

General

These cylinders are built according to ISO 21287 standards. New barrel profile has two sensor slots on the three sides (Ø20 and Ø25 one slot) suitable for sensors 1580._, MRS._, MHS._ series housing, without need for adaptors.

Versions with end stroke adjustable pneumatic cushioning are also available, allowing adjustments to deceleration and keeping the required overall dimensions according to ISO 21287.

For fixing operation is possible to use the four threaded holes on the end covers, or screws in body holes, alternatively all the fixing devices of UNITOP RU-P/6-P/7 (Ø20 and Ø25) and ISO 15552 (from Ø32 to Ø100) series.

Construction characteristics

Body	anodised aluminium
End cap	aluminium alloy casting painted
Bearing piston rod	sintered bronze
Piston rod	from Ø20 to Ø25 stainless steel from Ø32 to Ø100 C43 chromed (on request stainless steel)
Piston	from Ø20 to Ø63 acetal resin (aluminium on request), Ø80 and Ø100 aluminium (with FPM seals, aluminium piston for all standard diameters)
Seals	Standard: NBR Oil resistant rubber, PUR Piston rod seals (PUR or FPM seals available upon request)
Spring	stainless steel
Fixing screws	plated zinc steel

Technical characteristics

Fluid	filtered and preferably lubricated air, or non-lubricated (if air is lubricated, the lubrication must be constant)
Max. pressure	10 bar
Operating temperature	-5°C - +70°C with standard seals (magnetic or non magnetic piston) -30°C - +80°C with PUR seals (magnetic or non magnetic piston) -5°C - +80°C with FPM seals (magnetic piston) -5°C - +150°C with FPM seals (non magnetic piston)

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

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

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

Use hydraulic oils H class (ISO Vg32) for correct continued lubrication.

Our Technical Department will be glad to help.

Stroke tolerance, minimum and maximum spring loads and cushioning length

Bore	Stroke tolerance	Minimum and maximum springs load		Cushioning length
(mm)	(mm)	(N)		(mm)
		min.	max.	
Ø20	+1.5 / 0 mm	10.8	19.6	/
Ø25		16.7	22.6	5
Ø32		19.6	25.5	6.5
Ø40	+2 / 0 mm	25.5	42.2	8
Ø50		44.1	96.3	7.5
Ø63		44.1	96.3	7.5
Ø80	+2.5 / 0mm	63.8	100.1	8
Ø100		107.9	193.3	12

**DOUBLE ACTING
BASIC version
and PUSH/PULL ROD**

WITH CUSHIONING DEVICE

**DOUBLE ACTING
PUSH/PULL ROD
BORED version**

WITH CUSHIONING DEVICE

**DOUBLE ACTING version
WITH NON-ROTATING DEVICE**

WITH CUSHIONING DEVICE

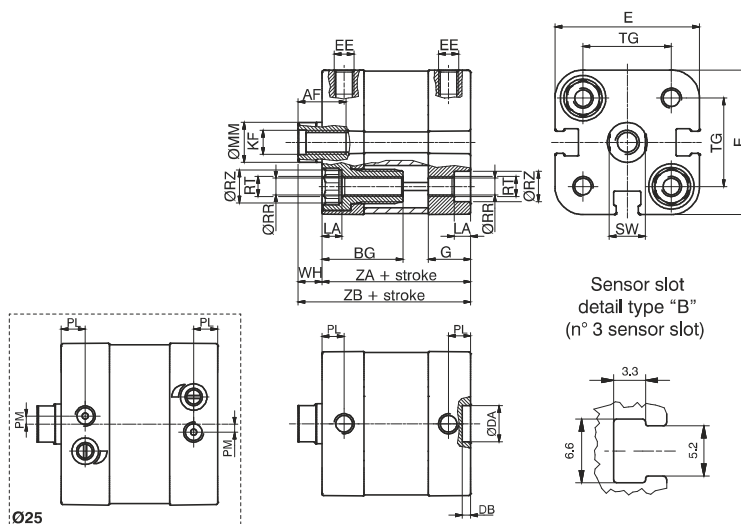
SINGLE ACTING
version

Stroke

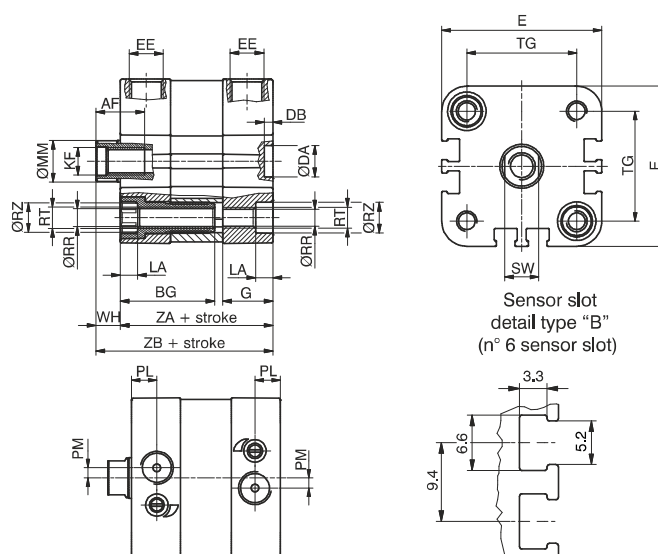
BASIC version double and single acting



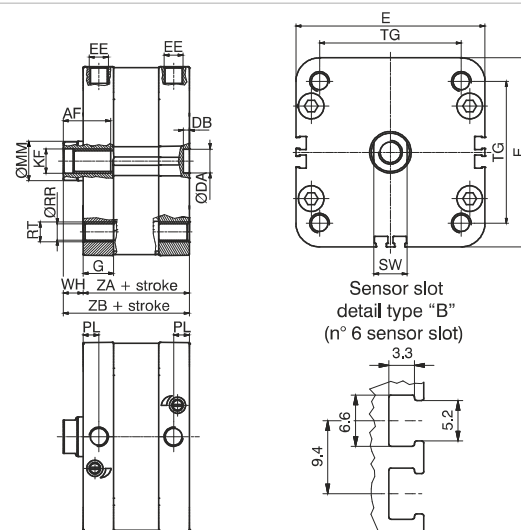
Ø20 and Ø25



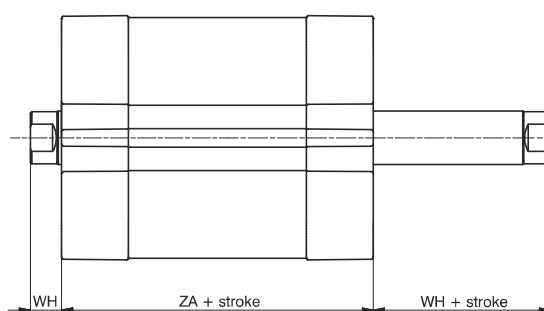
from Ø32 to Ø63



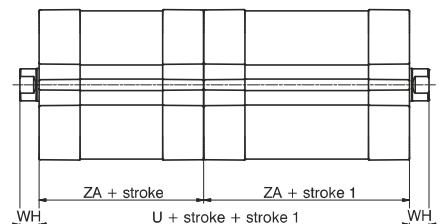
Ø80 and Ø100



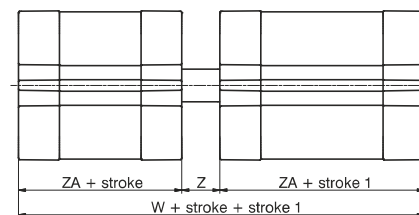
PUSH/PULL rod version double and single acting



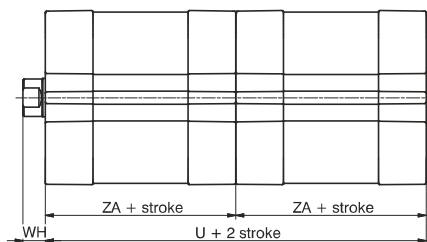
TANDEM version



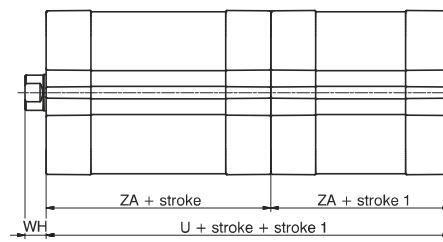
Tandem with opposed rods



Opposed tandem with common rods



Tandem push with common rod



Tandem push with independent rod

Ordering code

Basic and push/pull version

- 15 . Ø . stroke .
- 1= magnetic piston, Double acting
 - 2= magnetic piston, Single acting with front spring
 - 3= magnetic piston, Single acting with rear spring
 - 4= non magnetic piston, Double acting
 - 5= non magnetic piston, Single acting with front spring
 - 6= non magnetic piston, Single acting with rear spring
 - 1= Basic, female threaded rod
 - 2= Basic, male threaded rod
 - 3= through rod, female threaded rod
 - 4= through rod, male threaded rod
 - 5= through rod, bored female threaded rod
 - 6= through rod, bored male threaded rod
 - 7= with non-rotating device
 - 8= through rod, female threaded rod, with non-rotating device on one side
 - 9= through rod, male threaded rod, with non-rotating device on one side
 - 0= Acetal resin piston (Ø20 - Ø63) and aluminium (Ø80 - Ø100)
 - K= Aluminium piston (Ø20 - Ø63)
 - 0= NBR seals and C43 chromed plated rod *
 - 1= NBR seals and stainless steel rod (starting from bore Ø32)
 - 4= PUR seals and C43 chromed plated rod *
 - 5= PUR seals and stainless steel rod (starting from bore Ø32)
 - 6= FPM seals and C43 chromed plated rod *
 - 7= FPM seals and stainless steel rod (starting from bore Ø32)
 - * (Ø20 and Ø25 stainless steel)
 - 4= Non-cushioned versions (mechanical cushioning only)
 - 5= Versions with adjustable end of stroke cushioning system (from Ø25)

TANDEM version (magnetic pistons)

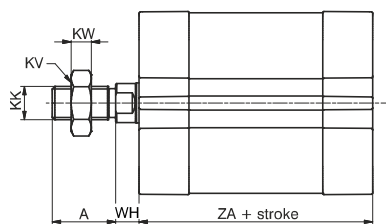
- 15 . Ø . stroke . (stroke 1) .
- C= female threaded rod
 - G= male threaded rod
 - H= with through rod and female threaded rod
 - R= with through rod and male threaded rod
 - N= with non-rotating device
 - B= female threaded rod
 - F= male threaded rod
 - M= with non-rotating device
 - P= with through rod and female threaded rod
 - Q= with through rod and male threaded rod
 - D= Opposed tandem with common rod
 - A= female threaded rod
 - E= male threaded rod
 - L= with non-rotating device on both ends
 - 0=NBR seals and C43 chromed plated rod *
 - 1=NBR seals and stainless steel rod (starting from bore Ø32)
 - 4= PUR seals and C43 chromed plated rod *
 - 5= PUR seals and stainless steel rod (starting from bore Ø32)
 - 6= FPM seals and C43 chromed plated rod *
 - 7= FPM seals and stainless steel rod (starting from bore Ø32)
 - * (Ø20 and Ø25 stainless steel)
 - 4= Non-cushioned version (mechanical cushioning only)
 - 5= Versions with adjustable end of stroke cushioning system (from Ø25)

Seals compounds scheme: **NBR** oil resistant nitrilic rubber
PUR: polyurethane seals **FPM**: fluoropolymer rubber seals

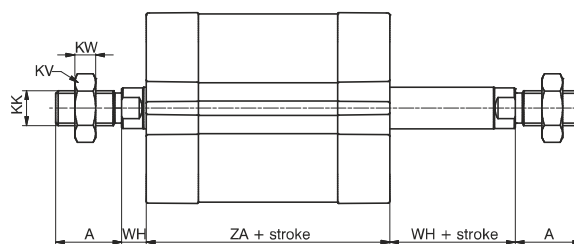
Table of dimensions

Bore	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
AF (min)	12	12	14	14	18	18	24	24
BG	20	20	16	16	16	16	/	/
DA (H9)	9	9	9	9	12	12	12	12
DB (+0.1/0)	2.1	2.1	2.5	2.5	2.6	2.6	3	3
E (max)	36	40.5	47.5	55	66	78	96	116
EE	M5	M5	G1/8	G1/8	G1/8	G1/8	G1/8	G1/8
G	10.5	12	14.5	15	15	15	15.5	18.5
KF	M6	M6	M8	M8	M10	M10	M12	M12
LA (0/-0.1)	4.1	4.1	5	5	5	5	/	/
MM (f 7)	10	10	12	12	16	16	20	25
PL (+0.1/0)	5.5	6	7.5	8	8	8	8	8
PM	/	2	3	/	/	/	/	/
RR (min)	4.1	4.1	5.1	5.1	6.6	6.6	8.4	8.4
RT	M5	M5	M6	M6	M8	M8	M10	M10
RZ (min)	7.5	7.5	8.5	8.5	10.5	10.5	/	/
SW (0/-0.1)	9	9	10	10	13	13	17	22
TG (±0.2)	22	26	32.5	38	46.5	56.5	72	89
U	74	78	88	90	90	98	108	134
W	83	89	100	103	105	113	124	154
WH (±1)	6	6	7	7	8	8	10	10
Z	9	11	12	13	15	15	16	20
ZA (±0.5)	37	39	44	45	45	49	54	67
ZB (+1/0)	43	45	51	52	53	57	64	77
Weight stroke	105	110	200	270	420	550	760	1400
gr. every 5mm	10	10.5	13	17	23.5	27	37	51

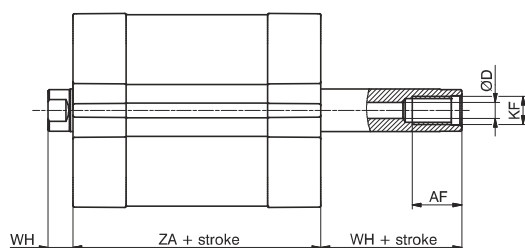
Basic version male piston rod



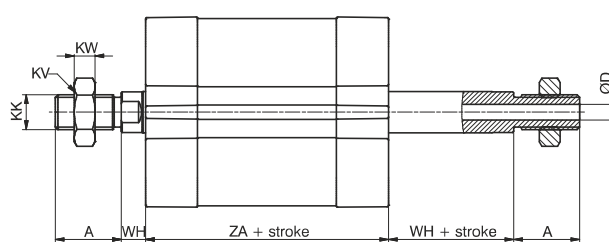
Push/pull version male rod



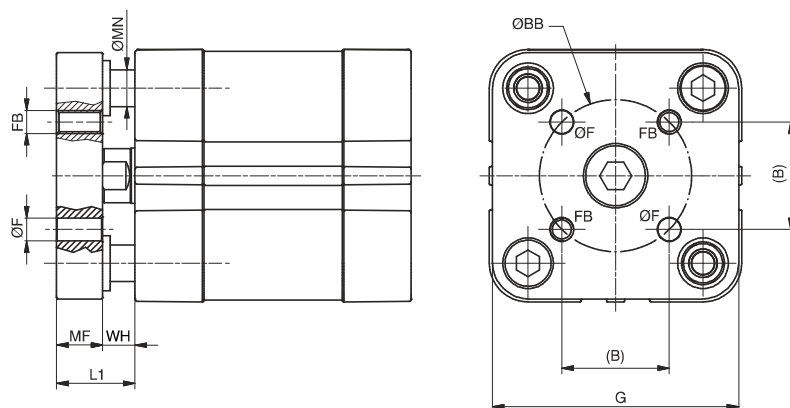
Push - pull version bored female piston rod



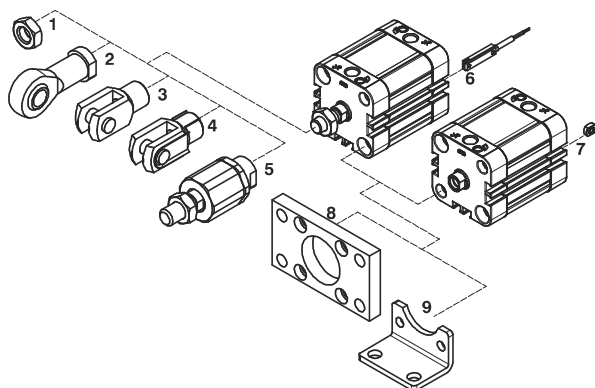
Push - pull version bored male piston rod



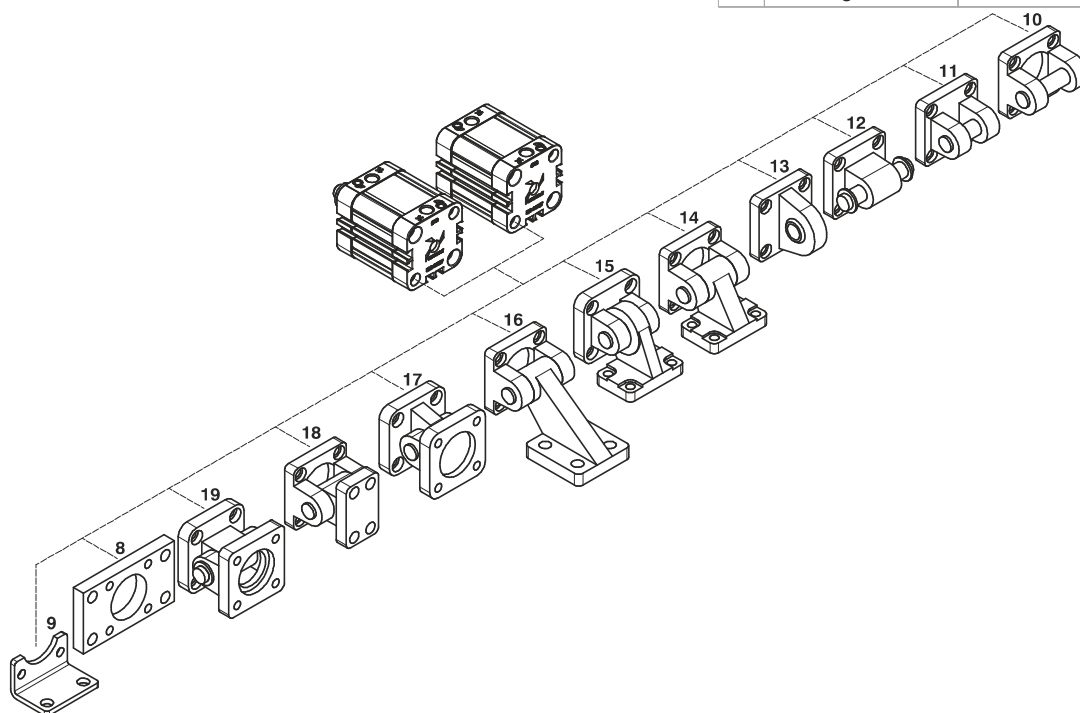
Non-rotating version



Bore	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
A (0/-0.5)	16	16	19	19	22	22	28	28
AF (min)	12	12	14	14	18	18	24	24
B	12	15.6	19.8	23.3	29.7	35.4	46	56.6
BB (±0.1) Ø	17	22	28	33	42	50	65	80
D Ø	3	3.8	4.5	4.5	6	6	8	10
F (+0.1/0) Ø	4	5	5	5	6	6	8	10
FB	M4	M5	M5	M5	M6	M6	M8	M10
G	35	39.5	45	52	65	75	95	115
KF	M6	M6	M8	M8	M10	M10	M12	M12
KK	M8x1.25	M8x1.25	M10x1.25	M10x1.25	M12x1.25	M12x1.25	M16x1.5	M16x1.5
KV	13	13	17	17	19	19	24	24
KW	5	5	6	6	7	7	8	8
L1	14	14	17	17	20	20	24	24
MF (+0.1/0)	8	8	10	10	12	12	14	14
MN (f 7) Ø	6	6	8	8	10	10	12	12
WH (±1)	6	6	7	7	8	8	10	10
ZA (±0.5)	37	39	44	45	45	49	54	67

**Sensor and piston rod accessories**

Pos.	Description	Ordering code	
1	Rod lock nut	1200.20.06	(Ø20-Ø25)
		1320.32.18F	(Ø32-Ø40)
		1320.40.18F	(Ø50-Ø63)
		1320.50.18F	(Ø80-Ø100)
2	Ball joint	1200.20.32F	(Ø20-Ø25)
		1320.32.32F	(Ø32-Ø40)
		1320.40.32F	(Ø50-Ø63)
		1320.50.32F	(Ø80-Ø100)
3	Fork	1200.20.04	(Ø20-Ø25)
		1320.32.13F	(Ø32-Ø40)
		1320.40.13F	(Ø50-Ø63)
		1320.50.13F	(Ø80-Ø100)
4	Fork with clips	1200.20.04/1	(Ø20-Ø25)
		1320.32.13/1F	(Ø32-Ø40)
		1320.40.13/1F	(Ø50-Ø63)
		1320.50.13/1F	(Ø80-Ø100)
5	Self-aligning joint	1200.20.33F	(Ø20-Ø25)
		1320.32.33F	(Ø32-Ø40)
		1320.40.33F	(Ø50-Ø63)
		1320.50.33F	(Ø80-Ø100)
6	Sensors	(See chapter 6 magnetic sensors)	
7	Valves direct mounting bolt	1500.20F	(Ø20 - Ø100)

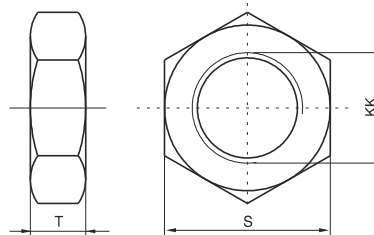
**Fixing**

Pos.	Description	Ordering code	
		Aluminium	Steel
8	Flange (MF2)	/	1540.Ø.03F (Ø20 - Ø25) 1380.Ø.03F (Ø32 - Ø100)
9	Foot (MS1)	/	1540.Ø.05/1F (Ø20 - Ø100)
10	Rear female clevis (MP2)	1380.Ø.09F (Ø32 - Ø100)	1320.Ø.20F (Ø32 - Ø100)
11	Narrow rear female trunnion (AB6)	1380.Ø.30F (Ø32 - Ø100)	1320.Ø.29F (Ø32 - Ø100)
12	Rear male clevis (MP4)	1580.Ø.09/1F (Ø20 - Ø25) 1380.Ø.09/1F (Ø32 - Ø100)	1580.Ø.09/2F (Ø20 - Ø25) 1320.Ø.21F (Ø32 - Ø100)
13	Rear male clevis (with jointed head - MP6)	1380.Ø.15F (Ø32 - Ø100)	1320.Ø.25F (Ø32 - Ø100)
14	Square angle trunnion (AB7)	1380.Ø.35F (Ø32 - Ø100)	1320.Ø.23F (Ø32 - Ø100)
15	Square angle trunnion (with jointed head)		1320.Ø.27F (Ø32 - Ø100)
16	Square angle trunnion (not specified by ISO 15552)	1380.Ø.11F (Ø32 - Ø100)	/
17	Standard trunnion (with jointed head)	1380.Ø.36F (Ø32 - Ø100)	1320.Ø.26F (Ø32 - Ø100)
18	Standard trunnion (not specified by ISO 15552)	1380.Ø.10F (Ø32 - Ø100)	/
19	Complete standard trunnion	/	1320.Ø.22F (Ø32 - Ø100)

Rod lock nut

Ordering code

Ø20-Ø25: **1200.20.06**
Ø32-Ø40: **1320.32.18F**
Ø50-Ø63: **1320.40.18F**
Ø80-Ø100: **1320.50.18F**

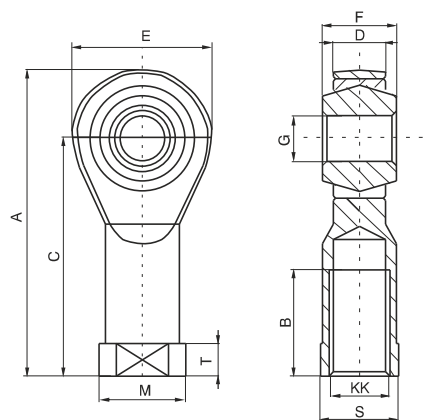


Bore	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
S	13	13	17	17	19	19	24	24
T	5	5	6	6	7	7	8	8
KK	M8x1,25	M8x1,25	M10x1,25	M10x1,25	M12x1,25	M12x1,25	M16x1,5	M16x1,5
Weight gr.	12	12	15	15	20	20	20	20

Ball joint

Ordering code

Ø20-Ø25: **1200.20.32F**
Ø32-Ø40: **1320.32.32F**
Ø50-Ø63: **1320.40.32F**
Ø80-Ø100: **1320.50.32F**

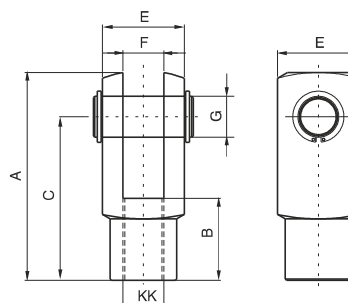


Bore	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
A	48	48	57	57	66	66	85	85
B	16	16	20	20	22	22	28	28
C	36	36	43	43	50	50	64	64
D (-0.1)	9	9	10.5	10.5	12	12	15	15
E	24	24	28	28	32	32	42	42
F	12	12	14	14	16	16	21	21
G (H7)	8	8	10	10	12	12	16	16
KK	M8x1,25	M8x1,25	M10x1,25	M10x1,25	M12x1,25	M12x1,25	M16x1,5	M16x1,5
M	16	16	19	19	22	22	27	27
S	14	14	17	17	19	19	22	22
T	5	5	6.5	6.5	6.5	6.5	8	8
Weight gr.	46	46	76	76	110	110	220	220

Fork

Ordering code

Ø20-Ø25: **1200.20.04**
Ø32-Ø40: **1320.32.13F**
Ø50-Ø63: **1320.40.13F**
Ø80-Ø100: **1320.50.13F**

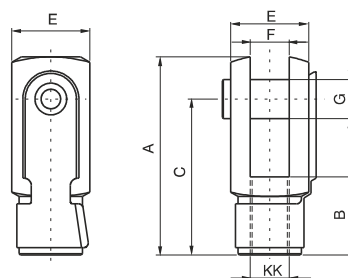


Bore	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
A	42	42	52	52	62	62	83	83
B	16	16	20	20	24	24	32	32
C	32	32	40	40	48	48	64	64
E	16	16	20	20	24	24	32	32
F (B12)	8	8	10	10	12	12	16	16
G	8	8	10	10	12	12	16	16
KK	M8x1,25	M8x1,25	M10x1,25	M10x1,25	M12x1,25	M12x1,25	M16x1,5	M16x1,5
Weight gr.	45	45	100	100	140	140	340	340

Fork with clips

Ordering code

Ø20-Ø25: **1200.20.04/1**
 Ø32-Ø40: **1320.32.13/1F**
 Ø50-Ø63: **1320.40.13/1F**
 Ø80-Ø100: **1320.50.13/1F**

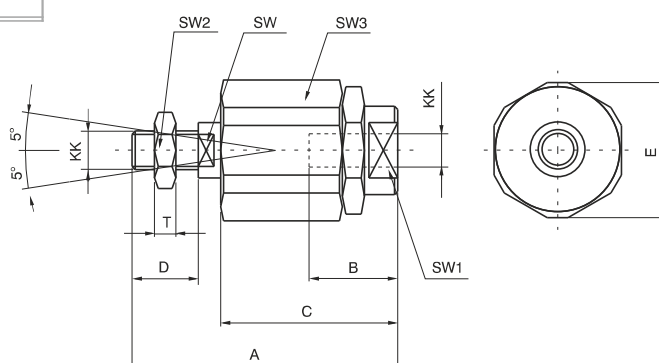


Bore	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
A	42	42	52	52	62	62	83	83
B	16	16	20	20	24	24	32	32
C	32	32	40	40	48	48	64	64
E	16	16	20	20	24	24	32	32
F (B12)	8	8	10	10	12	12	16	16
G	8	8	10	10	12	12	16	16
KK	M8x1.25	M8x1.25	M10x1.25	M10x1.25	M12x1.25	M12x1.25	M16x1.5	M16x1.5
Weight gr.	45	45	100	100	140	140	340	340

Self-aligning joint

Ordering code

Ø20-Ø25: **1200.20.33F**
 Ø32-Ø40: **1320.32.33F**
 Ø50-Ø63: **1320.40.33F**
 Ø80-Ø100: **1320.50.33F**

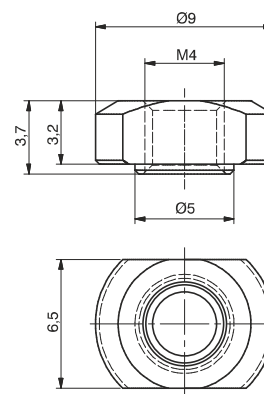


Bore	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
A	57	57	71	71	75	75	103	103
B	20	20	20	20	20	20	32	32
C	33	33	46	46	46	46	63	63
D	20	20	20	20	24	24	32	32
E	19	19	32	32	32	32	45	45
KK	M8x1.25	M8x1.25	M10x1.25	M10x1.25	M12x1.25	M12x1.25	M16x1.5	M16x1.5
SW	7	7	12	12	12	12	20	20
SW1	11	11	19	19	19	19	27	27
SW2	13	13	17	17	19	19	24	24
SW3	17	17	30	30	30	30	41	41
T	5	5	6	6	7	7	8	8
Weight gr.	60	60	220	220	230	230	660	660

Valves direct mounting nut

Ordering code

1500.20.F

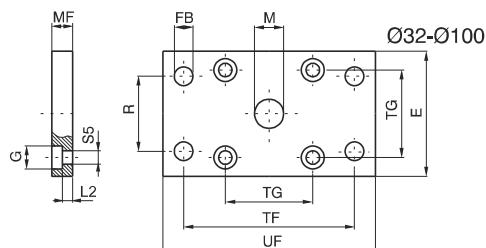
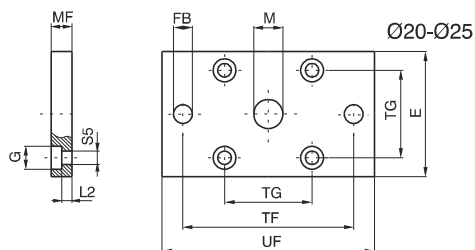
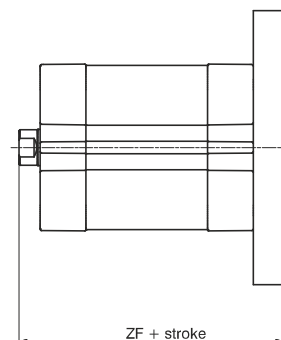
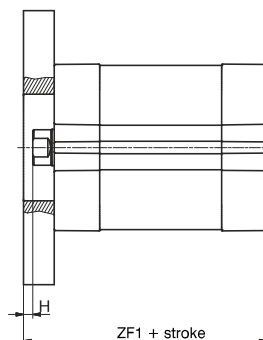


Flange (MF2)

Ordering code

Ø20-Ø25: **1540.Ø.03F**
Ø32-Ø100: **1380.Ø.03F**

The kit comprises:
n°1 flange (plated zinc steel)
n°4 screws (plated zinc steel)



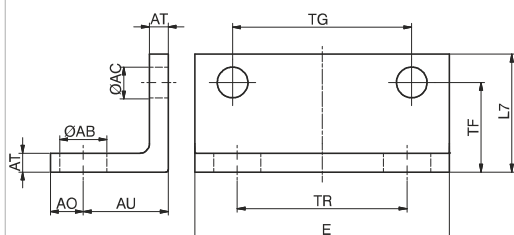
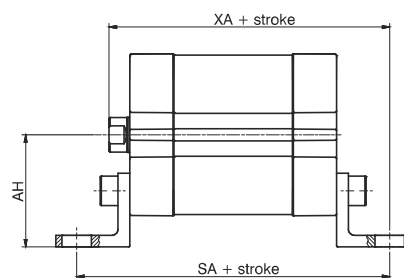
Bore	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
E	35	40	45	52	65	75	95	115
FB (H 13)	6.6	6.6	7	9	9	9	12	14
G	9.5	9.5	10.5	10.5	15	15	18	18
M (H 11)	16	16	30	35	40	45	45	55
MF (JS 14)	8	8	10	10	12	12	16	16
R (JS 14)	/	/	32	36	45	50	63	75
TF (JS 14)	55	60	64	72	90	100	126	150
TG	22	26	32.5	38	46.5	56.5	72	89
UF	70	75	80	90	110	120	150	170
ZF	51	53	130	145	155	170	190	205
ZF1	45	47	54	55	57	61	70	83
H	2	2	3	3	4	4	6	6
L2	3	3	5	5	6.5	6.5	8	8
S5	5.5	5.5	6.6	6.6	9	9	11	11
Weight gr.	125	160	190	250	480	620	1430	1990

Foot (MS1)

Ordering code

1540.Ø.05/1F

The kit comprises:
n°1 foot (plated zinc steel)
n°2 screws (plated zinc steel)



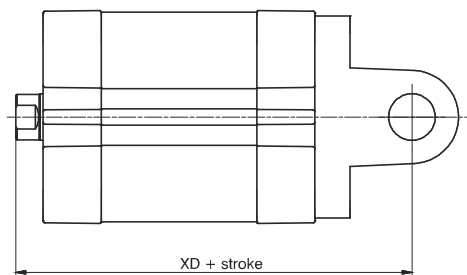
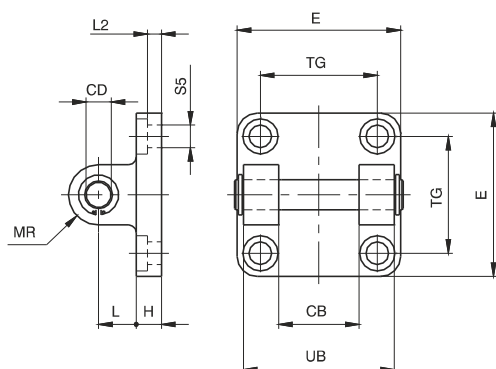
Bore	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
AB (H 14)	7	7	7	10	10	10	12	14.5
AC	5.5	5.5	6.5	6.5	8.5	8.5	10.5	10.5
AH	27	29	33.5	38	45	50	63	74
AO (max)	7	7	7	7	9	9	11	13
AT (±0.5)	4	4	4	4	5	5	6	6
AU (±0.2)	16	16	16	18	21	21	26	27
E (max)	35.5	39.5	46.5	54	65	77	95	115
L7	20	20	25	25	30	30	40	45
TF (±0.1)	16	16	17.25	19	21.75	21.75	27	29.5
TG (±0.2)	22	26	32.5	38	46.5	56.5	72	89
TR (JS 14)	22	26	32	36	45	50	63	75
SA	69	71	76	81	87	91	106	121
XA	59	61	67	70	74	78	90	104
Weight gr.	40	45	60	70	130	160	300	405

Rear female clevis (MP2)

Ordering code

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

The kit comprises:
 n°1 clevis (steel or painted aluminium)
 n°4 screws (plated zinc steel)
 n°1 pin (plated zinc steel)
 n°2 circlips (steel)



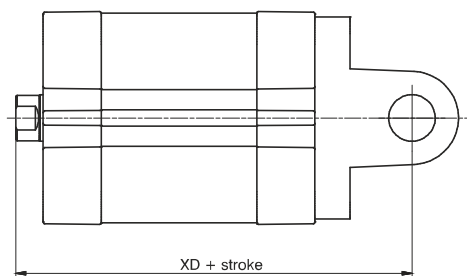
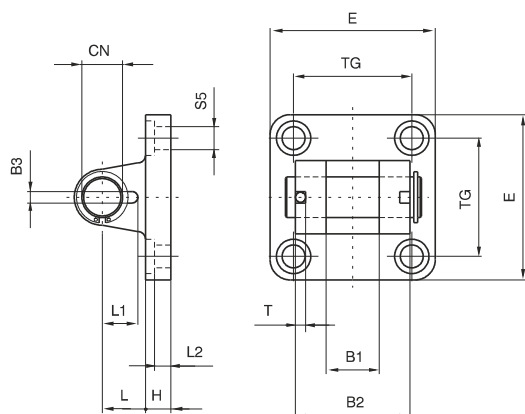
Bore		Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
CB (H 14)		26	28	32	40	50	60
CD		10	12	12	16	16	20
E	Aluminium	45	52	65	75	95	115
	Steel	45	55	65	75	95	115
H	Aluminium	9	9	11	11	14	14
	Steel	10	10	10	12	14	16
L	Aluminium	13	16	16	21	22	27
	Steel	12	15	17	20	22	25
MR		10	12	12	16	16	20
TG		32.5	38	46.5	56.5	72	89
UB (h14)		45	52	60	70	90	110
XD		73	77	80	83	100	118
L2(±0.5)		5.5	5.5	6.5	6.5	10	10
S5		6.6	6.6	9	9	11	11
Weight gr.	Aluminium	80	130	185	310	530	910
	Steel	180	290	400	670	1160	2000

Narrow rear female trunnion (AB6)

Ordering code

Aluminium: **1380.Ø.30F**Steel: **1320.Ø.29F**

The kit comprises:
 n°1 clevis (plated zinc steel or painted)
 n°4 screws (plated zinc steel)
 n°1 pin (plated zinc steel) complete with elastic pin and ring



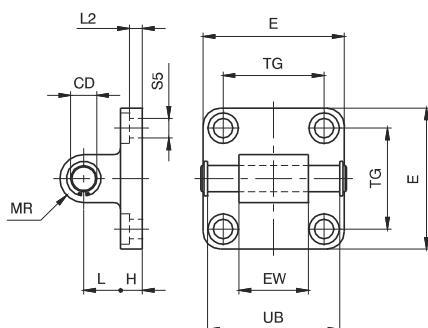
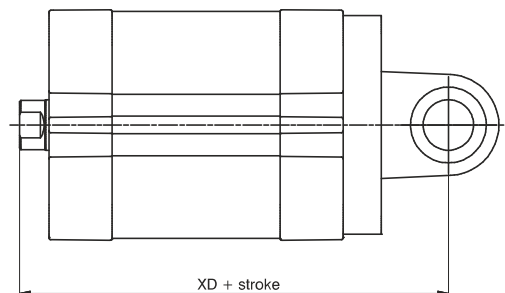
Bore		Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
B1 (H 14)		14	16	21	21	25	25
B2 (d 12)		34	40	45	51	65	75
B3 (±0.2)		3.3	4.3	4.3	4.3	4.3	6.3
CN		10	12	16	16	20	20
E	Aluminium	45	52	65	75	95	115
	Steel	45	55	65	75	95	115
H	Aluminium	9	9	11	11	14	14
	Steel	10	10	10	12	14	16
L	Aluminium	13	16	16	21	22	27
	Steel	12	15	17	20	22	25
L1		11.5	12	14	14	16	16
L2 (±0.5)		5.5	5.5	6.5	6.5	10	10
S5		6.6	6.6	9	9	11	11
T		3	4	4	4	4	4
TG		32.5	38	46.5	56.5	72	89
XD		73	77	80	89	100	118
Weight gr.	Aluminium	70	115	200	290	570	820
	Steel	160	270	370	670	1110	2100

Rear male clevis (MP4)

Ordering code

Aluminium: Ø20-Ø25: **1580.Ø.09/1F**
 Ø32-Ø100: **1380.Ø.09/1F**
 Steel: Ø20-Ø25: **1580.Ø.09/2F**
 Ø32-Ø100: **1320.Ø.21F**

The kit comprises:
 n°1 clevis (steel or painted aluminium)
 n°4 screws (plated zinc steel)
 n°1 pin (plated zinc steel) ★
 n°2 circlips (steel)
 ★ (from Ø32)



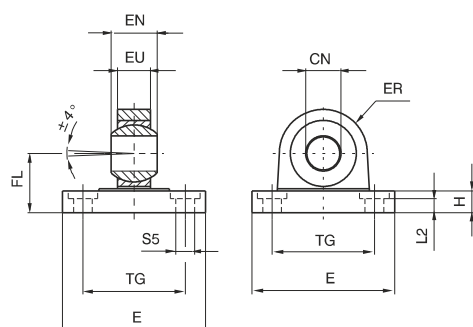
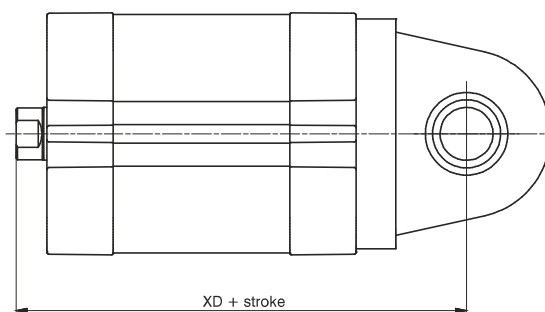
Bore	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
CD	8(H9)	8(H9)	10	12	12	16	16	20
E	Aluminium	34	38	45	52	65	75	115
	Steel	34	38	45	55	65	75	115
EW	16(h14)	16(h14)	26 ^(+0.2/-0.6)	28 ^(+0.2/-0.6)	32 ^(+0.2/-0.6)	40 ^(+0.2/-0.6)	50 ^(+0.2/-0.6)	60 ^(+0.2/-0.6)
H	Aluminium	6	6	9	9	11	14	14
	Steel	/	/	10	10	12	14	16
L	Aluminium	14	14	13	16	16	21	27
	Steel	/	/	12	15	17	22	25
MR	8	8	10	12	12	16	16	20
TG	22	26	32.5	38	46.5	56.5	72	89
UB ^(+0.5/-0)	/	/	46	53	61	71	91	111
XD	63	65	73	77	80	89	100	118
L2 (±0.5)	2.6	2.6	5.5	5.5	6.5	6.5	10	10
S5	5.5	5.5	6.6	6.6	9	9	11	11
Weight gr.	Aluminium	25	28	90	130	190	340	580
	Steel	70	80	210	330	430	810	2400

Rear male clevis (with jointed head MP6)

Ordering code

Aluminium: **1380.Ø.15F**
 Steel: **1320.Ø.25F**

The kit comprises:
 n°1 clevis (steel or painted aluminium)
 n°4 screws (plated zinc steel)

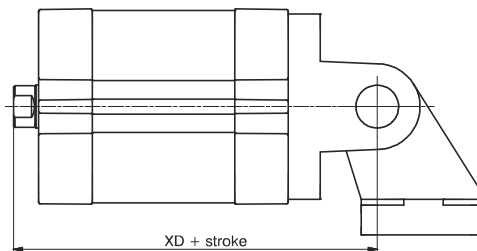
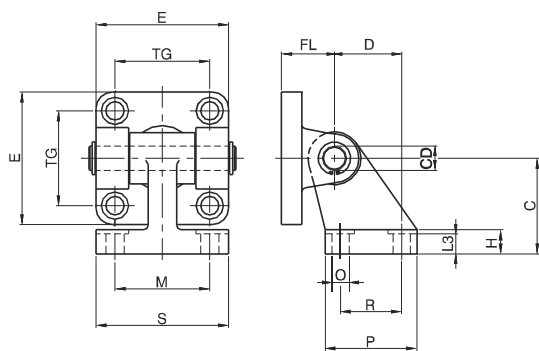


Bore	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
CN (H 7)	10	12	16	16	20	20
E	Aluminium	45	52	65	75	95
	Steel	45	55	65	75	95
EN (-0.1)	14	16	21	21	25	25
ER	Aluminium	16	19	21	24	28.5
	Steel	15	18	20	23	30
EU	10.5	12	15	15	18	18
FL (JS 15)	22	25	27	32	36	41
H	Aluminium	9	9	11	11	14
	Steel	10	10	10	12	14
L 2 (±0.5)	5.5	5.5	6.5	6.5	10	10
S 5	6.6	6.6	9	9	11	11
TG	32.5	38	46.5	56.5	72	89
XD	73	77	80	89	100	118
Weight gr.	Aluminium	60	100	180	245	650
	Steel	210	310	400	710	2400

Square angle trunnion (AB7)

Ordering code

The kit comprises:
 n°1 clevis (steel or painted aluminium)
 n°1 counter clevis, square
 (steel or painted aluminium)
 n°4 screws (plated zinc steel)
 n°1 pin (plated zinc steel)
 n°2 circlips (steel)

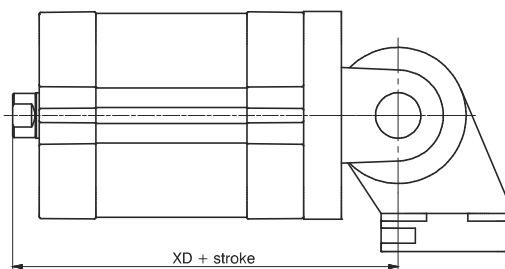
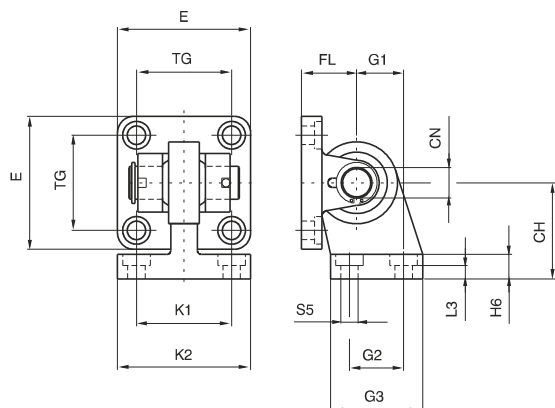
Aluminium: **1380.Ø.35F**Steel: **1320.Ø.23F**

Bore		Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
E	Aluminium	45	52	65	75	95	115
	Steel	45	55	65	75	95	115
TG		32.5	38	46.5	56.5	72	89
FL		22	25	27	32	36	41
D (JS14)		21	24	33	37	47	55
CD		10	12	12	16	16	20
C (JS15)		32	36	45	50	63	71
H	Aluminium	8	10	12	14	14	17
	Steel	8	10	12	12	14	15
L3	Aluminium	6.4	8.4	10.4	12.4	11.5	14.5
	Steel	6.5	8.5	10.5	10.5	11.5	12.5
R (JS14)		18	22	30	35	40	50
P		31	35	45	50	60	70
O (H13)		6.6	6.6	9	9	11	11
S		51	54	65	67	86	96
M (JS14)		38	41	50	52	66	76
XD		73	77	80	89	100	118
Weight gr.	Aluminium	120	180	225	435	730	1220
	Steel	340	500	640	1250	2100	3500

Square angle trunnion (with joined head)

Ordering code

The kit comprises:
 n°1 clevis (painted steel)
 n°1 counter clevis square
 with joined head (painted steel)
 n°4 screws (plated zinc steel)
 n°1 pin (plated zinc steel)
 n°2 circlips (steel)

Steel: **1320.Ø.27F**

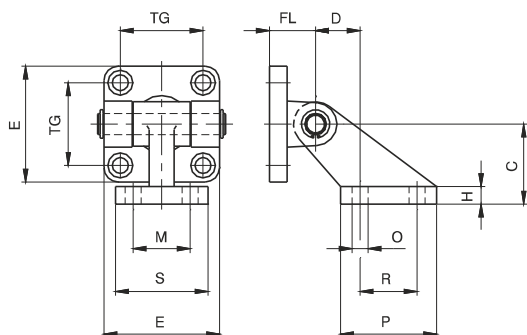
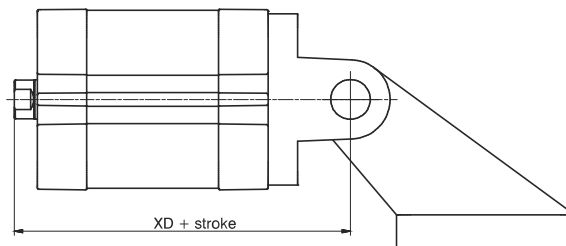
Bore	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
CH (JS 15)	32	36	45	50	63	71
CN	10	12	16	16	20	20
E	45	55	65	75	95	115
FL (JS 15)	22	25	27	32	36	41
G 1 (JS 15)	21	24	33	37	47	55
G 2 (JS 14)	18	22	30	35	40	50
G 3	31	35	45	50	60	70
H 6	10	10	12	12	14	15
K 1 (JS 14)	38	41	50	52	66	76
K 2	51	54	65	67	86	96
L 3 (+0.5)	8.5	8.5	10.5	10.5	11.5	12.5
S 5	6.6	6.6	9	9	11	11
TG	32.5	38	46.5	56.5	72	89
XD	73	77	80	89	100	118
Weight gr.	330	480	830	1220	2100	3580

Square angle trunnion (not specified by ISO-VDMA standard)

Ordering code

Aluminium: **1380.Ø.11F**

The kit comprises:
n°1 clevis (painted aluminium)
n°1 counter clevis square
(painted aluminium)
n°4 screws (plated zinc steel)
n°1 pin (plated zinc steel)
n°2 circlips (steel)



Bore	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
C (±0.2)	32	45	45	63	63	90
D (±0.5)	18	25	25	32	32	40
E	45	52	65	75	95	115
H	8	10	10	12	12	17
FL	22	25	27	32	36	41
M (JS 14)	25	32	32	40	40	50
TG	32.5	38	46.5	56.5	72	89
O (H 13)	7	9	9	11	11	14
P	37	54	54	75	75	103
R (JS 14)	20	32	32	50	50	70
S	41	52	52	63	63	80
XD	73	77	80	89	100	118
Weight gr.	130	260	330	600	820	1560

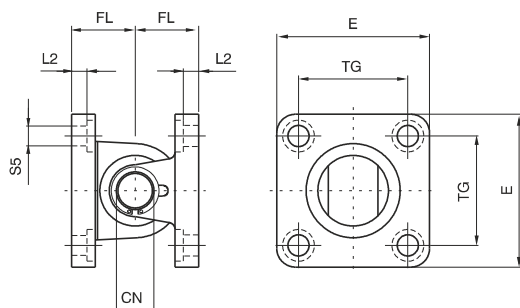
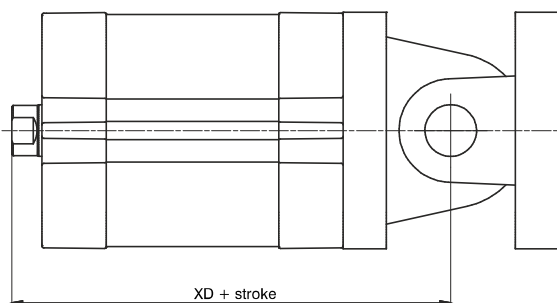
Square angle trunnion (with joined head)

Ordering code

Aluminium: **1380.Ø.36F**

Steel: **1320.Ø.26F**

The kit comprises :
n°1 clevis (steel or painted aluminium)
n°1 counter clevis with joined head
(steel or painted aluminium)
n°4 screws (plated zinc steel)
n°1 pin (plated zinc steel) complete with
elastic pin and ring



Bore	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
CN	10	12	16	16	20	20
E	Aluminium	45	52	65	75	95
	Steel	45	55	65	75	95
FL (JS 15)	22	25	27	32	36	41
L 2 (±0.5)	5.5	5.5	6.5	6.5	10	10
S 5	6.6	6.6	9	9	11	11
TG	32.5	38	46.5	56.5	72	89
XD	73	77	80	89	100	118
Weight gr.	Aluminium	130	215	380	535	1050
	Steel	380	580	770	1380	2460

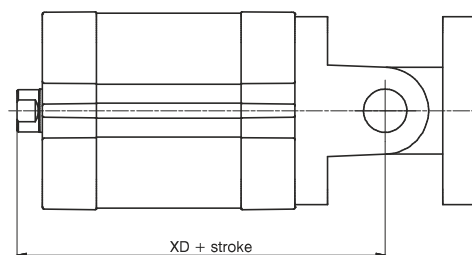
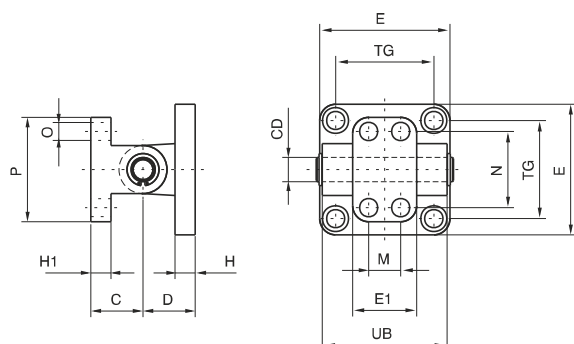
Standard trunnion (not specified by ISO-VDMA standard)

Ordering code

Aluminium: **1380.Ø.10F**

The kit comprises:

- n°1 clevis (painted aluminium)
- n°1 counter clevis (painted aluminium)
- n°4 screws (plated zinc steel)
- n°1 pin (plated zinc steel)
- n°2 circlips (steel)



Bore	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
C (±0.2)	18	26	26	34	34	41
CD	10	12	12	16	16	20
D	22	25	27	32	36	41
E	45	52	65	75	95	115
E1	25	32	32	46	46	56
H	10	10	12	12	16	16
H1	8	10	10	12	12	16
M (±0.2)	-	16	16	25	25	32
N (±0.2)	28	38	38	54	54	90
O	7	9	9	11	11	14
P	40	52	52	75	75	115
TG	32.5	38	46.5	56.5	72	89
UB	45	52	60	70	90	110
XD	73	77	80	89	100	118
Weight gr.	110	190	240	490	710	1290

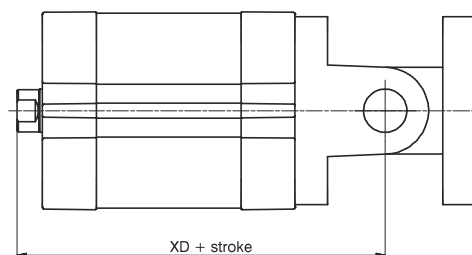
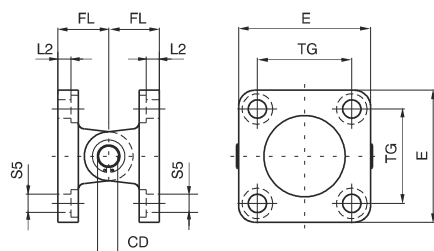
Complete standard trunnion

Ordering code

Steel: **1320.Ø.22F**

The kit comprises:

- n°1 clevis (painted steel)
- n°1 counter clevis (painted steel)
- n°4 screws (plated zinc steel)
- n°1 pin (plated zinc steel)
- n°2 circlips (steel)

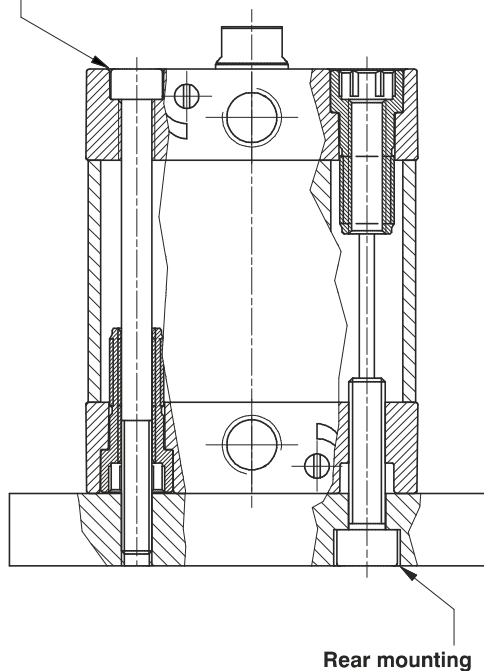


Bore	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
CD	10	12	12	16	16	20
E	45	55	65	75	95	115
FL	22	25	27	32	36	41
L 2 (±0.5)	5.5	5.5	6.5	6.5	10	10
S 5	6.6	6.6	9	9	11	11
TG	32.5	38	46.5	56.5	72	89
XD	73	77	80	89	100	118
Weight gr.	360	580	780	1370	2370	4110

Alternative fixing options

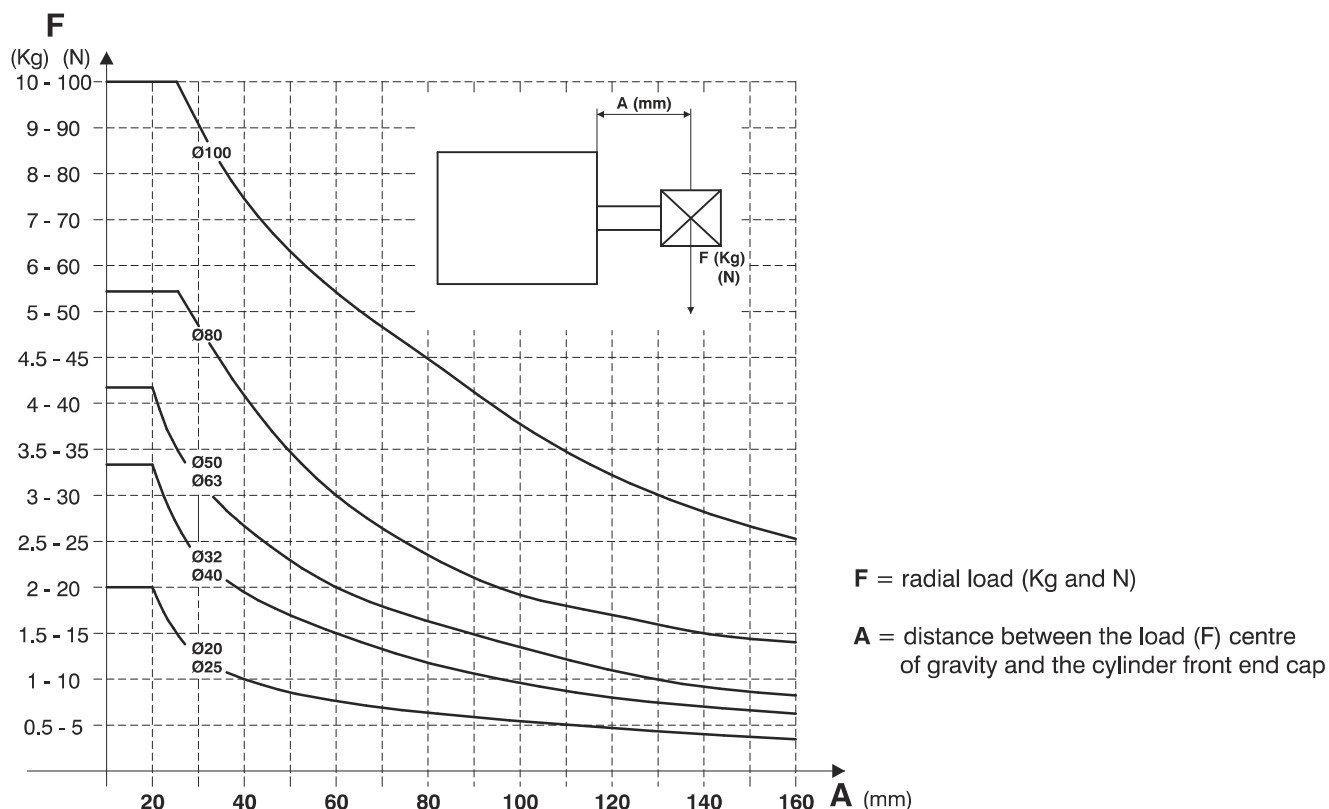
Frontal mounting:

- from Ø20 to Ø40 bolt head
- the use of non-magnetic screws is recommended



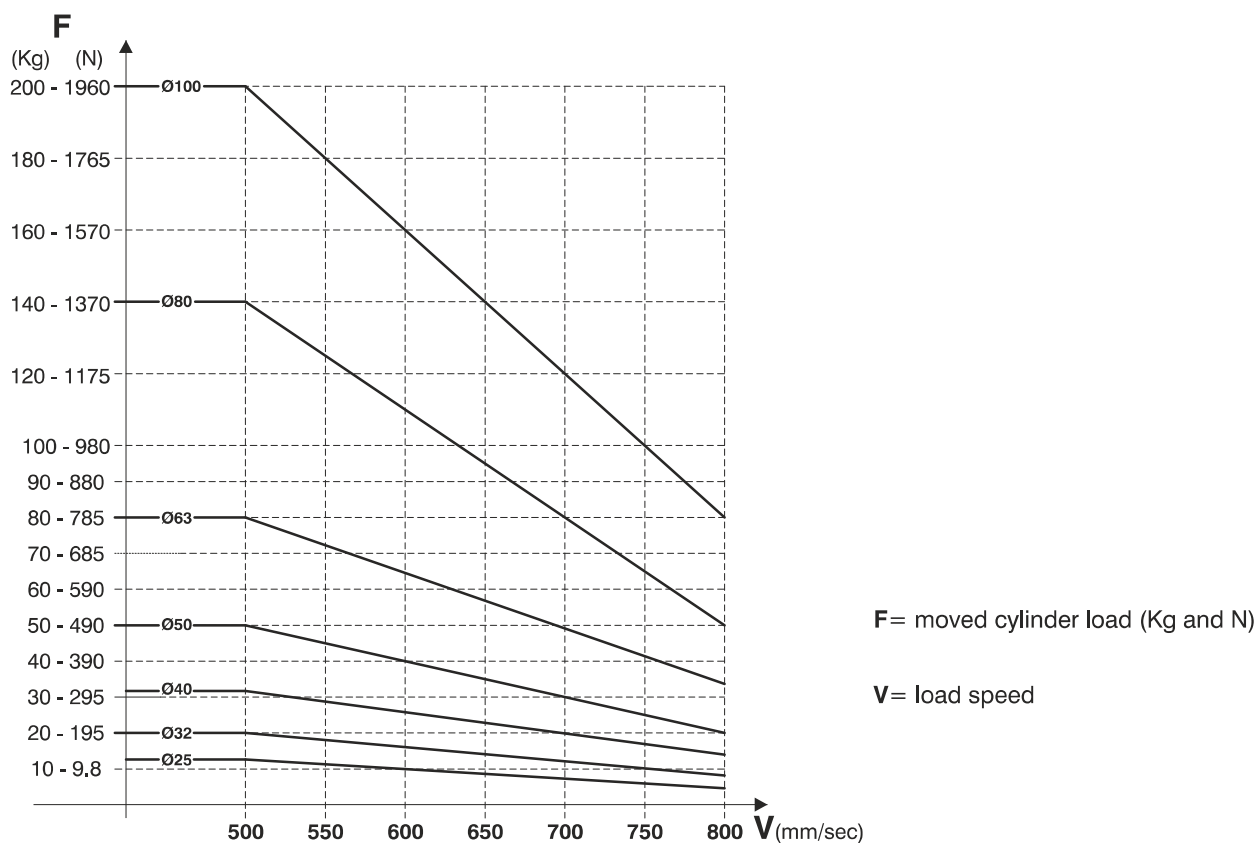
Rear mounting

Admissible maximum radial load diagram



The diagram shows the maximum Radial load F (in Newtons) that can be applied to the cylinder piston rod as a function of the distance A (in mm); based upon the standard version cylinder under static conditions

End of stroke cushioning capacity diagram



The diagram shows, for each diameter, the safety curves relative to the maximum loads which can be moved by the cylinder in function of its speed V . The data has been calculated under the following test conditions: Cylinder mounted vertically with the rod pointing down, air pressure at 5 bar and with a guided load. Important: Do not exceed the recommended values in the table as reduced life or damage to the cylinder may result.

General

Based on the **ECOMPACT** series with piston rods and centring diameters according to ISO 15552 standard

Construction characteristics

Body	anodised aluminium
End caps	aluminium alloy casting painted with brass centring bearing
Bearing piston rod	spheroid bronze on steel band with P.T.F.E. coat
Piston rod	C43 chromed steel (on request stainless steel)
Piston	acetal resin (aluminium with FPM seals)
Seals	standard: NBR oil resistant rubber, PUR piston rod seals (PUR or FPM on request)
Spring	stainless steel
Fixing screws	plated zinc steel

Technical characteristics

Fluid	filtered and preferably lubricated air, or non-lubricated (if air is lubricated, the lubrication must be constant)
Max. pressure	10 bar
Operating temperature	-5°C - +70°C with standard seals (magnetic or non magnetic piston)
	-30°C - +80°C with PUR seals (magnetic or non magnetic piston)
	-5°C - +80°C with FPM seals (magnetic piston)
	-5°C - +150°C with FPM seals (non magnetic piston)

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

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

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

Use hydraulic oils H class (ISO VG32) for correct continued lubrication.

Our Technical Department will be glad to help.

Stroke tolerance, minimum and maximum spring loads and cushioning length

Bore	Stroke tolerance	Minimum and maximum spring load		Cushioning length
(mm)	(mm)	(N)		(mm)
		min.	max.	
Ø32	+2 / 0 mm	19,6	25,5	6,5
Ø40		25,5	42,2	8
Ø50		44,1	96,3	7,5
Ø63	+2,5 / 0 mm	44.1	96.3	7.5

Standard stroke

DOUBLE ACTING
BASIC and PUSH/PULL ROD version

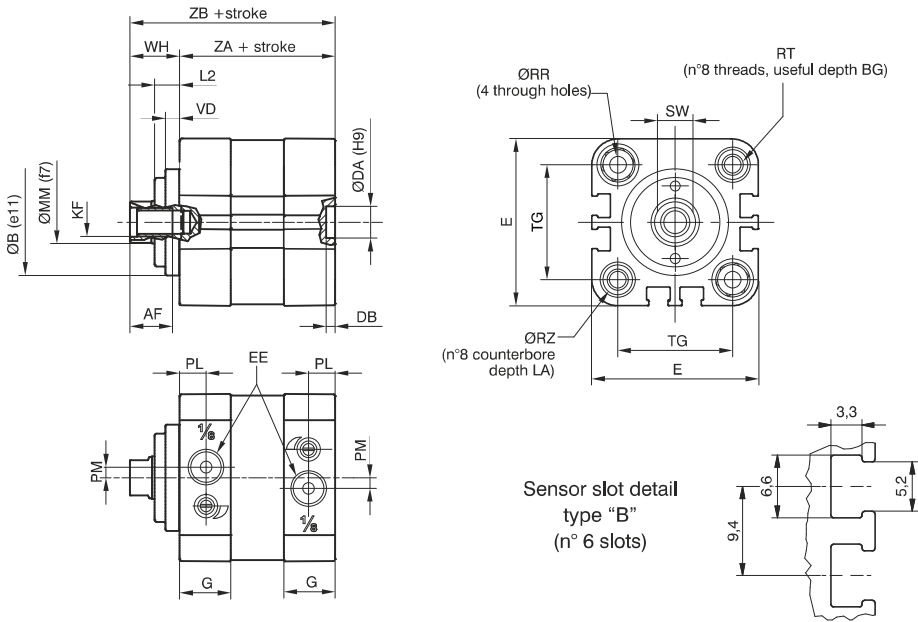
		Stroke																											
		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	100	125	150	160	200	250	300	320	350	400	450	500
Bore		WITHOUT CUSHIONING DEVICE																											
Ø32		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
Ø40		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
Ø50		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Ø63		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
		WITH CUSHIONING DEVICE																											
Ø32						●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
Ø40						●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
Ø50						●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Ø63						●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	

DOUBLE ACTING
PUSH/PULL ROD
BORED version

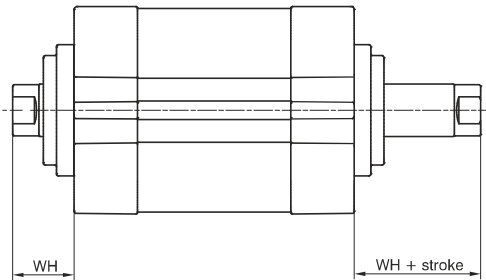
		Stroke															
		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80
Bore		WITHOUT CUSHIONING DEVICE								WITH CUSHIONING DEVICE							
Ø32		●	●	●	●	●	●	●	●								
Ø40		●	●	●	●	●	●	●	●								
Ø50		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ø63		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Available versions

BASIC version



PUSH/PULL rod version



Ordering codes

15 . Ø.stroke.

- 0= NBR seals and C43 chromed plated rod
- 1= NBR seals and stainless steel rod
- 4= PUR seals and C43 chromed plated rod
- 5= PUR seals and stainless steel rod
- 6= FPM seals and C43 chromed plated rod
- 7= FPM seals and stainless steel rod

- 4= Non-cushioned version
(mechanical cushioning only)
- 5= Versions with adjustable end
of stroke cushioning system

- 1= Double acting, magnetic piston
- 4= Double acting, non magnetic piston

- 0= Basic, female threaded rod
- 1= Basic, male threaded rod
- 2= through rod, female threaded rod
- 3= through rod, male threaded rod
- 4= through rod, bored female threaded rod
- 5= through rod, bored male threaded rod

- 1= Acetal resin piston
- 2= Aluminium piston

Seals compounds scheme

NBR: oil resistant nitrilic rubber seals

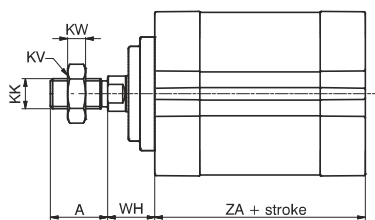
PUR: polyurethane seals

FPM: fluoropolymer rubber seals

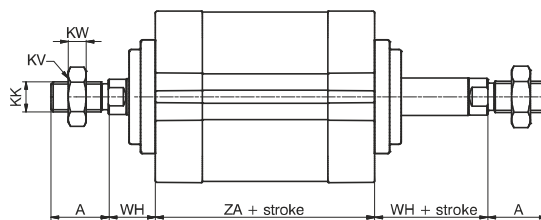
Table of dimensions

Bore	Ø32	Ø40	Ø50	Ø63
AF (min)	12	16	20	20
ØB (e11)	30	35	40	45
BG	16	16	16	16
ØDA (H9)	9	9	12	12
DB (+0,1/0)	2,5	2,5	2,6	2,6
E (max)	47,5	55	66	78
EE	G1/8"	G1/8"	G1/8"	G1/8"
G	14,5	15	15	15
KF	M8	M10	M12	M12
LA (0/-0,1)	5	5	5	5
L2	7	7	10	10
ØMM (f 7)	12	16	20	20
PL (+0,1/0)	7,5	8	8	8
PM	3	/	/	/
ØRR (min)	5,1	5,1	6,6	6,6
RT	M6	M6	M8	M8
ØRZ (min)	8,5	8,5	10,5	10,5
SW (0/-0,1)	10	13	17	17
TG (±0,2)	32,5	38	46,5	56,5
VD	4	4	5	5
WH (±1)	14	14	18	18
ZA (±0,5)	44	45	45	49
ZB (+1/0)	58	59	63	67
Weight stroke	240	330	530	700
gr. every 5mm	13	17	24	27

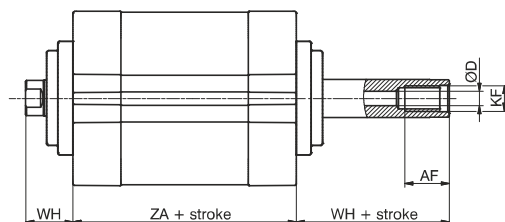
Basic version male piston rod



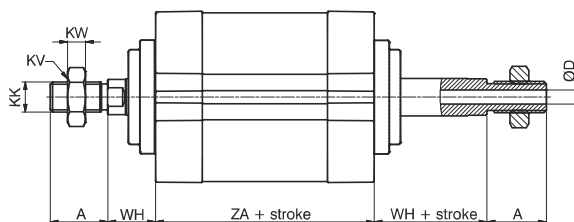
Push/pull version male rod



Push - pull version bored female piston rod

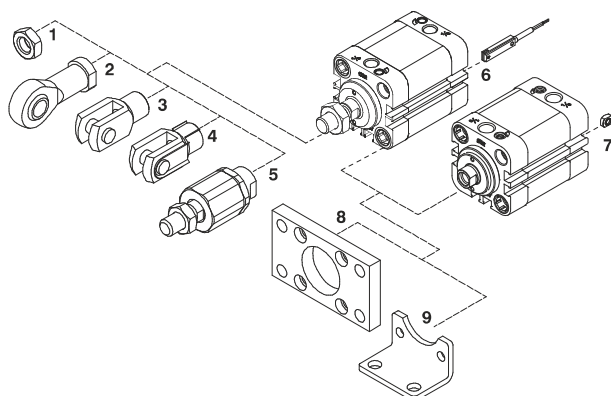


Push - pull version bored male piston rod

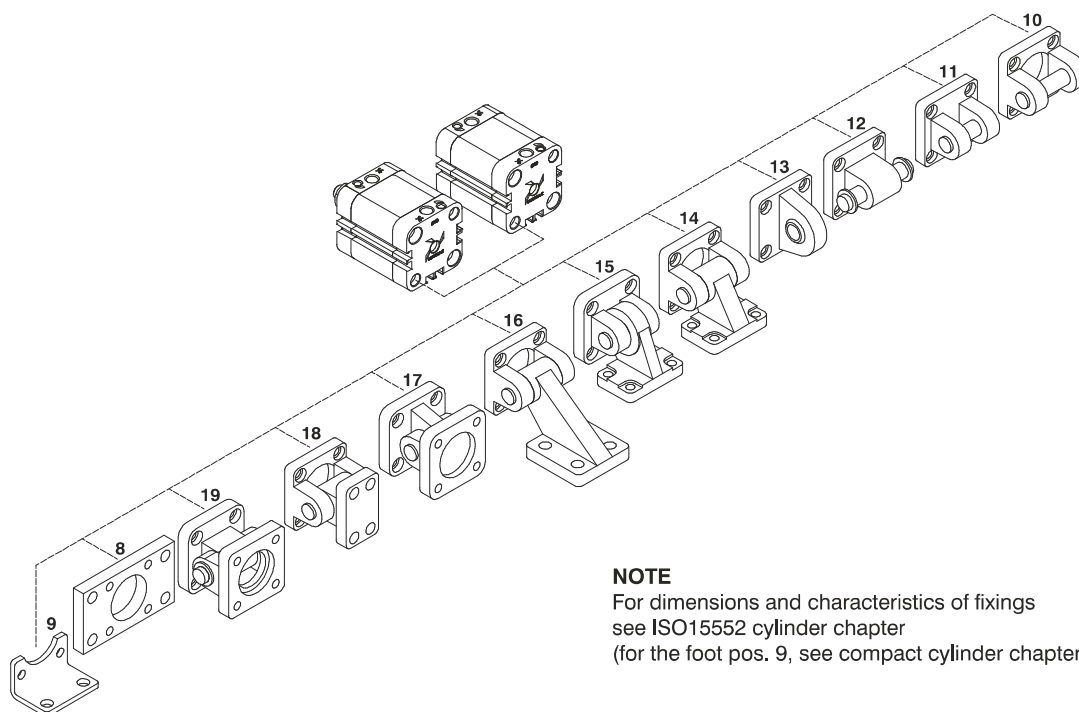


Bore	A (0/-0,5)	AF (min)	ØD	KF	KK	KV	KW	WH (±1)	ZA (±0,5)
Ø32	22	12	4,5	M8	M10x1,25	17	6	14	44
Ø40	24	16	6	M10	M12x1,25	19	7	14	45
Ø50	32	20	8	M12	M16x1,5	24	8	18	45
Ø63	32	20	8	M12	M16x1,5	24	8	18	49

Sensor and piston rod accessories



Pos.	Description	Ordering code	
1	Rod lock nut	1320.32.18F	(Ø32)
		1320.40.18F	(Ø40)
		1320.50.18F	(Ø50-Ø63)
2	Ball joint	1320.32.32F	(Ø32)
		1320.40.32F	(Ø40)
		1320.50.32F	(Ø50-Ø63)
3	Fork	1320.32.13F	(Ø32)
		1320.40.13F	(Ø40)
		1320.50.13F	(Ø50-Ø63)
4	Fork with clips	1320.32.13/1F	(Ø32)
		1320.40.13/1F	(Ø40)
		1320.50.13/1F	(Ø50-Ø63)
5	Self aligning joint	1320.32.33F	(Ø32)
		1320.40.33F	(Ø40)
		1320.50.33F	(Ø50-Ø63)
6	Sensors	(See chapter 6 magnetic sensor)	
7	Valves direct mounting bolt	1500.20F	(Ø32 - Ø63)

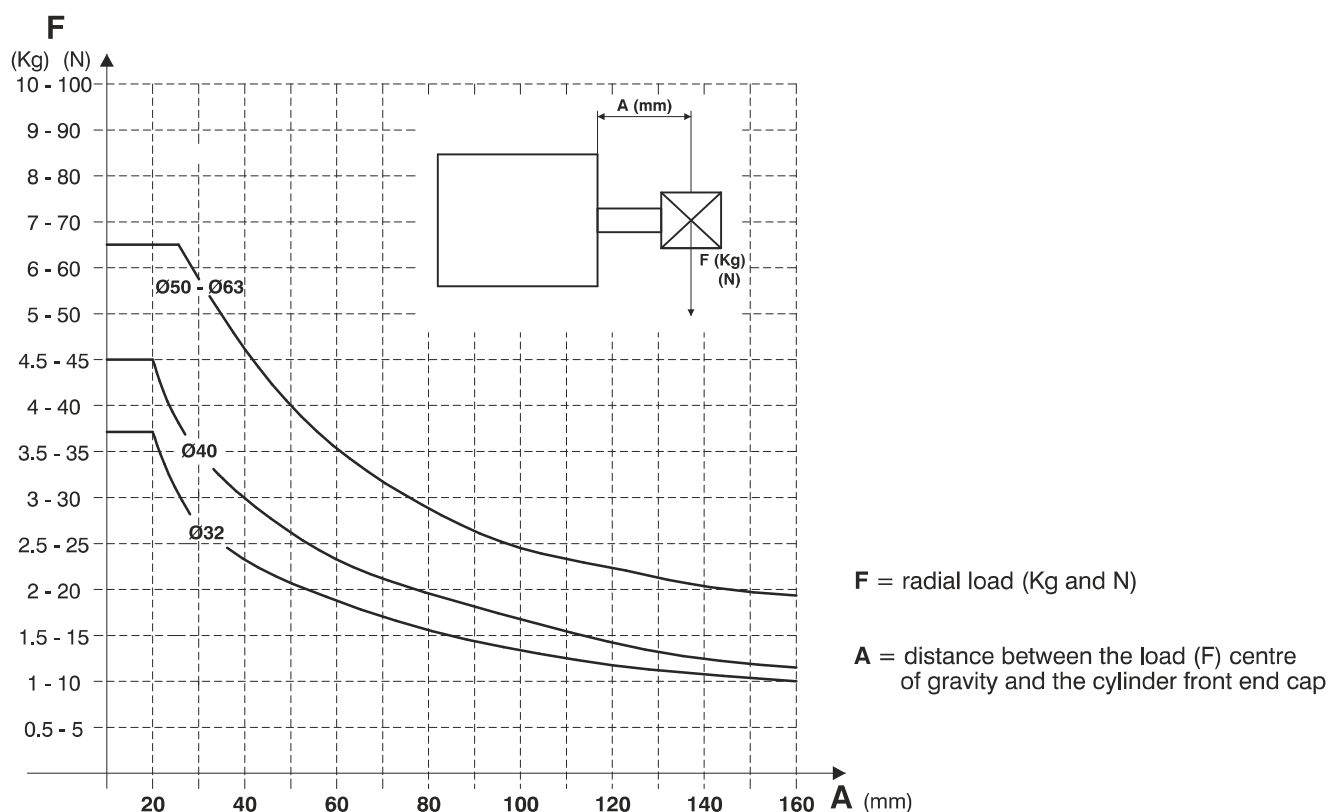
**NOTE**

For dimensions and characteristics of fixings
see ISO15552 cylinder chapter
(for the foot pos. 9, see compact cylinder chapter ISO 21287).

Fixing

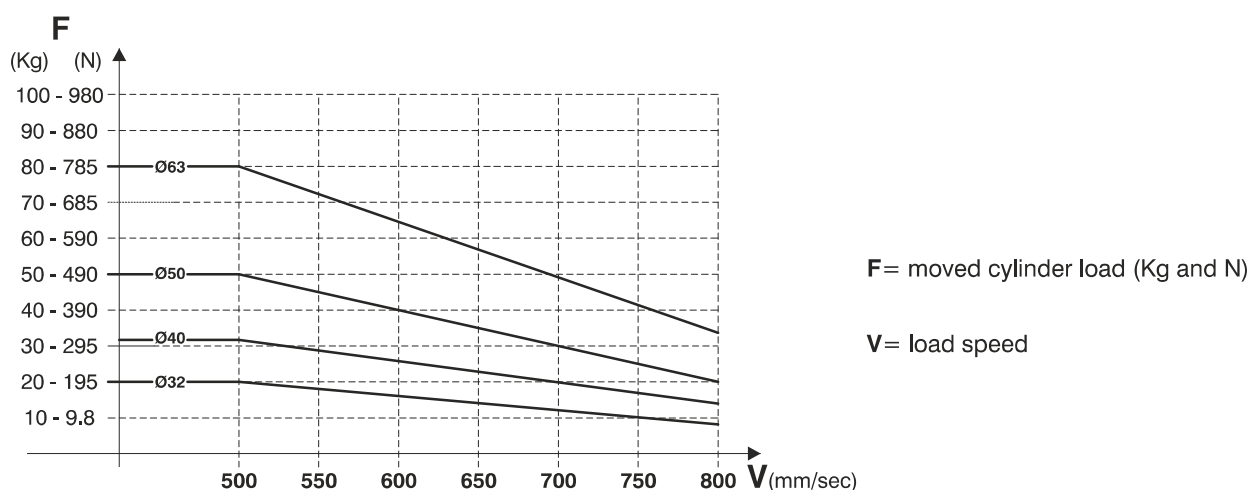
Pos.	Description	Ordering code	
		Aluminium	Steel
8	Flange (MF2)	1390.Ø.03FP	1380.Ø.03F
9	Foot (MS1)	/	1540.Ø.05/1F
10	Rear female clevis (MP2)	1380.Ø.09F	1320.Ø.20F
11	Narrow rear female clevis (AB6)	1380.Ø.30F	1320.Ø.29F
12	Rear male clevis (MP4)	1380.Ø.09/1F	1320.Ø.21F
13	Rear male clevis (with jointed head - MP6)	1380.Ø.15F	1320.Ø.25F
14	Square angle trunnion (Ab7)	1380.Ø.35F	1320.Ø.23F
15	Square angle trunnion (with jointed head)	/	1320.Ø.27F
16	Square angle trunnion (not specified by ISO 15552)	1380.Ø.11F	/
17	Standard trunnion (with jointed head)	1380.Ø.36F	1320.Ø.26F
18	Standard trunnion (not specified by ISO 15552)	1380.Ø.10F	/
19	Complete standard trunnion	1380.Ø.22F	1320.Ø.22F

Admissible maximum radial load diagram



The diagram shows the maximum radial load F (in Newtons) that can be applied to the cylinder piston rod as a function of the distance A (in mm), under static conditions

End of stroke cushioning capacity diagram



The diagram shows, for each diameter, the safety curves relative to the maximum loads which can be moved by the cylinder in function of its speed V . The data has been calculated under the following test conditions: Cylinder mounted vertically with the rod pointing down, air pressure at 5 bar and with a guided load. Important: Do not exceed the recommended values in the table as reduced life or damage to the cylinder may result.