flange – MF8



Type	Piston-Ø	l ₃₇	l ₂₉	l ₂₅	l ₃₆	d ₁₄
MF8-08/10	8 – 10 mm	12	3	30	9	4,5
MF8-12/16	12 – 16 mm	16	4	40	13	5,5
MF8-20/25	20 – 25 mm	22	5	50	19	6,6



Foot – MS3

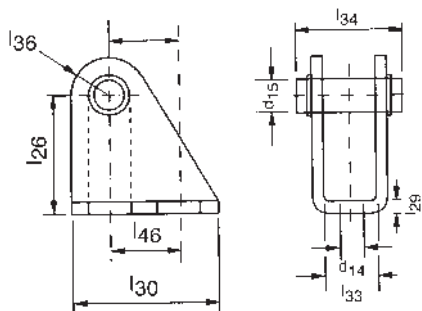


Type	Piston-Ø	l ₃₇	d ₁₄	l ₃₁	l ₂₅	l ₂₇	l ₂₆	l ₃₀	l ₃₆	l ₂₉
MS3-08/10	8 – 10 mm	12	4,5	35	25	11	16	16	10,0	3
MS3-12/16	12 – 16 mm	16	5,5	42	32	14	20	20	13,5	4
MS3-20/25	20 – 25 mm	22	6,6	54	40	17	25	25	18,0	5



Delivery 1 piece

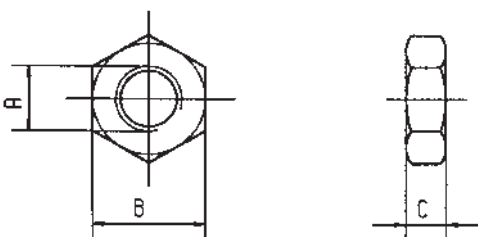
Female hinge – LB



Type	Piston-Ø	d ₁₄	d ₁₅	l ₄₆	l ₃₀	l ₂₆	l ₃₃	l ₃₄	l ₃₆	l ₂₉
LB-08/10	8 – 10 mm	4,5	4	12,5	20	24	8,1	18	5	2,5
LB-12/16	12 – 16 mm	5,5	6	15,0	25	27	12,1	25	7	3,0
LB-20/25	20 – 25 mm	6,6	8	20,0	32	30	16,1	32	10	4,0



Fixing nut – GT



Type	Piston-Ø	A	B	C
GT-M12x1,25	8 – 10 mm	M12 x 1,25	19	6
GT-M16x1,5	12 – 16 mm	M16 x 1,5	22	8
GT-M22x1,5	20 – 25 mm	M22 x 1,5	27	8



Round cylinder Ø 32 to 63 mm single and double acting

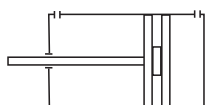
REIM 32 to REIM 63

E = single acting
M = magnetic piston



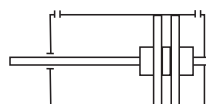
RIM 32 to RIM 63

M = magnetic piston



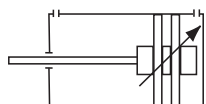
RIBM 32 to 63

B = through piston rod
M = magnetic piston



RIDM 32 to RIDM 63

D = adj. cushioning
M = magnetic piston



Technical information

General	
Design	round cylinder
Function	single and double acting with magnetic piston
Piston-Ø	32 to 63 mm
Stroke	10 to 500 mm, single acting to 50 mm
Ports	G 1/8" – G 1/4" – G 3/8"
Fixing	Thread on both ends
Position	any
Temperature range	–35 °C to +80 °C
Materials	heads: aluminum anodized piston rod: stainless AISI 303 tube: stainless AISI 304 seals: PU
Pneumatic information	
Media	air-quality 7-4-4 for particles-water-oil acc. ISO 8573-1:2010
Operating pressure	1 to 10 bar

Standard strokes

Double acting	
Standard strokes [mm]	
10, 25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500	
Single acting	
Standard strokes [mm]	
10, 25, 50	

Below 0 °C dried air only

Theoretical force [N] of double acting cylinders at 6 bar

Piston-Ø [mm]	double acting type RI(M)	
	in	out
32	414 N	482 N
40	633 N	754 N
50	989 N	1178 N
63	1681 N	1869 N

Delivery contains fixing nut on piston rod.

Available on request: –40 °C-version, +150 °C-version, alternative materials for the piston rod, special strokes, cylinders without magnetic piston.



Cylinders are available in stainless steel!

Forces [N] for cylinders type REI

Piston-Ø [mm]	Stroke					
	10 mm		25 mm		50 mm	
	F1	F2	F1	F2	F1	F2
32	57 N	62 N	51 N	62 N	40 N	62 N
40	98 N	105 N	86 N	105 N	64 N	105 N
50	147 N	158 N	130 N	158 N	101 N	158 N
63	147 N	158 N	130 N	158 N	101 N	158 N

F1 = Force piston in F2 = Force piston out

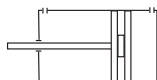


Round cylinder Ø 32 to 63 mm single and double acting

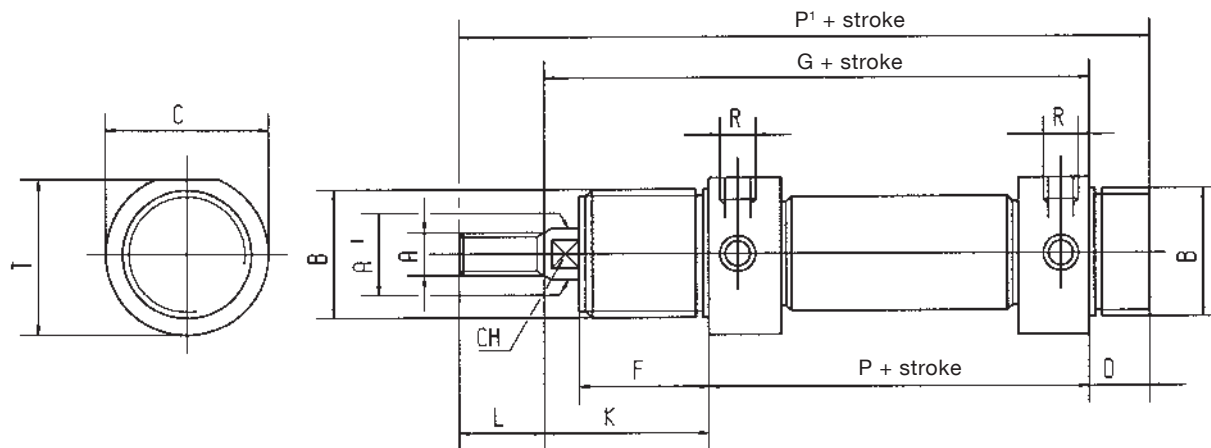
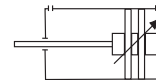
REIM
single acting
Ø32 to 63 mm



RIM
double acting
Ø32 to 63 mm



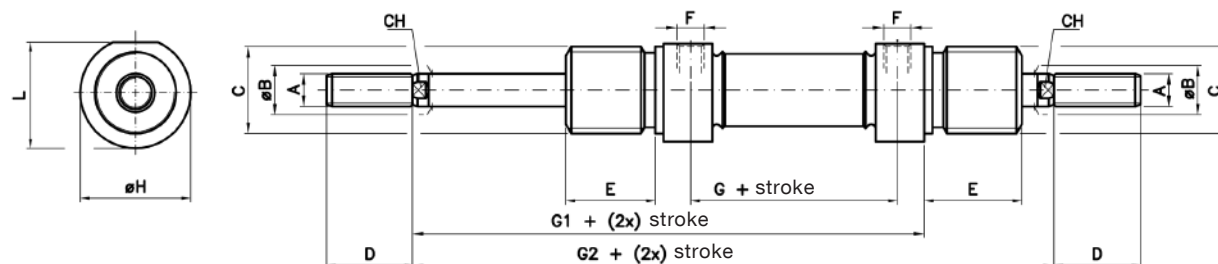
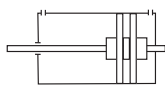
RIDM
double acting,
adj. cushioning
Ø32 to 40 mm



Dimensions [mm]

Piston-Ø	A	A'	B	T	C	D	F	G	K	L	P	P'	CH	R
32 mm	M10	12	M30x1,5	36,5	38	14	30	134	38	20	96	168	10	1/8"
40 mm	M12	16	M38x1,5	44,0	46	16	35	158	45	24	113	198	13	1/4"
50 mm	M16	20	M45x1,5	55,0	57	18	38	170	50	32	120	220	17	1/4"
63 mm	M16	20	M45x1,5	67,5	70	18	38	174	50	32	124	224	17	3/8"

RIBM double acting with
through piston rod
Ø32 to 63 mm

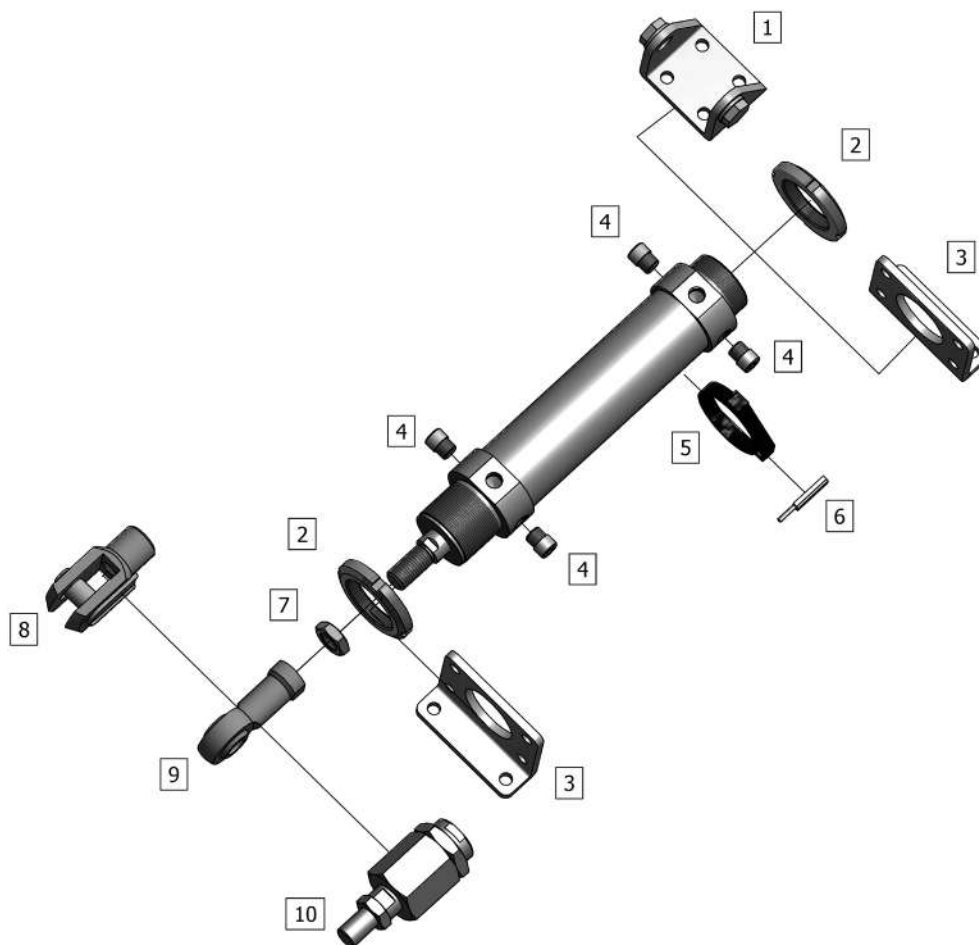


Dimensions [mm]

Piston Ø mm	A	ØB	C	D	E	F	G	G1	G2	ØH	L	CH
32	M10	12	M30x1,5	20	30	G 1/8	78	143	190	38	36,5	10
40	M12	16	M38x1,5	24	35	G 1/4	89	170	227	46	44,0	13
50	M16	20	M45x1,5	32	38	G 1/4	96	182	244	57	55,0	17
63	M16	20	M45x1,5	32	38	G 3/8	98	187	250	70	67,7	17



Mounting accessories for round cylinders piston-Ø 32 to 63

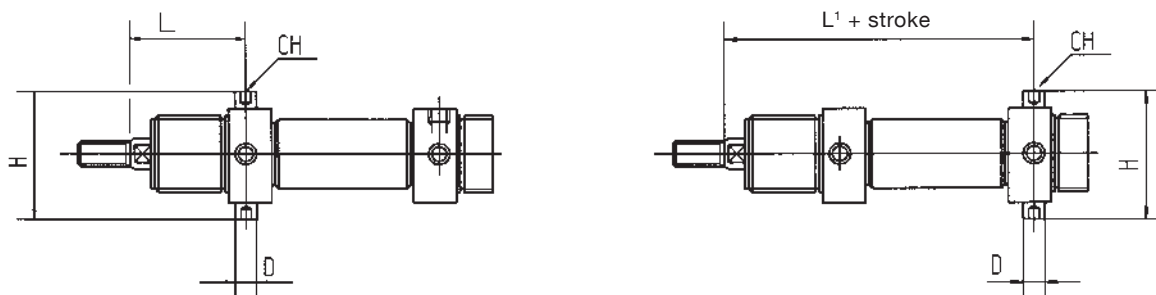


Pos.	Mounting accessory	Type	
1	Female hinge	LB	page 12
2	Fixing nut for cylinder	GT	page 12
3	Foot mounting – 1 piece	MS3	page 12
4	Pair of fixing screws	CPE	page 11
5	Fastener for proximity switch	BR	chapter 1.5.3
6	Proximity switch	M60/M70	chapter 1.5.3
7	Nut at piston rod	DS	page 11/60
8	Clevis with lockable pin	GF	page 57
9	Rod eye female thread	GS	page 58
10	Self-aligning coupling	FK	page 59



Mounting accessories for round cylinders piston-Ø 32 to 63

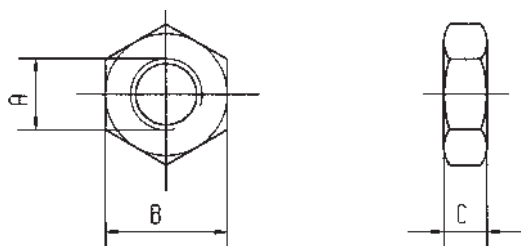
Screws – CPE



Type	Piston-Ø	D	H	L'	L	CH
CPE 32	32 mm	10	51	125	47	5
CPE 40	40 mm	12	61	146	57	6
CPE 50	50 mm	14	75	158	62	6
CPE 63	63 mm	16	92	162	64	8

Delivery 1 pair

Nut at piston rod – DS

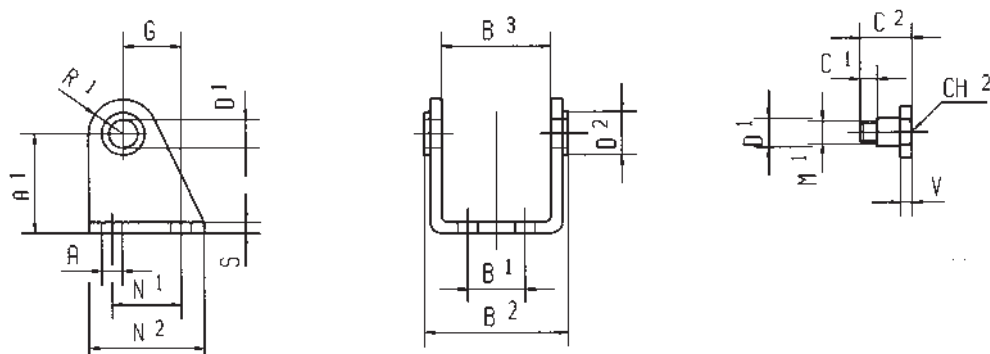


Type	Piston-Ø	A	B	C
DS-M10	32 mm	M10	17	6
DS-M12	40 mm	M12	22	7
DS-M16	50-63 mm	M16	24	8



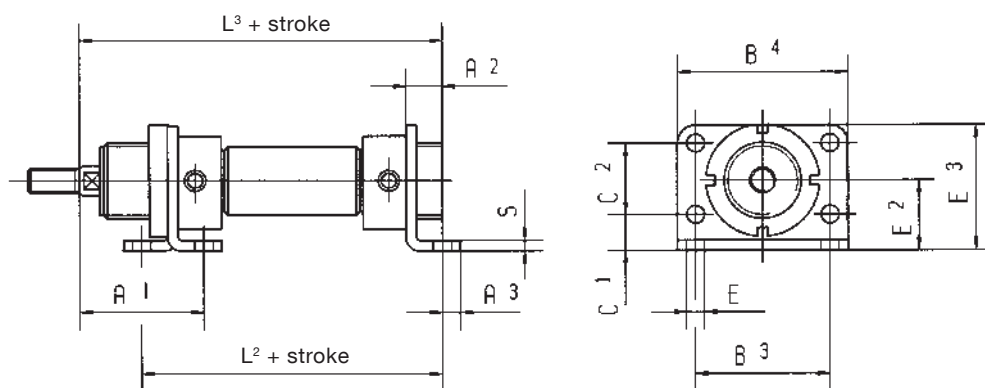
Mounting accessories for round cylinders piston-Ø 32 to 63

Female hinge – LB



Type	Piston-Ø	D ¹	D ²	A	A ¹	G	M ¹	N ¹	N ²	R ¹	S	CH ²	B ¹	B ²	B ³	V	C ¹	C ²
LB-32	32 mm	10	15	7	35	20	M8x1,0	24	40	12	4	13	20	50,1	38,1	4	6	18,0
LB-40	40 mm	12	20	9	40	27	M10x1,0	30	50	13	5	17	28	60,1	46,1	5	7	21,6
LB-50	50 mm	14	23	9	45	30	M12x1,5	34	54	14	6	19	36	74,1	57,1	6	9	26,4
LB-63	63 mm	16	23	9	50	34	M14x1,5	35	65	16	6	19	42	88,1	70,1	6	15	34,0

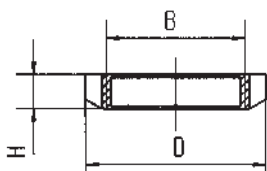
Foot – MS3



Type	Piston-Ø	E	E ²	E ³	C ¹	C ²	L ²	L ³	B ³	B ⁴	S	A ¹	A ²	A ³
MS3-32	32 mm	7	28	49	14	28	124	148	52	66	4	48	14	7
MS3-40	40 mm	9	33	58	18	30	153	178	60	80	5	60	20	10
MS3-50	50 mm	9	40	70	20	40	160	190	70	90	6	64	20	10
MS3-63	63 mm	9	45	80	20	50	164	195	76	96	6	65	20	10

Delivery 1 piece

Fixing nut – GT



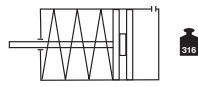
Type	Piston-Ø	B	D	H
GT-M30x1,5	32 mm	M30 x 1,5	45	7
GT-M38x1,5	40 mm	M38 x 1,5	50	8
GT-M45x1,5	50-63 mm	M45 x 1,5	58	9



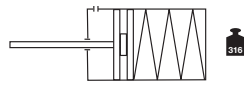
Compact cylinders according to ISO 21287 single acting

Compact cylinders according to ISO 21287

single acting
piston-Ø 20 to 125 mm



KPEM
spring in



KPEMZ
spring out



Type KPEMI – Female piston rod

Type KPEM – Male piston rod incl. fixing nut

Type KPEMIZ – Female piston rod

Type KPEMZ – Male piston rod incl. fixing nut

Technical information

General	
Design	compact cylinder with profile tube
Function	double acting magnetic piston
Piston-Ø	20 to 125 mm
Stroke	5 to 60 mm
Ports	M5 – G 1/8" – G 1/4"
Fixing	acc. to ISO 21287
Position	any
Temperature range	dried air –20 °C to +80 °C
Materials	heads: aluminum painted piston rod: stainless AISI 303 tube: aluminum anodized seals: PU and NBR
Pneumatic information	
Media	air-quality 7-4-4 for particles-water-oil acc. ISO 8573-1:2010
Operating pressure	1 to 10 bar
Attention	
Cylinder with piston-Ø 125 mm not conforming to ISO 21287	

Dimensions

Piston-Ø	Piston rod Ø	Ports	Spare part kit
20 mm	10 mm	M5	ET-KPEM-20
25 mm	10 mm	M5	ET-KPEM-25
32 mm	12 mm	G 1/8"	ET-KPEM-32
40 mm	16 mm	G 1/8"	ET-KPEM-40
50 mm	16 mm	G 1/8"	ET-KPEM-50
63 mm	16 mm	G 1/8"	ET-KPEM-63
80 mm	20 mm	G 1/8"	ET-KPEM-80
100 mm	25 mm	G 1/8"	ET-KPEM-100
125 mm	25 mm	G 1/4"	ET-KPEM-125

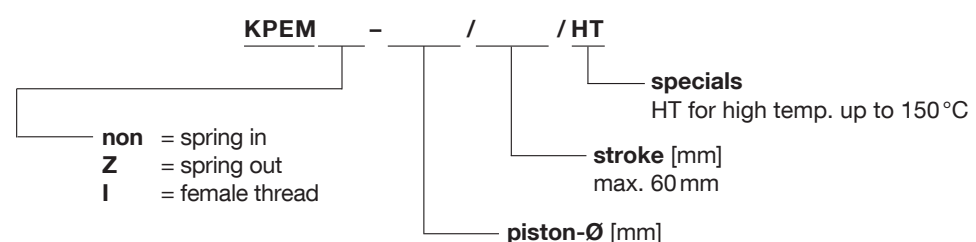
Standard strokes

Piston-Ø [mm]	Standard strokes [mm]
20-100	5, 10, 15, 20, 25, 30, 35, 40, 50
125	5, 10, 15, 20, 25, 30

Delivery contains nut on piston rod for male threaded piston rods

Available on request: cylinders without magnetic piston, special strokes

Order code



Compact cylinders according to ISO 21287 single acting

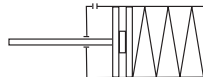
KPEM... Ø 20 to 125 mm

KPEMI Cylinder with spring in
Piston rod female thread

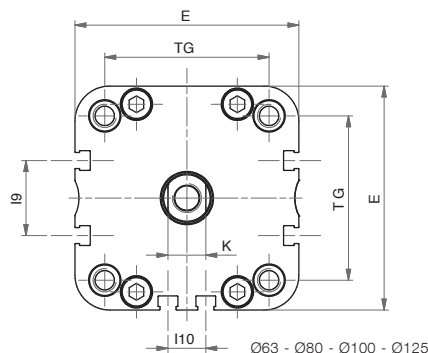
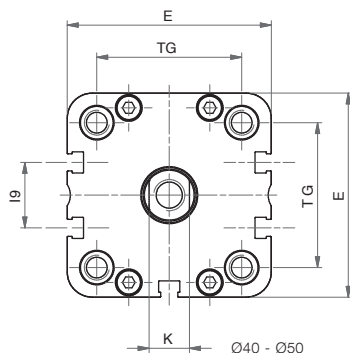
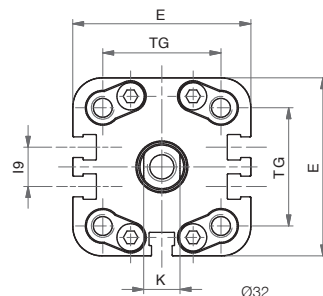
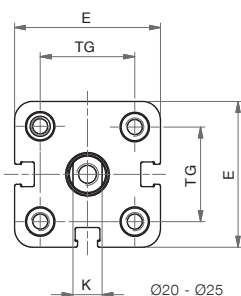
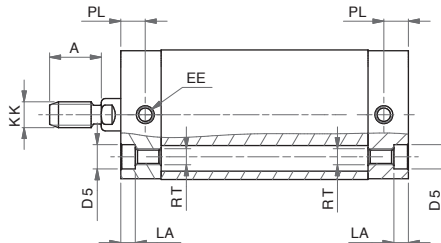
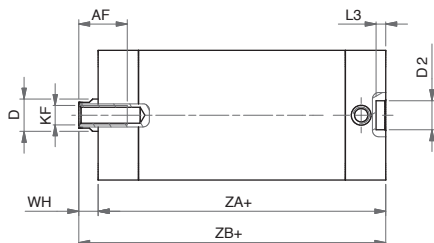


KPEM Cylinder with spring in
Piston rod male thread

KPEMIZ Cylinder with spring out
Piston rod female thread



KPEMZ Cylinder with spring out
Piston rod male thread



Dimensions

Piston-Ø	20 mm	25 mm	32 mm	40 mm	50 mm	63 mm	80 mm	100 mm	125 mm
A	16	16	19	19	22	22	28	28	40
AF	15	15	16	16	17	17	20	20	25
Ø D	10	10	12	12	16	16	20	25	25
Ø D2	9	9	9	9	12	12	12	12	12
Ø D5	7,5	7,5	9	9	10,5	10,5	13,5	13,5	13,5
E	36	40	49	54,5	65,5	77	95,5	113,5	135
EE	M5	M5	G1/8	G1/8	G1/8	G1/8	G1/8	G1/8	G1/4
I9	—	—	10,8	12,8	21	25,8	30	50	50
I 10	—	—	—	—	—	13	18	35	50
K	8	8	10	10	13	13	17	22	22
KF	M6	M6	M8	M8	M10	M10	M12	M12	M16
KK	M8	M8	M10 x 1,25	M10 x 1,25	M12 x 1,25	M12 x 1,25	M16 x 1,5	M16 x 1,5	M20 x 1,5
LA	4,5	4,5	5	5	5	5	3	3	—
L3	3	3	3	3	4	4	4	4	4
PL	7,5	7,5	7,5	8	8	7,5	8	10,5	10,5
RT	M5	M5	M6	M6	M8	M8	M10	M10	M12
TG	22	26	32,5	38	46,5	56,5	72	89	110
WH	6,5	6	6,5	7	8	8	9	10	11
ZA+	37*	39*	44*	45*	45*	49*	54*	67*	81
ZB+	43,5*	45*	50,5*	52*	53*	57*	63*	77*	92

+ plus stroke [mm]

* for strokes 35, 40, 50, 60 mm / for Ø 20 mm plus 10 mm / for Ø 25, 32, 40, 50, 63 mm plus 20 mm / for Ø 80 to 100 mm plus 30 mm



Compact cylinders according to ISO 21287 single acting

Spring forces single acting compact cylinders type KPEM [N]

Piston-Ø	F1 at stroke [mm]										F2
	5	10	15	20	25	30	35	40	50	60	
20 mm	42	38	33	29	24	19	37	33	24	15	47
25 mm	48	43	38	33	28	23	41	37	27	17	52
32 mm	50	46	42	38	35	31	40	38	24	30	53
40 mm	65	60	55	50	44	39	51	49	44	38	69
50 mm	62	56	51	46	40	35	49	43	40	35	67
63 mm	88	82	76	70	64	58	73	70	64	58	94
80 mm	145	139	132	125	119	112	127	124	118	111	151
100 mm	178	169	160	150	141	132	171	161	143	125	187
125 mm	284	272	260	248	236	224	212	200	177	153	297

Spring forces single acting compact cylinders type KPEMZ [N]

Piston-Ø	F1 at stroke [mm]										F2 at stroke [mm]	
	5	10	15	20	25	30	35	40	50	60	5-30	35-60
20 mm	42	38	33	29	24	19	32	28	21	13	47	58
25 mm	48	43	38	33	28	23	27	25	21	17	53	42
32 mm	50	46	42	38	35	31	63	58	49	40	53	96
40 mm	65	60	55	50	44	39	63	58	49	40	70	96
50 mm	62	56	51	46	40	35	108	101	88	75	67	154
63 mm	88	82	76	70	64	58	108	101	88	75	94	154
80 mm	145	139	132	125	119	112	124	115	97	79	152	189
100 mm	178	169	160	150	141	132	211	199	175	151	185	294
125 mm	284	272	260	248	236	224	212	200	177	153	297	297



Theoretical forces double acting compact cylinders [N] at 6 bar

Piston-Ø	Double acting type KPDM		with through piston rod type KPDMB
	in	out	both
20 mm	142	188	142
25 mm	248	295	248
32 mm	415	482	415
40 mm	687	754	687
50 mm	1058	1178	1058
63 mm	1750	1869	1750
80 mm	2829	3014	2829
100 mm	4420	4710	4420
125 mm	7069	7963	7069



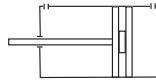
Compact cylinders according to ISO 21287 double acting

Compact cylinders according to ISO 21287

double acting

KPDM

piston-Ø 20 to 125 mm



Type KPDMI – Female piston rod

Type KPDM – Male piston rod incl. fixing nut

Technical information

General	
Design	compact cylinder with profile tube
Function	double acting magnetic piston
Piston-Ø	20 to 125 mm
Stroke	5 to 250 mm, partially to 400 mm
Ports	M5 – G 1/8" – G 1/4"
Fixing	acc. to ISO 21287
Position	any
Temperature range	dried air -20 °C to +80 °C
Materials	heads: aluminum painted piston rod: stainless AISI 303 tube: aluminum anodized seals: PU and NBR
Pneumatic information	
Media	air-quality 7-4-4 for particles-water-oil acc. ISO 8573-1:2010
Operating pressure	1 to 10 bar
Attention	
Cylinder with piston-Ø 125 mm not conforming to ISO 21287	

Dimensions

Piston-Ø	Piston rod Ø	Ports	Spare part kit
20 mm	10 mm	M5	ET-KPDM-20
25 mm	10 mm	M5	ET-KPDM-25
32 mm	12 mm	G 1/8"	ET-KPDM-32
40 mm	16 mm	G 1/8"	ET-KPDM-40
50 mm	16 mm	G 1/8"	ET-KPDM-50
63 mm	16 mm	G 1/8"	ET-KPDM-63
80 mm	20 mm	G 1/8"	ET-KPDM-80
100 mm	25 mm	G 1/8"	ET-KPDM-100
125 mm	25 mm	G 1/4"	ET-KPDM-125

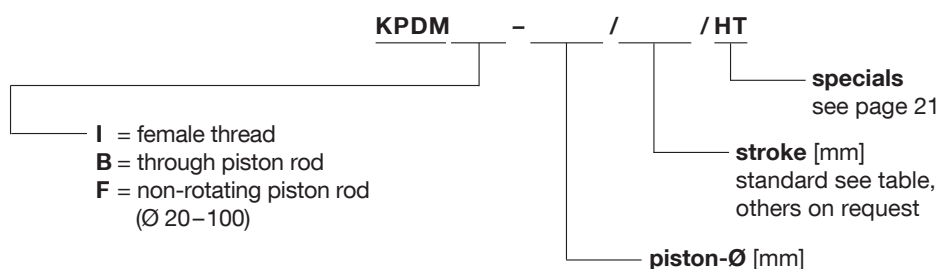
Standard strokes

Piston-Ø [mm]	Standard strokes [mm]
20-125	5, 10, 15, 20, 25, 30, 35, 40, 50, 60, 70, 75, 80, 90, 100, 125, 160, 200, 250
starting 32	300, 350, 400

Delivery contains nut on piston rod for male threaded piston rods

Delivery on request: cylinders without magnetic piston, +150 °C-version, special strokes

Order code



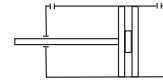
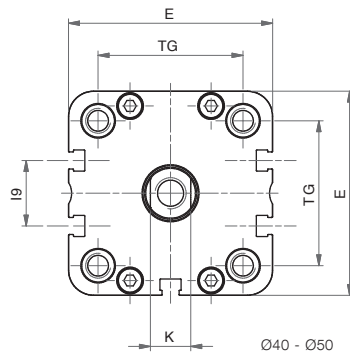
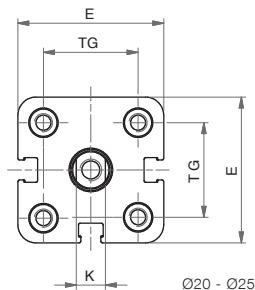
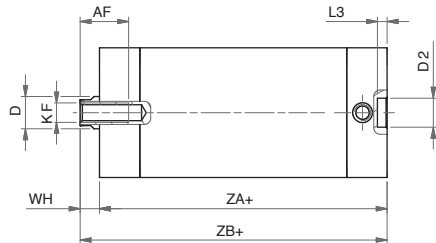
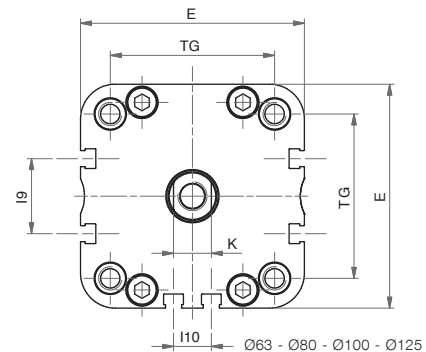
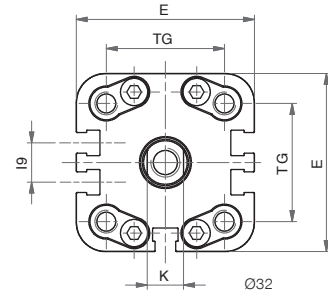
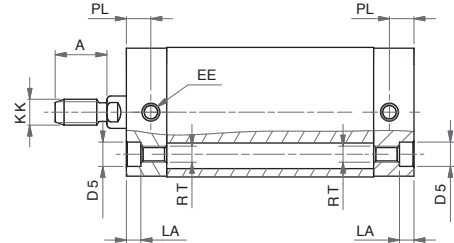
Compact cylinders according to ISO 21287 double acting

Compact cylinders according to ISO 21287

double acting

KPDM...

piston-Ø 20 to 125 mm

**KPDMI** Female piston rod**KPDM** Male piston rod

Dimensions

Piston-Ø	20 mm	25 mm	32 mm	40 mm	50 mm	63 mm	80 mm	100 mm	125 mm
A	16	16	19	19	22	22	28	28	40
AF	15	15	16	16	17	17	20	20	25
Ø D	10	10	12	12	16	16	20	25	25
Ø D2	9	9	9	9	12	12	12	12	12
Ø D5	7,5	7,5	9	9	10,5	10,5	13,5	13,5	–
E	36	40	49	54,5	65,5	77	95,5	113,5	135
EE	M5	M5	G1/8	G1/8	G1/8	G1/8	G1/8	G1/8	G1/4
I9	–	–	10,8	12,8	21	25,8	30	50	50
I10	–	–	–	–	–	13	18	35	50
K	8	8	10	10	13	13	17	22	22
KF	M6	M6	M8	M8	M10	M10	M12	M12	M16
KK	M8	M8	M10 x 1,25	M10 x 1,25	M12 x 1,25	M12 x 1,25	M16 x 1,5	M16 x 1,5	M20 x 1,5
LA	4,5	4,5	5	5	5	5	3	3	–
L3	3	3	3	3	4	4	4	4	4
PL	7,5	7,5	7,5	8	8	7,5	8	10,5	10,5
RT	M5	M5	M6	M6	M8	M8	M10	M10	M12
TG	22	26	32,5	38	46,5	56,5	72	89	110
WH	6,5	6	6,5	7	8	8	9	10	11
ZA+	37	39	44	45	45	49	54	67	81
ZB+	43,5	45	50,5	52	53	57	63	77	92

+ plus stroke [mm]



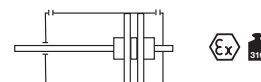
Compact cylinders according to ISO 21287 double acting

Compact cylinders according to ISO 21287

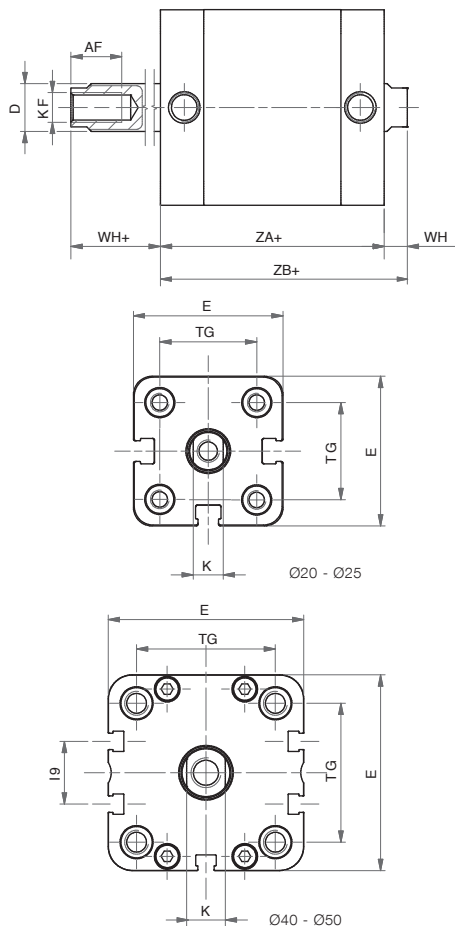
double acting with through piston rod

KPDM_B...

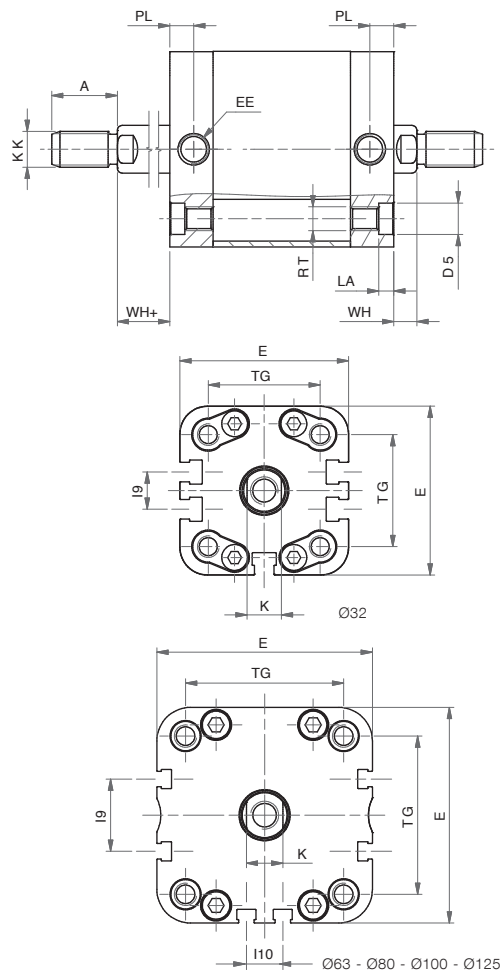
piston-Ø 20 to 125 mm



KPDMIB Female piston rod



KPDMB Male piston rod



Dimensions

Piston-Ø	20 mm	25 mm	32 mm	40 mm	50 mm	63 mm	80 mm	100 mm	125 mm
A	16	16	19	19	22	22	28	28	40
AF	15	15	16	16	17	17	20	20	25
Ø D	10	10	12	12	16	16	20	25	25
Ø D5	7,5	7,5	9	9	10,5	10,5	13,5	13,5	—
E	36	40	49	54,5	65,5	77	95,5	113,5	135
EE	M5	M5	G1/8	G1/8	G1/8	G1/8	G1/8	G1/8	G1/4
I9	—	—	10,8	12,8	21	25,8	30	50	50
I10	—	—	—	—	—	13	18	35	50
K	8	8	10	10	13	13	17	22	22
KF	M6	M6	M8	M8	M10	M10	M12	M12	M16
KK	M8	M8	M10 x 1,25	M10 x 1,25	M12 x 1,25	M12 x 1,25	M16 x 1,5	M16 x 1,5	M20 x 1,5
LA	4,5	4,5	5	5	5	5	3	3	—
PL	7,5	7,5	7,5	8	8	7,5	8	10,5	10,5
RT	M5	M5	M6	M6	M8	M8	M10	M10	M12
TG	22	26	32,5	38	46,5	56,5	72	89	110
WH	6,5	6	6,5	7	8	8	9	10	11
WH+	6,5	6	6,5	7	8	8	9	10	11
ZA+	37	39	44	45	45	49	54	67	81
ZB+	43,5	45	50,5	52	53	57	63	77	92

+ plus stroke [mm]



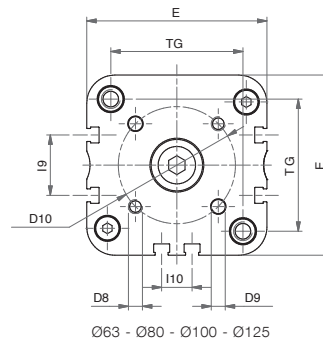
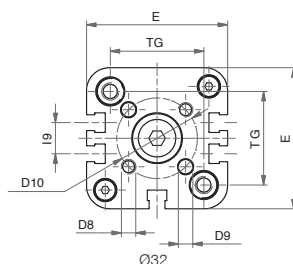
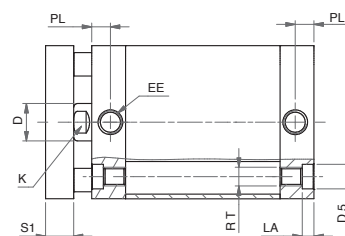
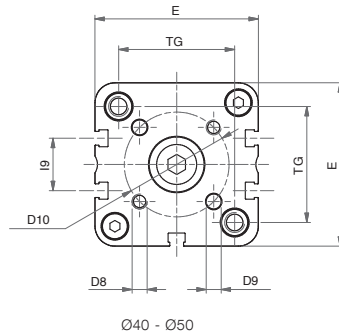
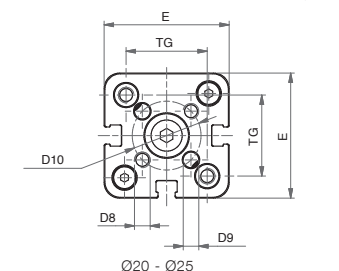
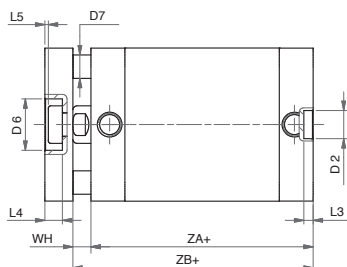
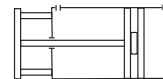
Compact cylinders according to ISO 21287 double acting

Compact cylinders according to ISO 21287

double acting non-rotating piston rod,
female thread

KPDMIF...

piston-Ø 20 to 125 mm



Dimensions

Piston-Ø	20 mm	25 mm	32 mm	40 mm	50 mm	63 mm	80 mm	100 mm	125 mm
Ø D	10	10	12	12	16	16	20	25	25
Ø D2	9	9	9	9	12	12	12	12	12
Ø D5	7,5	7,5	9	9	10,5	10,5	13,5	13,5	13,5
Ø D6	11	14	17	17	22	22	28	30	34
Ø D7	5	6	6	8	10	10	14	14	14
D8	M4	M5	M5	M5	M6	M6	M8	M10	M10
Ø D9	4	5	5	5	6	6	8	10	10
Ø D10	17	22	28	33	42	50	65	80	90
E	36	40	49	54,5	65,5	77	95,5	113,5	135
EE	M5	M5	G1/8	G1/8	G1/8	G1/8	G1/8	G1/8	G1/4
I9	–	–	10,8	12,8	21	25,8	30	50	50
I10	–	–	–	–	–	13	18	35	50
K	8	8	10	10	13	13	17	22	22
LA	4,5	4,5	5	5	5	5	3	3	–
L3	3	3	3	3	4	4	4	4	4
L4	5	5	6,5	6,5	7,5	7,5	9	10	11,2
L5	1	1	1,5	1,5	1,5	1,5	2	3	2,2
PL	7,5	7,5	7,5	8	8	7,5	8	10,5	10,5
RT	M5	M5	M6	M6	M8	M8	M10	M10	M12
S1	8	8	10	10	12	12	14	14	14
TG	22	26	32,5	38	46,5	56,5	72	89	110
WH	6,5	6	6,5	7	8	8	9	10	11
ZA+	37	39	44	45	45	49	54	67	81
ZB+	43,5	45	50,5	52	53	57	63	77	92

+ plus stroke [mm]



Compact cylinders according to ISO 21287 double acting

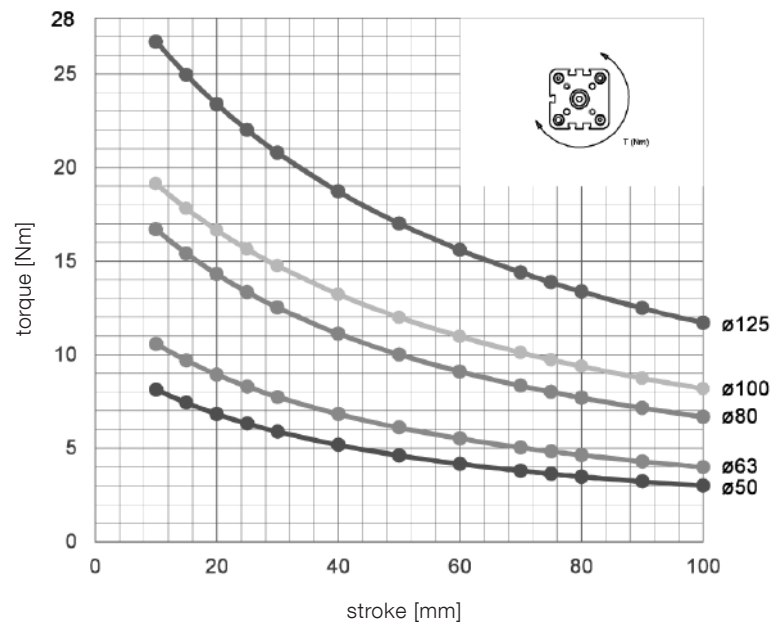
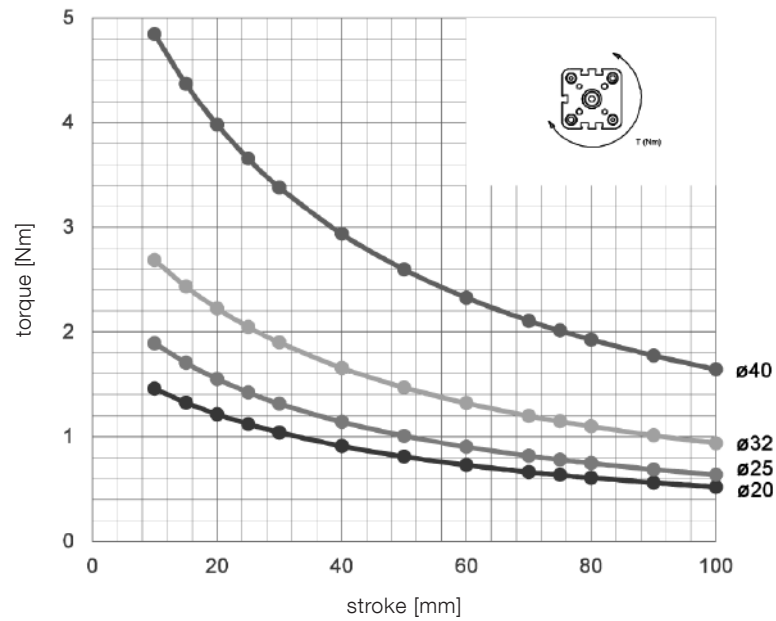
Compact cylinders according to ISO 21287

double acting non-rotating piston rod

KPDMIF...

piston-Ø 20 to 100 mm

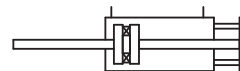
Maximum torque [Nm]



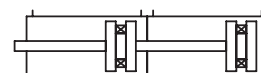
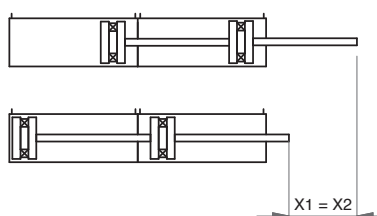
Compact cylinders according to ISO 21287

Non-standard products, delivery on request

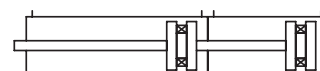
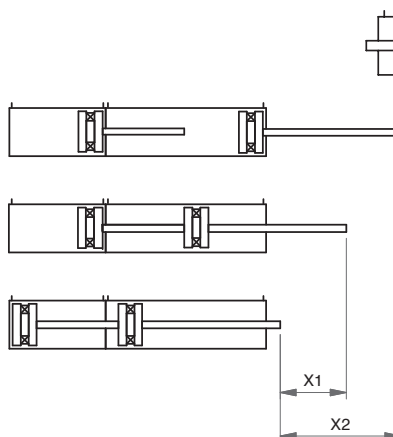
■ Double acting with through piston rod, non-rotating



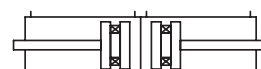
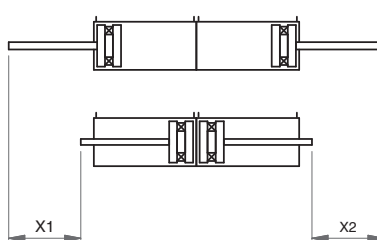
■ Tandem cylinder for double force – TM



■ Tandem – 3 positions – PM



■ Tandem – 4 positions – PM



For details refer to
page 1-23

■ Cylinders made from stainless steel – VES

■ Cylinders for low temperature applications – TT

To be used in environment and with media (dried air only) to -30°C

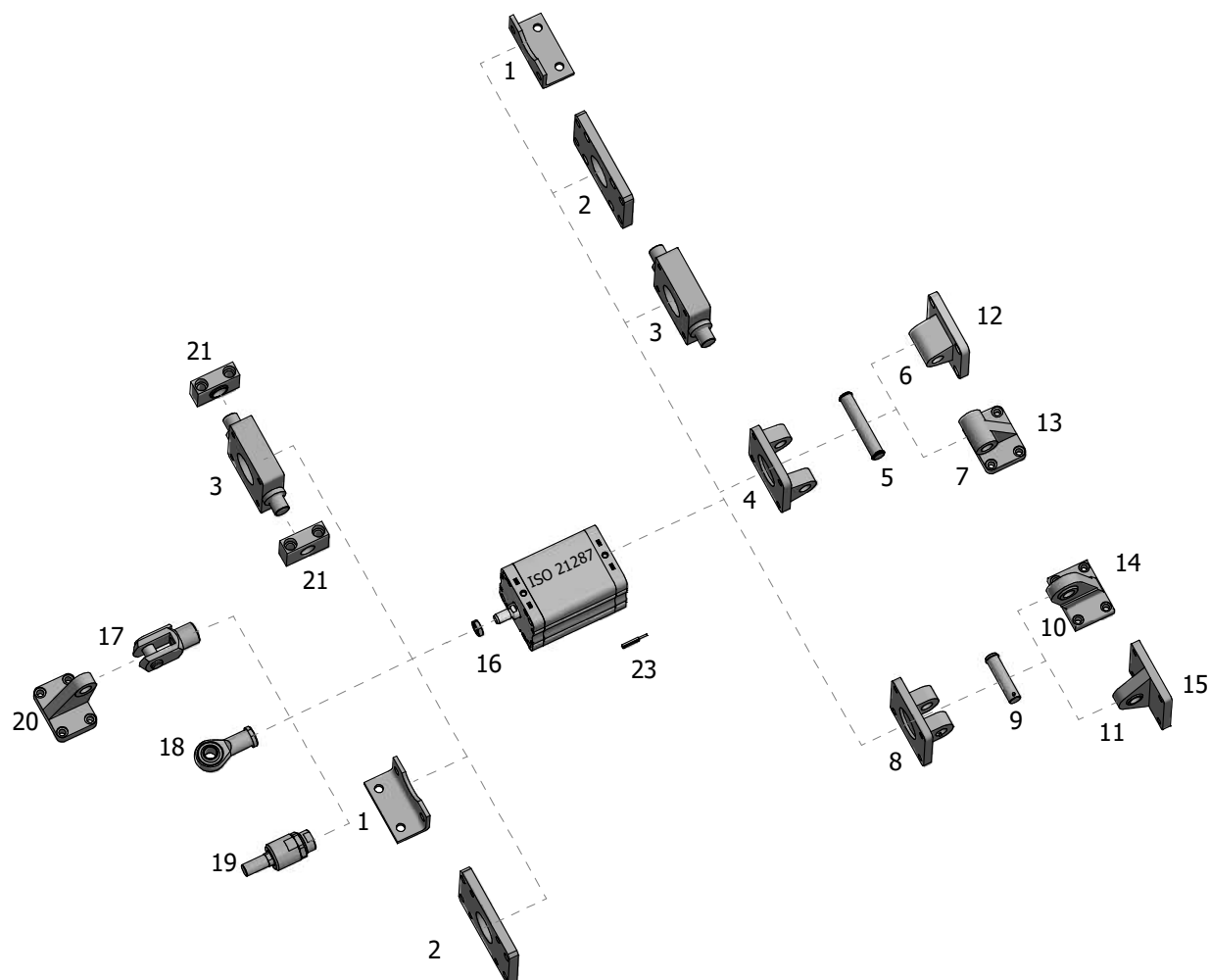
■ Cylinders for high temperature applications – HT

To be used in environment and with media up to $+150^{\circ}\text{C}$

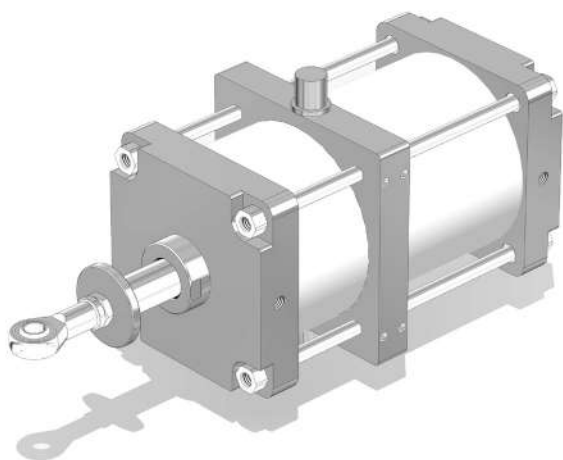
■ Compact cylinders according to UNITOP standard



Mounting accessory for compact cylinders ISO 21287

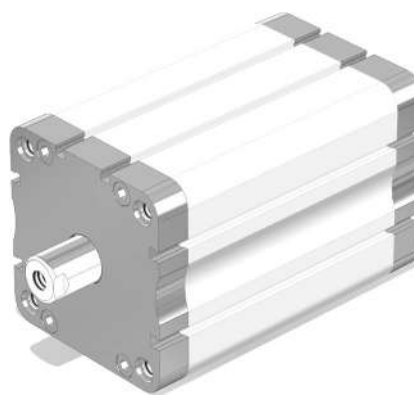


Example for special cylinders:



Double acting cylinder with integrated position measurement

Piston-Ø 100 mm to 320 mm.
With preassembled mounting accessories.
Use in large compressors for regulating the air supply.



Single acting compact cylinder

Piston-Ø 100 mm, stroke 18 mm with through piston rod,
based on a standard cylinder with enforced spring.



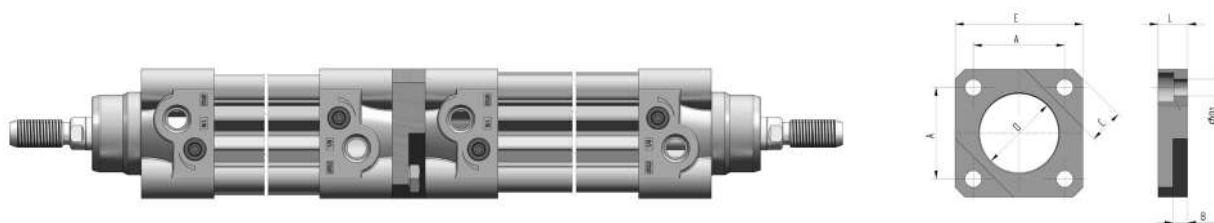
Mounting accessory for compact cylinders ISO 21287

Pos.	Mounting accessory	Type	
1	Foot mounting – 1 pair	MS1	page 48
2	Flange	MF1/2	page 48
3	Hinge for back and front	MT5	on request
4	Female hinge	MP2	page 46
5	Pin for hinge	AA4	page 47
6	Male hinge	MP4	page 46
7	Square hinge	AB7	page 49
8	Female hinge, narrow	AB6	page 45
9	Pin for narrow hinge	AA6	page 47
10	Male hinge with ball joint	US	page 49
11	Male hinge with ball joint, spherical	MP6	page 45
12	3-piece joint	MP2/4	page 47
13	3-piece joint	MZ	page 49
14	3-piece joint, spherical	UL	page 49
15	3-piece joint, spherical	AB/MP6	page 47
16	Nut at piston rod	DS	page 60
17	Clevis with lockable pin*	GF	page 57
18	Rod eye female thread*	GS	page 58
19	Self-aligning coupling*	FK	page 59
20	Male hinge for clevis		on request
21	Support for hinge	AT4	n. a.
23	Proximity switch	M60 / M70	chapter 1.5.3

* Female thread, male threaded on request.

Plates for assembling two compact or ISO cylinders back to back

piston-Ø 32 to 100 mm, type VP



Type	Piston-Ø	A	B	C	Ø D	Ø D1	E	L
VP-032	32 mm	32,5	6	13	30	6,5	47	12
VP-040	40 mm	38	6	13,5	35	6,5	53	12
VP-050	50 mm	46,5	7,5	17,5	40	8,5	65	15
VP-063	63 mm	56,5	7,5	17,5	45	8,5	75	15
VP-080	80 mm	72	10	25	45	11	95	20
VP-100	100 mm	89	10	26	55	11	115	20

Delivery including screws



Compact cylinders Ø 125 to 200 mm single acting

Compact cylinders

single acting
piston-Ø 125 to 200 mm



KKEM
spring in



KKEMZ
spring out

Type KKEMI – Female piston rod
Type KKEM – Male piston rod incl. fixing nut
Type KKEMIZ – Female piston rod
Type KKEMZ – Male piston rod incl. fixing nut



Technical information

General	
Design	compact cylinder with tie-rods
Function	double acting magnetic piston
Piston-Ø	20 to 125 mm
Stroke	5 to 60 mm
Ports	M5 – G 1/8" – G 1/4"
Fixing	mounting acc. ISO 15552
Position	any
Temperature range	dried air –20 °C to +80 °C
Materials	heads: aluminum anodized piston rod: stainless AISI 303 tube: aluminum anodized seals: PU and NBR
Pneumatic information	
Media	air-quality 7-4-4 for particles-water-oil acc. ISO 8573-1:2010
Operating pressure	1 to 10 bar
Attention	
Cylinders not according to standard but standard mounting accessories can be used	

Dimensions

Piston-Ø	Piston rod Ø	Ports	Spare part kit
125 mm	30 mm	G 1/4"	ET-KKPDM-125
160 mm	40 mm	G 3/8"	ET-KKPDM-160
200 mm	40 mm	G 3/8"	ET-KKPDM-200

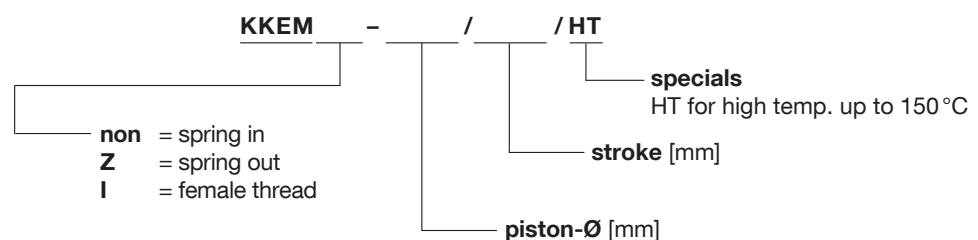
Standard strokes

Piston-Ø [mm]	Standard strokes [mm]
125-200	10, 25, 50

Delivery contains nut on piston rod for male threaded piston rods

Delivery on request: cylinders without magnetic piston, +150 °C-version, special strokes

Order code



Compact cylinders Ø 125 to 200 mm single acting

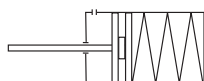
KKEM... Ø 125 to 200 mm

KKEMI Cylinder with spring in
Piston rod female thread

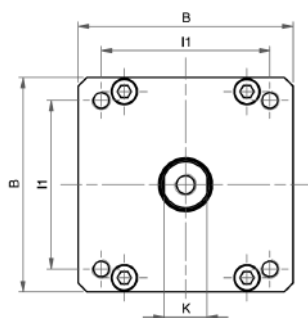
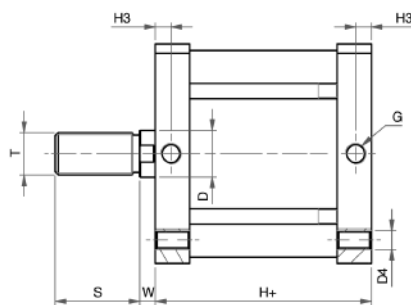
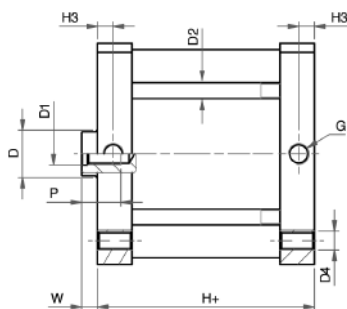


KKEM Cylinder with spring in
Piston rod male thread

KKEMIZ Cylinder with spring out
Piston rod female thread



KKEMZ Cylinder with spring out
Piston rod male thread



Dimensions

Piston-Ø	125 mm	160 mm	200 mm
B	140	180	220
Ø D	30	40	40
D1	M14	M20	M20
Ø D2	10	12	14
D4	M12	M16	M16
G	G1/4	G3/8	G3/8
H+	78	87	87
H + FKM	83	91	105
H3	10	12	12
I1	110	140	175
K	28	36	36
P	25	30	30
S	54	72	72
T	M27 x 2	M36 x 2	M36 x 2
W	10	12	12

+ plus stroke [mm]



Compact cylinders Ø 125 to 200 mm single acting

Spring forces single acting compact cylinders type KKEM [N]

Piston-Ø	F1 at stroke [mm]			F2
	10	25	50	
125 mm	267	231	172	294
160 mm	273	239	183	297
200 mm	276	243	187	298

Spring forces single acting compact cylinders type KPEMZ [N]

Piston-Ø	F1 at stroke [mm]			F2
	10	25	50	
125 mm	267	231	172	294
160 mm	273	239	183	297
200 mm	276	243	187	298



Theoretical forces double acting compact cylinders [N] at 6 bar

Piston-Ø	Double acting type KPDM		with through piston rod type KPDMB
	in	out	both
125 mm	6880	7280	6880
160 mm	11200	11960	11200
200 mm	17960	18720	17960
250 mm	28600	29350	28600



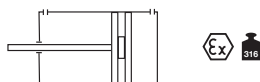
Compact cylinders Ø 125 to 200 mm double acting

Compact cylinders

double acting

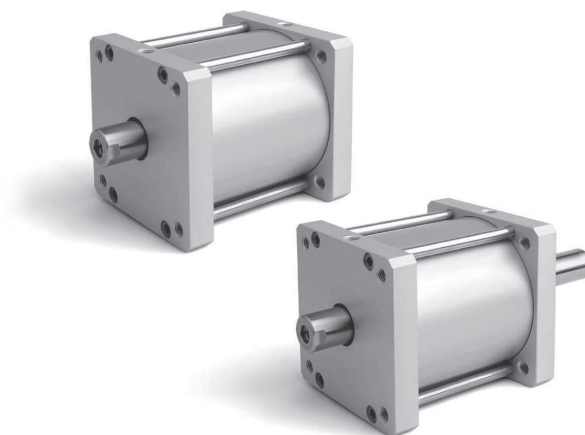
KKDM

piston-Ø 125 to 250 mm



Type KKPDMI – Female piston rod

Type KKPDM – Male piston rod incl. fixing nut



Technical information

General	
Design	compact cylinder with tie-rods
Function	double acting magnetic piston
Piston-Ø	125 to 250 mm
Stroke	10 to 300 mm
Ports	G 1/4" – G 3/8" – G 1/2"
Fixing	mounting acc. ISO 15552
Position	any
Temperature range	dried air –20 °C to +80 °C
Materials	heads: aluminum anodized piston rod: stainless AISI 303 tube: aluminum anodized seals: PU and NBR
Pneumatic information	
Media	air-quality 7-4-4 for particles-water-oil acc. ISO 8573-1:2010
Operating pressure	1 to 10 bar
Attention	
Cylinders not according to standard but standard mounting accessories can be used	

Dimensions

Piston-Ø	Piston rod Ø	Ports	Spare part kit
125 mm	30 mm	G 1/4"	ET-KKPDM-125
160 mm	40 mm	G 3/8"	ET-KKPDM-160
200 mm	40 mm	G 3/8"	ET-KKPDM-200
250 mm	40 mm	G 1/2"	ET-KKPDM-250

Standard strokes

Piston-Ø [mm]	Standard strokes [mm]
125-250	10, 25, 50, 75, 100, 125, 160, 200, 250, 300

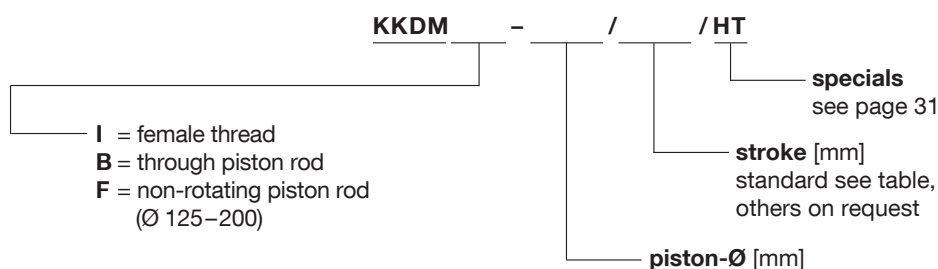


**Cylinders up to piston-Ø 200 mm
are available in stainless steel!**

Delivery contains nut on piston rod for male threaded piston rods

Delivery on request: cylinders without magnetic piston, +150 °C-version, special strokes

Order code



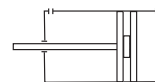
Compact cylinders Ø 125 to 200 mm double acting

Compact cylinders

double acting

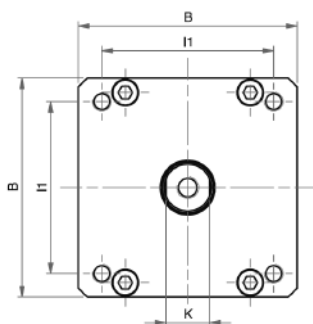
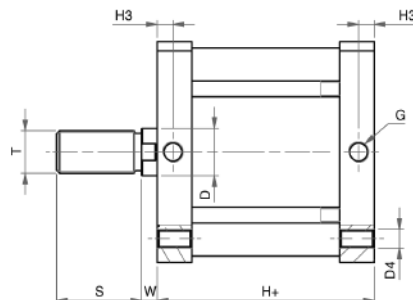
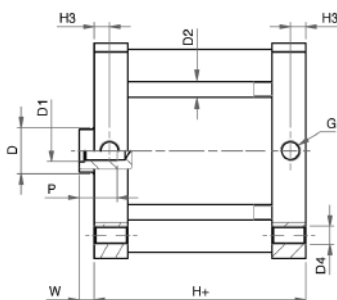
KKDM...

piston-Ø 125 to 250 mm



KKDMI Female piston rod

KKDM Male piston rod



Dimensions

Piston-Ø	125 mm	160 mm	200 mm	250 mm
B	140	180	220	270
Ø D	30	40	40	40
D1	M14	M20	M20	M24
Ø D2	10	12	14	16
D4	M12	M16	M16	M20
G	G1/4	G3/8	G3/8	G1/2
H+	78	87	87	116
H + FKM	83	91	105	116
H3	10	12	12	15
I1	110	140	175	220
K	28	36	36	36
P	25	30	30	35
S	54	72	72	72
T	M27 x 2	M36 x 2	M36 x 2	M36 x 2
W	10	12	12	12

+ plus stroke [mm]



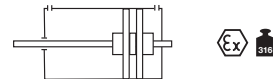
Compact cylinders Ø 125 to 200 mm double acting

Compact cylinders

double acting with through piston rod

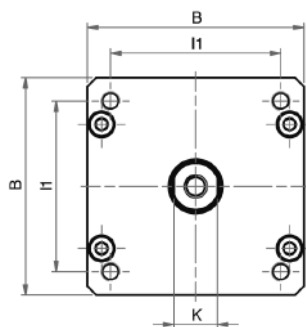
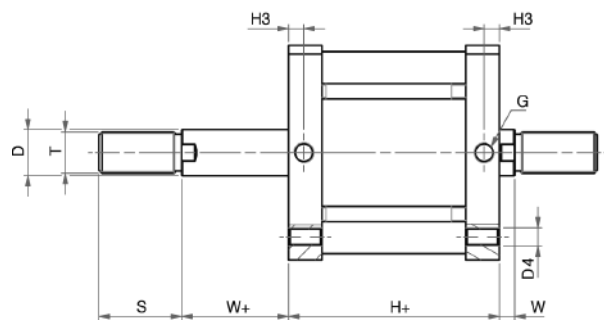
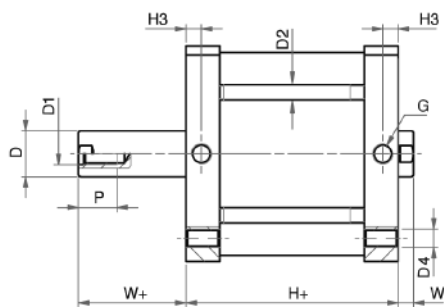
KKDM_B...

piston-Ø 125 to 250 mm



KKDMIB Female piston rod

KKDMB Male piston rod



Dimensions

Piston-Ø	125 mm	160 mm	200 mm	250 mm
B	140	180	220	270
Ø D	30	40	40	40
D1	M14	M20	M20	M24
Ø D2	10	12	14	16
D4	M12	M16	M16	M20
G	G1/4	G3/8	G3/8	G1/2
H+	78	87	87	116
H + FKM	83	91	105	116
H3	10	12	12	15
I1	110	140	175	220
K	28	36	36	36
P	25	30	30	35
S	54	72	72	72
T	M27 x 2	M36 x 2	M36 x 2	M36 x 2
W	10	12	12	12
W+	10	12	12	12

+ plus stroke [mm]



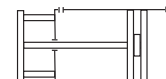
Compact cylinders Ø 125 to 200 mm double acting

Compact cylinders

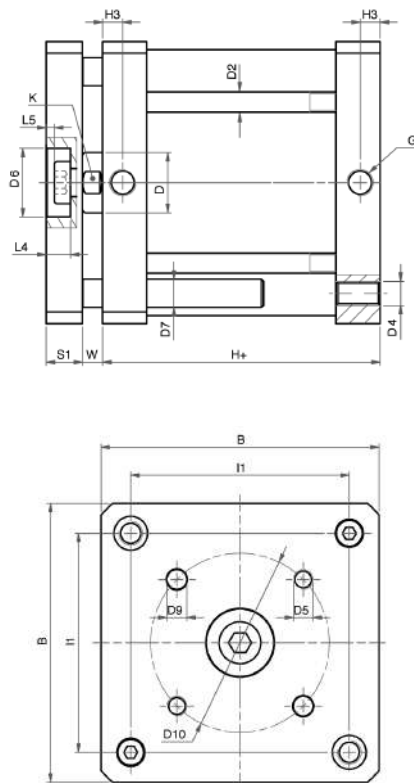
double acting non-rotating piston rod

KKDMIF...

piston-Ø 125 to 200 mm



KKDMIF Female piston rod

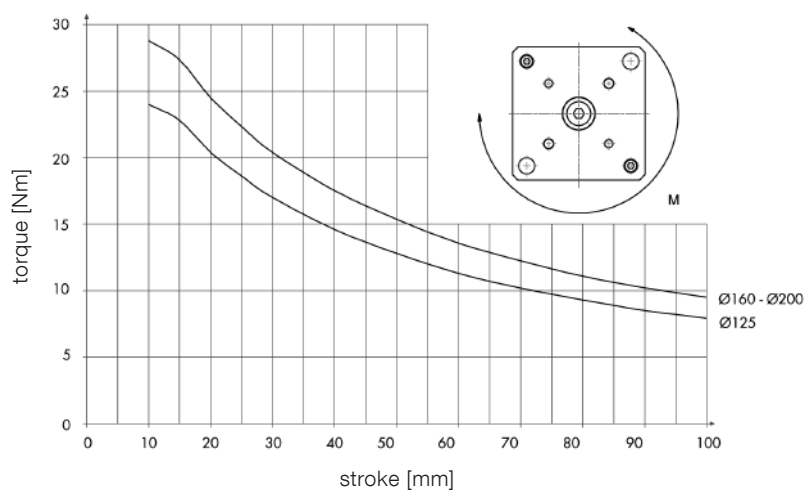


Dimensions

Piston-Ø	125 mm	160 mm	200 mm
B	140	180	220
Ø D	30	40	40
D1	M14	M20	M20
Ø D2	10	12	14
D4	M12	M16	M16
DS	M10	M12	M12
Ø D6	34	46	46
Ø D7	14	20	20
Ø D9	10	12	12
Ø D10	90	110	110
G	G1/4	G3/8	G3/8
H+	78	87	87
H + FKM	83	91	105
H3	10	12	12
I1	110	140	175
K	28	36	36
L4	12	16	16
L5	3	3	3
S1	18	23	23
W	10	12	12

+ plus stroke [mm]

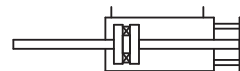
Maximum torque [Nm]



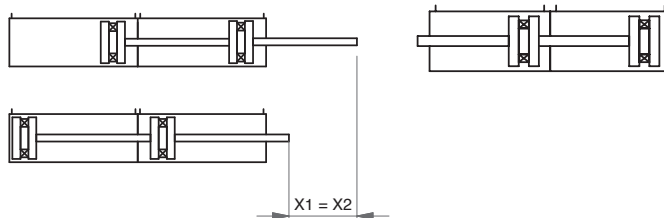
Compact cylinders piston-Ø 125 to 250 mm

Non-standard products, delivery on request

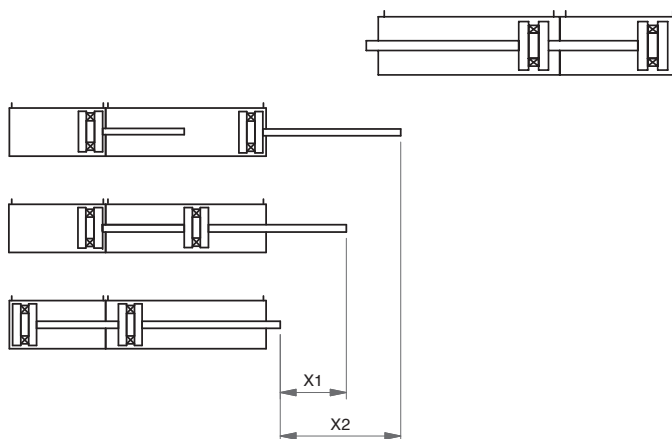
■ Double acting with through piston rod, non-rotating



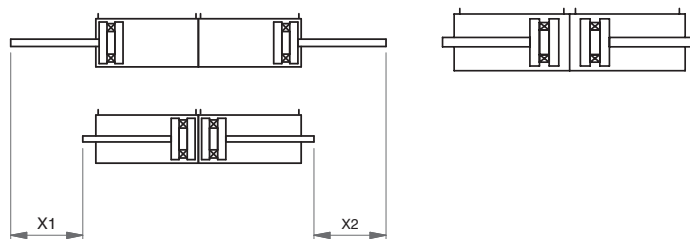
■ Tandem cylinder for double force – TM



■ Tandem – 3 positions – PM



■ Tandem – 4 positions – CM



■ Cylinders for low temperature applications – TT

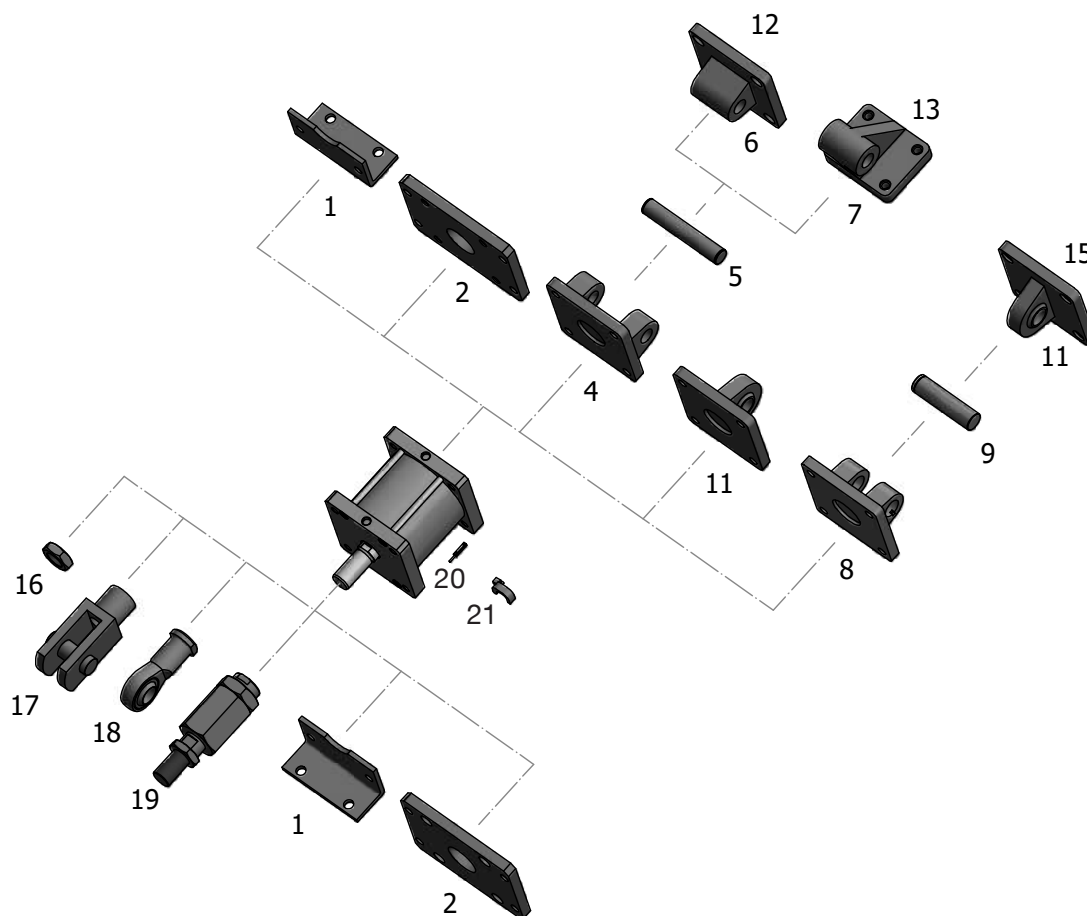
To be used in environment and with media (dried air only) to -30°C

■ Cylinders for high temperature applications – HT

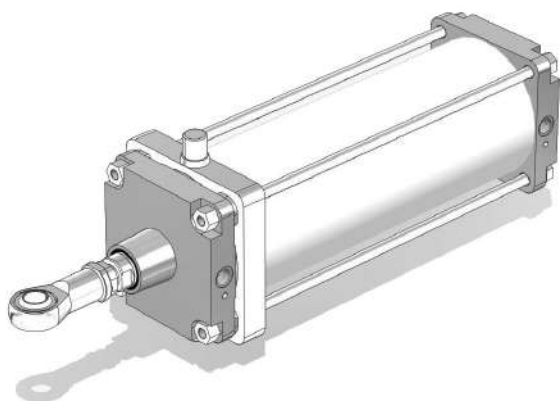
To be used in environment and with media up to $+150^{\circ}\text{C}$



Mounting accessories for compact cylinder Ø 125 to 250 mm

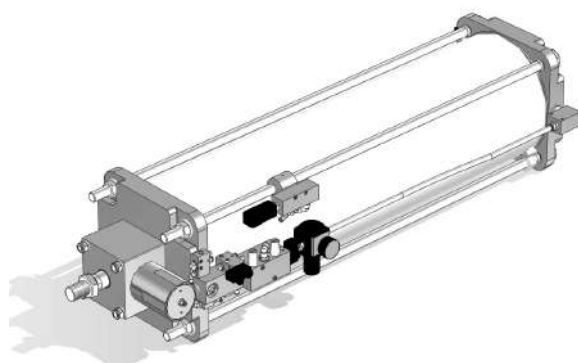


Example for special cylinders:



DIS-250/650 piston rod-Ø 63 mm

Double acting cylinder piston-Ø 250 mm, stroke 650 mm with enforced piston rod. Modification of a standard cylinder for wider and therefore stronger piston rod. Application railway cars.



ZVE-DIMS-320/1100

Double acting cylinder piston-Ø 320 mm, stroke 1100 mm with built-on safety control unit and locking unit. Safety cylinder for sewage treatment plant.

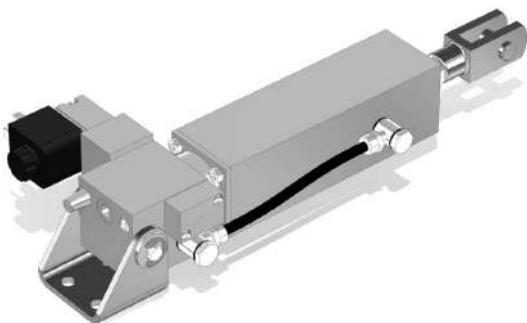


Mounting accessories for compact cylinder Ø 125 to 250 mm

Pos.	Mounting accessory	Type	
1	Foot mounting – 1 pair	MS1	page 54
2	Flange	MF1/2	page 54
4	Female hinge	MP2	page 52
5	Pin for hinge	AA4	page 53
6	Male hinge	MP4	page 52
7	Male hinge 90°	AB7	page 55
8	Female hinge, narrow	AB6	page 51
9	Pin for narrow hinge	AA6	page 53
10	Male hinge with ball joint	US	page 55
11	Male hinge with ball joint, spherical	MP6	page 51
12	3-piece joint	MP2/4	page 53
13	3-piece joint 90°	MZ	page 55
14	3-piece joint, spherical	UL	page 55
15	3-piece joint spherical	AB/MP6	page 53
16	Nut at piston rod	DS	page 60
17	Clevis with lockable pin*	GF	page 57
18	Rod eye female thread*	GS	page 58
19	Self-aligning coupling*	FK	page 59
20	Proximity switch	M60	chapter 1.5.3
21	Fixing for proximity switch	BZ	chapter 1.5.3

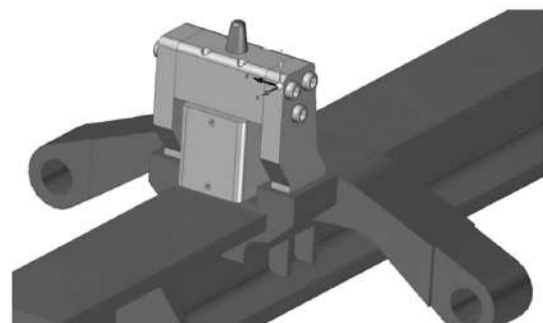
* Female thread, male threaded on request.

Example for special cylinders:



Cylinder-valve-unit as subassembly ready to be installed

For a customer in Switzerland we manufacture an assembly that consist from a clamping cylinder (Knorr product range) and a 5/2-way solenoid valve. The system contains all the necessary tubing as well as the mounting accessories. This is only one example for subassemblies manufactured by JOYNER. They can be ordered from the customer under one part-number and they are ready to be installed.



Clamping cylinders for cranes on ships

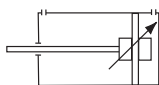
Single acting stainless steel cylinder with defined spring force for pushing the rod out. Cylinder is installed on cranes on ships to fix moving parts while not in use.



Profile cylinders according to DIN ISO 15552

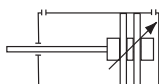
standard and low friction cylinder
piston-Ø32 to 100 mm

DVP



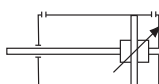
DVPM

M = magnetic piston



DVPB

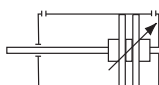
B = through piston rod



DVPMB

M = magnetic piston

B = through piston rod



Technical information

General	
Design	Profile cylinder
Function	double acting with adj. cushioning
Piston-Ø	125 to 320 mm
Stroke	1 to 2.500 mm
Ports	G 1/2" – G 3/4" – G 1"
Fixing	mounting acc. ISO 15552
Position	any
Temperature range	-20 °C to +80 °C type DVPH: 0 °C to +150 °C
Materials	heads: aluminum painted piston rod: stainless AISI 402 tube: aluminum anodized seals: NBR, PU for type DVPH
Pneumatic information	
Media	air-quality 7-4-4 for particles-water-oil acc. ISO 8573-1:2010
Operating pressure	1 to 10 bar low friction: 0,1 to 10 bar
Attention	
Below 0 °C dried air only	

Standard strokes

Standard strokes [mm]
25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500

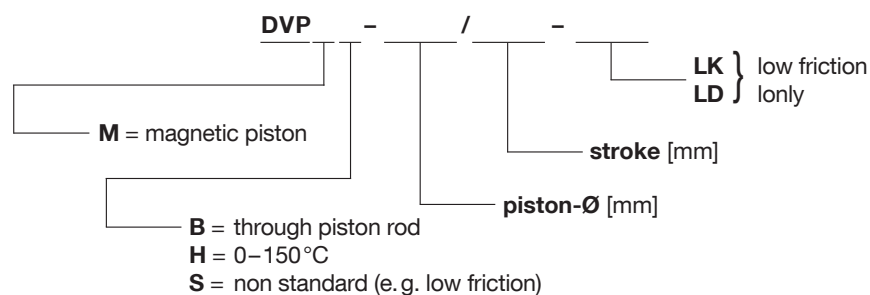


Tie-rod cylinders are available in stainless steel!

Delivery contains nut on piston rod.

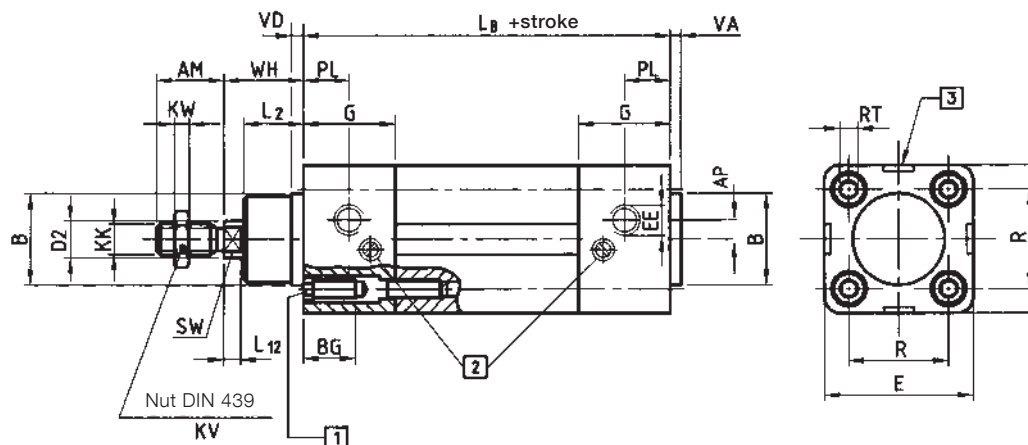
Available on request: single acting cylinders, cylinders without adjustable cushioning, special strokes.

Low friction cylinders are single acting. 2 versions are available LK = pressure at head, LD = pressure at cylinder back-end.

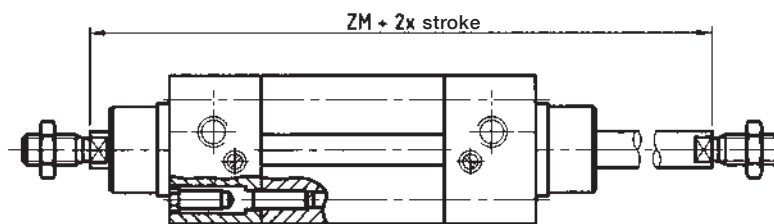
Order code

Profile cylinders according to ISO 15552 double acting

Type DVP / DVPM



Type DVPB / DVPMB with through piston rod



Dimensions

Piston-Ø	AM	AP	B _{e11}	BG	D2	E	EE	G	KK	KV	KW	L ₂
32mm	22	5,0	30	16	12	47	G 1/8	31	M10x1,25	17	5	16
40mm	24	5,0	35	16	16	55	G 1/4	34	M12x1,25	19	6	20
50mm	32	7,5	40	16	20	65	G 1/4	36	M16x1,5	24	8	25
63mm	32	8,0	45	16	20	78	G 3/8	40	M16x1,5	24	8	25
80mm	40	9,0	45	16	25	95	G 3/8	42	M20x1,5	30	10	32
100mm	40	11,0	55	16	25	115	G 1/2	45	M20x1,5	30	10	35

Piston-Ø	L ₈	L ₁₂	PL	R	RT	SW	VA	VD	WH	ZM	base weight	weight/10mm stroke
32mm	94	6,0	11	32,5	M6	10	4	5	26	146	0,460	0,023
40mm	105	6,5	13	38,0	M6	13	4	5	30	165	0,730	0,032
50mm	106	8,0	14	46,5	M8	16	4	5	37	180	1,130	0,047
63mm	121	8,0	16	56,5	M8	16	4	5	37	195	1,560	0,051
80mm	128	10,0	16	72,0	M10	21	4	5	46	220	2,430	0,075
100mm	138	10,0	18	89,0	M10	21	4	5	51	240	3,560	0,088

1 hexagon screw with female thread for fixing mounting accessories

2 regulator for adjustable cushioning

3 groove for proximity switch

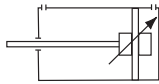


Tie-rod cylinders according to ISO 15552 double acting

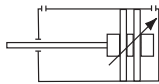
DI / DIM

Tie-rod cylinders according to DIN ISO 15552

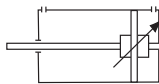
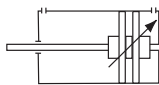
Standard and low friction cylinder
piston-Ø 125 to 320 mm

DI**DIM**

M = magnetic piston

**DIB**

B = through piston rod

**DIMB**M = magnetic piston
B = through piston rod

Technical information

General	
Design	Tie-rod cylinder
Function	double acting with adj. cushioning
Piston-Ø	125 to 320 mm
Stroke	1 to 2.500 mm
Ports	G 1/2" – G 3/4" – G 1"
Fixing	mounting acc. ISO 15552
Position	any
Temperature range	dried air -20 °C to +80 °C type DIH: 0 °C to +150 °C
Materials	heads: aluminum painted piston rod: stainless AISI 420 tube: aluminum anodized seals: NBR, PU for type DVP
Pneumatic information	
Media	air-quality 7-4-4 for particles-water-oil acc. ISO 8573-1:2010
Operating pressure	1 to 10 bar low friction: 0,1 to 10 bar
Attention	
Below 0 °C dried air only	

Standard strokes

Standard strokes [mm]
25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600, 700, 800, 900, 1.000



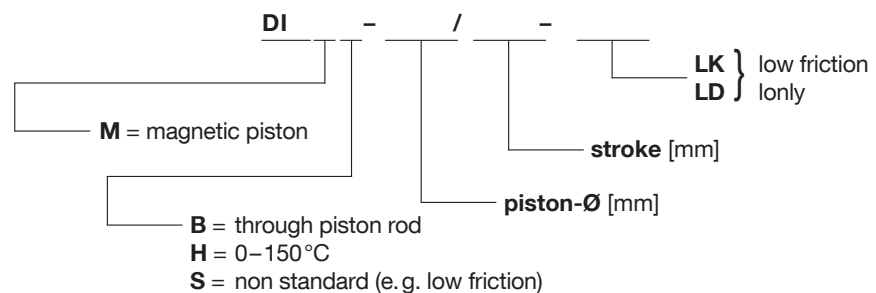
To piston-Ø 200 mm also
available in stainless steel!

Delivery contains nut on piston rod.

Available on request: single acting cylinders, cylinders without adjustable cushioning, special strokes.

Low friction cylinders are single acting. 2 versions are available LK = pressure at head, LD = pressure at cylinder back-end.

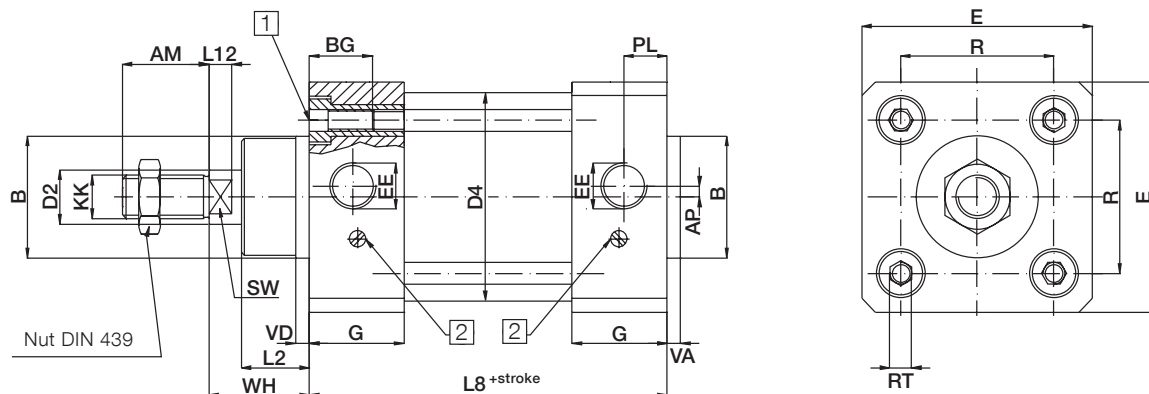
Order code



Unused positions to be deleted.

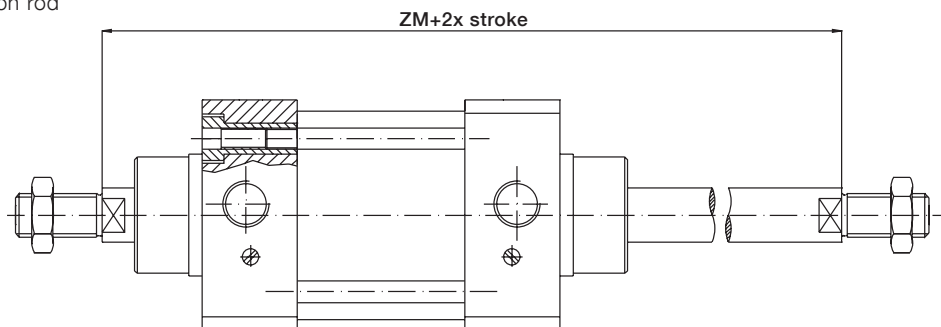
Tie-rod cylinders according to ISO 15552 double acting

Type DI / DIM



Type DIB / DIMB

with through piston rod



Dimensions

Piston-Ø	AM _{-0,2} ⁰	AP	B _{e11}	BG	D2	D4	E	EE	G	KK	L ₂	L ₈
125 mm	54	0	60	20	32	134	142	G 1/2	53	M27x2	40	160 ± 1
160 mm	72	7,5	65	24	40	170	182	G 3/4	59	M36x2	38	180 ± 1,1
200 mm	72	0	75	24	40	210	222	G 3/4	61	M36x2	55	180 ± 1,6
250 mm	84	0	90	25	50	264	274	G 1	61	M42x2	65	200 ± 1,6
320 mm	96	0	110	28	63	336	352	G 1	63	M48x2	75	220 ± 2,2

Piston-Ø	L ₁₂	PL	R	RT	SW	VA	VD	WH	ZM	base weight	weight/10mm stroke
125 mm	10	20	110 ± 1,1	M12	27	6	6	65	290	6,24	0,10
160 mm	12	27	140 ± 1,1	M16	38	6	6	80	340	10,5	0,17
200 mm	12	35	175 ± 1,1	M16	38	6	6	95	370	14,6	0,19
250 mm	20	31	220 ± 1,5	M20	46	10	10	105	410	24,8	0,28
320 mm	20	34	270 ± 1,5	M24	55	10	10	120	460	43,4	0,45

1 hexagon screw with female thread for fixing mounting accessories

2 regulator for adjustable cushioning

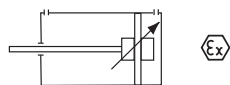


Profile cylinders according to ISO 15552 double acting

Profile cylinders according to DIN ISO 15552 – ECO –

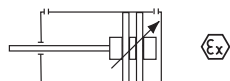
piston-Ø 32 to 125 mm

DAP



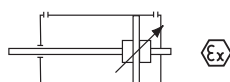
DAPM

M = magnetic piston



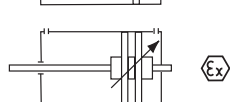
DAPB

B = through piston rod



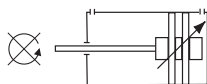
DAPMB

M = magnetic piston
B = through piston rod



DAPMF

M = magnetic piston
F = non-rotating
piston rod



Technical information

General	
Design	Profile cylinder
Function	double acting with adj. cushioning
Piston-Ø	32 to 125 mm
Stroke	1 to 2.800 mm
Ports	G 1/8" – G 1/4" – G 3/8" – G 1/2"
Fixing	mounting acc. ISO 15552
Position	any
Temperature range	dried air -20 °C to +80 °C type HT: 0 °C to +150 °C
Materials	heads: aluminum painted piston rod: steel C45, cromated tube: aluminum anodized seals: NBR, PU for type DVPH
Pneumatic information	
Media	air-quality 7-4-4 for particles-water-oil acc. ISO 8573-1:2010
Operating pressure	1 to 10 bar
Attention	
Below 0 °C dried air only	

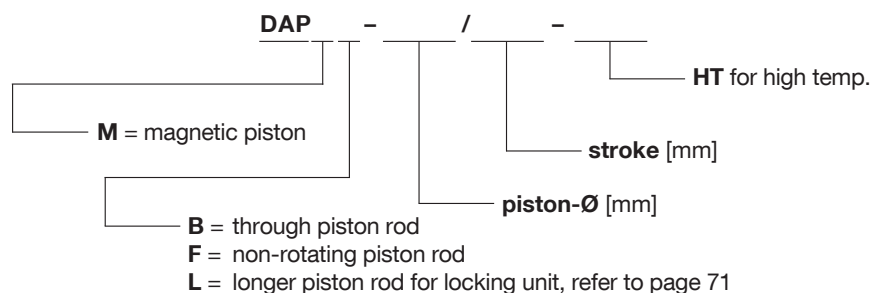
Standard strokes

Standard strokes [mm]
25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500

Delivery contains nut on piston rod.

Available on request:
single acting cylinders, special strokes.

Order code



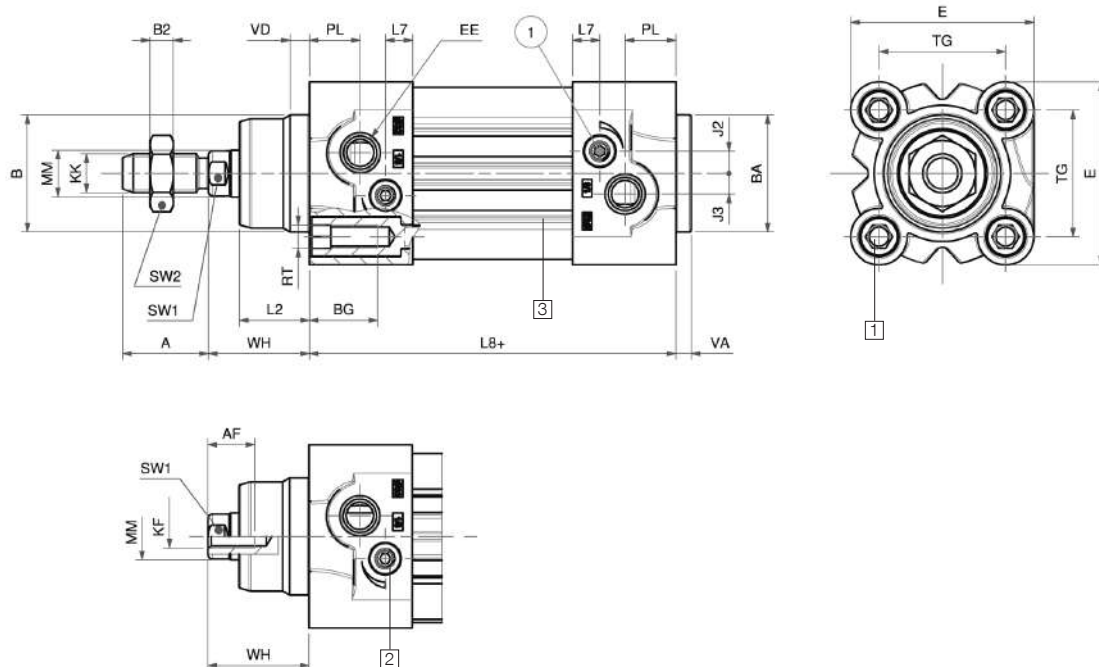
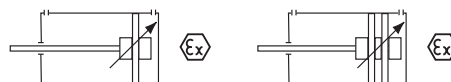
Profile cylinders according to ISO 15552 double acting

Profile cylinders according to DIN ISO 15552 – ECO –

double acting

DAP / DAPM

piston-Ø 32 to 125 mm



Dimensions

Piston-Ø	32 mm	40 mm	50 mm	63 mm	80 mm	100 mm	125 mm
A	22	24	32	32	40	40	54
AF	12	12	16	16	20	20	32
Ø B	30	35	40	45	45	55	60
Ø BA	30	35	40	45	45	55	60
B2	6	7	8	8	9	9	12
BG	16	16	16	16	17	17	20
D2	6	6	8	8	10	10	12
E	47	54,5	65	75	93	110	134
EE	G1/8"	G1/4"	G1/4"	G3/8"	G3/8"	G1/2"	G1/2"
J2	5,7	7,3	7	8	8	12	10
J3	5,3	5	6	7,5	7	7	7
KF	M6	M8	M8	M10	M10	M12	M16
KK	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
L2	18	22	25,5	26	32	38	46
L7	7	9,2	9	8	10,5	10	11
L8+	94	105	106	121	128	138	160
Ø MM	12	16	20	20	25	25	32
PL	13	14	14	16	16	18	18
RT	M6	M6	M8	M8	M10	M10	M12
SW1	10	13	17	17	22	22	27
SW2	17	19	24	24	30	30	41
TG	32,5	38	46,5	56,5	72	89	110
VA	4	4	4	4	4	4	6
VD	5	5	6	6	7	7	10
WH	26	30	37	37	46	51	65
*	20	22	25	25	35	35	35

+ 1 x stroke

* cushioning

1 hexagon screw with female thread for fixing mounting accessories

2 regulator for adjustable cushioning

3 groove for proximity switch



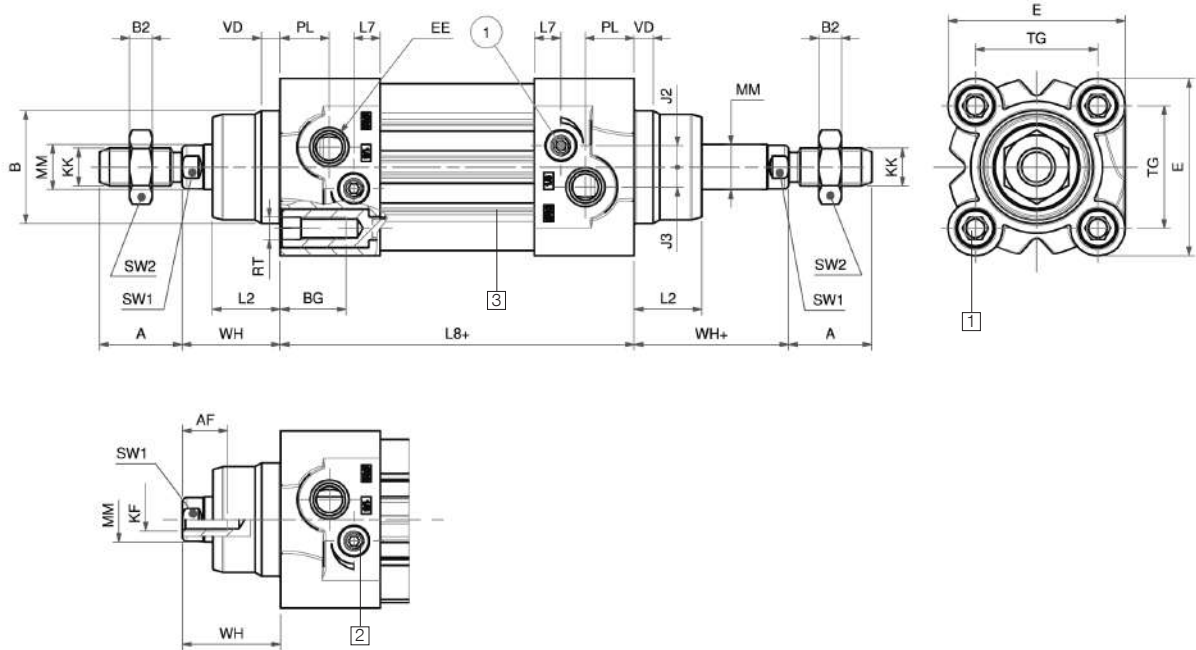
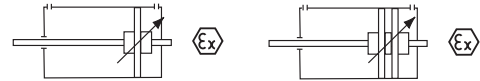
Profile cylinders according to ISO 15552 double acting

Profile cylinders according to DIN ISO 15552 – ECO –

double acting with through piston rod

DAPB/DAPMB

piston-Ø 32 to 125 mm



Dimensions

Piston-Ø	32 mm	40 mm	50 mm	63 mm	80 mm	100 mm	125 mm
A	22	24	32	32	40	40	54
AF	12	12	16	16	20	20	32
Ø B	30	35	40	45	45	55	60
B2	6	7	8	8	9	9	12
BG	16	16	16	16	17	17	20
D2	6	6	8	8	10	10	12
E	47	54,5	65	75	93	110	134
EE	G1/8"	G1/4"	G1/4"	G3/8"	G3/8"	G1/2"	G1/2"
J2	5,7	7,3	7	8	8	12	10
J3	5,3	5	6	7,5	7	7	7
KF	M6	M8	M8	M10	M10	M12	M16
KK	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
L2	18	22	25,5	26	32	38	46
L7	7	9,2	9	8	10,5	10	11
L8+	94	105	106	121	128	138	160
Ø MM	12	16	20	20	25	25	32
PL	13	14	14	16	16	18	18
RT	M6	M6	M8	M8	M10	M10	M12
SW1	10	13	17	17	22	22	27
SW2	17	19	24	24	30	30	41
TG	32,5	38	46,5	56,5	72	89	110
VD	5	5	6	6	7	7	10
WH	26	30	37	37	46	51	65
WH+	26	30	37	37	46	51	65
*	20	22	25	25	35	35	35

+ 1 x stroke

* cushioning

1 hexagon screw with female thread for fixing mounting accessories

2 regulator for adjustable cushioning

3 groove for proximity switch



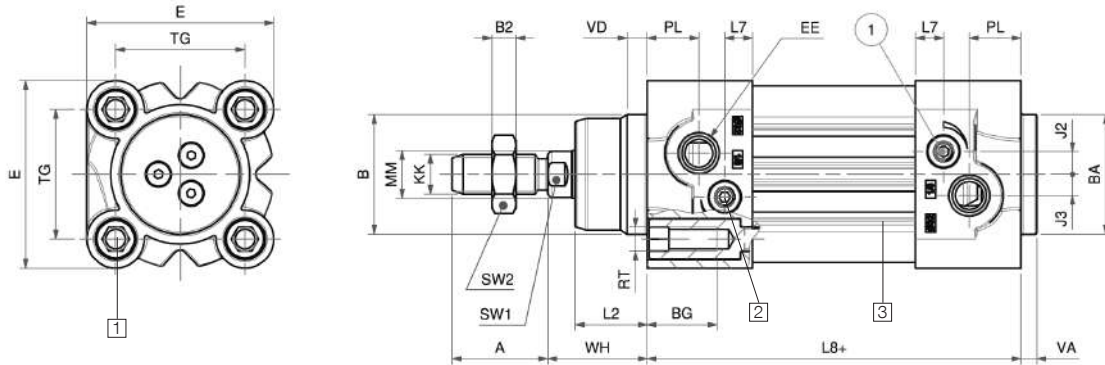
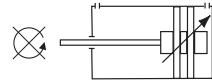
Profile cylinders according to ISO 15552 double acting

Profile cylinders according to DIN ISO 15552

double acting with non-rotating piston rod

DAPMF

piston-Ø 32 to 63 mm



Dimensions

Piston-Ø	32 mm	40 mm	50 mm	63 mm
A	22	24	32	32
AF	12	12	16	16
Ø B	30	35	40	45
Ø BA	30	35	40	45
B2	6	7	8	8
BG	16	16	16	16
E	47	54,5	65	75
EE	G1/8"	G1/4"	G1/4"	G3/8"
J2	5,7	7,3	7	8
J3	5,3	5	6	7,5
KK	M10 x 1,25	M12 x 1,25	M16 x 1,5	M16 x 1,5
L2	18	22	25,5	26
L7	7	9,2	9	8
L8+	94	105	106	121
Ø MM	12	16	20	20
PL	13	14	14	16
RT	M6	M6	M8	M8
SW1	10	13	17	17
SW2	17	19	24	24
TG	32,5	38	46,5	56,5
VA	4	4	4	4
VD	5	5	6	6
WH	26	30	37	37
*	20	22	25	25

+ 1 x stroke

* cushioning

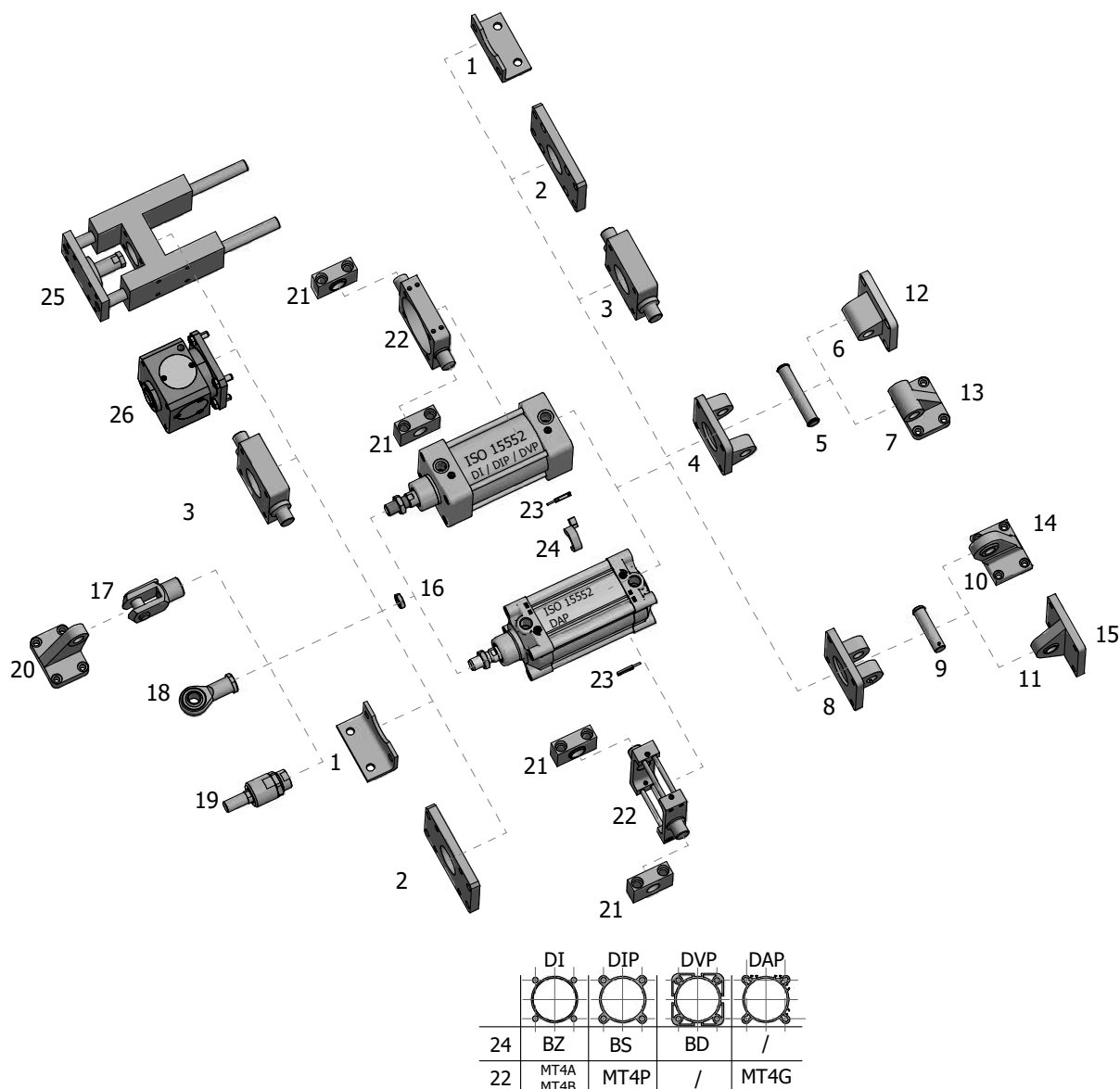
1 hexagon screw with female thread for fixing mounting accessories

2 regulator for adjustable cushioning

3 groove for proximity switch



Mounting accessories for cylinders according to ISO 15552



Adapter for fitting valves to standard cylinders

For cylinders piston-Ø 32 to 125 mm

type ZHA

Delivery: 1 pair and screws

Please contact JOYNER for detailed information.



Mounting accessories for cylinders according to ISO 15552

Pos.	Mounting accessory	Type	32 – 100 mm	125 – 320 mm
1	Foot mounting – 1 pair	MS1	page 48	page 54
2	Flange	MF1/2	page 48	page 54
3	Hinge for back and front	MT5	on request	on request
4	Female hinge cm cmk	MP2	page 46	page 52
5	Pin for hinge	AA4	page 47	page 53
6	Male hinge	MP4	page 46	page 52
7	Male hinge 90°	AB7	page 49	page 55
8	Female hinge, narrow	AB6	page 45	page 51
9	Pin for narrow hinge	AA6	page 47	page 53
10	Male hinge 90° with ball joint, spherical	US	page 49	page 55
11	Male hinge with ball joint, spherical	MP6	page 45	page 51
12	3-piece joint straight	MP2/4	page 47	page 53
13	3-piece joint 90°	MZ	page 49	page 55
14	3-piece joint straight, spherical	UL	page 49	page 55
15	3-piece joint 90°, spherical	AB/MP6	page 47	page 53
16	Nut at piston rod	DS	page 60	page 60
17	Clevis with lockable pin	GF	page 57	page 57
18	Rod eye female thread	GS	page 58	page 58
19	Self-aligning coupling	FK	page 59	page 59*
20	Male hinge for clevis		on request	on request
21	Support for hinge	AT4	page 44	page 50
22	Intermediate hinge	MT4A/MT4B/MT4P	page 44	page 50
	Intermediate hinge	MT4G open to 125	page 44	–
23	Proximity switch	M60 / M70	chapter 1.5.3	chapter 1.5.3
24	Fixing for proximity switch	BZ/BS/BD	chapter 1.5.3	chapter 1.5.3
25	Guide units	LFH	chapter 1.5.4	on request
26	Locking units	VRL	chapter 1.5.6	on request

*) up-to piston-Ø 200 mm, larger on request



See page 68 f.



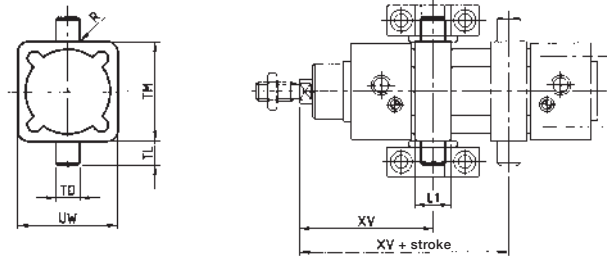
See page 65 ff.



Mounting accessories for cylinders ISO 21287 and 15552

Intermediate hinge – MT4 P

(only in combination with cylinders type DIP/DIPM)

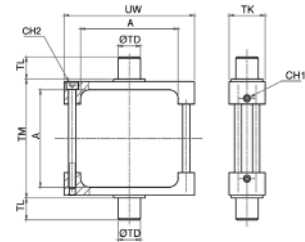


Type	Piston-Ø	L1	TD _{e9}	TL _{h14}	TM _{h14}	UW	R _{max.}	XV	Weight kg
MT4 P-032	32mm	20	12	12	50	65	1,0	73,0	0,13
MT4 P-040	40mm	25	16	16	63	75	1,5	82,5	0,24
MT4 P-050	50mm	25	16	16	73	95	1,6	90,0	0,32
MT4 P-063	63mm	30	20	20	90	105	1,6	97,5	0,60
MT4 P-080	80mm	30	20	20	108	130	1,6	110,0	0,92
MT4 P-100	100mm	35	25	25	131	145	2,0	120,0	1,50

Dimension XV for ISO 15552

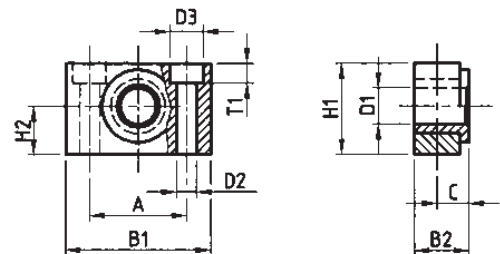
Intermediate hinge – MT4G

(only in combination with cylinders type DAP)



Type	Piston-Ø	A	CH-1	CH-2	ØTD	TK	TL	TM	UW
MT4G-032	32mm	45,0	3	3	12	25	11,5	50	65
MT4G-040	40mm	51,8	3	4	16	25	16,0	63	75
MT4G-050	50mm	60,7	3	5	16	30	16,0	75	95
MT4G-063	63mm	72,2	3	5	20	30	20,0	90	105
MT4G-080	80mm	91,2	3	5	20	30	20,0	110	130
MT4G-100	100mm	108,2	4	6	25	40	24,5	132	145
MT4G-125	125mm	135,3	4	6	25	40	24,5	160	176

Support for hinge – AT4



Type	Piston-Ø	A ^{+0,2 -0,2}	B1	B2	C	D1 ^{F7}	D2 ^{H13}	D3	H1	H2 ^{+0,1 -0,1}	T1	Weight kg
AT4-032	32mm	32	46	18,0	10,5	12	6,6	11	30	15	7	0,10
AT4-040	40mm	36	55	21,0	12,0	16	9,0	15	36	18	9	0,15
AT4-050	50mm	36	55	21,0	12,0	16	9,0	15	36	18	9	0,15
AT4-063	63mm	42	65	23,0	13,0	20	11,0	18	40	20	11	0,23
AT4-080	80mm	42	65	23,0	13,0	20	11,0	18	40	20	11	0,23
AT4-100	100mm	50	75	28,5	16,0	25	14,0	20	50	25	13	0,44

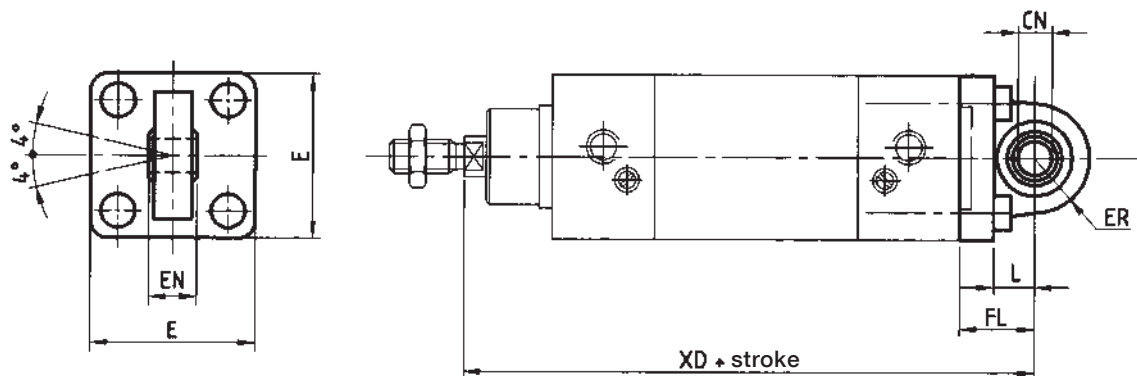
Delivery 1 pair



Mounting accessories for cylinders

ISO 21287 and 15552

Male hinge with ball joint, spherical – MP6

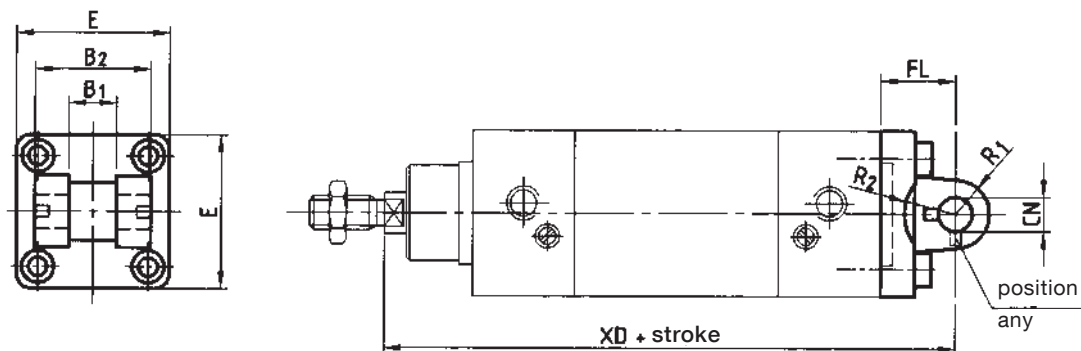


Type	Piston-Ø	CN _{H7}	E	ER	EN _{-0,1}	FL	H _{-0,5} ^{+0,5}	L	R _{-0,5} ^{+0,5}	XD	Weight kg
MP6-032	32mm	10	45	16,0	14	22	–	13	–	142	0,08
MP6-040	40mm	12	52	19,0	16	25	–	16	–	160	0,11
MP6-050	50mm	16	65	21,0	21	27	51	16	18	170	0,20
MP6-063	63mm	16	75	24,0	21	32	–	21	–	190	0,26
MP6-080	80mm	20	95	28,0	25	36	72	22	24	210	0,50
MP6-100	100mm	20	115	30,0	25	41	–	27	–	230	0,70

Dimension XD for ISO 15552

Pin AA6 refer to page 1-47

Female hinge, narrow – AB6



Type	Piston-Ø	B _{1 H14}	B _{2 d12}	CN _{F7}	E _{-0,5} ^{+0,5}	FL _{-0,2} ^{+0,2}	R ₁ ⁺¹	R _{2 min.}	XD	Weight kg
AB6-032	32mm	14	34	10	45	22	10	17	142	0,040
AB6-040	40mm	16	40	12	52	25	12	20	160	0,070
AB6-050	50mm	21	45	16	65	27	14	22	170	0,115
AB6-063	63mm	21	51	16	75	32	18	25	190	0,200
AB6-080	80mm	25	65	20	95	36	20	30	210	0,385
AB6-100	100mm	25	75	20	115	41	22	32	230	0,600

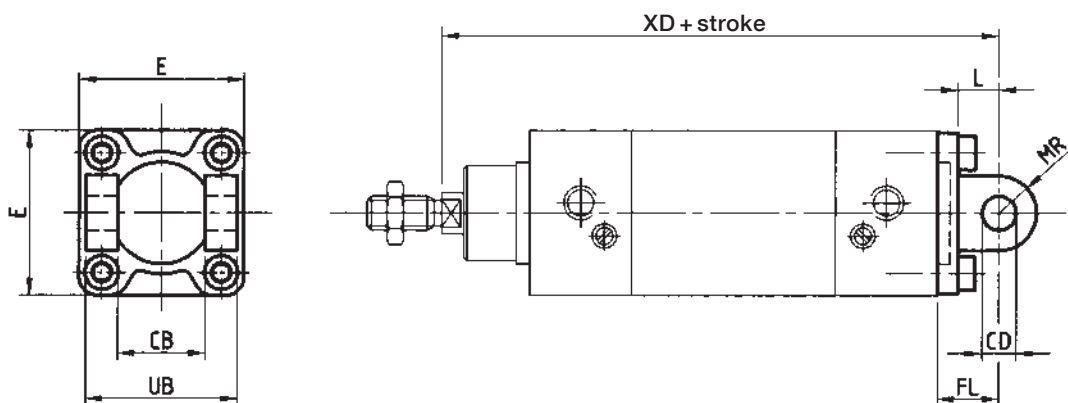
Dimension XD for ISO 15552

Pin AA6 refer to page 1-47



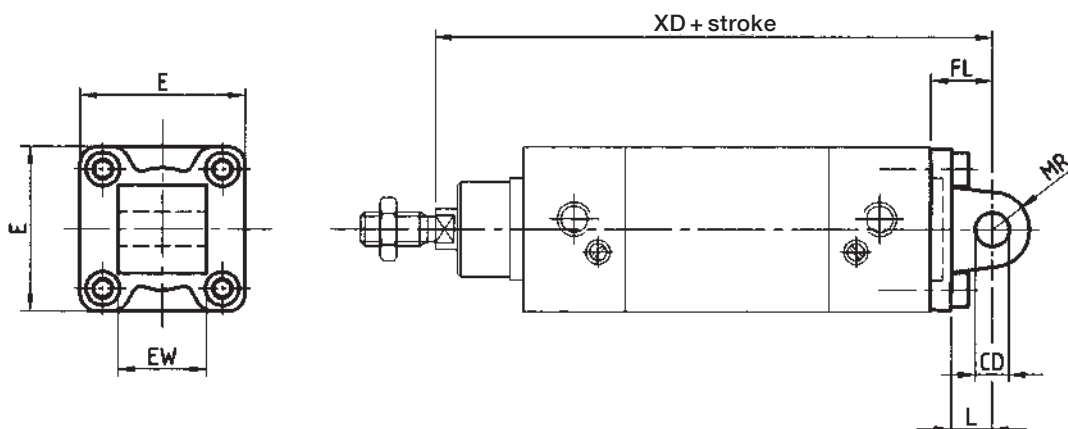
Mounting accessories for cylinders ISO 21287 and 15552

Female hinge – MP2



PIN AA4 refer to page 1-47

Male hinge – MP4



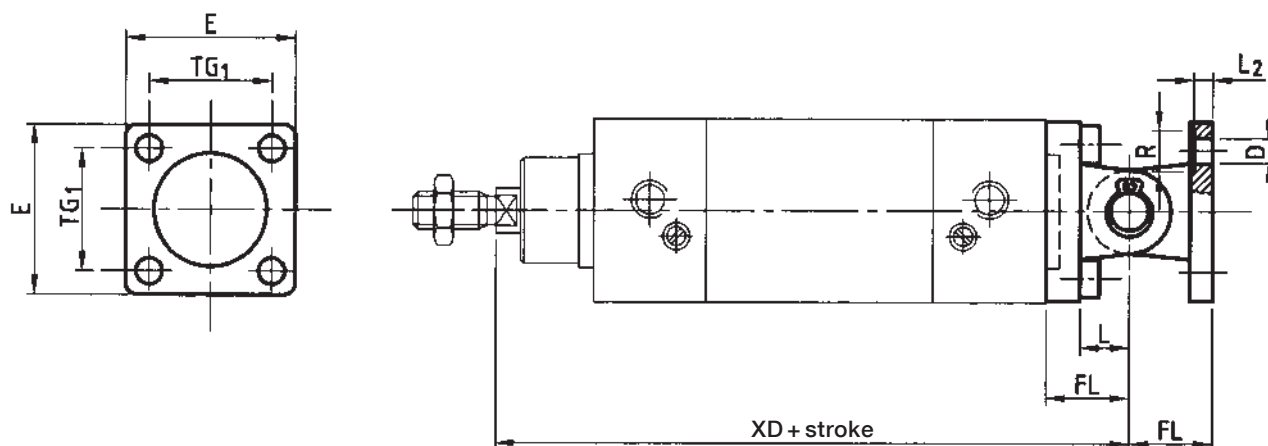
Type	Piston-Ø	CB ^{H14}	CD ^{H9}	E	EW ^{-0,2 -0,6}	FL ^{+0,2 -0,2}	L	MR	UB _{h14}	XD	Weight kg	Type	Weight kg	
MP2-032	32mm	26	10	45	26	22	13	10	45	142	0,10	MP4-032	0,10	
MP2-040	40mm	28	12	52	28	25	16	12	52	160	0,12	MP4-040	0,12	
MP2-050	50mm	32	12	65	32	27	16	12	60	170	0,15	MP4-050	0,15	
MP2-063	63mm	40	16	75	40	32	21	16	70	190	0,22	MP4-063	0,25	
MP2-080	80mm	50	16	95	50	36	22	16	90	210	0,40	MP4-080	0,50	
MP2-100	100mm	60	20	115	60	41	27	20	110	230	0,65	MP4-100	0,70	

Dimension XD for ISO 15552



Mounting accessories for cylinders ISO 21287 and 15552

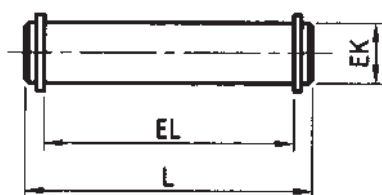
3-piece joint – MP2/4 alt. spherical – AB and MP6



Type	Piston-Ø	D _{H13}	E	FL ^{+0,2 -0,2}	L	L2 ^{+0,5 -0,5}	R _{H13}	TG ₁ ^{+0,2 -0,2}	XD	Weight kg	Type	Weight kg
MP2/4-032	32 mm	6,6	45	22	13	5,5	11	32,5	142	0,140	AB/MP6-032	0,150
MP2/4-040	40 mm	6,6	52	25	16	5,5	11	38,5	160	0,210	AB/MP6-040	0,220
MP2/4-050	50 mm	9,0	65	27	16	6,5	15	46,5	170	0,310	AB/MP6-050	0,400
MP2/4-063	63 mm	9,0	75	32	21	6,5	15	56,5	190	0,530	AB/MP6-063	0,570
MP2/4-080	80 mm	11,0	95	36	22	10,0	18	72,0	210	1,000	AB/MP6-080	1,100
MP2/4-100	100 mm	11,0	115	41	27	10,0	18	89,0	230	1,600	AB/MP6-100	1,500

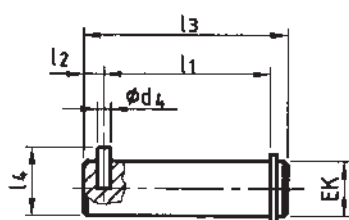
Dimension XD for ISO 15552

Pin with seeger for female hinge MP2 – AA4



Type	Piston-Ø	EK _{f7}	EL ^{+0,3 0}	L	Weight kg
AA4-032	32 mm	10	46	53	0,032
AA4-040	40 mm	12	53	60	0,052
AA4-050	50 mm	12	61	68	0,060
AA4-063	63 mm	16	71	78	0,122
AA4-080	80 mm	16	91	98	0,152
AA4-100	100 mm	20	111	118	0,290

Pin with locking-pin for female hinge AB6 – AA6

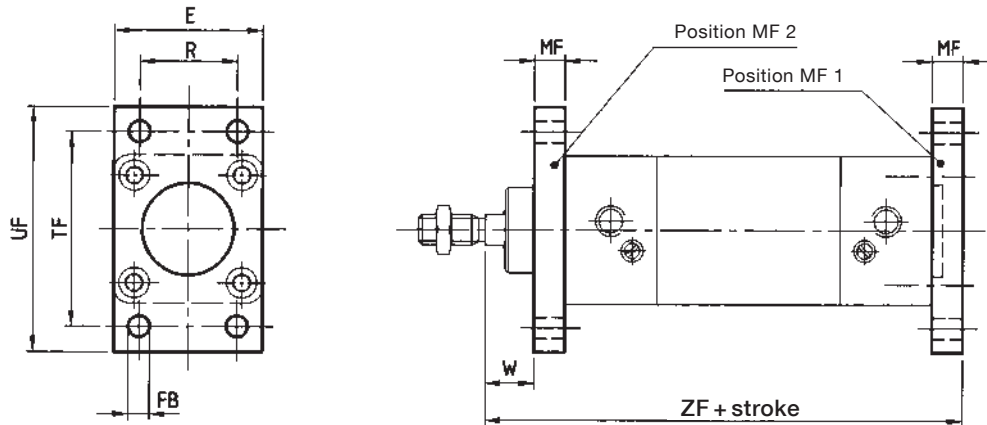


Type	Piston-Ø	EK _{f7}	d _{4 H12}	I _{1-0,3} ^{+0,5 -0,3}	I ₂₋₁ ⁰	I ₃	I _{4-0,5} ⁰	Weight kg
AA6-032	32 mm	10	3	32,5	4,5	41	14	0,025
AA6-040	40 mm	12	4	38,0	6,0	48	16	0,040
AA6-050	50 mm	16	4	43,0	6,0	54	20	0,080
AA6-063	63 mm	16	4	49,0	6,0	60	20	0,095
AA6-080	80 mm	20	4	63,0	6,0	75	24	0,185
AA6-100	100 mm	20	4	73,0	6,0	85	24	0,200



Mounting accessories for cylinders ISO 21287 and 15552

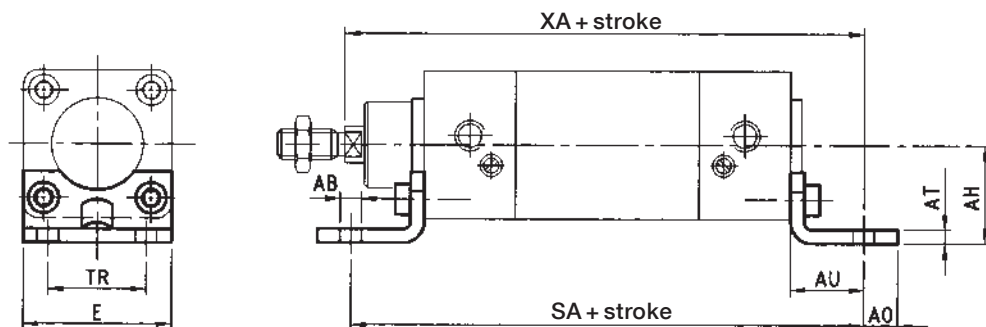
Flange – MF1/2



Type	Piston-Ø	E	FB _{H13}	MF ^{+0,2} _{-0,2}	UF	R	TF	W	ZF	Weight kg
MF1/2-32	32mm	45	7	10	80	32	64	16	130	0,20
MF1/2-40	40mm	52	9	10	90	36	72	20	145	0,25
MF1/2-50	50mm	65	9	12	110	45	90	25	155	0,50
MF1/2-63	63mm	75	9	12	120	50	100	25	170	0,65
MF1/2-80	80mm	95	12	16	150	63	126	30	190	1,50
MF1/2-100	100mm	115	14	16	170	75	150	35	205	2,00

Dimension ZF for ISO 15552

Foot – MS1



Type	Piston-Ø	AB _{H14}	AH	AO	AT ^{+0,5} _{-0,5}	AU ^{+0,2} _{-0,2}	E	SA	TR	XA	Weight kg
MS1-032	32mm	7,0	32	11	4,5	24	45	142	32	144	0,15
MS1-040	40mm	9,0	36	8	4,5	28	52	161	36	163	0,18
MS1-050	50mm	9,0	45	15	5,5	32	65	170	45	175	0,35
MS1-063	63mm	9,0	50	15	5,5	32	75	185	50	190	0,40
MS1-080	80mm	12,0	63	14	6,5	41	95	210	63	215	0,80
MS1-100	100mm	14,0	71	16	6,5	41	115	220	75	230	0,95

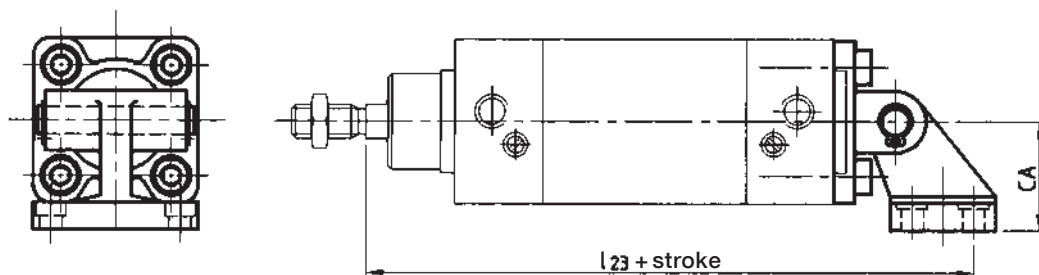
Dimension XA and SA for ISO 15552

Delivery 1 pair



Mounting accessories for cylinders ISO 21287 and 15552

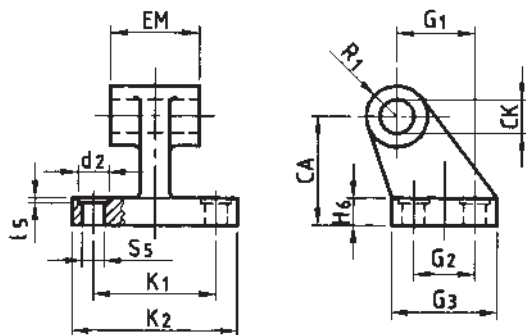
3-piece joint – MZ and UL
Type MZ = MP2 + AB7 + AA4
Type UL = AB6 + US + AA6



Piston-Ø	l_{23}	CA	Weight kg	Type non-spherical	Weight kg	Type spherical
32mm	163	32	0,14	MZ-032	0,25	UL-032
40mm	184	36	0,27	MZ-040	0,38	UL-040
50mm	203	45	0,34	MZ-050	0,66	UL-050
63mm	227	50	0,52	MZ-063	0,85	UL-063
80mm	257	63	0,90	MZ-080	1,50	UL-080
100mm	285	71	1,60	MZ-100	2,15	UL-100

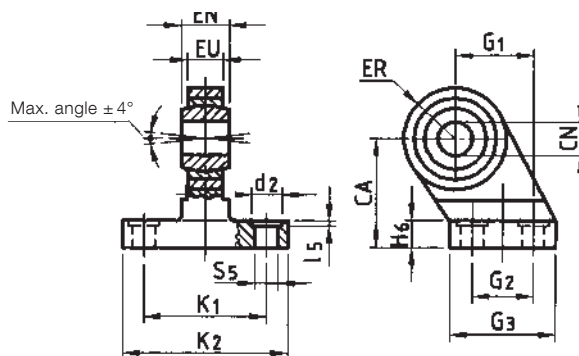
Dimension l_{23} for ISO 15552

Male hinge 90° with ball joint, spherical – AB7



How to order: AB7-piston-Ø

Male hinge with ball joint, spherical – US



How to order: US-piston-Ø

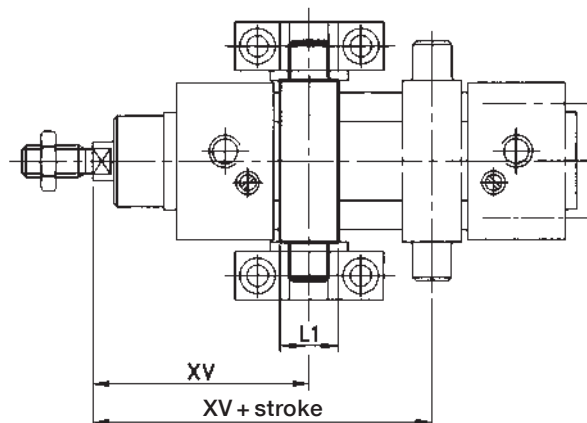
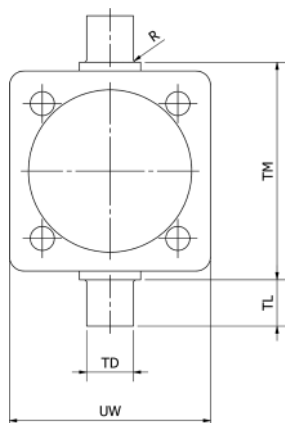
Piston-Ø	CK _{H9}	CN _{H7}	d ₂	EM _{-0,2 -0,6}	EN _{-0,1}	ER	EU	G ₁	G ₂	G ₃	H ₆	K ₁	K ₂	I ₅	R ₁	S ₅ H ₁₃
32mm	10	10	11	26	14	15	10,5	21	18	31	10	38	51	1,6	10	6,6
40mm	12	12	11	28	16	18	12,0	24	22	35	10	41	54	1,6	11	6,6
50mm	12	16	15	32	21	20	15,0	33	30	45	12	50	65	1,6	13	9,0
63mm	16	16	15	40	21	23	15,0	37	35	50	12	52	67	1,6	15	9,0
80mm	16	20	18	50	25	27	18,0	47	40	60	14	66	86	2,5	15	11,0
100mm	20	20	18	60	25	30	18,0	55	50	70	15	76	96	2,5	19	11,0



Mounting accessories for cylinders ISO 21287 and 15552

Intermediate hinge – MT4

Attaching to tie-rod screwed = type A, clamping = type B

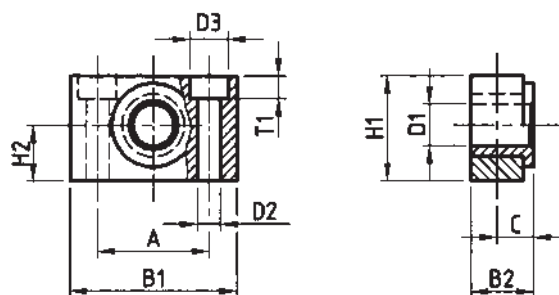


For type A please communicate dimension XV.

Type	Piston-Ø	L1	TD _{e9}	TL _{h14}	TM _{h14}	UW	R _{max.}	XV	Weight kg
MT4 A-125 / MT4 B-125	125mm	32	25	25	160	155	2,0	145	2,6
MT4 A-160 / MT4 B-160	160mm	40	32	32	200	190	2,5	170	4,3
MT4 A-200 / MT4 B-200	200mm	40	32	32	250	240	2,5	185	7,5
MT4 A-250 / –	250mm	50	40	40	320	296	3,2	205	13,0
MT4 A-320 / –	320mm	70	50	50	400	400	3,2	230	30,0

Dimension XV for ISO 15552
MT4 Ø 125 for profile cylinder.

Support for hinge – AT4



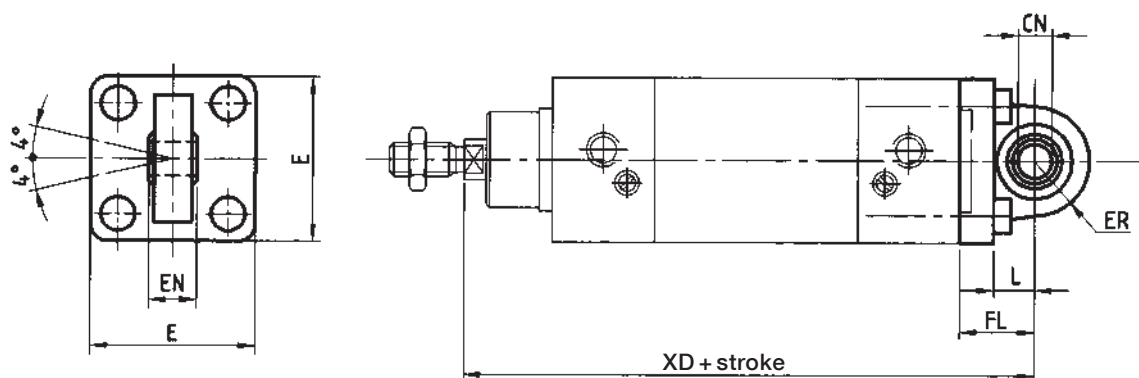
Type	Piston-Ø	A _{+0,2 -0,2}	B1	B2	C	D1 ^{F7}	D2 ^{H13}	D3 ^{H13}	H1	H2 _{+0,1 -0,1}	T1 _{+0,5 -0,5}	Weight kg
AT4-125	125mm	50	75	28,5	16,0	25	14	20	50	25	13	0,45
AT4-160	160mm	60	92	40,0	22,5	32	18	26	60	30	17	0,85
AT4-200	200mm	60	92	40,0	22,5	32	18	26	60	30	17	0,85
AT4-250	250mm	90	140	50,0	27,5	40	22	33	70	35	20	2,75
AT4-320	320mm	100	150	60,0	32,5	50	26	40	80	40	25	3,50

Delivery 1 pair



Mounting accessories for cylinders ISO 21287 and 15552

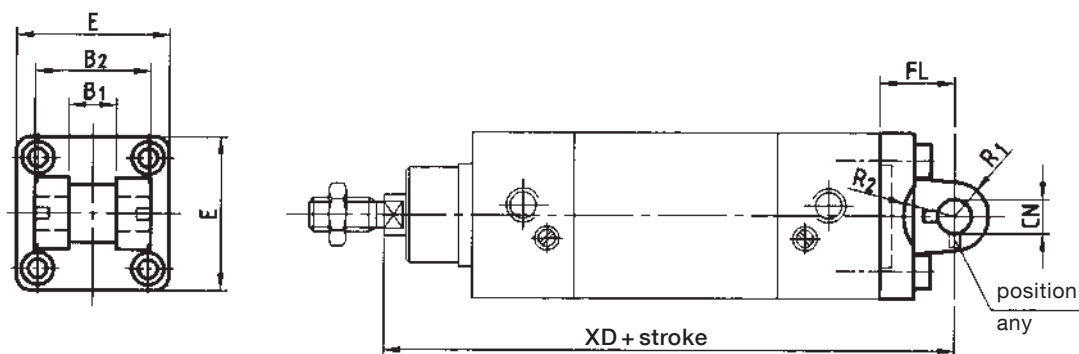
Male hinge with ball joint, spherical – MP6



Type	Piston-Ø	CN _{H7}	E	ER	EN _{-0,1}	FL	L	XD	Weight kg
MP6-125	125mm	30	140	40	37	50	30	275	1,4
MP6-160	160mm	35	180	45	43	55	35	315	2,4
MP6-200	200mm	35	220	48	43	60	35	335	3,8
MP6-250	250mm	40	270	52	49	70	45	375	5,9
MP6-320	320mm	50	350	63	60	80	50	420	13,8

Dimension XD for ISO 15552
Pin AA6 refer to page 1-53

Female hinge, narrow – AB6



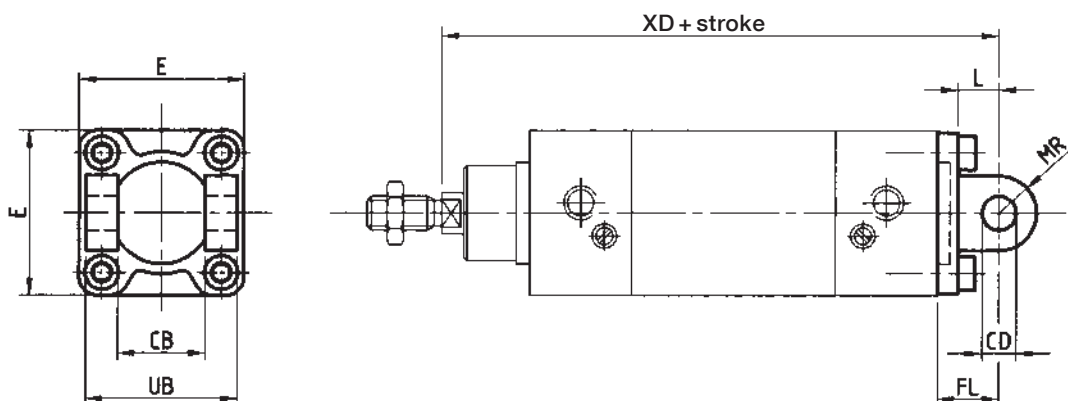
Type	Piston-Ø	B _{1 H14}	B _{2 d12}	CN _{F7}	E _{+0,5 -0,5}	FL _{+0,2 -0,2}	R _{1 +1}	R _{2 min.}	XD	Weight kg
AB6-125	125mm	37	97	30	140	50	25	42	275	1,1
AB6-160	160mm	43	122	35	180	55	30	46	315	2,0
AB6-200	200mm	43	122	35	220	60	30	49	335	3,4
AB6-250	250mm	49	125	40	270	70	40	55	375	5,4
AB6-320	320mm	60	150	50	350	80	50	65	420	9,8

Dimension XD for ISO 15552



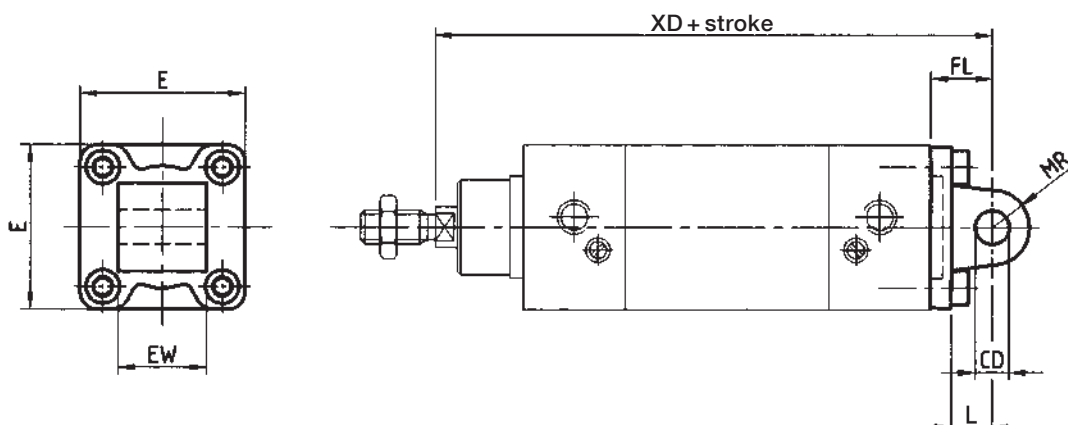
Mounting accessories for cylinders ISO 21287 and 15552

Female hinge – MP2



PIN AA4 refer to page 1-53

Male hinge – MP4



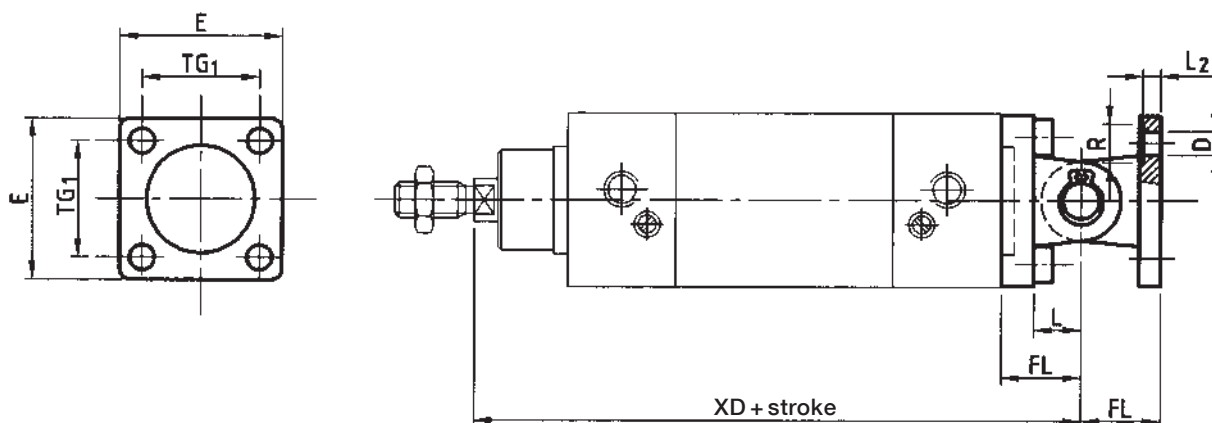
Type	Piston-Ø	CB ^{H14}	CD ^{H9}	E	EW ^{-0,2 -0,6}	FL ^{+0,2 -0,2}	L	MR	UB ^{h14}	XD	Weight kg	Type	Weight kg
MP2-125	125mm	70	25	140	70	50	30	26	130	275	1,2	MP4-125	1,3
MP2-160	160mm	90	30	180	90	55	35	31	170	315	1,8	MP4-160	1,9
MP2-200	200mm	90	30	220	90	60	35	31	170	335	2,9	MP4-200	3,0
MP2-250	250mm	110	40	270	110	70	45	41	200	375	5,8	MP4-250	6,2
MP2-320	320mm	120	45	353	120	80	50	46	220	420	7,5	MP4-320	11,0

Dimension XD for ISO 15552



Mounting accessories for cylinders ISO 21287 and 15552

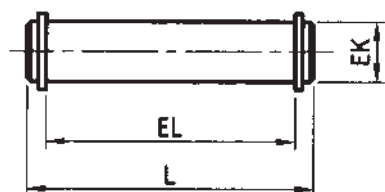
3-piece joint – MP2/4 alt. spherical – AB and MP6



Type	Piston-Ø	D _{H13}	E	FL ^{+0,2 -0,2}	L	L2 ^{+0,5 -0,5}	R _{H13}	TG ₁ ^{+0,3}	XD	Weight kg	Type	Weight kg
MP2/4-125	125mm	14	140	50	30	10	20	110	275	3	AB/MP6-125	3
MP2/4-160	160mm	18	180	55	35	10	26	140	315	5	AB/MP6-160	5
MP2/4-200	200mm	18	220	60	35	11	26	175	335	7	AB/MP6-200	7
MP2/4-250	250mm	22	270	70	45	11	33	220	375	14	AB/MP6-250	13
MP2/4-320	320mm	26	350	80	50	15	39	270	420	21,5	–	–

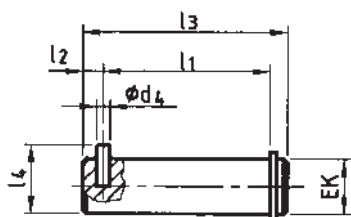
Dimension XD for ISO 15552

Pin with seeger for female hinge MP2 – AA4



Type	Piston-Ø	EK _{e8}	EL	L	Weight kg
AA4-125	125mm	25	132 + 3	139	0,5
AA4-160	160mm	30	172 + 3	178	1,0
AA4-200	200mm	30	172 + 3	178	1,0
AA4-250	250mm	40	202 + 3	211	2,0
AA4-320	320mm	45	222 + 3	238	3,0

Pin with locking-pin for female hinge AB6 – AA6

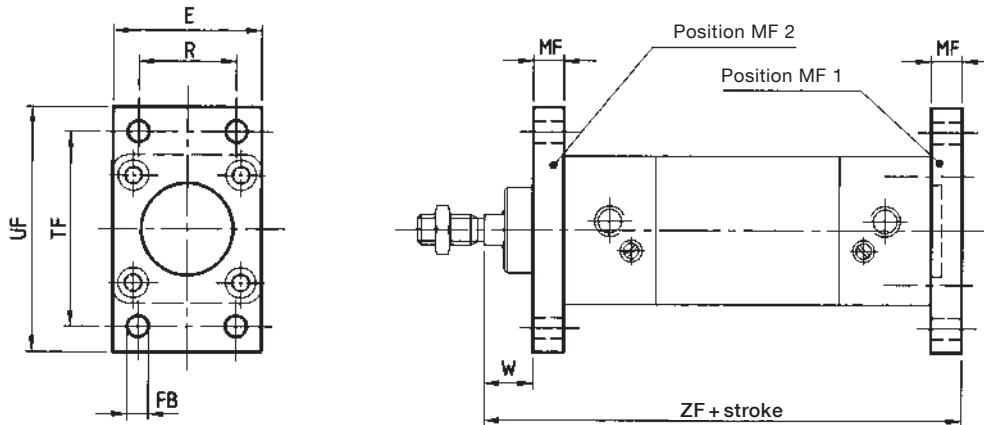


Type	Piston-Ø	EK ₁₇	d _{4 H12}	I _{1-0,3} ^{+0,5}	I ₂₋₁ ⁰	I ₃	I _{4-0,5} ⁰	Weight kg
AA6-125	125mm	30	6	94	6	110	36	0,6
AA6-160	160mm	35	6	119	6	135	41	1,0
AA6-200	200mm	35	6	119	6	135	41	1,0
AA6-250	250mm	40	8	121	8	140	48	1,4
AA6-320	320mm	50	8	146	8	165	58	1,7



Mounting accessories for cylinders ISO 21287 and 15552

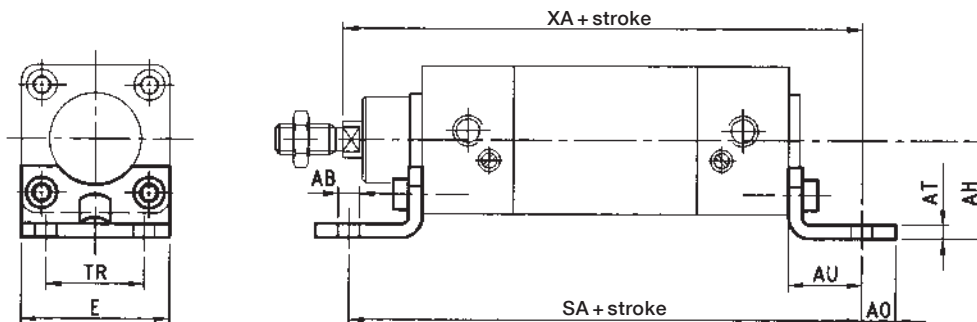
Flange – MF1/2



Type	Piston-Ø	E	FB _{H13}	MF _{JS14}	UF	R	TF	W	ZF	Weight kg
MF1/2-125	125mm	140	16	20	205	90	180	45	245	3,8
MF1/2-160	160mm	180	18	20	260	115	230	60	280	6,4
MF1/2-200	200mm	220	22	25	300	135	270	70	300	11,4
MF1/2-250	250mm	285	26	25	400	165	330	80	330	20,0
MF1/2-320	320mm	350	33	30	470	200	400	90	370	35,0

Dimension ZF for ISO 15552

Foot – MS1



Type	Piston-Ø	AB _{H14}	AH _{JS15}	AO	AT ^{+0,5 -0,5}	AU ^{+0,2 -0,2}	E	SA	TR _{JS14}	XA	Weight kg
MS1-125	125mm	16,5	90	25	8	45	140	250	90	270	1,1
MS1-160	160mm	18,5	115	15	9	60	180	300	115	320	1,2
MS1-200	200mm	24,0	135	30	12	70	220	320	135	345	3,5
MS1-250	250mm	28,0	165	25	14	75	270	350	165	380	6,6
MS1-320	320mm	35,0	200	45	16	85	350	390	200	425	13,6

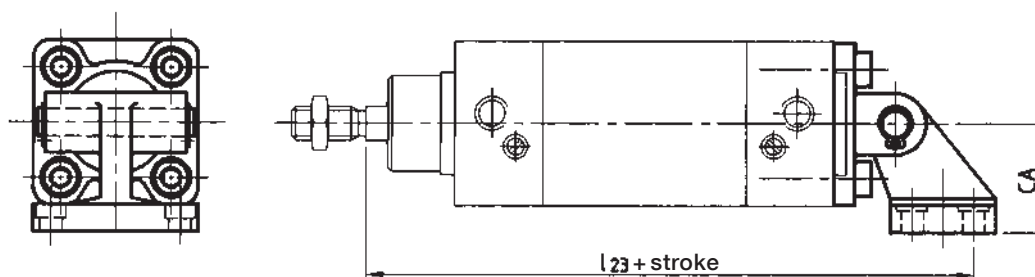
Dimension XA and SA for ISO 15552

Delivery 1 pair



Mounting accessories for cylinders ISO 21287 and 15552

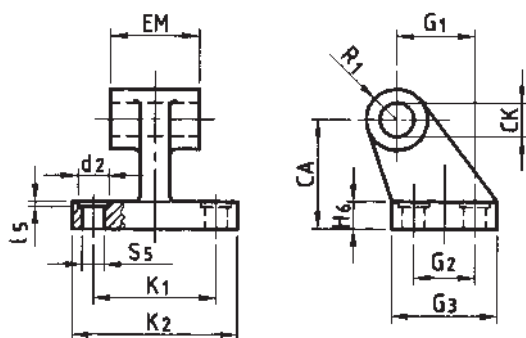
3-piece joint – MZ and UL
Type MZ = MP2 + AB7 + AA4
Type UL = AB6 + US + AA6



Piston-Ø	l_{23}	CA_{JS15}	Weight kg	Type non-spherical	Weight kg	Type spherical
125 mm	345	90	5,0	MZ-125	5,5	UL-125
160 mm	412	115	10,0	MZ-160	10,0	UL-160
200 mm	440	135	14,0	MZ-200	15,0	UL-200
250 mm	503	165	32,4	MZ-250	–	–

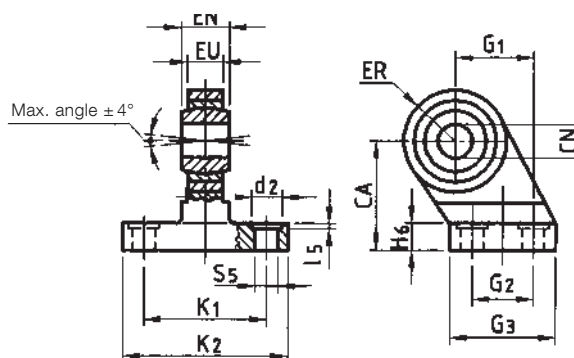
Dimension l_{23} for ISO 15552

Male hinge 90° with ball joint, spherical – AB7



How to order: AB7-piston-Ø

Male hinge with ball joint, spherical – US



How to order: US-piston-Ø

Piston-Ø	CK_{H9}	CN_{H7}	d_2	$EM_{-0,5}^{-1,5}$	$EN_{-0,1}$	ER	EU_{max}	G_{1JS15}	G_{2JS15}	G_3	H_6	K_{JS14}	K_2	l_{5max}	R_{1max}	S_{5H13}
125 mm	25	30	20	70	37	40	25	70	60	90	20	94	124	3,2	22,5	14
160 mm	30	35	20	90	43	44	28	97	88	126	25	118	156	4,0	31,5	14
200 mm	30	35	26	90	43	47	28	105	90	130	30	122	162	4,0	31,5	18
250 mm	40	–	33	110	–	–	–	128	110	160	35	150	200	4,5	40,0	22



Mountings for the piston rod

Clevis with lockable pin, 3-piece joint straight, Nut, Self-aligning coupling

Type GF

Clevis with
lockable pin

Type GS

Rod eye
female thread

Type DS



Nut

Type FK

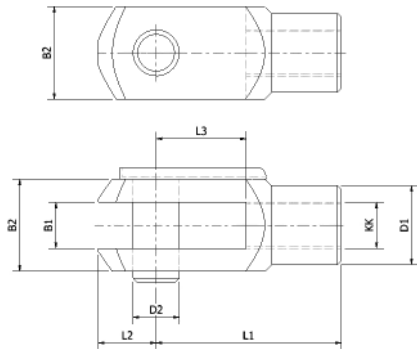
Self-aligning
coupling

Cylinder	Piston-Ø [mm]	Thread	Type			
			Clevis with lockable pin (GF)	Rod eye female thread (GS)	Nut (DS)	Self-aligning coupling (FK)
RI..	8/10	M4	GF-M4	–	DS-M 4	FK-M4
	12/16	M6	GF-M6	GS-M6	DS-M6	FK-M6
	20	M8	GF-M8	GS-M8	DS-M8	FK-M8
	25	M10 x 1,25	GF-M10x1,25	GS-M10x1,25	DS-M10x1,25	FK-M10x1,25
KP...	20 / 25	M8	GF-M8	GS-M8	DS-M8	FK-M8
	32 / 40	M10 x 1,25	GF-M10x1,25	GS-M10x1,25	DS-M10x1,25	FK-M10x1,25
	50 / 63	M12 x 1,25	GF-M12x1,25	GS-M12x1,25	DS-M12x1,25	FK-M12x1,25
	80 / 100	M16 x 1,5	GF-M16x1,5	GS-M16x1,5	DS-M16x1,5	FK-M16x1,5
KKP...	125	M20 x 1,5	GF-M20x1,5	GS-M20x1,5	DS-M20x1,5	FK-M20x1,5
	160 / 200 / 250	M27 x 2	GF-M27x2*	GS-M27x2	DS-M27x2	FK-M27x2
		M36 x 2	GF-M36x2*	GS-M36x2	DS-M6x2	FK-M36x2
DVP/DAP...	32	M10 x 1,25	GF-M10x1,25	GS-M10x1,25	DS-M10x1,25	FK-M10x1,25
	40	M12 x 1,25	GF-M12x1,25	GS-M12x1,25	DS-M12x1,25	FK-M12x1,25
	50/63	M16 x 1,5	GF-M16x1,5	GS-M16x1,5	DS-M16x1,5	FK-M16x1,5
	80/100	M20 x 1,5	GF-M20x1,5	GS-M20x1,5	DS-M20x1,5	FK-M20x1,5
DI/DAP...	125	M27 x 2	GF-M27x2*	GS-M27x2	DS-M27x2	FK-M27x2
	160/200	M36 x 2	GF-M36x2*	GS-M36x2	DS-M6x2	FK-M36x2
	250	M42 x 2	GF-M42x2*	GS-M42x2	DS-M42x2	–
	320	M48 x 2	GF-M48x2*	GS-M48x2	DS-M48x2	–
SDJ	20	M8	GF-M8	GS-M8	DS-M8	FK-M8
	30/40	M10	GF-M10	GS-M10	DS-M10	FK-M10
DUJ	30/40	M10	GF-M10	GS-M10	DS-M10	FK-M10
DUDJ	50/60	M12	GF-M12	GS-M12	DS-M12	FK-M12
	80	M16	GF-M16	GS-M16	DS-M16	FK-M16
	100	M20	GF-M20	GS-M20	DS-M20	FK-M20
	125	M24	GF-M24*	GS-M24	DS-M24	–
	160	M30	GF-M30*	GS-M30	DS-M30	–
	200	M36	GF-M36*	GS-M36	DS-M36	–
DUVJ	40	M12	GF-M12	GS-M12	DS-M12	–
	50/60	M16	GF-M16	GS-M16	DS-M16	–
	80	M20	GF-M20	GS-M20	DS-M20	–
	100	M24	GF-M24*	GS-M24	DS-M24	–
	125	M30	GF-M30*	GS-M30	DS-M30	–

* with lockable pin, others spring type.



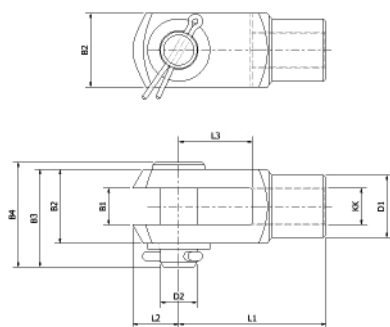
Clevis with lockable pin (spring design) – GF



Dimensions

Type	B1	B2	D1 Ø	D2 Ø	L1	L2	L3	Weight kg	Order-#	
GF-M4	4	8	8	4 _{h11}	16	5	8	0,015	E080040000	
GF-M6	6	12	10	6 _{h11}	24	7	12	0,030	E080040001	
GF-M8	8	16	14	8 _{h11}	32	10	16	0,050	E080040002	
GF-M10	10	20	18	10 _{h11}	40	12	20	0,100	E080040003	
GF-M10x1,25	10	20	18	10 _{h11}	40	12	20	0,100	E080050000	
GF-M12	12	24	20	12 _{h11}	48	14	24	0,142	E080040004	
GF-M12x1,25	12	24	20	12 _{h11}	48	14	24	0,142	E080050001	
GF-M16	16	32	26	16 _{h11}	64	19	32	0,340	E080040005	
GF-M16x1,5	16	32	26	16 _{h11}	64	19	32	0,340	E080050002	
GF-M20	20	40	34	20 _{e8}	80	25	40	0,687	E080040006	
GF-M20x1,5	20	40	34	20 _{e8}	80	25	40	0,687	E080050003	

Clevis with lockable pin – GF



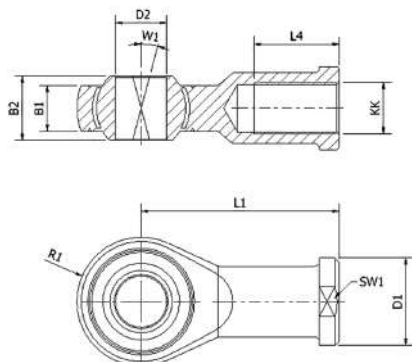
Dimensions

Type	B1	B2	B3	B4	D1 Ø	D2 Ø	L1	L2	L3	Weight kg	Order-#	
GF-M24	25	50	67	72,5	42	25 _{e8}	100	32	50	1,400	E080000004	
GF-M27x2	30	55	72	77,5	48	30 _{e8}	110	38	54	1,840	E080080005	
GF-M30	30	60	77	82,5	52	30 _{e8}	120	40	60	3,750	E080000005	
GF-M36	35	70	87	94	60	35 _{e8}	144	44	72	2,930	E080000006	
GF-M36x2	35	70	87	94	60	35 _{e8}	144	44	72	2,770	E080080006	
GF-M42x2	40	85	100	107	70	40 _{e8}	168	64	84	7,400	E080080008	
GF-M48x2	50	90	115	122	80	50 _{e8}	192	73	96	10,200	E080080009	



Mountings for the piston rod

Rod eye female thread – GS

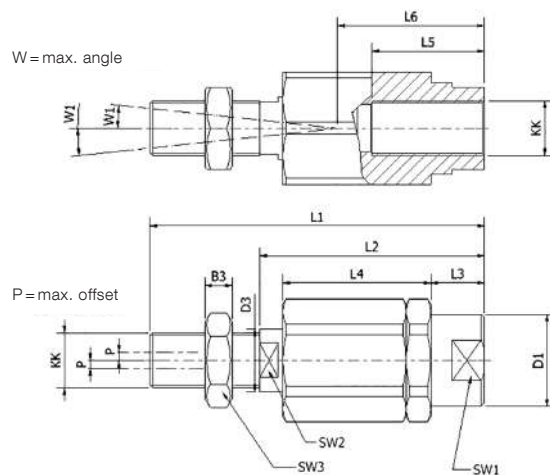


Dimensions

Type	B1	B2	D1 Ø	D2 Ø H7	L1	L4	R1 ±0,5	SW1	W1 [°]	Weight kg	Order-#	
GS-M4	6	8	12	4	27	10	9	9	13	—	—	
GS-M6	6,8	9	14	6	30	12	10	11	13	0,027	E080060001	
GS-M8	9	12	17	8	36	16	12	14	13	0,046	E080060002	
GS-M10	10,5	14	20	10	43	20	14	17	13	0,076	E080060003	
GS-M10x1,25	10,5	14	20	10	43	20	14	17	13	0,076	E080070000	
GS-M12	12	16	23	12	50	22	16	19	13	0,115	E080060004	
GS-M12x1,25	12	16	23	12	50	22	16	19	13	0,115	E080070001	
GS-M16	15	21	29	16	64	28	21	22	15	0,23	E080060005	
GS-M16x1,5	15	21	29	16	64	28	21	22	15	0,23	E080070002	
GS-M20	20	25	37	20	77	33	25	30	15	0,415	E080060006	
GS-M20x1,5	20	25	37	20	77	33	25	30	15	0,415	E080070003	
GS-M24	22	31	42	25	94	42	30	36	15	0,75	E080060007	
GS-M27x2	25	37	52	30	110	51	35	41	15	0,93	E080070004	
GS-M30	25	37	50	30	110	51	35	41	15	1,13	E080060008	
GS-M36	28	43	60	35	125	56	40	50	15	1,6	E080060009	
GS-M36x2	28	43	60	35	125	56	40	50	15	1,6	E080070005	
GS-M42x2	33	49	59	40	142	60	45	55	15	2,77	E080070006	
GS-M48x2	60	60	78	50	160	65	58	65	12	5	E080070007	



Self-aligning coupling – FK



Dimensions

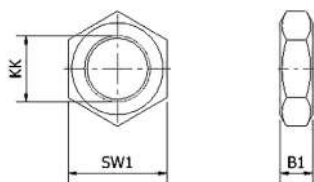
Type	B3	D1 Ø	D3 Ø	L1	L2	L3	L4	L5	L6	W1 [°]
FK-M4	2,2	—	3,8	33	24	4,5	16,5	12,5	16	4
FK-M6	3,2	8,5	5,8	37	25	4,4	17,5	11,5	15,7	4
FK-M8	4	12,5	7,8	49	34	6	23,5	14	20,5	4
FK-M10	5	21,4	13,8	69,5	49,5	9	34	23	31	4
FK-M10x1,25	5	21,4	13,8	69,5	49,5	9	34	23	31	4
FK-M12	6	21,4	13,8	74,5	50,5	10	34	24	32	4
FK-M12x1,25	6	21,4	13,8	74,5	50,5	10	34	24	32	4
FK-M16	8	22,8	22	103	71	10	53	32	44,5	4
FK-M16x1,5	8	22,8	22	103	71	10	53	32	44,5	4
FK-M20	10	33,8	22	120	80	19	53	41	53,5	4
FK-M20x1,5	10	33,8	22	120	80	19	53	41	53,5	4
FK-M27x2	13,5	62	28	157	103	12,2	79	42	62,5	4
FK-M36x2	18	80	38	251	179	22	136	78	110	4

Type	SW1	SW2	SW3	P [mm]	Max. load push-pull [N]	Weight kg	Order-#
FK-M4	11	11	3,2	±0,5	750	0,020	990000
FK-M6	7	13	5	±0,5	1200	0,020	990001
FK-M8	10	17	7	±0,5	2500	0,060	990002
FK-M10	19	30	12	±0,7	5000	0,230	990009
FK-M10x1,25	19	30	12	±0,7	5000	0,230	990003
FK-M12	19	30	12	±0,7	5000	0,230	990012
FK-M12x1,25	19	30	12	±0,7	5000	0,230	990004
FK-M16	30	41	19	±1	10000	0,650	990011
FK-M16x1,5	30	41	19	±1	10000	0,650	990005
FK-M20	30	41	19	±1	10000	0,710	990012
FK-M20x1,5	30	41	19	±1	10000	0,710	990006
FK-M27x2	55	55	24	±1	30000	1,600	990007
FK-M36x2	75	75	32	±1	40000	5,100	990008



Mountings for the piston rod

Nut – DS



Dimensions

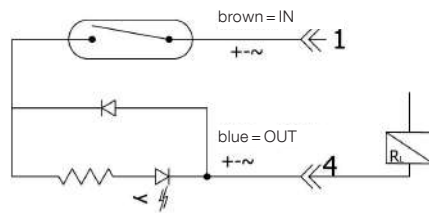
Type	B1	SW1	Weight kg	Order-#	
DS-M4	2,2	7	0,0006	E140000000	
DS-M6	3,2	10	0,0015	E140000001	
DS-M8	4	13	0,0031	E140030000	
DS-M10	5	16	0,0069	E140030001	
DS-M10x1,25	5	16	0,0069	E140030020	
DS-M12	6	18	0,0098	E140030002	
DS-M12x1,25	6	18	0,0098	E140030021	
DS-M16	8	24	0,0195	E140030003	
DS-M16x1,5	8	24	0,0195	E140030022	
DS-M20	10	30	0,038	E140030004	
DS-M20x1,5	10	30	0,038	E140030023	
DS-M24	12	36	0,066	E140030005	
DS-M27x2	13,5	41	0,096	E140030024	
DS-M30	15	46	0,137	E140030006	
DS-M36	18	55	0,23	E140030007	
DS-M36x2	18	55	0,23	E140030025	
DS-M42x2	15	55	0,272	E140030026	
DS-M48x2	20	70	0,418	E140030027	



Proximity switch with reed sensor – 2 line

M60RV2TXA

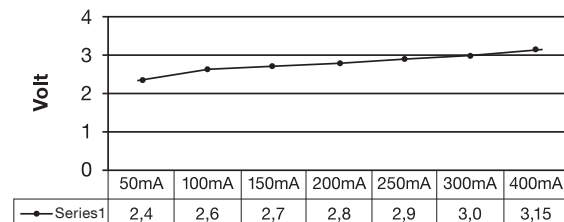
M70RV2IXA



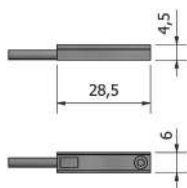
Technical information

General	
Design	PNP with yellow LED
Voltage (Ub)	10 to 240V AC/DC, voltage drop please refer to diagram
Current	400mA at 25 °C
Load	10 W/8 VA max.
Temperature range	-25 °C to +90 °C
Protection class	IP 67 (DIN 40050)
Cable length	3m
Materials	body: PA, cable: PVC – PUR on request

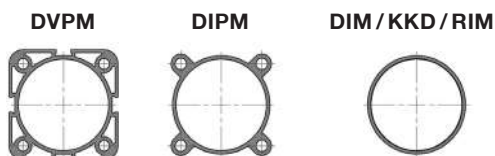
Attention: exceeding the maximum electric allowance leads to substantially reduced lifetime.



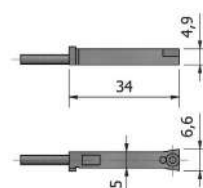
Type M60: screw-in



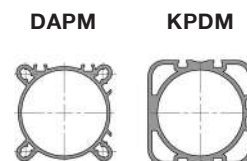
For cylinders type



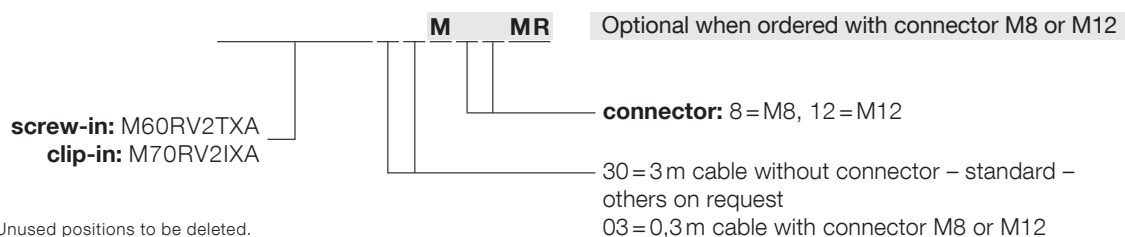
Type M70: clip-in



For cylinders type

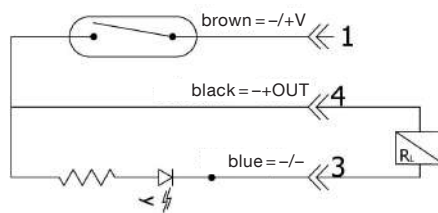


Order code



Proximity switch with reed sensor – 3 line

M60RS3TXC
M70RS3IXC

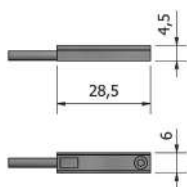


Technical information

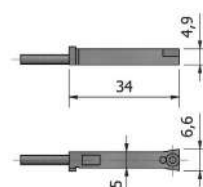
General	
Design	PNP with yellow LED
Voltage (U _b)	5 to 30 V DC
Current	400 mA at 25 °C
Load	10 W
Temperature range	-25 °C to +90 °C
Protection class	IP 67 (DIN 40050)
Cable length	3 m
Materials	body: PA, cable: PVC – PUR on request

Attention: exceeding the maximum electric allowance leads to substantially reduced lifetime.

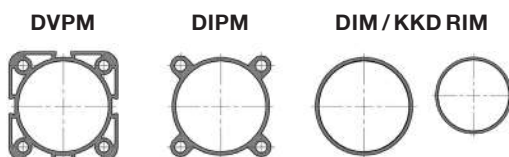
Type M60: screw-in



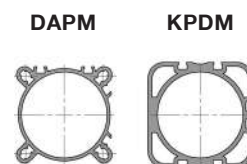
Type M70: clip-in



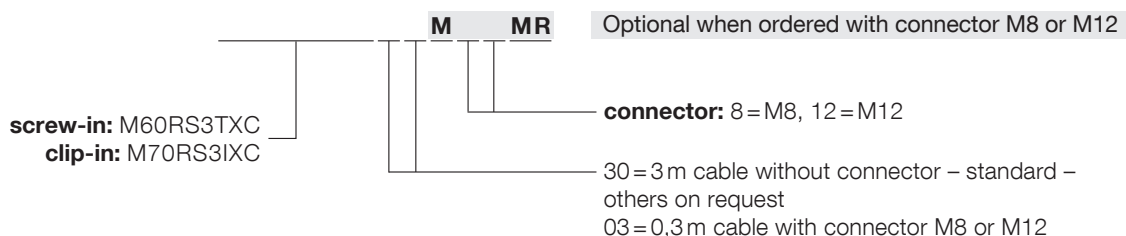
For cylinders type



For cylinders type

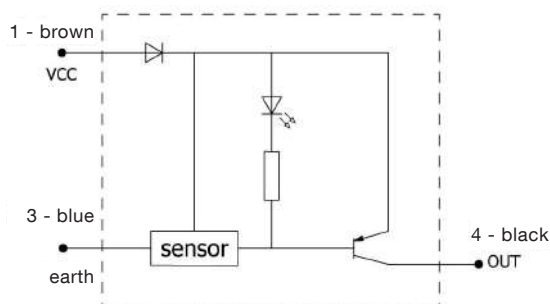


Order code



Elektronic sensor switch

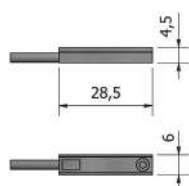
M60GMPTXC
M70GMPIXC



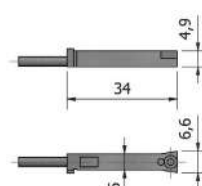
Technical information

General	
Design	PNP with yellow LED
Voltage (Ub)	5 to 30 V DC
Current	150 mA max.
Load	< 0,5 ms
Temperature range	-25 °C to +90 °C
Protection class	IP 67 (DIN 40050)
Cable length	5 m
Materials	body: PA, cable: PVC – PUR on request

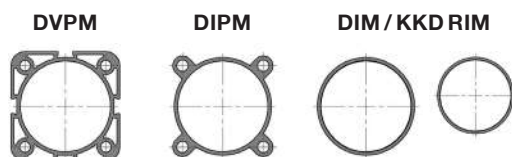
Type M60: screw-in



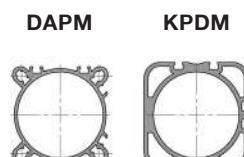
Type M70: clip-in



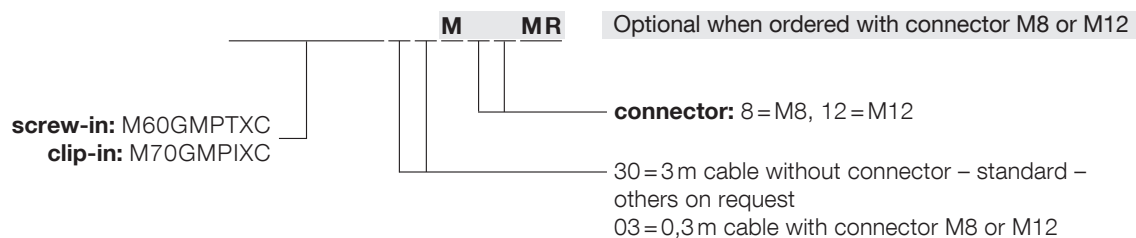
For cylinders type



For cylinders type



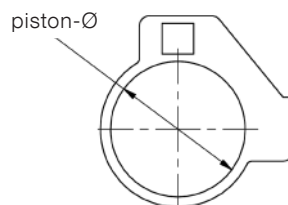
Order code



Mounting accessories for proximity switches type M60 and M70**Mounting – BR**

for round cylinders type RIM
made from enforced PA

Type	Piston-Ø
BR-08-M60	8 mm
BR-10-M60	10 mm
BR-12-M60	12 mm
BR-16-M60	16 mm
BR-20-M60	20 mm
BR-25-M60	25 mm
BR-32-M60	32 mm
BR-40-M60	40 mm
BR-50-M60	50 mm
BR-63-M60	63 mm

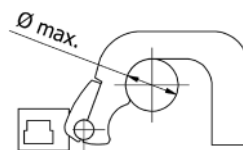


can be used for sensors type M60
as well as M70, preferably M60.

Mounting – BZ

for tie-rod cylinders type DIM and KKD

Type	Piston-Ø	Ø max.
BZ-3263-M60	32 – 63 mm	7 mm
BZ-80100-M60	80 – 100 mm	10 mm
BZ-125-M60	125 mm	12 mm
BZ-160200-M60	160 – 200 mm	16 mm
BZ-250-M60	250 mm	20,5 mm
BZ-320-M60	320 mm	25,5 mm

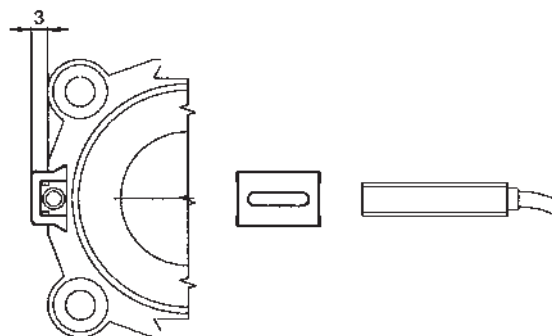


can be used for sensors type M60
as well as M70, preferably M60.

Mounting – BD

for profile cylinders type DVPM

Type	Piston-Ø
BD-32-100	32 – 100 mm

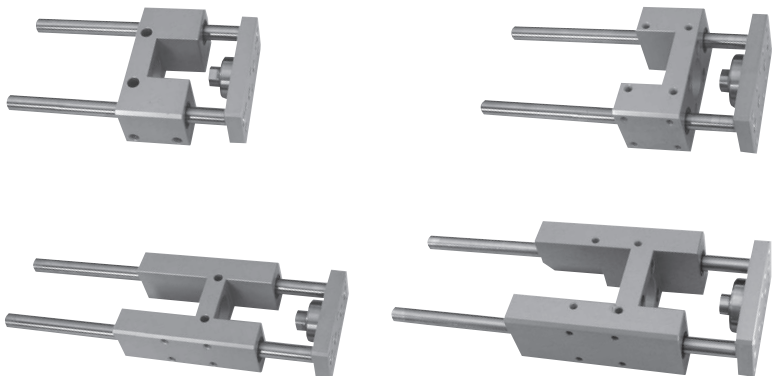


for sensor type M60 only.



Linear guides

LFA
for cylinders according to
DIN/ISO 6432 piston-Ø 16 to 25 mm and
DIN/ISO 15552 piston-Ø 32 to 100 mm
for others on request



Technical information

General	
Design	Linear guide H = long, C = short (on request)
Function	G = bearing K = ball bushing
Materials	body and plate: aluminum anodized rods and coupling: steel bearings: sintered bronze or ball bushing
Temperature range	-20 °C to +80 °C
Standard strokes [mm]	
25, 50, 80, 100, 160, 200, 250, 300, 400, 500 mm	

The linear guide is used to take-on high momentums and avoid rotation of the piston rod. To be used in combination with cylinders according to DIN/ISO 6432 piston-Ø 16 to 25 mm and DIN/ISO 15552 piston-Ø 32 to 100 mm.

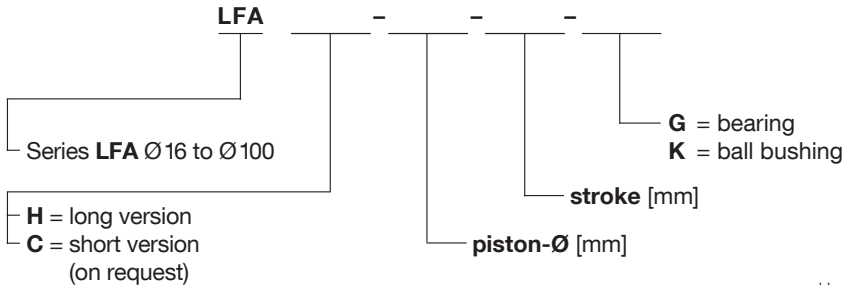
Substantially improves accuracy when handling parts.

For selecting the right product in terms of function and load please refer to the diagrams.



Selected items are available in stainless steel, please refer to JOYNER catalogue Nr. 6.

Order code

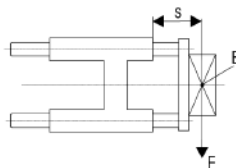


Unused positions to be deleted.

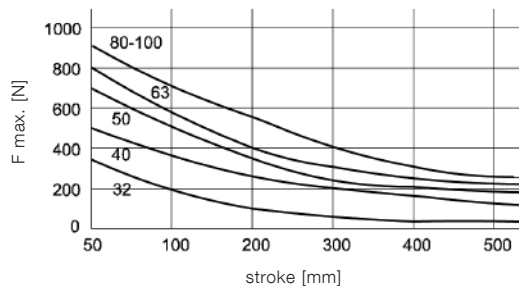
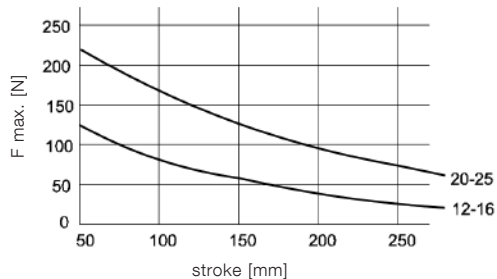


Linear guides

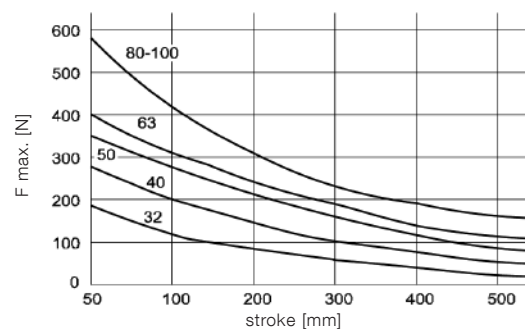
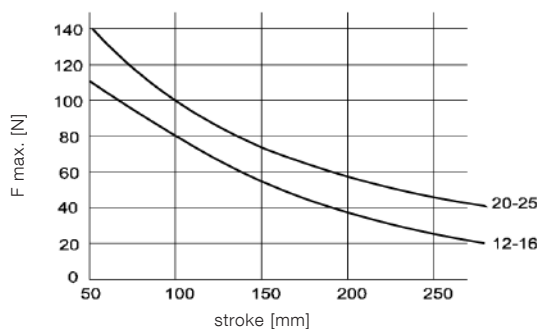
Maximum load of type LFA H (long)
Maximum load depends on stroke



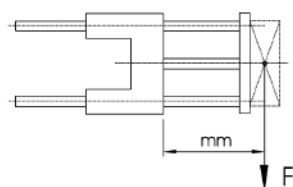
Type G with bearing



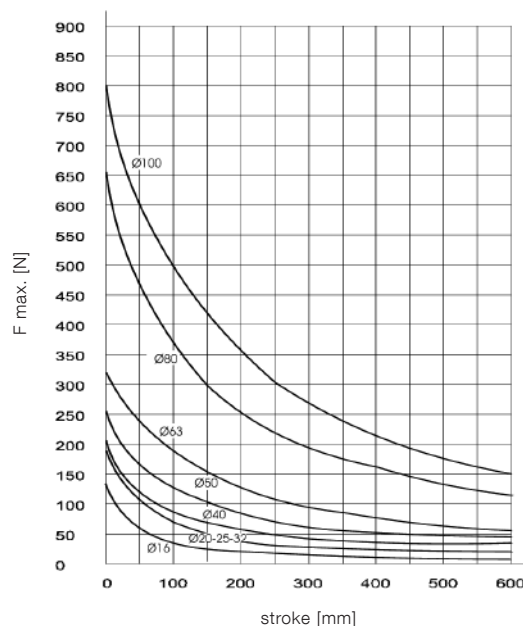
Type K with ball bushing



Maximum load of type LFAC – G (short with bearing)
Maximum load depends on stroke



on request



Guide units

double acting

AMCCG

piston-Ø 16 to 100 mm

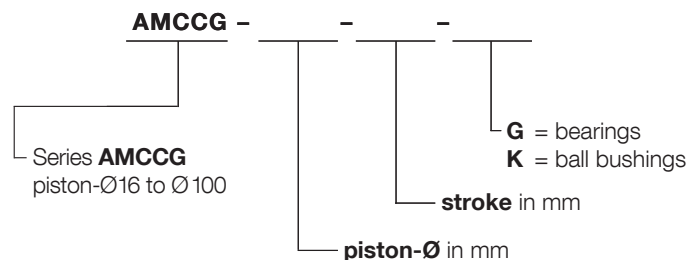


Technical information

General	
Design	Guide unit with integrated actuator
Function	double acting – G = bearing, K = ball bushing
Materials	body and plate: aluminum anodized, rods: steel bearings, seals: NBR, PUR
Piston-Ø	Ø 16 to 100 mm
Position	any
Temperature range	–20 °C to +80 °C
Pneumatic information	
Operating pressure	1 to 10 bar
Media	air-quality 7-4-4 for particles-water-oil acc. ISO 8573-1:2010
Position sensing	with proximity switches

Piston-Ø	Standard strokes [mm]									
	10	20	25	30	40	50	75	100	150	200
16 mm	•	•		•	•	•	•	•	•	•
20 mm		•		•	•	•	•	•	•	•
25 mm		•	•	•	•	•	•	•	•	•
32 mm			•			•	•	•	•	•
40 mm			•			•	•	•	•	•
50 mm			•			•	•	•	•	•
63 mm			•			•	•	•	•	•
80 mm			•			•	•	•	•	•
100 mm			•			•	•	•	•	•

Order code

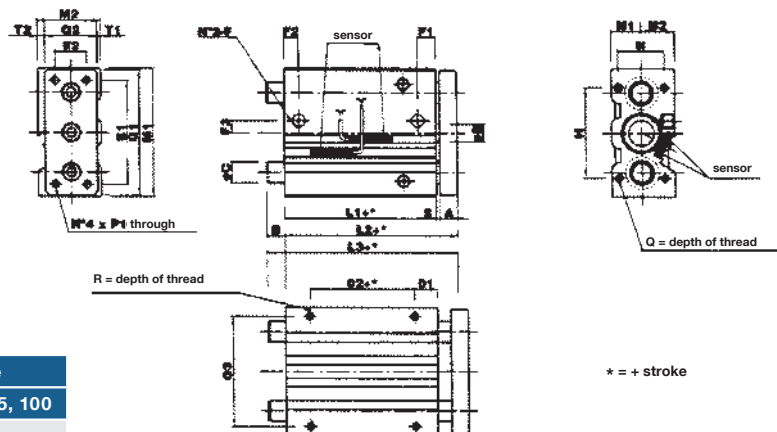


Unused positions to be deleted.



Guide units

double acting
AMCCG
piston-Ø 16 to 25 mm



Dimensions

Piston-Ø	B		L3	
	Stroke		Stroke	
	0-50	75, 100	0-50	75, 100
16 mm	0	26,5	45,0	-
20 mm	0	27,5	49,0	76,5
25 mm	0	30,0	49,5	79,5

Piston-Ø	A	C	D	E1	E2	F	F1	F2	F3
16 mm	10	10	8	52	16	M5	11,0	8,0	6
20 mm	10	12	10	60	18	1/8	10,5	8,5	7
25 mm	10	16	12	70	26	1/8	11,5	9,0	8

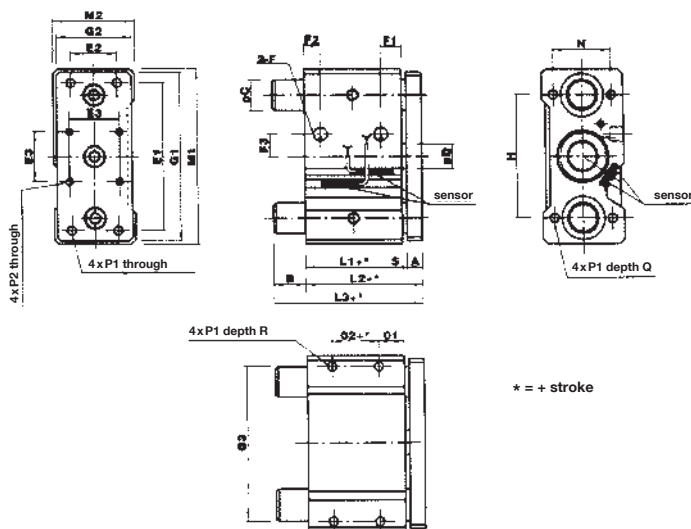
Weight

Piston-Ø	Weight [g] stroke = 0 mm	Weight [g] / mm stroke
16	295	4,8
20	486	6,4
25	550	10,0

Piston-Ø	G1	G2	H	H1	L1	L2	M1	M2	N	N1	N2	O1	O2	O3	P1	Q	R	S	T1	T2
16 mm	62	25	42	40	33,0	45,0	64	33	22	15	18	13	7	54	M4	13	8	2	2,5	6
20 mm	72	29	52	46	37,0	49,0	74	36	26	17	19	13	10	64	M5	13	8	2	2,0	4
25 mm	86	38	62	56	37,5	49,5	88	42	32	21	21	14	10	76	M6	15	9	2	2,0	2

Guide units

double acting
AMCCG
piston-Ø 32 to 100 mm



Dimensions

Piston-Ø	A	ØD	E1	E2	E3	F	F1	F2	F3
32 mm	10	16	96	30	32,5	1/8	12,05	9,0	1
40 mm	10	16	106	30	38,0	1/8	14,0	10,0	21
50 mm	12	20	120	40	46,5	1/4	14,0	11,0	27
63 mm	12	20	130	50	56,5	1/4	16,5	13,5	33
80 mm	16	25	160	60	72,0	3/8	19,0	15,5	37
100 mm	16	30	190	80	89,0	3/8	23,0	19,0	40

Weight

Piston-Ø	Weight [g] stroke = 0 mm	Weight [g] / mm stroke
32 mm	942	16,51
40 mm	1028	18,04
50 mm	1355	23,76
63 mm	1900	32,56
80 mm	3910	55,77
100 mm	5710	73,48

Piston-Ø	G1	G2	H	L1	L2	M1	M2	N	1	2	3	P1	P2	Q	R	S	L3	ØC	B
32 mm	112	48	80	37,5	49,5	114	53	38	16	5	100	M8	M6	20	11,0	2	73,5	20	24,0
40 mm	122	48	90	44,0	56,0	124	53	38	17	10	110	M8	M6	20	11,0	2	73,5	20	17,5
50 mm	138	56	100	44,0	58,0	139	59	44	17	10	124	M10	M8	25	12,5	2	83,0	25	25,0
63 mm	148	69	110	49,0	63,0	150	72	44	19	10	132	M10	M8	25	15,0	2	83,0	25	20,0
80 mm	185	88	140	56,5	74,5	188	92	56	21	15	166	M12	M10	30	18,0	2	93,0	28	18,5
100 mm	221	108	170	66,0	84,0	224	112	62	25	15	200	M14	M10	35	21,0	2	105,0	36	21,0



Rod locks

for cylinders ISO 6432

MRL

Rod lock for double acting cylinders according to ISO 6432 piston-Ø 20 and 25 mm. Spring locks rod, lock opens pneumatically. Does not open when pressure is lost. Some residual movement by a few mm can occur. Rod should stand still when locking. Make sure to deflate cylinder before opening lock.

Operating pressure: 3 to 6 bar

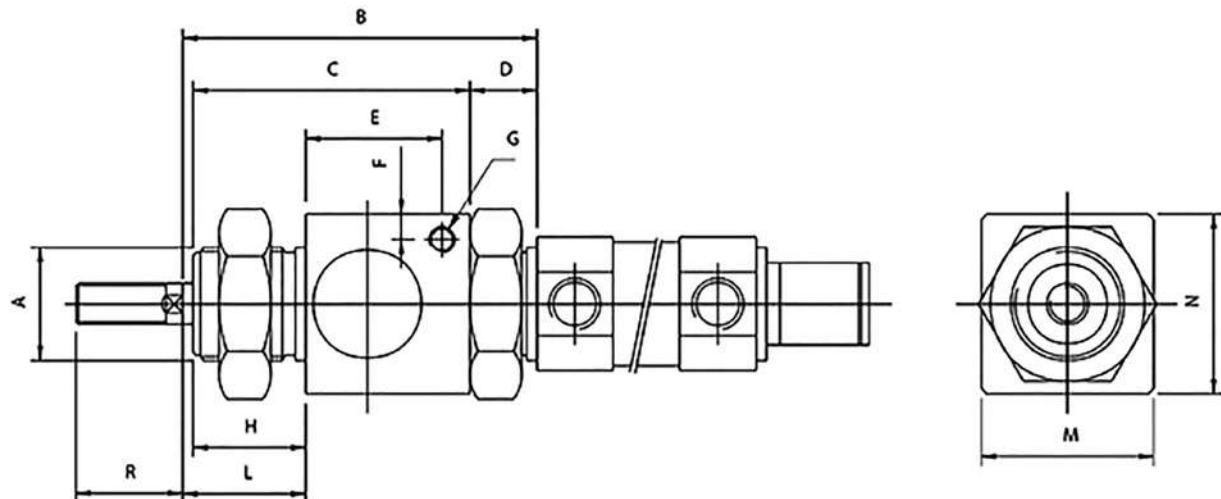
Temperature range: -5 °C to +80 °C

Air-quality: 7-4-4 for particles-water-oil
acc. ISO 8573-1:2010

Max. holding force: 490 N



Required rod extension: 54 mm



Dimensions

Type	Piston-Ø	A	B	C	D	E	F	G	H	L	M	N	R
MRL 20	20 mm	M22 x 1,5	68,5	54	13	27	5	M5	22	23,5	34	35	23
MRL 25	25 mm	M22 x 1,5	69,5	54	13	27	5	M5	22	24,5	34	35	26



When used in safety-relevant applications please make sure to obey national safety regulations such as (e.g.) European Machine directive including the standards included/mentioned there. Without additional measures the product is individually not qualified for safety relevant parts of pneumatic controls.

Rod locks

for cylinders ISO 15552

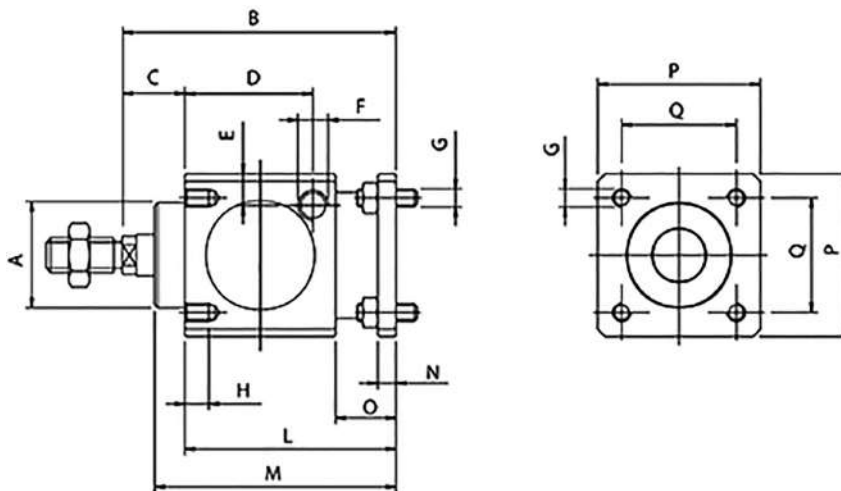
VRL

Rod lock for double acting cylinders according to ISO 15552 piston-Ø 32 to 125 mm. Spring locks rod, lock opens pneumatically. Does not open when pressure is lost. Rod should stand still when locking. Some residual movement by a few mm can occur. Make sure to deflate cylinder before opening lock.

Operating pressure: 3 to 6 bar
 Temperature range: -5 °C to +80 °C
 Air-quality: 7-4-4 for particles-water-oil
 acc. ISO 8573-1:2010



Type	Required rod extension [mm]	Holding force [N]
VRL 32	60	790
VRL 40	70	1.240
VRL 50	90	1.930
VRL 63	90	3.060
VRL 80	110	5.400
VRL 100	110	7.700
VRL 125	140	12.040

**Dimensions**

Type	Piston-Ø	A	B	C	D	E	F	G	H	L	M	N	O	P	Q
VRL 32	32mm	30,0	86	26	33,3	9,0	G 1/8"	M6	8	60	67,5	6	20	47	32,5
VRL 40	40mm	34,5	100	30	42,5	9,0	G 1/8"	M6	8	70	80,0	6	20	54	38,0
VRL 50	50mm	40,0	127	37	58,0	12,5	G 1/8"	M8	12	90	100,0	8	24	65	46,5
VRL 63	63mm	45,0	127	37	59,0	17,5	G 1/8"	M8	12	90	100,0	8	24	75	56,5
VRL 80	80mm	45,0	156	46	69,0	17,5	G 1/4"	M10	16	110	120,0	12	32	95	72,0
VRL 100	100mm	55,0	161	51	69,0	20,0	G 1/4"	M10	16	110	120,0	12	32	114	89,0
VRL 125	125mm	60,0	205	65	84,5	19,0	G 1/4"	M12	20	140	156,0	20	45	138	110,0

When used in safety-relevant applications please make sure to obey national safety regulations such as (e.g.) European Machine directive including the standards included/mentioned there. Without additional measures the product is individually not qualified for safety relevant parts of pneumatic controls.



Cylinder-valve-units

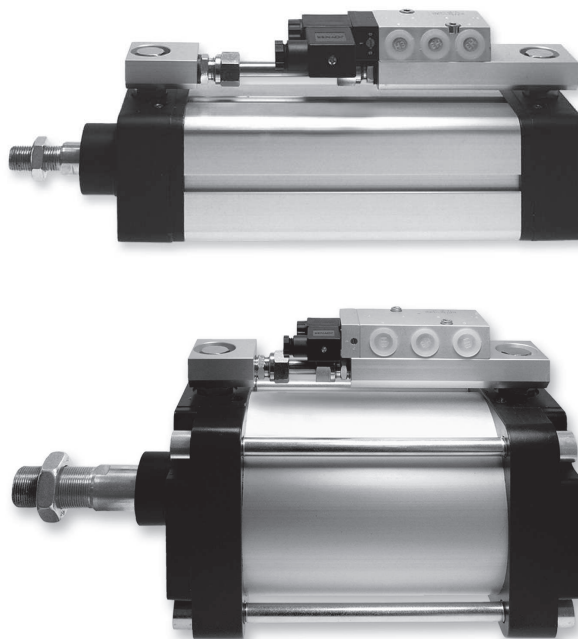
double acting

ZVE

piston-Ø 32 to 320 mm

Technical information

General	
Media	air-quality 7-4-4 for particles- water-oil acc. ISO 8573-1:2010
Operating pressure	2 to 10 bar, in combination with 5/3-way valves 3 to 10 bar.
Temperature range	-10 °C* to +50 °C High- as well as low-temperature products on request * Below 0 °C dried air only.



The toolbox

- profile cylinders DVP/DVPM, refer to page 34 f.
- tie-rod cylinders DI/DIM, refer to page 36 f.
- ISO 15552
- solenoid valves 5-way with NAMUR interface
- proximity switches
- connectors
- mounting bridges

Advantages

- easy to assemble
- compact design
- high flow
- max. piston speed
- minimum air consumption
- many variants
- service friendly
- quickly available
- standard interface

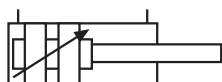


up to piston-Ø
200 mm

Cylinder type



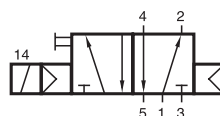
DVP/DI



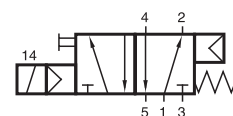
DVPM/DIM

refer to page 28 ff.

5/2-way single solenoid valve



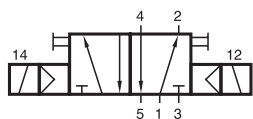
MNH 510



MNH 511

refer to cat. Nr. 5 – 5.1.2.1 f.

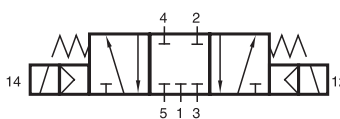
5/2-way double solenoid valve



MNH 520

refer to cat. Nr. 5 – 5.1.2.3

5/3-way valve



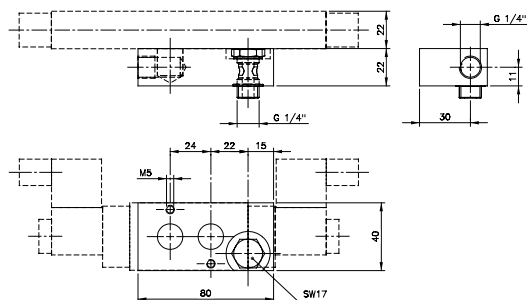
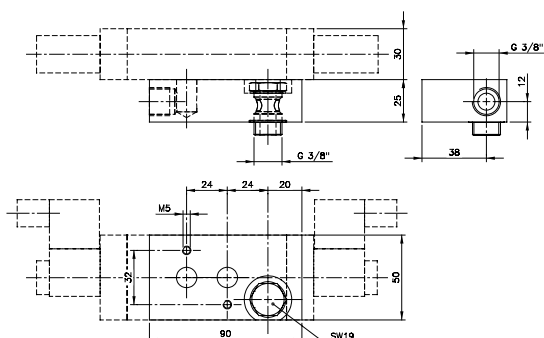
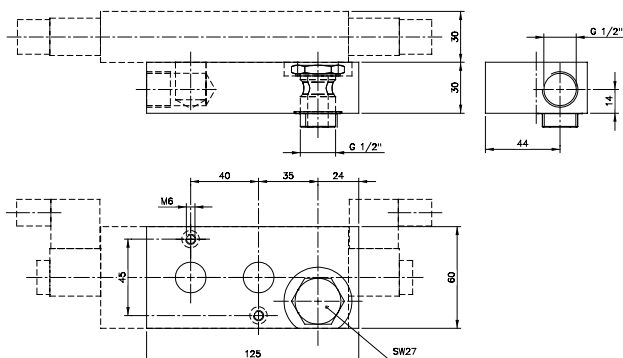
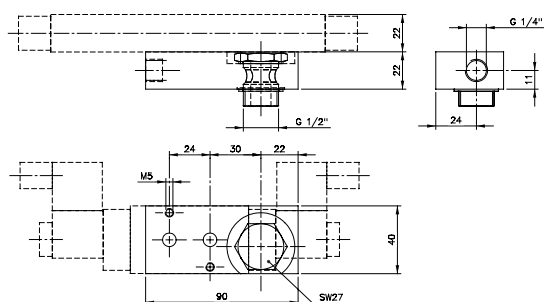
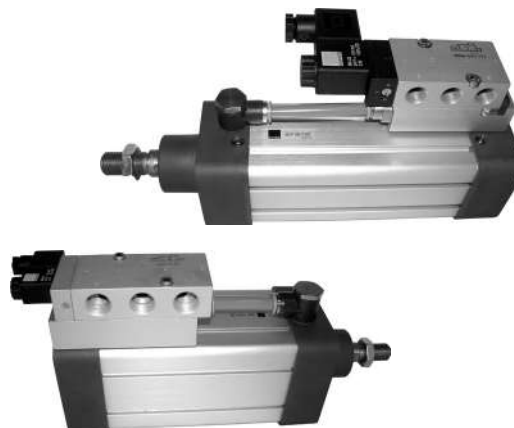
MNH 531

refer to cat. Nr. 5 – 5.1.4



Assembly plates for cylinder-valve combinations

ZVP 701/ZVP 101/ZVP 121/ZVP 121-701

**ZVP 701****ZVP 101****ZVP 121****ZVP 121-701**

Plates to combine NAMUR-valves with double acting cylinders/ the actuation element of a knife gate valve.

The plates can be attached to different cylinders, independent on their stroke.

ZVP 701: to be assembled onto a cylinder with G 1/4" ports (diameter 32, 40, 50 mm according to ISO 6431/ISO 15552). Designed for an orifice size 7 mm in combination with e.g. MNH 510 711.

ZVP 101: to be assembled onto a cylinder with G 3/8" ports (diameter 63, 80 mm according to ISO 6431/ISO 15552). Designed for an orifice size 10 mm in combination with e.g. MNH 510 101.

ZVP 121: to be assembled onto a cylinder with G 1/2" ports (diameter 100, 125 mm according to ISO 6431/ISO 15552). Designed for an orifice size 12 mm in combination with e.g. MNH 510 121.

ZVP 121-701: to be assembled onto a cylinder with G 1/2" ports and equipped with a NAMUR-valve of 1/4" standard.

Delivery contains the plate and the banjo for one port. Straight male fittings and rotating elbow fittings to make the other connection can be supplied on request.

Materials:

Plate: aluminium alloy

Banjo: brass, zinc plated

Seals: PA

Typ	Port A	Port B	NAMUR	Orifice	Weight
ZVP 701	Banjo G 1/4"	G 1/4"	1/4"	7 mm	0,35 kg
ZVP 101	Banjo G 3/8"	G 3/8"	1/4"	10 mm	0,40 kg
ZVP 121	Banjo G 1/2"	G 1/2"	1/2"	12 mm	0,45 kg
ZVP 121-701	Banjo G 1/2"	G 1/4"	1/4"	7 mm	0,35 kg

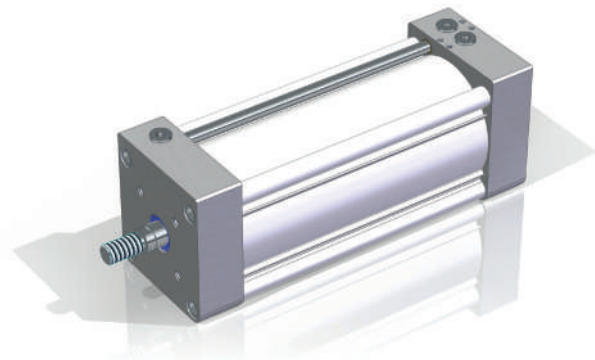
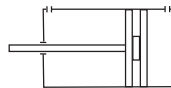


Linear cylinder with NAMUR interface

double acting

LAZ

piston-Ø 80 to 320 mm



Strokes / theoretical cylinder force at 6 bar

Piston-Ø mm	Stroke [mm]	Rod out [N]*	Rod in [N]*
80	25 - 50 - 80 - 100 - 125 - 160 - 200 - 250 - 320 - 400 - 500 - 600 - 700 - 800 - 900 - 1000	3.014	2.826
100	25 - 50 - 80 - 100 - 125 - 160 - 200 - 250 - 320 - 400 - 500 - 600 - 700 - 800 - 900 - 1000	4.710	4.521
125	25 - 50 - 80 - 100 - 125 - 160 - 200 - 250 - 320 - 400 - 500 - 600 - 700 - 800 - 900 - 1000	7.359	6.877
160	25 - 50 - 80 - 100 - 125 - 160 - 200 - 250 - 320 - 400 - 500 - 600 - 700 - 800 - 900 - 1000	12.057	11.575
200	25 - 50 - 80 - 100 - 125 - 160 - 200 - 250 - 320 - 400 - 500 - 600 - 700 - 800 - 900 - 1000	18.840	18.086
250	25 - 50 - 80 - 100 - 125 - 160 - 200 - 250 - 320 - 400 - 500 - 600 - 700 - 800 - 900 - 1000	29.437	28.683
320	25 - 50 - 80 - 100 - 125 - 160 - 200 - 250 - 320 - 400 - 500 - 600 - 700 - 800 - 900 - 1000	48.230	47.476

* Theoretical forces, we recommend to deduct 5% due to friction.

Technical information

General	
Piston-Ø	80 to 320 mm
Design	piston-Ø up to 125 mm profile cylinder, starting 160 mm tie-rod
Stroke	25 to 1000 mm
Pneumatic interface	piston-Ø up to 160 mm NAMUR 1, starting 200 mm NAMUR 2
Fixing	following ISO 15552 in addition DIN 3358 / IDO 5210 at head
Temperature range	-20 °C to +80 °C
Materials	
Piston rod	stainless steel
	piston-Ø up to 125 mm 1.4305
	piston-Ø starting 160 mm 1.4021
Heads and tube	aluminum anodized
Seals	PUR, NBR
Pneumatic information	
Operating pressure	1 to 10 bar
Media	air-quality 7-4-4 for particles-water-oil acc. ISO 8573-1:2010

Order code

LAZ / stroke [mm]
 |
 piston-Ø [mm]



Unused positions to be deleted.



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JOYNER THE FULL RANGE:



Round cylinders



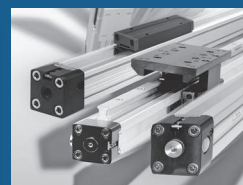
Cylinders acc. to
ISO 15552



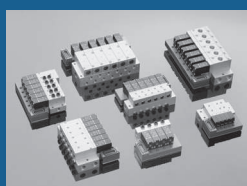
Compact cylinders acc. to
ISO 21287



Pneumatic products
"Knorr"-series



Rodless cylinders



Valve terminals



Spool valves



NAMUR-range



Manually and mechanically
actuated valves



K-rings and pistons

We move more than air

