

General

Profiled tube has three "T" slots on the three sides hosting sensors 1500._, RS._, HS._ without adaptors and with adaptor code 1380.01F codes 1580._, MRS._, MHS._.

A complete range of clamps makes them easy to install under any conditions.

It is interesting to note that as these cylinders (from Ø 32 to Ø 100) have anchoring holes with the same lead and thread as those of series 1320 ISO 6431, they accept all mountings except for the intermediate trunnion.

Construction characteristics

Body	anodised aluminium
Rod	C43 chromed steel (stainless steel for magnetic cylinder Ø20 and Ø25)
Piston	aluminium
Rod bushing	anodised aluminium
End plate	anodised aluminium
Seals	Standard: NBR Oil resistant rubber, PUR Piston rod seals (HNBR or FPM seals available upon request)

Technical characteristics

Fluid	filtered and preferably lubricated air
Max. pressure	10 bar
Working temperature	-5°C - +70°C with standard seals magnetic or non magnetic piston -5°C - +80°C with FPM seals magnetic piston -5°C - +80°C with HNBR seals magnetic piston -5°C - +120°C with HNBR seals non 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)
- evaluate the environmental characteristics of cylinder used (high temperature, hard atmosphere, dust, humidity etc.)

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

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

Our Technical Department will be glad to help.

Standard strokes

Type 1501, 1504, 1511, 1514, 1515, 1516, 1517 and 1518:
for all bores from 5 to 50 mm every 5 mm.

Type 1502, 1503, 1512 and 1513:
for all bores from 5 to 10 mm.

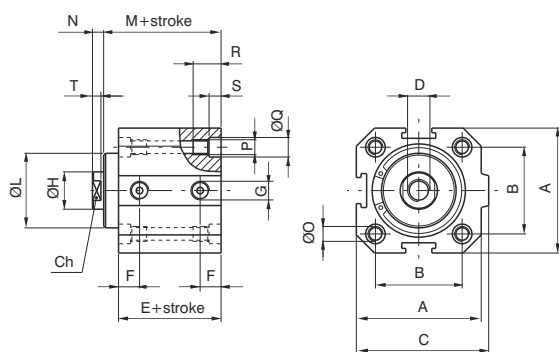
Type with non-rotating device:

Ø 20 and Ø 25	from 5 to 40 mm every 5 mm.
Ø 32 and Ø 40	from 5 to 50 mm every 5 mm.
Ø 50 and Ø 63	from 5 to 60 mm every 5 mm.
Ø 80 and Ø 100	from 5 to 80 mm every 5 mm.

Double acting version

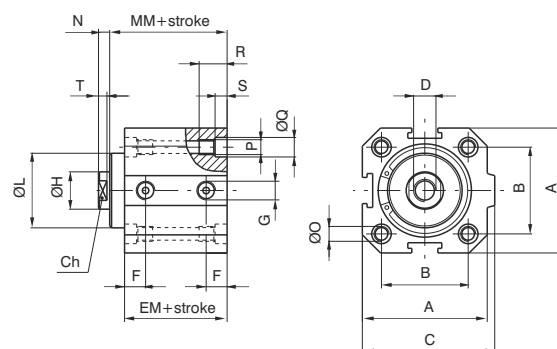
Ordering code

1501.Ø.stroke standard seals
1501.Ø.stroke.V FPM seals
1501.Ø.stroke.T HNBR seals

**Double acting version with magnetic piston**

Ordering code

1511.Ø.stroke standard seals
1511.Ø.stroke.V FPM seals
1511.Ø.stroke.T HNBR seals



Bore	20	25	32	40	50	63	80	100
A	35	41	48	57	67	80	100	120
B	26	28	32,5	38	46,5	56,5	72	89
C	39,5	44,5	52	61	71	84	106	126
D	M4x8	M5x10	M6x12	M10x15	M12x18	M12x18	M16x20	M16x20
E	29	30,5	32	33,5	35	38	44	47
EM	34	35,5	37	38,5	40	43	49	52
F	9	9,15	9,75	10,5	11	11,25	13,75	15,25
G	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 3/8"	G 3/8"
Ø H	8	10	12	16	20	20	25	25
Ø L $\pm 0,05$ $\left(\begin{smallmatrix} 0 \\ -0,1 \end{smallmatrix} \right.$ for Ø80 and Ø 100)	17	20,5	26	31	39	40	55	55
M	32	33	35,5	39,5	43	46	51,5	54,5
MM	37	38	40,5	44,5	48	51	56,5	59,5
N	4	4	4	5	6	6	8	8
Ø O	4,3	5,3	5,3	5,3	7	7	9	9
P	M5	M6	M6	M6	M8	M8	M10	M10
Ø Q	7,5	8,5	8,5	8,5	10,5	10,5	13,5	13,5
R	15	18	18	18	22	22	30	30
S	4,5	5,5	5,5	5,5	6,5	6,5	8,5	8,5
T	3	3	3	4	4,5	4,5	5,5	5,5
Ch	6	8	10	13	17	17	22	22

Non magnetic

Weight	stroke 0	75	110	170	260	400	600	800	1500
gr.	every 10 mm	20	30	40	60	80	100	120	145

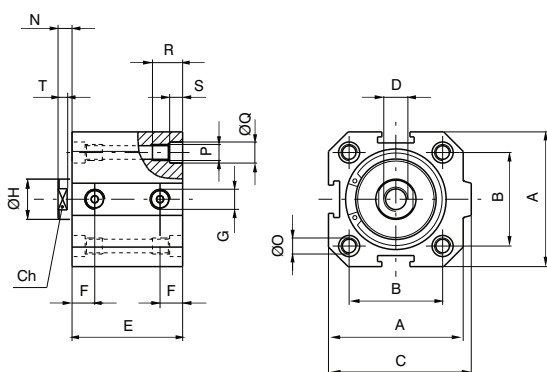
Magnetic

Weight	stroke 0	90	130	200	310	460	700	910	1620
gr.	every 10 mm	20	30	40	60	80	100	120	145

Single acting version with front spring

Ordering code

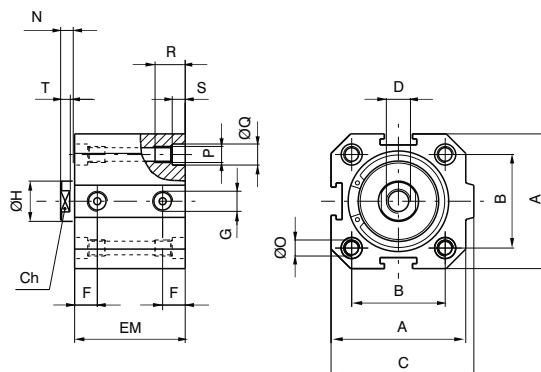
1502.Ø.stroke standard seals
1502.Ø.stroke.V FPM seals
1502.Ø.stroke.T HNBR seals



Single acting version front spring with magnetic piston

Ordering code

1512.Ø.stroke standard seals
1512.Ø.stroke.V FPM seals
1512.Ø.stroke.T HNBR seals



Bore		20	25	32	40	50	63	80	100
A		35	41	48	57	67	80	100	120
B		26	28	32,5	38	46,5	56,5	72	89
C		39,5	44,5	52	61	71	84	106	126
D		M4X8	M5X10	M6X12	M10X15	M12X18	M12X18	M16X20	M16X20
E	stroke 5	29	30,5	32	33,5	35	38	44	47
	stroke 10	34	35,5	37	38,5	40	43	49	52
EM	stroke 5	34	35,5	37	38,5	40	43	49	52
	stroke 10	39	40,5	42	43,5	45	48	54	57
F		9	9,15	9,75	10,5	11	11,25	13,75	15,25
G		G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 3/8"	G 3/8"
Ø H		8	10	12	16	20	20	25	25
N		4	4	4	5	6	6	8	8
Ø O		4,3	5,3	5,3	5,3	7	7	9	9
P		M5	M6	M6	M6	M8	M8	M10	M10
Ø Q		7,5	8,5	8,5	8,5	10,5	10,5	13,5	13,5
R		15	18	18	18	22	22	30	30
S		4,5	5,5	5,5	5,5	6,5	6,5	8,5	8,5
T		3	3	3	4	4,5	4,5	5,5	5,5
Ch		6	8	10	13	17	17	22	22

Non magnetic

Weight gr.	stroke 5	70	105	160	250	370	550	750	1440
	stroke 10	80	120	180	280	410	600	810	1500

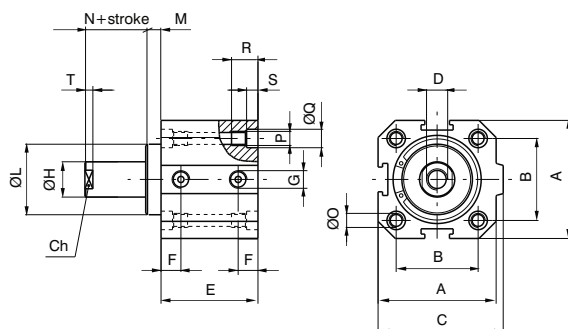
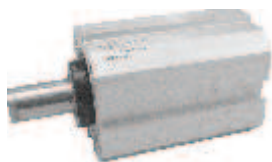
Magnetic

Weight gr.	stroke 5	85	125	190	300	430	650	860	1560
	stroke 10	95	140	210	330	470	700	920	1620

Single acting version with rear spring

Ordering code

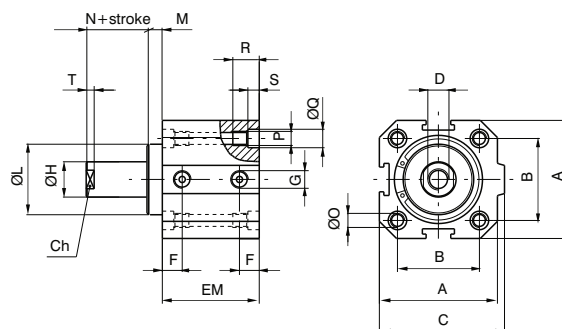
1503.Ø.stroke standard seals
1503.Ø.stroke.V FPM seals
1503.Ø.stroke.T HNBR seals



Single acting version rear spring with magnetic piston

Ordering code

1513.Ø.stroke standard seals
1513.Ø.stroke.V FPM seals
1513.Ø.stroke.T HNBR seals



Bore		20	25	32	40	50	63	80	100
A		35	41	48	57	67	80	100	120
B		26	28	32,5	38	46,5	56,5	72	89
C		39,5	44,5	52	61	71	84	106	126
D		M4X8	M5X10	M6X12	M10X15	M12X18	M12X18	M16X20	M16X20
E	stroke 5	29	30,5	32	33,5	35	38	44	47
	stroke 10	34	35,5	37	38,5	40	43	49	52
EM	stroke 5	34	35,5	37	38,5	40	43	49	52
	stroke 10	39	40,5	42	43,5	45	48	54	57
F		9	9,15	9,75	10,5	11	11,25	13,75	15,25
G		G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 3/8"	G 3/8"
Ø H		8	10	12	16	20	20	25	25
Ø L ±0,05 (0 -0,1 for Ø80 and Ø100)		17	20,5	26	31	39	40	55	55
M		3	2,5	3,5	6	8	8	7,5	7,5
N		4	4	4	5	6	6	8	8
Ø O		4,3	5,3	5,3	5,3	7	7	9	9
P		M5	M6	M6	M6	M8	M8	M10	M10
Ø Q		7,5	8,5	8,5	8,5	10,5	10,5	13,5	13,5
R		15	18	18	18	22	22	30	30
S		4,5	5,5	5,5	5,5	6,5	6,5	8,5	8,5
T		3	3	3	4	4,5	4,5	5,5	5,5
Ch		6	8	10	13	17	17	22	22

Non magnetic

Weight	stroke 5	70	105	160	250	370	550	750	1440
gr.	stroke 10	80	120	180	280	410	600	810	1500

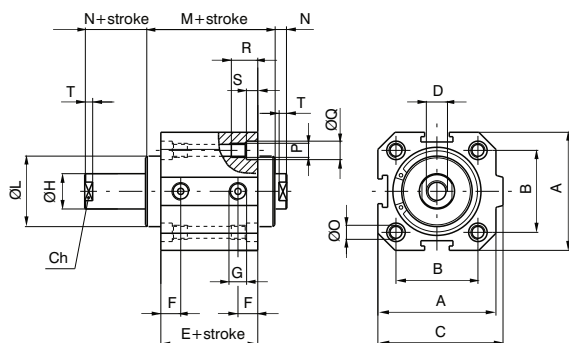
Magnetic

Weight	stroke 5	85	125	190	300	430	650	860	1560
gr.	stroke 10	95	140	210	330	470	700	920	1620

Double acting push-pull rod version

Ordering code

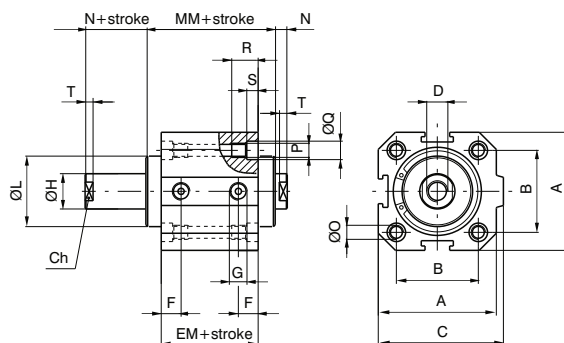
1504.Ø.stroke standard seals
1504.Ø.stroke.V FPM seals
1504.Ø.stroke.T HNBR seals



Double acting push-pull rod version with magnetic piston

Ordering code

1514.Ø.stroke standard seals
1514.Ø.stroke.V FPM seals
1514.Ø.stroke.T HNBR seals



Bore	20	25	32	40	50	63	80	100
A	35	41	48	57	67	80	100	120
B	26	28	32,5	38	46,5	56,5	72	89
C	39,5	44,5	52	61	71	84	106	126
D	M4X8	M5X10	M6X12	M10X15	M12X18	M12X18	M16X20	M16X20
E	29	30,5	32	33,5	35	38	44	47
EM	34	35,5	37	38,5	40	43	49	52
F	9	9,15	9,75	10,5	11	11,25	13,75	15,25
G	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 3/8"	G 3/8"
Ø H	8	10	12	16	20	20	25	25
Ø L ±0,05 (0,1 for Ø80 and Ø 100)	17	20,5	26	31	39	40	55	55
M	35	35,5	39	45,5	51	54	59	62
MM	40	40,5	44	50,5	56	59	64	67
N	4	4	4	5	6	6	8	8
Ø O	4,3	5,3	5,3	5,3	7	7	9	9
P	M5	M6	M6	M6	M8	M8	M10	M10
Ø Q	7,5	8,5	8,5	8,5	10,5	10,5	13,5	13,5
R	15	18	18	18	22	22	30	30
S	4,5	5,5	5,5	5,5	6,5	6,5	8,5	8,5
T	3	3	3	4	4,5	4,5	5,5	5,5
Ch	6	8	10	13	17	17	22	22

Non magnetic

Weight	stroke 0	90	130	200	320	460	670	1100	1680
gr.	every 10 mm	20	35	50	70	90	110	155	185

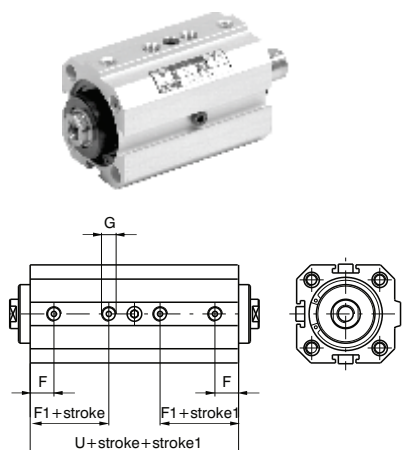
Magnetic

Weight	stroke 0	105	160	240	380	530	740	1210	1820
gr.	every 10 mm	20	35	50	70	90	110	155	185

Tandem with opposed rods

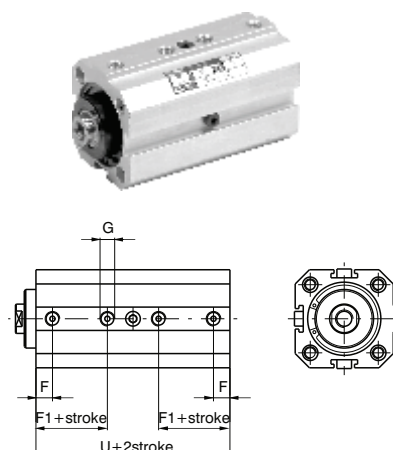
Ordering code

1515.Ø.stroke.stroke 1 standard seals
1515.Ø.stroke.stroke 1.V FPM seals
1515.Ø.stroke.stroke 1.T HNBR seals
1515.Ø.stroke.stroke 1.M standard seals, magnetic piston
1515.Ø.stroke.stroke 1.MV FPM seals, magnetic piston
1515.Ø.stroke.stroke 1.MT HNBR seals, magnetic piston

**Tandem push with common rods**

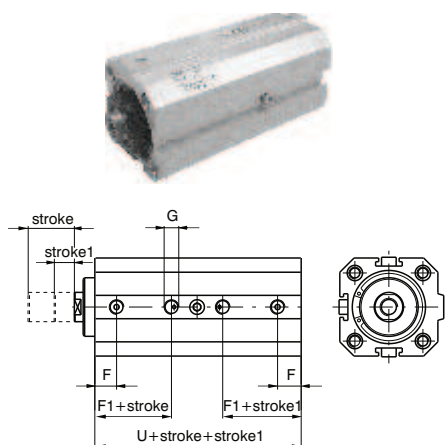
Ordering code

1516.Ø.stroke standard seals
1516.Ø.stroke.V FPM seals
1516.Ø.stroke.T HNBR seals
1516.Ø.stroke.M standard seals, magnetic piston
1516.Ø.stroke.MV FPM seals, magnetic piston
1516.Ø.stroke.MT HNBR seals, magnetic piston

**Tandem push with independent rods**

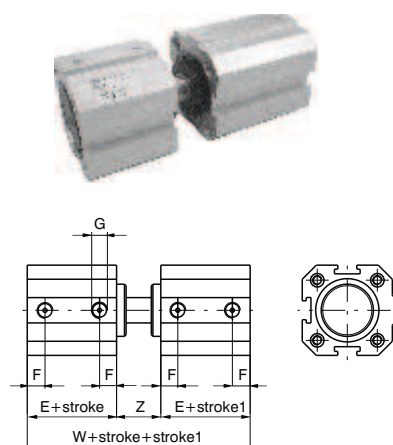
Ordering code

1517.Ø.stroke.stroke 1 standard seals
1517.Ø.stroke.stroke 1.V FPM seals
1517.Ø.stroke.stroke 1.T HNBR seals
1517.Ø.stroke.stroke 1.M standard seals, magnetic piston
1517.Ø.stroke.stroke 1.MV FPM seals, magnetic piston
1517.Ø.stroke.stroke 1.MT HNBR seals, magnetic piston

**Opposed tandem with common rods**

Ordering code

1518.Ø.stroke.stroke 1 standard seals
1518.Ø.stroke.stroke 1.V FPM seals
1518.Ø.stroke.stroke 1.T HNBR seals
1518.Ø.stroke.stroke 1.M standard seals, magnetic piston
1518.Ø.stroke.stroke 1.MV FPM seals, magnetic piston
1518.Ø.stroke.stroke 1.MT HNBR seals, magnetic piston



Bore	20	25	32	40	50	63	80	100
E	29	30,5	32	33,5	35	38	44	47
F	9	9,15	9,75	10,5	11	11,25	13,75	15,25
F1	17,5	18,35	19,75	20,5	21,5	24,25	24,75	26,25
G	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 3/8"	G 3/8"
U	59	60,5	67	68,5	70	78	89	97
W	72	74	79	89	98	104	119	125
Z	14	13	15	22	28	28	31	31

Variations with magnetic piston

E	34	35,5	37	38,5	40	43	49	52
F1	22,5	23,35	24,75	25,5	26,5	29,25	29,75	31,25
U	69	70,5	77	78,5	80	88	99	107
W	82	84	89	99	108	114	129	135

Double acting version

Ordering code

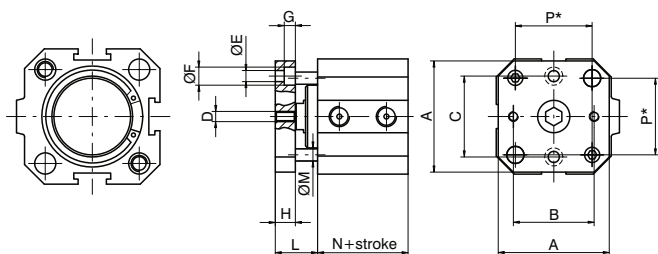
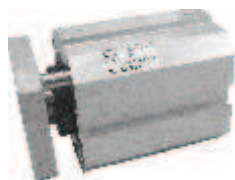
1501.Ø.stroke.AR standard seals
1501.Ø.stroke.AR.V FPM seals
1501.Ø.stroke.AR.T HNBR seals

Double version with magnetic piston

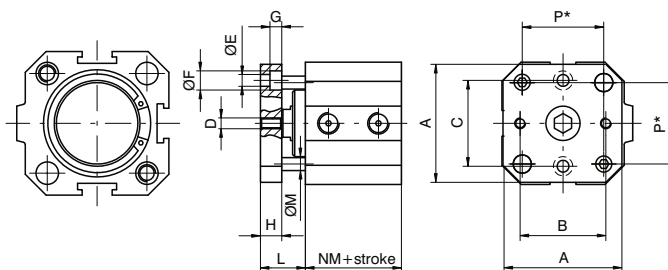
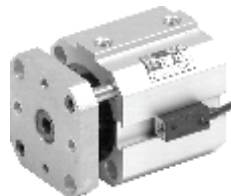
Ordering code

1511.Ø.stroke.AR standard seals
1511.Ø.stroke.AR.V FPM seals
1511.Ø.stroke.AR.T HNBR seals

Cylinders with non-rotating device



* = Distance between rods centres



* = Distance between rods centres

It is possible, upon request to have four holes threaded and with counter bores in order to rear mount the cylinder as if it was standard.

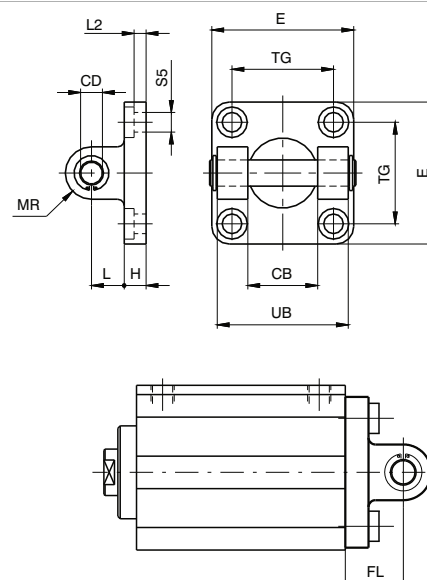
Bore		20	25	32	40	50	63	80	100
A		35	40	45	55	65	80	100	120
B		22	26	32	40	50	62	82	103
C		22	28	34	40	50	62	82	103
D		M4	M5	M5	M5	M6	M6	M8	M8
Ø E		4,5	5,5	5,5	5,5	6,5	8,5	8,5	8,5
Ø F		7,5	9	9	9	10,5	13,5	13,5	13,5
G		4,5	5,5	5,5	5,5	6,5	8,5	8,5	8,5
H		8	8	10	10	12	12	15	15
L		15	14,5	17,5	21	26	26	30,5	30,5
Ø M		6	6	6	6	8	8	10	10
N		29	30,5	32	33,5	35	38	44	47
NM		34	35,5	37	38,5	40	43	49	52
P		26	28	32,5	38	46,5	56,5	72	89
Max. suggestion stroke		40	40	50	50	60	60	80	80
Weight gr.	stroke 0	40	50	70	90	200	250	490	650
	every 10 mm	5	5	5	5	10	10	20	20

Rear clevis

Ordering code

1500.Ø.09F

This allows anchorage of the cylinder both parallel and at a right angle to the plane; the cylinder rod can oscillate and self-align as necessary. It is made of aluminium alloy and painted black.



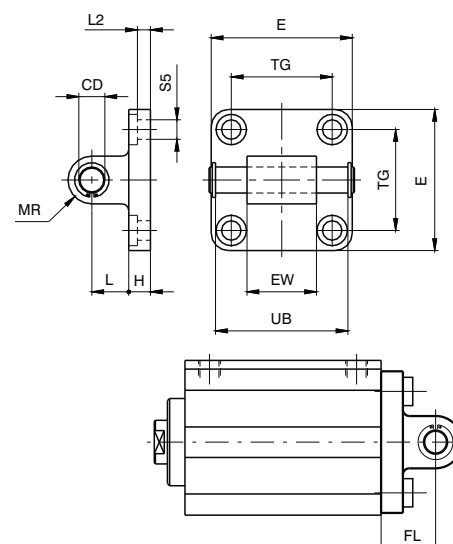
Bore	20	25	32	40	50	63	80	100
CB (h 9)	16	20	26	28	32	40	50	60
CD (H 9)	8	10	10	12	12	16	16	20
E	35	40	45	52	65	75	95	115
H	6	8	9	9	11	11	14	14
L	12	12	13	16	16	21	22	27
MR	8	9	10	12	12	16	16	20
TG	26	28	32,5	38	46,5	56,5	72	89
UB	35	40	45	52	60	70	90	110
FL	18	20	22	25	27	32	36	41
L2	/	/	5,5	5,5	6,5	6,5	10	10
S5 (H13)	5,5	6,6	6,6	6,6	9	9	11	11
Weight gr.	45	75	80	130	185	310	530	910

Rear clevis male

Ordering code

1500.Ø.09/1F

This allows anchorage of the cylinder both parallel and at a right angle to the plane; the cylinder rod can oscillate and self-align as necessary. It is made of aluminium alloy and painted black.

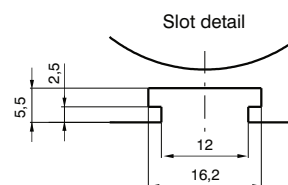
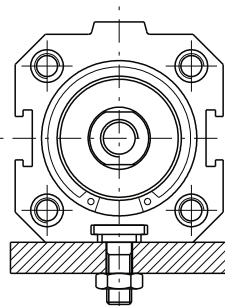
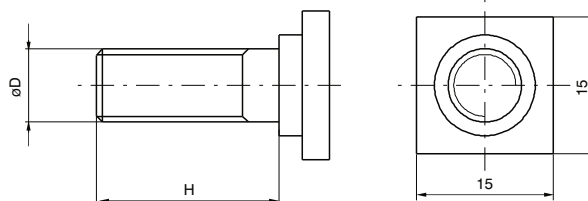


Bore	20	25	32	40	50	63	80	100
CD (h 9)	8	10	10	12	12	16	16	20
E	35	40	45	52	65	75	95	115
EW	16	20	26	28	32	40	50	60
H	6	8	9	9	11	11	14	14
L	12	12	13	16	16	21	22	27
MR	8	9	10	12	12	16	16	20
TG	26	28	32,5	38	46,5	56,5	72	89
UB	35	40	46	53	61	71	91	111
FL	18	20	22	25	27	32	36	41
L2	/	/	5,5	5,5	6,5	6,5	10	10
S5 (H 13)	5,5	6,6	6,6	6,6	9	9	11	11
Weight gr.	53	85	90	130	190	340	580	960

Slot fixing screws

Ordering code

1500.15F (from Ø20 to Ø32)
1500.16F (from Ø40 to Ø63)
1500.18F (Ø80 and Ø100)



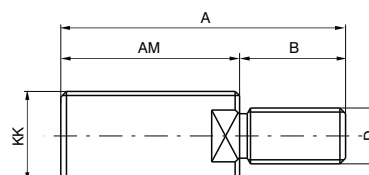
Example mounted with square headed screws on the plane.

Bore	20	25	32	40	50	63	80	100
ØD	M6	M6	M6	M8	M8	M8	M10	M10
H	15	15	15	20	20	20	25	25
Weight gr.	10			18			25	

Nipple with ISO standard thread

Ordering code

1500.Ø.17F



Fitted on the female thread of the compact cylinders, restore the ISO configurations rod (ISO 6432 for cylinders Ø 20 and Ø 25; ISO 6431 for cylinders from Ø 32 to Ø 100).

Bore	20	25	32	40	50	63	80	100
KK	M8x1,25	M10x1,25	M10x1,25	M12x1,25	M16x1,5	M16x1,5	M20x1,5	M20x1,5
AM	20	22	22	24	32	32	40	40
A	26	30	32	36	47	47	58	58
B	6	8	10	12	15	15	18	18
D	M4	M5	M6	M10	M12	M12	M16	M16
Weight gr.	8	15	16	27	65	65	110	110

General

This series of cylinders is available in two versions with different threaded fixing holes.

The first one includes cylinders from Ø 32 to Ø 100 called "ISO" with fixing holes same as cylinders ISO 6431 - VDMA 24562. Cylinders from Ø 20 to Ø 100 called "UNITOP", parts of second series, are mainly according to standard UNITOP RU - P/6 - P/7. Cylinders Ø 12 and Ø 16 non standard, are interchangeable with similar products available on the market. The ISO version uses all fixing devices of series 1320 with exception of intermediate trunnion, while for cylinders Ø 12, Ø 16 and for "UNITOP" version are available fixing devices as flanges, foot, male and female clevis made with aluminium or steel. For use of magnetic sensors see directions on next page.

Construction characteristics

Body	anodised aluminium
Heads	from Ø12 to Ø25 aluminium alloy UNI 9006/1 anodised from Ø32 to Ø100 UNI 5076 aluminium die-casting and painted (cataphoresis)
Piston rod bushing	sintered bronze
Piston rod	from Ø12 to Ø25 stainless steel from Ø32 to Ø100 C43 chromed (on request stainless steel for all bores)
Piston	from Ø12 to Ø25 plated zinc steel dal Ø32 al Ø100 aluminium alloy 2011 UNI 9002/5
Seals	PUR (on request HNBR)
Spring	zinc plated steel for springs
Fixing screws	zinc plated steel

Technical characteristics

Fluid	filtered air, with or without lubrication
Maximum working pressure	10 bar
Working temperature	-30°C - +80°C with standard seals (magnetic or non magnetic piston) -5°C - +80°C with HNBR seals (magnetic piston) -5°C - +120°C with HNBR 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)
- evaluate the environmental characteristics of cylinder used (high temperature, hard atmosphere, dust, humidity etc.)

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

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

Our Technical Department will be glad to help.

Standard strokes for single acting cylinders

Ø12	10 mm max.
from Ø16 to Ø100	25 mm max.

Maximum suggested strokes

Ø12 and Ø16	100 mm
Ø20 and Ø25	200 mm
Ø32 and Ø40	300 mm
Ø50 and Ø63	400 mm
Ø80 and Ø100	500 mm

Longer strokes may be utilised if there is no radial loads on piston rod considering there isn't adjustable cushioning system.

Standard strokes for double acting cylinders

Ø12 and Ø16	from 5 to 40mm every 5mm
Ø20 and Ø25	from 5 to 50mm every 5mm
Ø32 - Ø100	from 5 to 80mm every 5mm

Maximum suggested strokes with non-rotating device

from Ø12 to Ø25	40 mm
from Ø32 to Ø100	80 mm

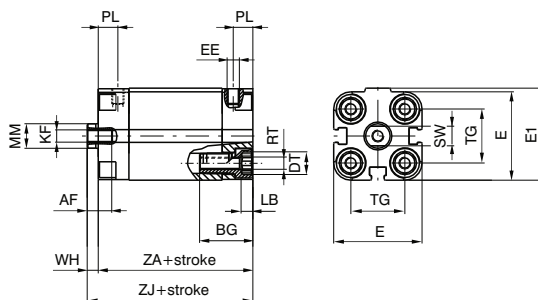
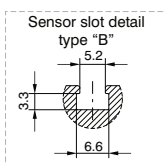
Minimum and maximum springs load

Bore	12	16	20	25	32	40	50	63	80	100
Min. load (N)	3,9	4,4	4,9	9,8	12,3	16,7	27,5	37,3	59,4	101,3
Max. load (N)	9,3	17,7	18,1	25,5	34,3	44,1	51,0	63,8	99,4	141,9

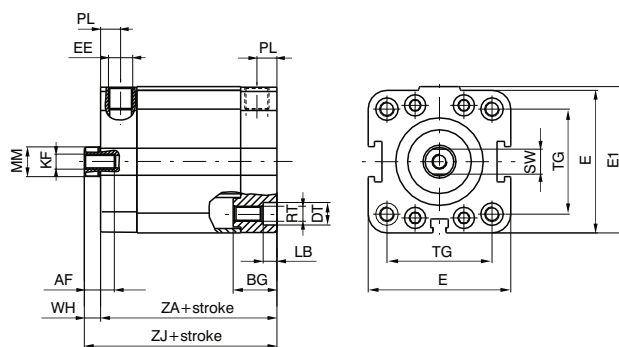
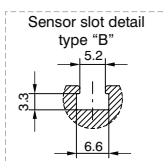
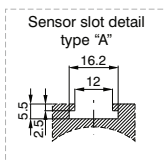
BASIC version double and single acting



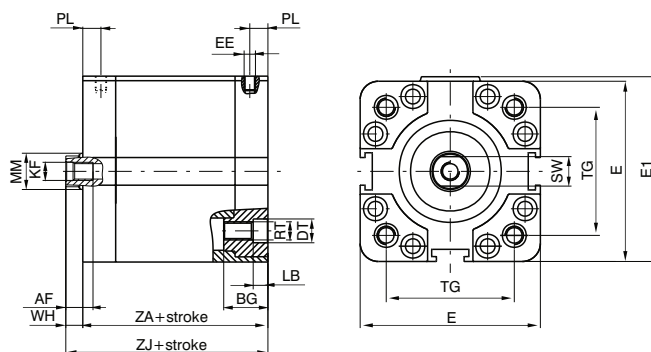
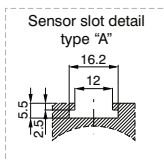
for bores from $\varnothing 12$ to $\varnothing 25$
use sensors codes
1580._, MHS._, MRS._ only



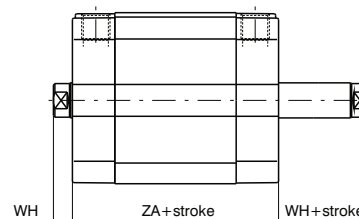
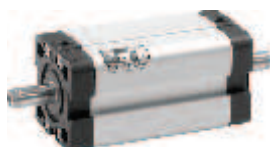
for bores from $\varnothing 32$ to $\varnothing 50$
use sensors codes
1500._, RS._, HS._ (slot A)
1580._, MHS._, MRS._
(slot B and slot A with adapter code 1380.01F)



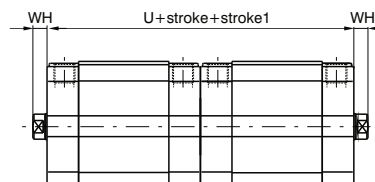
for bores from $\varnothing 63$ to $\varnothing 100$
use sensors codes
1500._, RS._, HS._ and
1580._, MHS._, MRS._
(with adapter code 1380.01F)



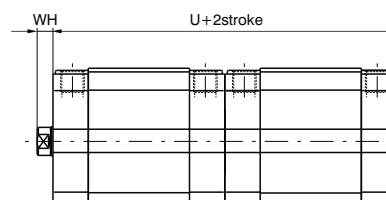
PUSH/PULL rod version double and single acting



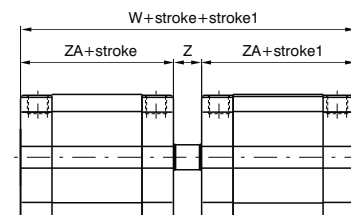
Tandem with opposite rods



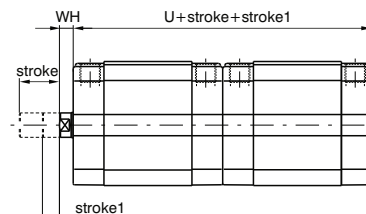
Tandem push with common rods



Opposed tandem with common rod



Tandem push with independent rods



Ordering code

Basic version push/pull

15 . Ø . stroke . . .

- 1 = Double acting (magnetic)
- 2 = Front spring (magnetic)
- 3 = Rear spring (magnetic)
- 4 = Double acting (non magnetic)
- 5 = Front spring (non magnetic)
- 6 = Rear spring (non magnetic)
- 01 = Basic version - female piston rod
- 02 = Basic version - male piston rod
- 03 = Push / pull version - female piston rod
- 04 = Push / pull version - male piston rod
- 05 = Push / pull version - bored male piston rod
- 06 = Push / pull version - bored female piston rod
- 07 = Non - rotating version
- 08 = Push / pull version with non rotating device on one side - female piston rod
- 09 = Push / pull version with non rotating device on one side - male piston rod
- 1 = Chromed rod C43 (from Ø12 to Ø25 stainless steel)
- 2 = Stainless steel rod (from Ø32 to Ø100)
- 6 = ISO (Ø32 - Ø100)
- 7 = ISO HNBR (Ø32 - Ø100)
- 8 = UNITOP (Ø12 - Ø100)
- 9 = UNITOP HNBR (Ø12 - Ø100)

Tandem version

15 . Ø . stroke . (stroke1) . .

- A = Tandem with opposite rods female thread
- E = Tandem with opposite rods male thread
- L = Tandem opposite rods with non rotating device on both sides
- C = Tandem push with common rods female thread
- G = Tandem push with common rods male thread
- H = Tandem push with common rods, push-pull version rod female threads
- N = Tandem push with common rods with non rotating device
- D = Opposed tandem with common rod
- B = Tandem push with independent rods female thread
- F = Tandem push with independent rods male thread
- M = Tandem push with independent rods with non rotating device
- P = Tandem push/pull with independent rods - female thread
- Q = Tandem push/pull with independent rods - male thread
- 1 = Chromed rod C43 (from Ø12 to Ø25 stainless steel)
- 2 = Stainless steel rod (from Ø32 to Ø100)
- 6 = ISO (Ø32 - Ø100)
- 7 = ISO HNBR (Ø32 - Ø100)
- 8 = UNITOP (Ø12 - Ø100)
- 9 = UNITOP HNBR (Ø12 - Ø100)

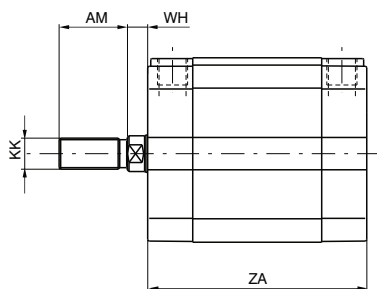
Table of dimensions

Bore	12	16	20	25	32	40	50	63	80	100
AF	6	8	10	10	12	12	12	12	16	20
BG	19	19	20	20	17.5	17.5	19.5	19.5	23.5	24.5
DT	6	6	8	8	10	9	10.5	10.5	14	14
E	29	29	36	40	48	57	67	80	102	122
E1	30	30	37.5	41.5	49.5	58.5	69	82	105	125
EE	M 5	M 5	M 5	M 5	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/4"
KF	M 3	M 4	M 5	M 5	M 6	M 6	M 8	M 8	M 10	M12
LB	3.5	3.5	4.8	4.8	5.5	5.5	6.5	6.5	8.5	8.5
MM	6	8	10	10	12	12	16	16	20	25
PL	8	8	8	8	8	8	8	8	8.5	10.5
RT	M 4	M 4	M 5	M 5	M 6	M 6	M 8	M 8	M 10	M 10
SW	5	7	8	8	10	10	13	13	17	22
TG ISO	/	/	/	/	32.5	38	46.5	56.5	72	89
TG UNITOP	18	18	22	26	32	42	50	62	82	103
U	76	76	76	79	89	91	91	100	112	133
W	85	85	85	90	101	104	106	115	128	153
WH	4.5	4.5	4.5	5.5	6	6.5	7.5	7.5	8	10
Z	9	9	9	11	12	13	15	15	16	20
ZA *	38	38	38	39.5	44.5	45.5	45.5	50	56	66.5
ZJ *	42.5	42.5	42.5	45	50.5	52	53	57.5	64	76.5
Weight	stroke 0	88	90	140	170	210	320	460	690	1390
gr.	every 5 mm	8	8	12	13	15	19	25	31	50

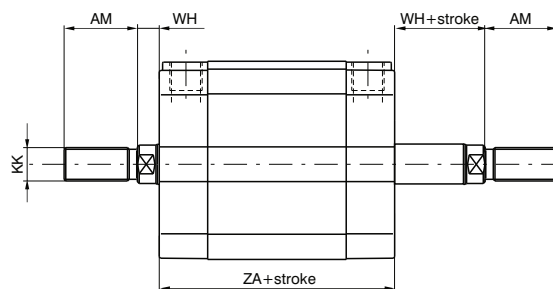
* These dimensions increase of 10 mm for cylinders ø 12 front spring version.

Tabular weights above refer to Basic Versions. The weights of Tandem versions are approximately double those shown.

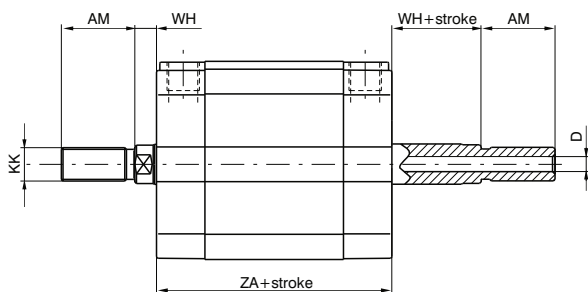
Basic version male piston rod



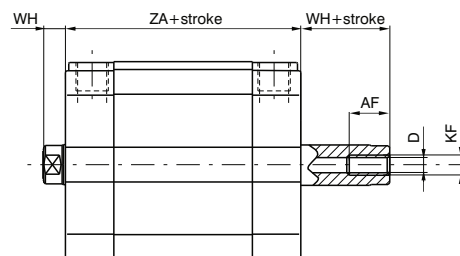
Push - pull version male rod



Push - pull version bored male piston rod

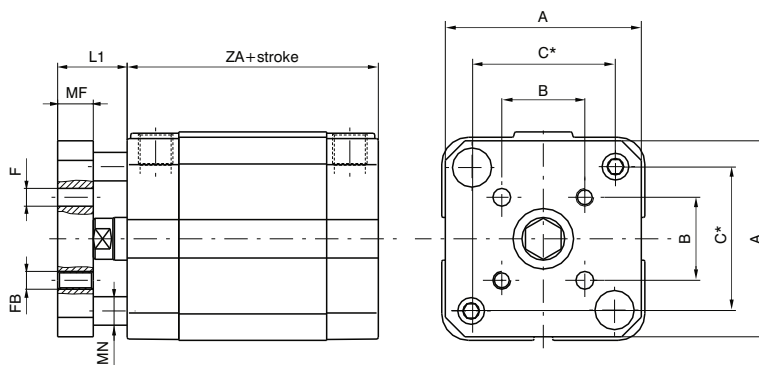


Push - pull version bored female piston rod



Maximum allowed stroke = ZB (see table)

Non-rotating version



* = Distance between rods centres

Bore	12	16	20	25	32	40	50	63	80	100
A	28.5	28.5	35.5	39.5	45	55	65	80	100	120
AF	6	8	10	10	12	12	12	12	16	20
AM	16	20	22	22	22	22	24	24	32	40
B	9.9	9.9	12	15.6	19.8	23.3	29.7	35.4	46	56.6
C	18	18	22	26	34	40.5	49	59.5	77	94
D	2.3	3.2	3.8	3.8	4.5	4.5	6	6	8	10
F	3	3	4	5	5	5	6	6	8	10
FB	M 3	M 3	M 4	M 5	M 5	M 5	M 6	M 6	M 8	M 10
KF	M 3	M 4	M 5	M 5	M 6	M 6	M 8	M 8	M 10	M 12
KK	M6X1	M8X1.25	M10X1.25	M10X1.25	M10X1.25	M10X1.25	M12X1.25	M12X1.25	M16X1.5	M20X1.5
L1	10.5	10.5	12.5	13.5	16	16.5	19.5	19.5	22	24
MF	6	6	8	8	10	10	12	12	14	14
MN	5	5	6	6	8	8	10	10	12	12
WH	4.5	4.5	4.5	5.5	6	6.5	7.5	7.5	8	10
ZA	38	38	38	39.5	44.5	45.5	45.5	50	56	66.5
ZB	20	25	50	50	50	50	75	75	80	80

Front and rear flanges

Ordering code

ISO
1500.Ø.03F
steel

UNITOP
1580.Ø.03F
steel

1580.Ø.03/1F
aluminium

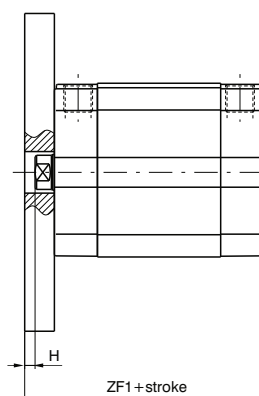
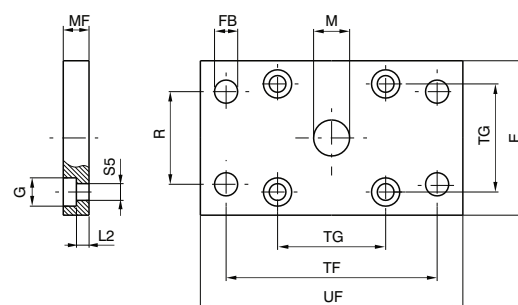
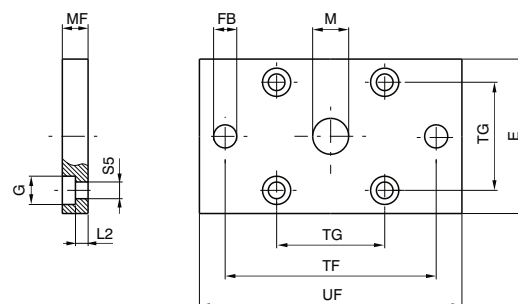


For bores from 12 to 25

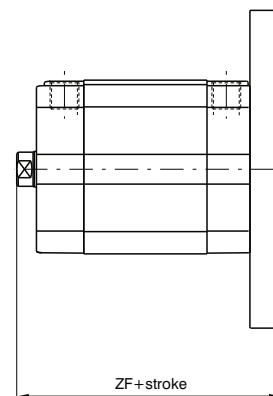


For bores from 32 to 100

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



Front



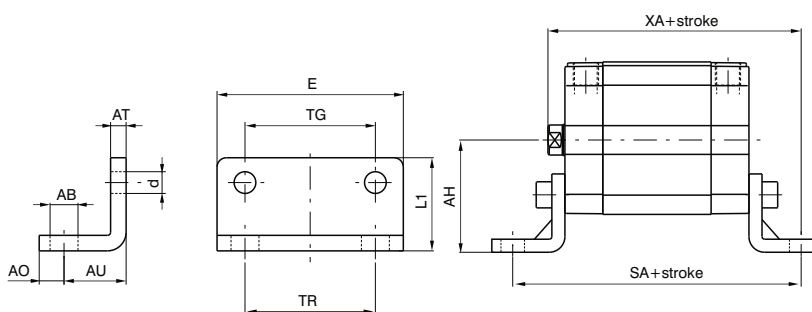
Rear

		ISO Dimensions						UNITOP Dimensions									
Bore		32	40	50	63	80	100	12-16	20	25	32	40	50	63	80	100	
E		45	52	65	75	95	115	29	36	40	50	60	68	87	107	128	
S5 (H13)		6,6	6,6	9	9	11	11	4,5	5,5	5,5	6,6	6,6	9	9	11	11	
FB(H13)		7	9	9	9	12	14	5,5	6,6	6,6	7	9	9	9	12	14	
G		10,5	11	15	15	18	18	9	10	10	11	11	15	15	18	18	
H		4	3,5	4,5	4,5	8	6	5,5	5,5	4,5	4	3,5	4,5	7,5	7	5	
L2		5	5	6,5	6,5	8	8	4,6	4,6	4,6	3,6	3,6	3,4	6,4	4,4	4,4	
M(H11)		30	35	40	45	45	55	10	12	12	14	14	18	18	23	28	
MF(JS14)		10	10	12	12	16	16	10	10	10	10	10	12	15	15	15	
R(JS14)		32	36	45	50	63	75	/	/	/	32	36	45	50	63	75	
TF(JS14)		64	72	90	100	126	150	43	55	60	65	82	90	110	135	163	
TG		32,5	38	46,5	56,5	72	89	18	22	26	32	42	50	62	82	103	
UF		80	90	110	120	150	170	55	70	76	80	102	110	130	160	190	
ZF		60,5	62	65	69,5	80	92,5	52,5	52,5	55	60,5	62	65	72,5	79	91,5	
ZF1		54,5	55,5	57,5	62	72	82,5	48	48	49,5	54,5	55,5	57,5	65	71	81,5	
Weight gr.	Steel	160	250	480	620	1430	1970	100	170	210	270	430	600	1210	1810	2610	
	Aluminium	/	/	/	/	/	/	35	60	70	90	150	210	420	630	900	

Foot

Ordering code

ISO
1500.Ø.05/1F
(1 piece)
UNITOP
1580.Ø.05/1F
(1 piece)



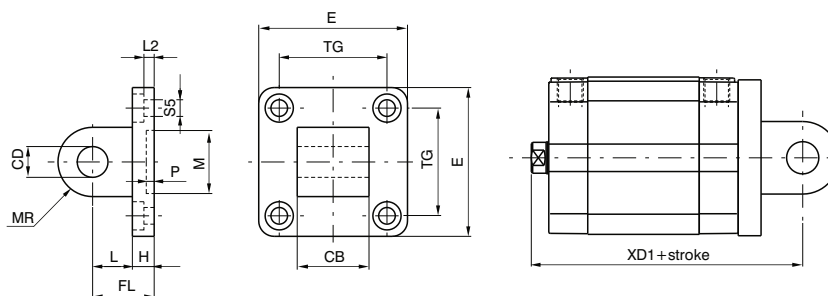
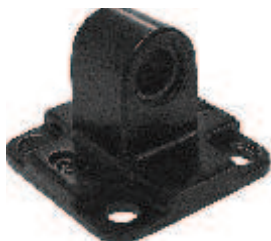
Element used to anchor the cylinder parallel to the mounting plane. They are made with stamped and pierced sheet metal black painted.

	ISO Dimensions						UNITOP Dimensions								
Bore	32	40	50	63	80	100	12-16	20	25	32	40	50	63	80	100
AB (H14)	7	9	9	9	12	14	5.5	6.6	6.6	6.6	9	9	11	11	13.5
AH (JS15)	32	36	45	50	63	71	22	27	30	32	42.5	47	59.5	65.5	78
AO (± 0.2)	11	8	15	13	14	16	4.5	6	6	8	8	8	12	12	12
AT	4	4	5	5	6	6	3	4	4	5	5	6	6	8	8
AU (± 0.2)	24	28	32	32	41	41	13	16	16	18	20	24	27	30	33
d	7	7	9	9	11	11	4.4	5.4	5.4	6.6	6.6	9	9	11	11
E	45	52	65	75	95	115	30	36	40	50	60	68	84	102	123
L1	30	30	36	35	47	53	17.5	22	23	24	29.5	30	39	36.5	38.5
SA	92.5	101.5	109.5	114	138	148.5	64	70	71.5	80.5	85.5	93.5	104	116	132.5
TG	32.5	38	46.5	56.5	72	89	18	22	26	32	42	50	62	82	103
TR	32	36	45	50	63	75	18	22	26	32	42	50	62	82	103
XA	74.5	80	85	89.5	105	117.5	55.5	58.5	61	68.5	72	77	84.5	94	109.5
Weight gr.	50	70	120	180	320	400	20	35	45	75	100	150	250	390	500

UNITOP rear male clevis for bores from 12 to 25

Ordering code

1580.Ø.09/1F (Aluminium)
1580.Ø.09/2F (Steel)



This type of mounting allows anchorage of the cylinder both parallel and at the right angle to the plane. The cylinder rod can oscillate and self-align to the connected load. It's made with aluminium alloy black painted or with zinc plated steel (from Ø 20).

Bore	12-16	20	25
CB(h14)	12	16	16
CD (H9)	6	8	8
E (± 0.5)	27	34	38
FL	16	20	20
H	6	6	6
L	10	14	14
L2 (± 0.5)	2.6	2.6	2.6
M (H11)	10	12	12
MR	6	8	8
P (+0.3)	3	3	3
S5 (H13)	4.5	5.5	5.5
TG (± 0.2)	18	22	26
XD1	58.5	62.5	65
Weight gr.	Steel	70	80
	Aluminium	13	25

Front female clevis for bores from 32 to 100

Ordering code

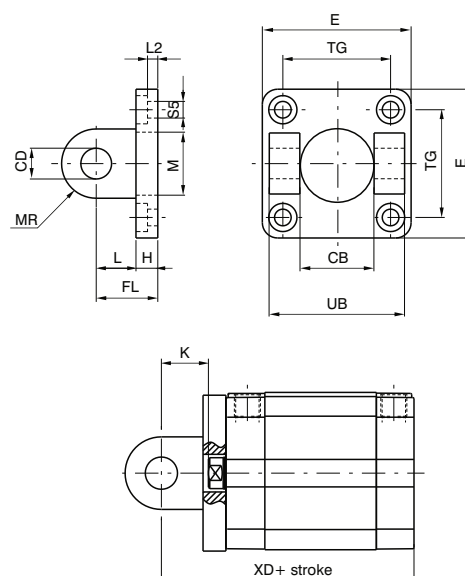
ISO
Aluminium
1500.Ø.08F

UNITOP (Aluminium)
1580.Ø.11F

UNITOP (Steel)
1580.Ø.13F



This type of mounting allows anchorage of the cylinder both parallel and at the right angle to the plane. The cylinder rod can oscillate and self-align to the connected load. It's made with aluminium alloy black painted or with zinc plated steel.



Rear female clevis for bores from 32 to 100

Ordering code

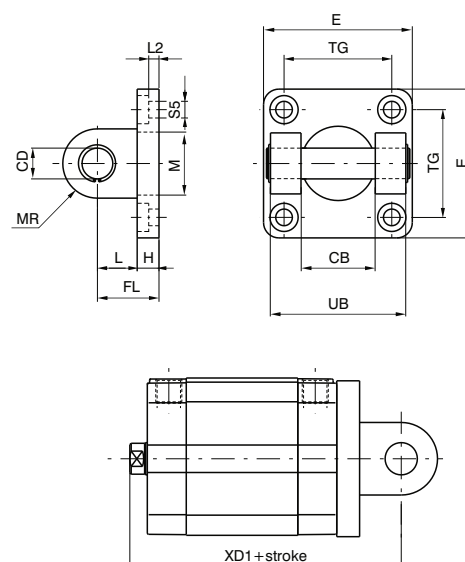
ISO
Aluminium
1500.Ø.09F

UNITOP (Aluminium)
1580.Ø.10F

UNITOP (Steel)
1580.Ø.12F



This type of mounting allows anchorage of the cylinder both parallel and at the right angle to the plane. The cylinder rod can oscillate and self-align to the connected load. It's made with aluminium alloy black painted or with zinc plated steel.

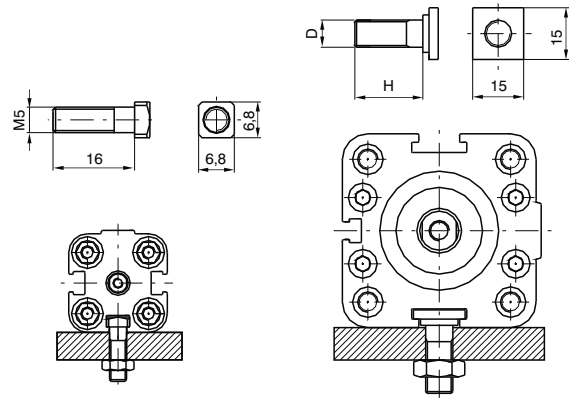
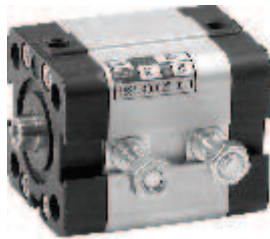
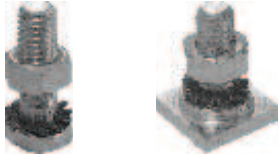


			ISO Dimensions						UNITOP Dimensions					
Bore			32	40	50	63	80	100	32	40	50	63	80	100
CB (H14)			26	28	32	40	50	60	26	28	32	40	50	60
CD (H9)			10	12	12	16	16	20	10	12	12	16	16	20
E			45	52	65	75	95	115	48	58	66	83	102	123
FL			22	25	27	32	36	41	22	25	27	32	36	41
H			9	9	11	11	14	14	9	9	11	11	13	15
K			16	18.5	19.5	24.5	28	31	16	18.5	19.5	24.5	28	31
L			13	16	16	21	22	27	13	16	16	21	23	26
L2			5.5	5.5	6.5	6.5	10	10	5.5	5.5	6.5	6.5	10	10
M			30	35	40	45	45	55	14	14	18	18	23	28
MR			10	12	12	16	16	20	10	12.5	12.5	15	15	20
S5			6.6	6.6	9	9	11	11	6.6	6.6	9	9	11	11
TG			32.5	38	46.5	56.5	72	89	32	42	50	62	82	103
UB			45	52	60	70	90	110	45	52	60	70	90	110
XD			66.5	70.5	72.5	82	92	107.5	66.5	70.5	72.5	82	92	107.5
XD1			72.5	77	80	89.5	100	117.5	72.5	77	80	89.5	100	117.5
Weight gr.	Steel	Front	/	/	/	/	/	/	180	310	420	700	1240	2210
		Rear	/	/	/	/	/	/	220	360	480	830	1390	2500
	Alum.	Front	40	70	120	170	360	570	65	110	145	240	430	770
		Rear	80	120	180	300	500	860	80	125	170	290	480	865

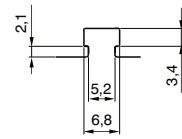
Slot fixing screws

Ordering code

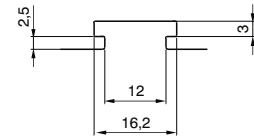
1500.17F small slot (from Ø12 to Ø50)
1500.15F large slot (Ø32)
1500.16F large slot (from Ø40 to Ø63)
1500.18F large slot (from Ø80 to Ø100)



Example of mounting with square head screws



Small slot detail



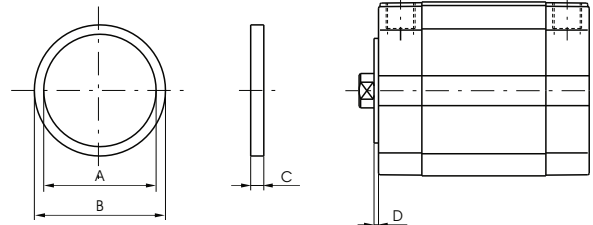
Large slot detail

Bore	12 - 50	32	40 - 63	80 - 100
D	/	M6	M8	M10
H	/	15	20	25
Weight gr.	8	10	18	25

Centering rings

Ordering code

1580.Ø.02F



This aluminium ring allows the center assembling of the cylinder.

Bore	32	40	50	63	80	100
A	25	30	35	40	40	50
B (e11)	30	35	40	45	45	55
C	3,5	3,5	3,5	4,5	5,5	5,5
D	1,5	1,5	1,5	2	2,5	2,5
Weight gr.	2	2	3	4	5	6

Sensor adapter

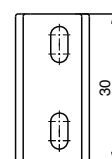
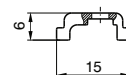
Ordering code

1380.01F



Weight gr. 2

Nylon accessory for sensor mounting 1580._, MRS._, MHS._ inside "A" shape.



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 Ø40 acetal resin (aluminium on request), Ø50 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

Standard stroke

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

[illegible]

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

[illegible]

DOUBLE ACTING version WITH NON-ROTATING DEVICE

[illegible]

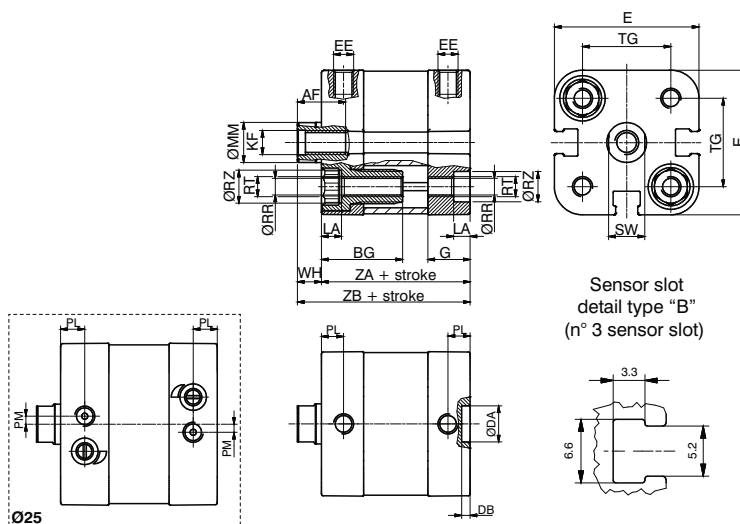
SINGLE ACTING
version

	Stroke				
Bore	5	10	15	20	25
Ø20	●	●	●	●	●
Ø25	●	●	●	●	●
Ø32	●	●	●	●	●
Ø40	●	●	●	●	●
Ø50	●	●	●	●	●
Ø63	●	●	●	●	●
Ø80	●	●	●	●	●
Ø100	●	●	●	●	●

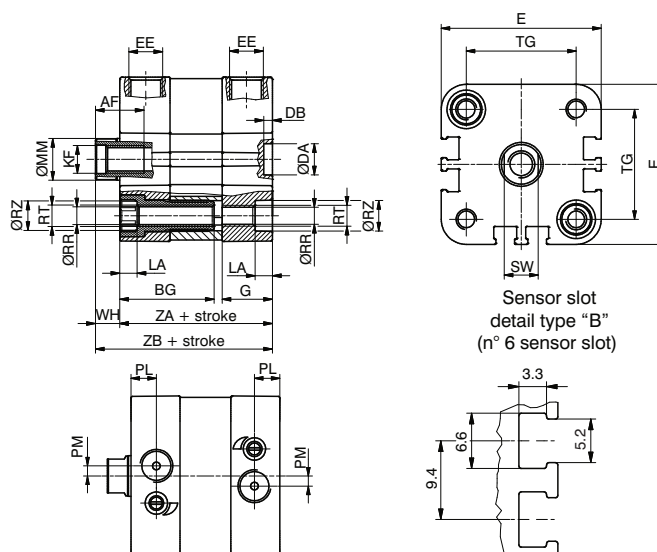
BASIC version double and single acting



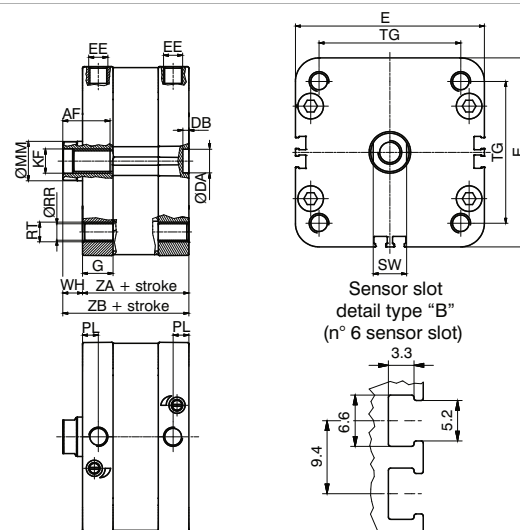
Ø20 and Ø25



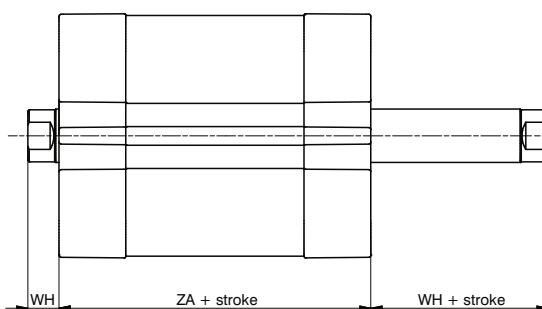
from Ø32 to Ø63



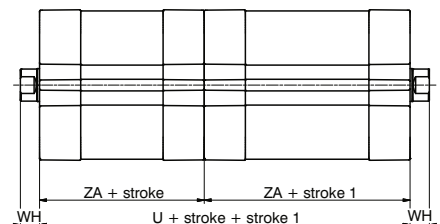
Ø80 and Ø100



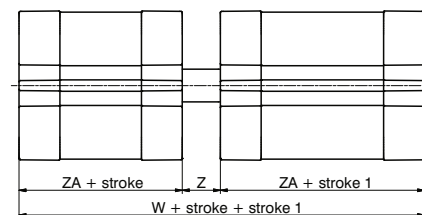
PUSH/PULL rod version double and single acting



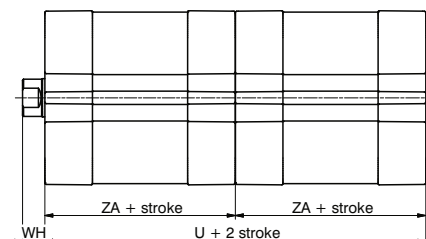
TANDEM version



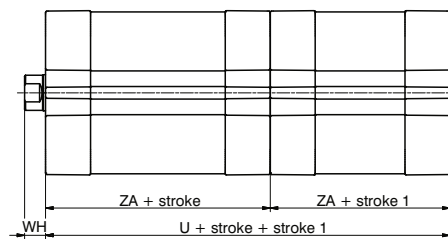
Tandem with opposed rods



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
- 01= Basic, female threaded rod
- 02= Basic, male threaded rod
- 03= through rod, female threaded rod
- 04= through rod, male threaded rod
- ** 05= through rod, bored female threaded rod
- 06= through rod, bored male threaded rod
- 07= with non-rotating device
- 08= through rod, female threaded rod, with non-rotating device on one side
- 09= through rod, male threaded rod, with non-rotating device on one side
- 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)

** It is possible to order the Ø20, Ø25, Ø32 and Ø40 cylinders with an aluminium piston by replacing the '0' with 'K' in the ordering code.
Example: 1540.20.10.01.1 (Acetyl Resin Piston)
1540.20.10.K1.1 (Aluminium Piston version)

Table of dimensions

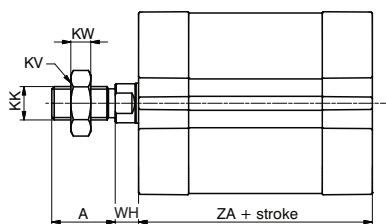
Bore	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
AF (min)	12	12	14	14	18	18	24	24
BG	20	20	16	16	16	16	/	/
DA (H9) Ø	9	9	9	9	12	12	12	12
DB (+0.1/0)	2.1	2.1	2.5	2.5	2.6	2.6	3	3
E (max)	36	40.5	47.5	55	66	78	96	116
EE	M5	M5	G1/8	G1/8	G1/8	G1/8	G1/8	G1/8
G	10.5	12	14.5	15	15	15	15.5	18.5
KF	M6	M6	M8	M8	M10	M10	M12	M12
LA (0/-0.1)	4.1	4.1	5	5	5	5	/	/
MM (f 7) Ø	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) Ø	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) Ø	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 gr. every 5mm	105	110	200	270	420	550	760	1400
	10	10.5	13	17	23.5	27	37	51

TANDEM version (magnetic pistons)

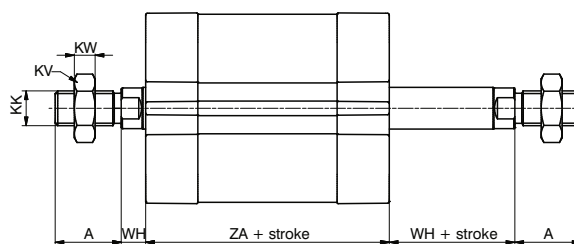
- 15 . Ø .stroke. (stroke 1) .
- C= female threaded rod
 - G= male threaded rod
 - H= with through rod and female threaded rod
 - R= with through rod and male threaded rod
 - N= with non-rotating device
 - B= female threaded rod
 - F= male threaded rod
 - M= with non-rotating device
 - P= with through 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

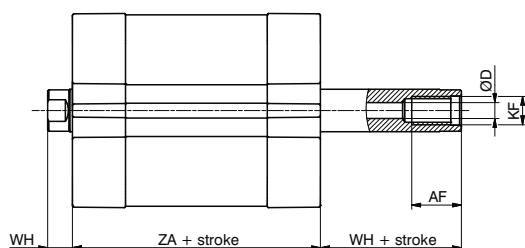
Basic version male piston rod



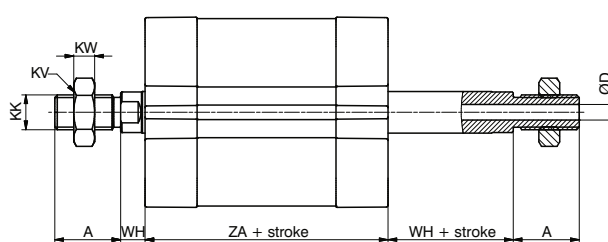
Push/pull version male rod



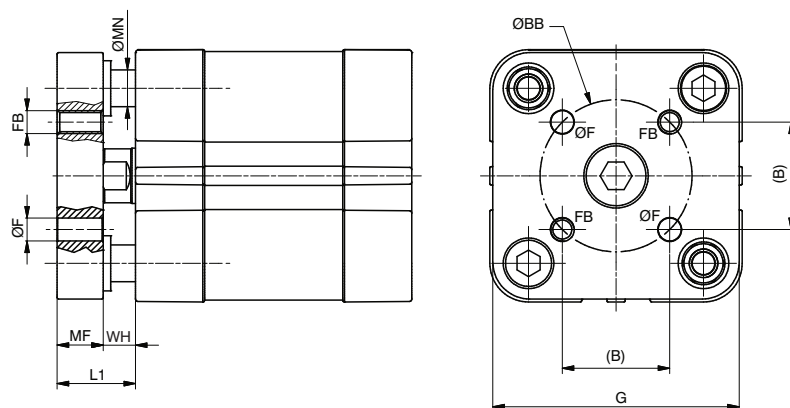
Push - pull version bored female piston rod



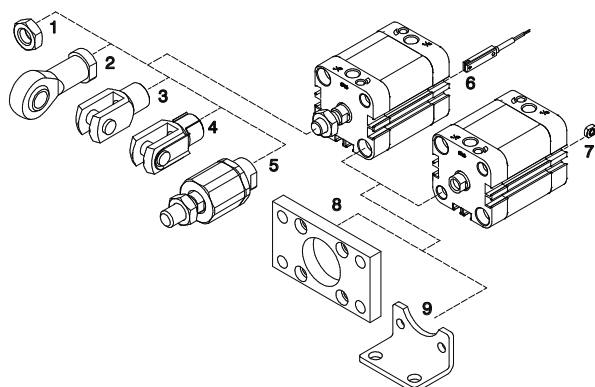
Push - pull version bored male piston rod



Non-rotating version

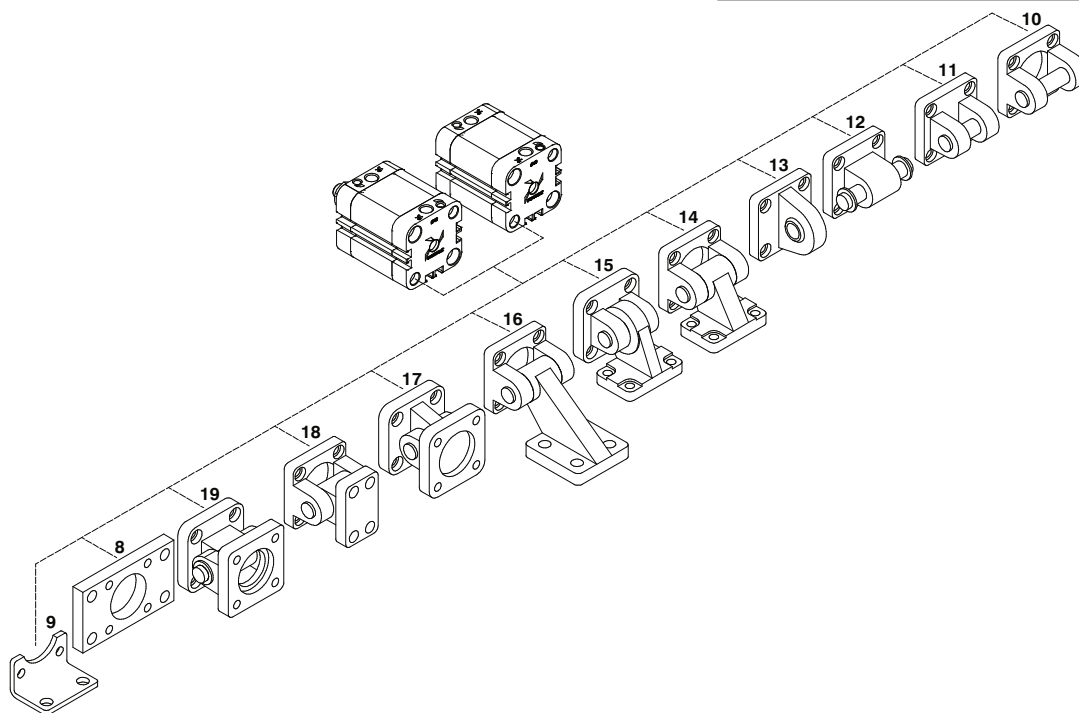


Bore	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
A (0/-0.5)	16	16	19	19	22	22	28	28
AF (min)	12	12	14	14	18	18	24	24
B	12	15.6	19.8	23.3	29.7	35.4	46	56.6
BB (±0.1) Ø	17	22	28	33	42	50	65	80
D Ø	3	3.8	4.5	4.5	6	6	8	10
F (+0.1/0) Ø	4	5	5	5	6	6	8	10
FB	M4	M5	M5	M5	M6	M6	M8	M10
G	35	39.5	45	52	65	75	95	115
KF	M6	M6	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)



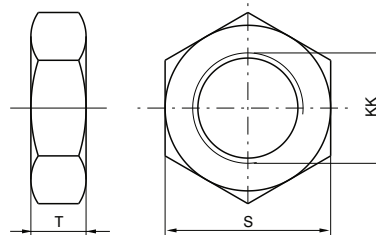
Fixing

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)	1580.Ø.09/2F (Ø20 - Ø25)
		1380.Ø.09/1F (Ø32 - Ø100)	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**

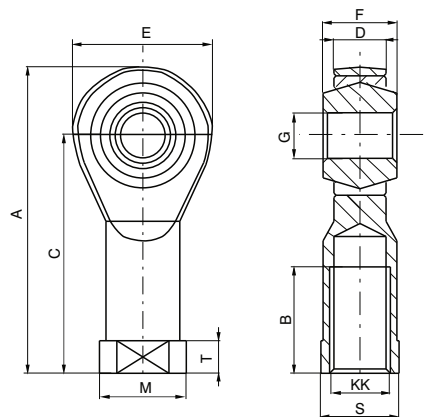


Bore	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
S	13	13	17	17	19	19	24	24
T	5	5	6	6	7	7	8	8
KK	M8x1.25	M8x1.25	M10x1.25	M10x1.25	M12x1.25	M12x1.25	M16x1.5	M16x1.5
Weight gr.	12	12	15	15	20	20	20	20

Ball joint

Ordering code

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

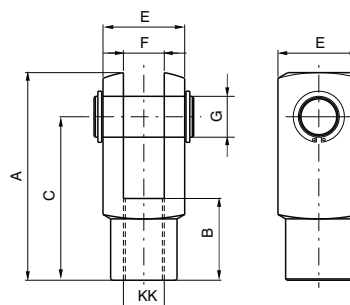


Bore	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
A	48	48	57	57	66	66	85	85
B	16	16	20	20	22	22	28	28
C	36	36	43	43	50	50	64	64
D (-0.1)	9	9	10.5	10.5	12	12	15	15
E	24	24	28	28	32	32	42	42
F	12	12	14	14	16	16	21	21
G (H7)	8	8	10	10	12	12	16	16
KK	M8x1.25	M8x1.25	M10x1.25	M10x1.25	M12x1.25	M12x1.25	M16x1.5	M16x1.5
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**

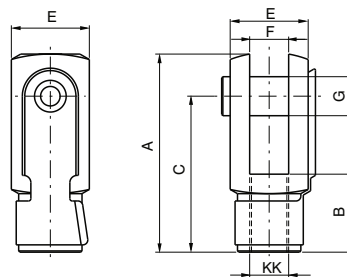


Bore	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
A	42	42	52	52	62	62	83	83
B	16	16	20	20	24	24	32	32
C	32	32	40	40	48	48	64	64
E	16	16	20	20	24	24	32	32
F (B12)	8	8	10	10	12	12	16	16
G	8	8	10	10	12	12	16	16
KK	M8x1.25	M8x1.25	M10x1.25	M10x1.25	M12x1.25	M12x1.25	M16x1.5	M16x1.5
Weight gr.	45	45	100	100	140	140	340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

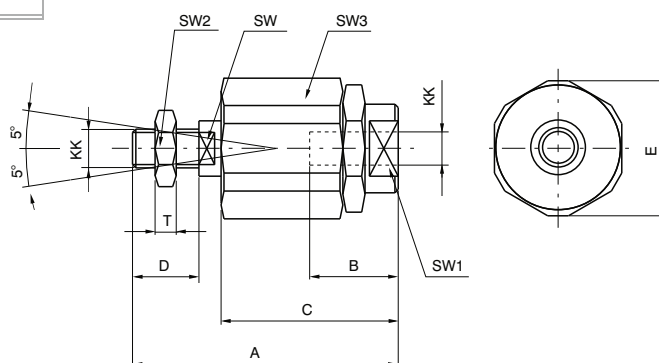


Bore	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
A	42	42	52	52	62	62	83	83
B	16	16	20	20	24	24	32	32
C	32	32	40	40	48	48	64	64
E	16	16	20	20	24	24	32	32
F (B12)	8	8	10	10	12	12	16	16
G	8	8	10	10	12	12	16	16
KK	M8x1.25	M8x1.25	M10x1.25	M10x1.25	M12x1.25	M12x1.25	M16x1.5	M16x1.5
Weight gr.	45	45	100	100	140	140	340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

Self-aligning joint

Ordering code

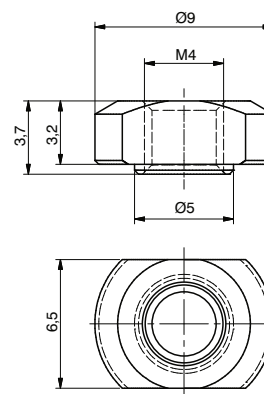
Ø20-Ø25: **1200.20.33F**
 Ø32-Ø40: **1320.32.33F**
 Ø50-Ø63: **1320.40.33F**
 Ø80-Ø100: **1320.50.33F**



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

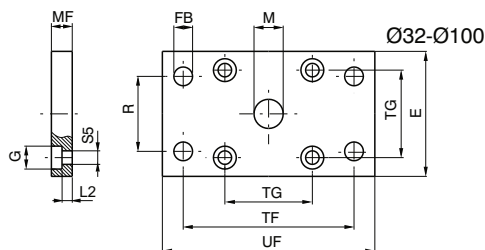
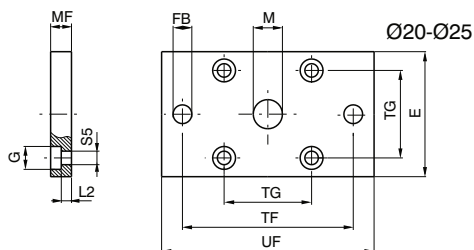
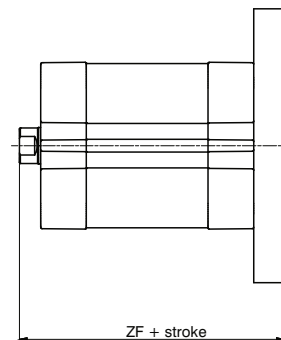
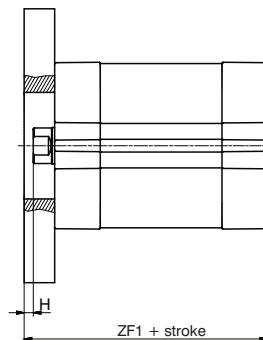
1500.20.F

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)



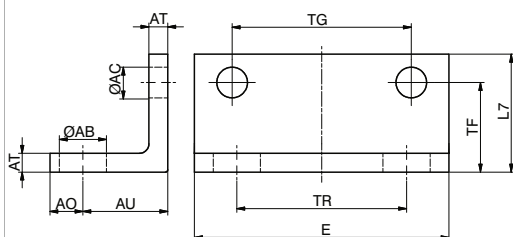
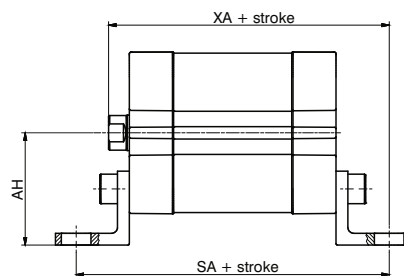
Bore	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
E	35	40	45	52	65	75	95	115
FB (H 13)	6.6	6.6	7	9	9	9	12	14
G	9.5	9.5	10.5	10.5	15	15	18	18
M (H 11)	16	16	30	35	40	45	45	55
MF (JS 14)	8	8	10	10	12	12	16	16
R (JS 14)	/	/	32	36	45	50	63	75
TF (JS 14)	55	60	64	72	90	100	126	150
TG	22	26	32.5	38	46.5	56.5	72	89
UF	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)



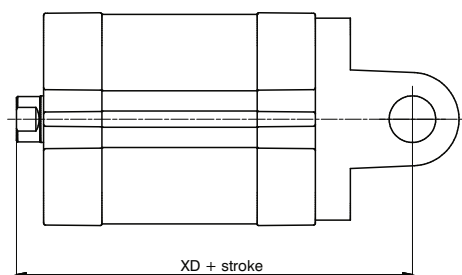
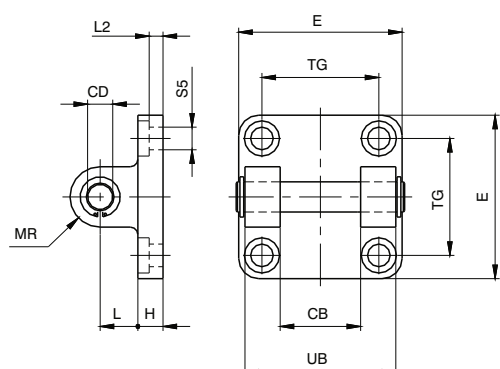
Bore	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
AB (H 14)	7	7	7	10	10	10	12	14.5
AC	5.5	5.5	6.5	6.5	8.5	8.5	10.5	10.5
AH	27	29	33.5	38	45	50	63	74
AO (max)	7	7	7	7	9	9	11	13
AT (±0.5)	4	4	4	4	5	5	6	6
AU (±0.2)	16	16	16	18	21	21	26	27
E (max)	35.5	39.5	46.5	54	65	77	95	115
L7	20	20	25	25	30	30	40	45
TF (±0.1)	16	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)



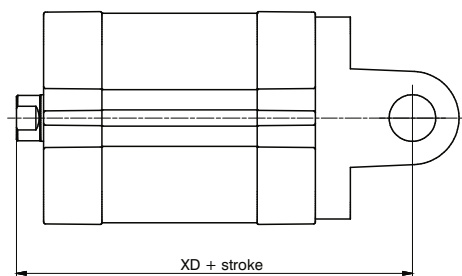
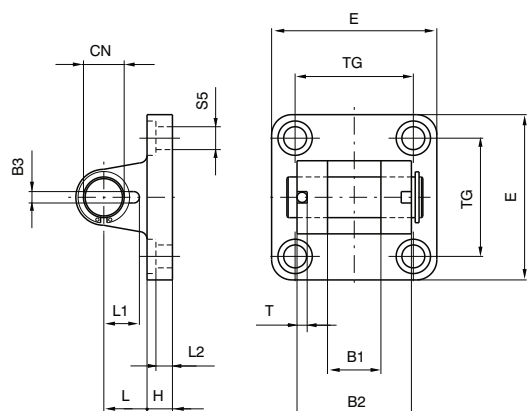
Bore	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
CB (H 14)	26	28	32	40	50	60
CD	10	12	12	16	16	20
E	Aluminium	45	52	65	75	95
	Steel	45	55	65	75	95
H	Aluminium	9	9	11	11	14
	Steel	10	10	10	12	14
L	Aluminium	13	16	16	21	22
	Steel	12	15	17	20	22
MR	10	12	12	16	16	20
TG	32.5	38	46.5	56.5	72	89
UB (h14)	45	52	60	70	90	110
XD	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
	Steel	180	290	400	670	1160

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



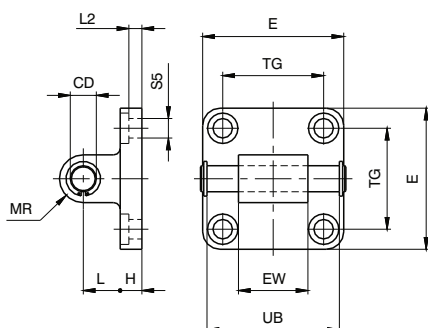
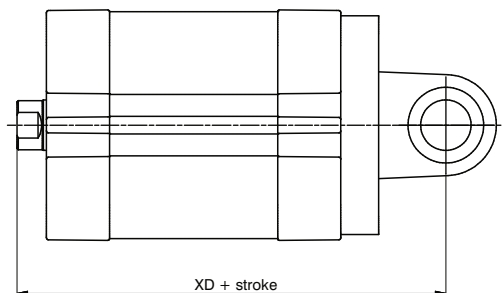
Bore	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
B1 (H 14)	14	16	21	21	25	25
B2 (d 12)	34	40	45	51	65	75
B3 (±0.2)	3.3	4.3	4.3	4.3	4.3	6.3
CN	10	12	16	16	20	20
E	Aluminium	45	52	65	75	95
	Steel	45	55	65	75	95
H	Aluminium	9	9	11	11	14
	Steel	10	10	10	12	14
L	Aluminium	13	16	16	21	22
	Steel	12	15	17	20	22
L1	11.5	12	14	14	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
	Steel	160	270	370	670	1110

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)



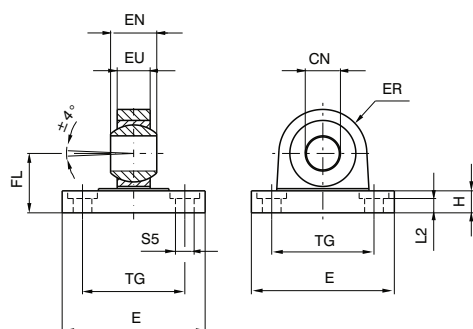
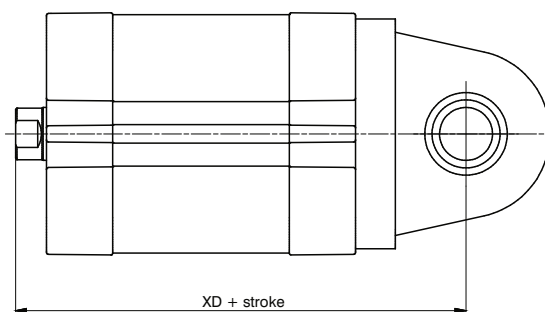
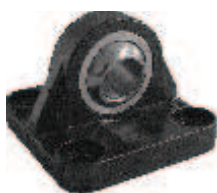
Bore	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
CD	8(H9)	8(H9)	10	12	12	16	16	20
E	Aluminium	34	38	45	52	65	75	115
	Steel	34	38	45	55	65	75	115
EW	16(h14)	16(h14)	26 ^(-0.2/-0.6)	28 ^(-0.2/-0.6)	32 ^(-0.2/-0.6)	40 ^(-0.2/-0.6)	50 ^(-0.2/-0.6)	60 ^(-0.2/-0.6)
H	Aluminium	6	6	9	9	11	14	14
	Steel	/	/	10	10	12	14	16
L	Aluminium	14	14	13	16	16	21	27
	Steel	/	/	12	15	17	20	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)	/	/	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	960
	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)

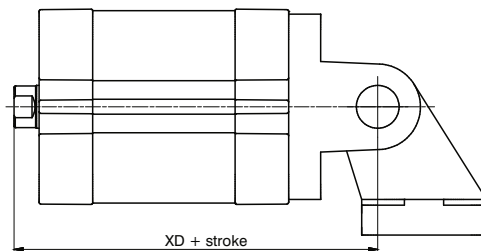
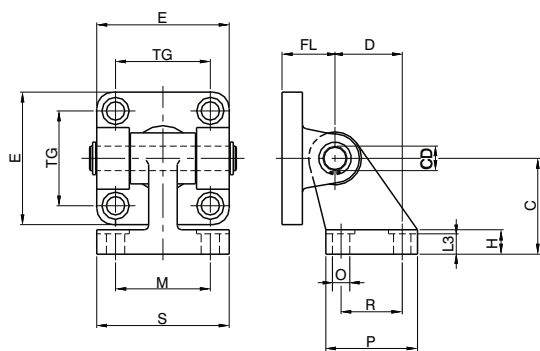


Bore	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
CN (H 7)	10	12	16	16	20	20
E	Aluminium	45	52	65	75	115
	Steel	45	55	65	75	115
EN (-0.1)	14	16	21	21	25	25
ER	Aluminium	16	19	21	24	28.5
	Steel	15	18	20	23	30
EU	10.5	12	15	15	18	18
FL (JS 15)	22	25	27	32	36	41
H	Aluminium	9	9	11	11	14
	Steel	10	10	10	12	14
L2 (±0.5)	5.5	5.5	6.5	6.5	10	10
S5	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)

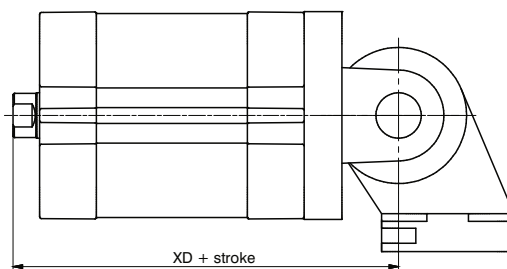
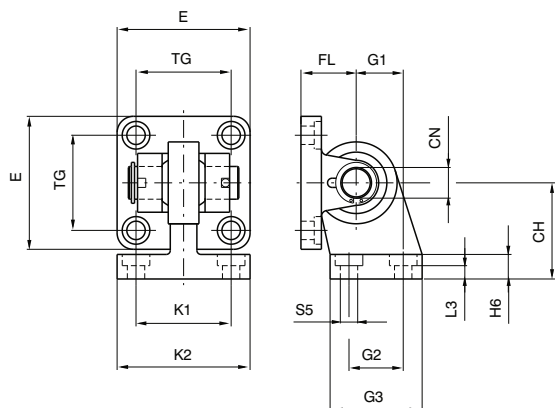
Aluminium: **1380.Ø.35F**Steel: **1320.Ø.23F**

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**

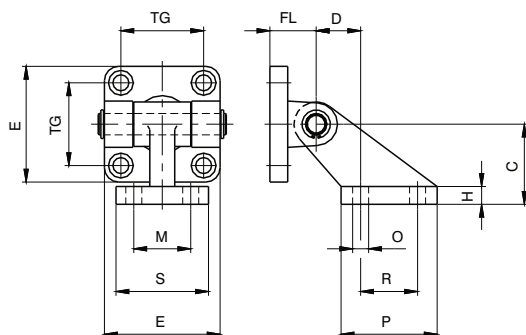
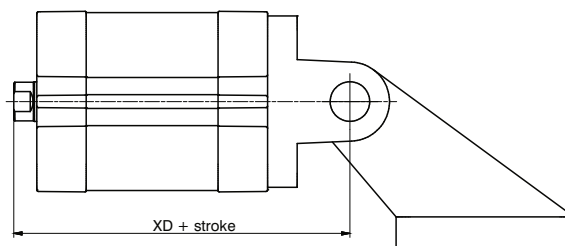
Bore	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
CH (JS 15)	32	36	45	50	63	71
CN	10	12	16	16	20	20
E	45	55	65	75	95	115
FL (JS 15)	22	25	27	32	36	41
G1 (JS 15)	21	24	33	37	47	55
G2 (JS 14)	18	22	30	35	40	50
G3	31	35	45	50	60	70
H6	10	10	12	12	14	15
K1 (JS 14)	38	41	50	52	66	76
K2	51	54	65	67	86	96
L3 (+0.5/-0)	8.5	8.5	10.5	10.5	11.5	12.5
S5	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

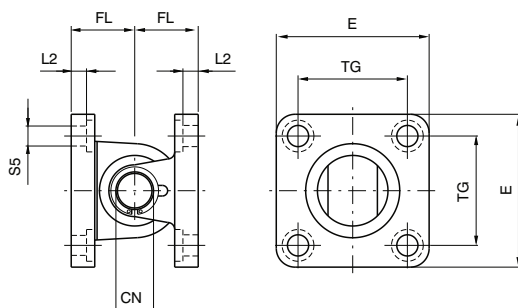
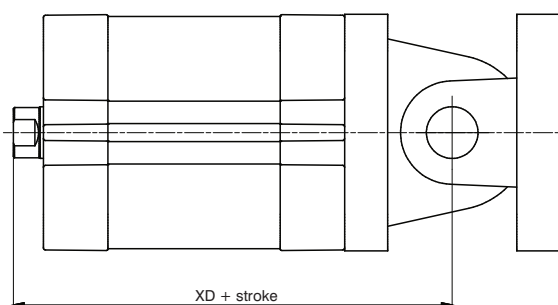
Square angle trunnion (with joined head)

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

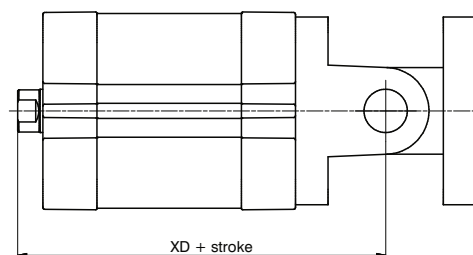
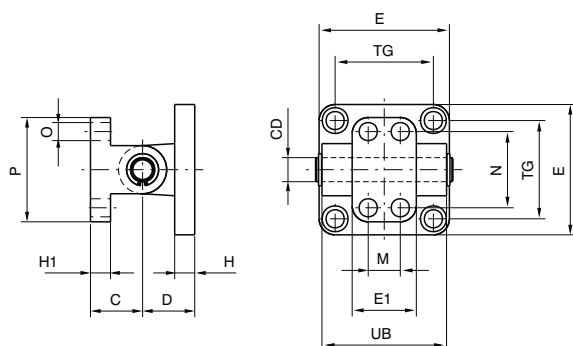


Bore	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
CN	10	12	16	16	20	20
E	Aluminium	45	52	65	75	95
	Steel	45	55	65	75	95
FL (JS 15)	22	25	27	32	36	41
L2 (±0.5)	5.5	5.5	6.5	6.5	10	10
S5	6.6	6.6	9	9	11	11
TG	32.5	38	46.5	56.5	72	89
XD	73	77	80	89	100	118
Weight gr.	Aluminium	130	215	380	535	1050
	Steel	380	580	770	1380	2460

Standard trunnion (not specified by ISO-VDMA standard)

Ordering code

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)

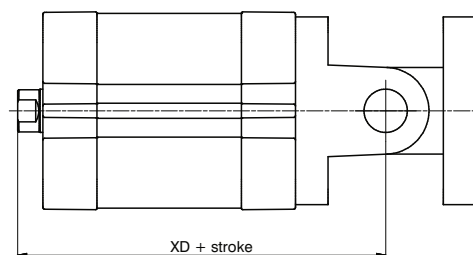
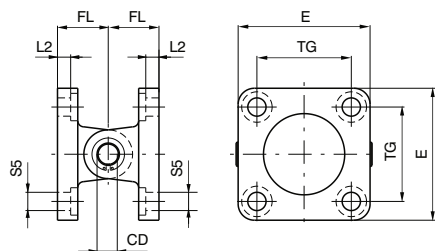
Aluminium: **1380.Ø.10F**

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

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)

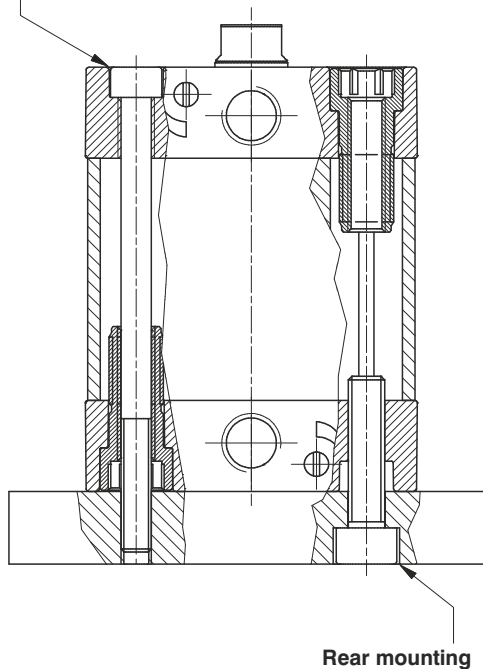
Steel: **1320.Ø.22F**

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
L2 (±0.5)	5.5	5.5	6.5	6.5	10	10
S5	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

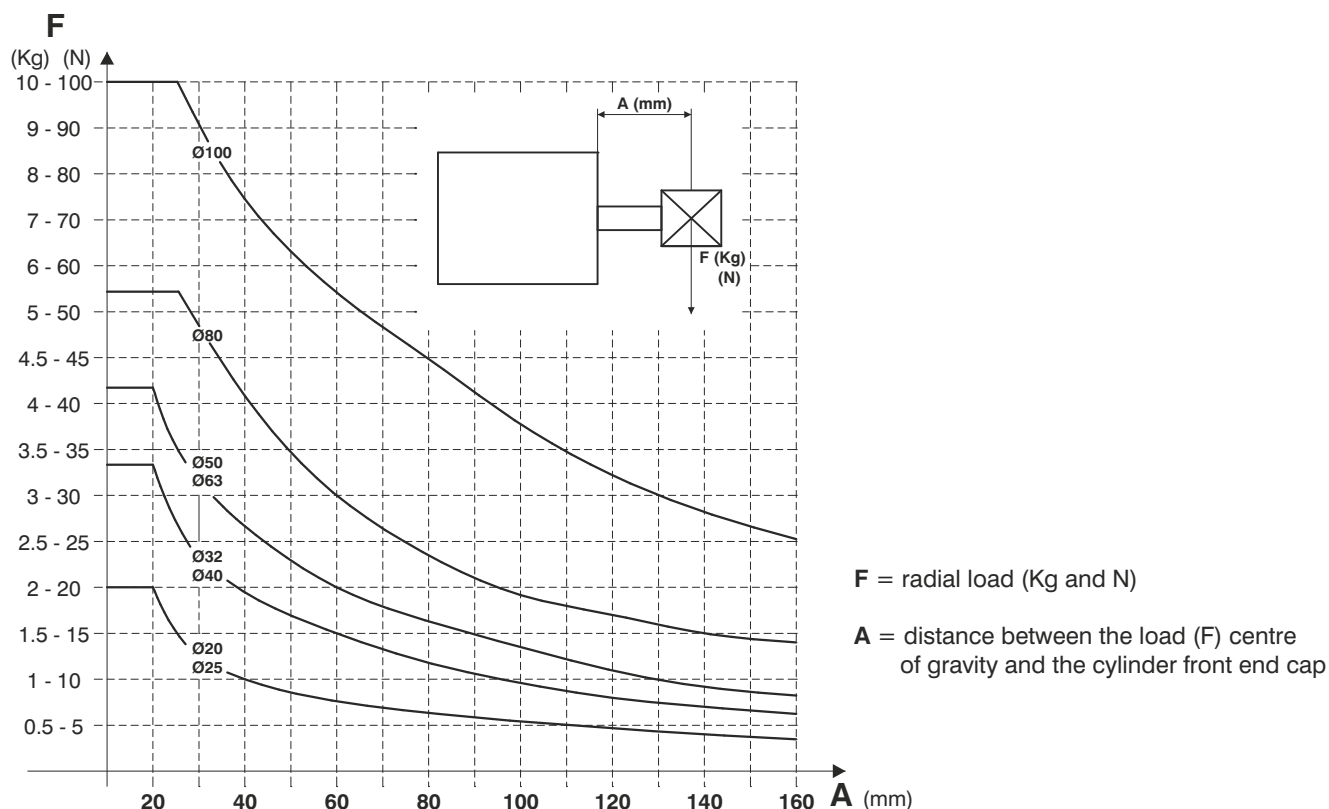
Frontal mounting:

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



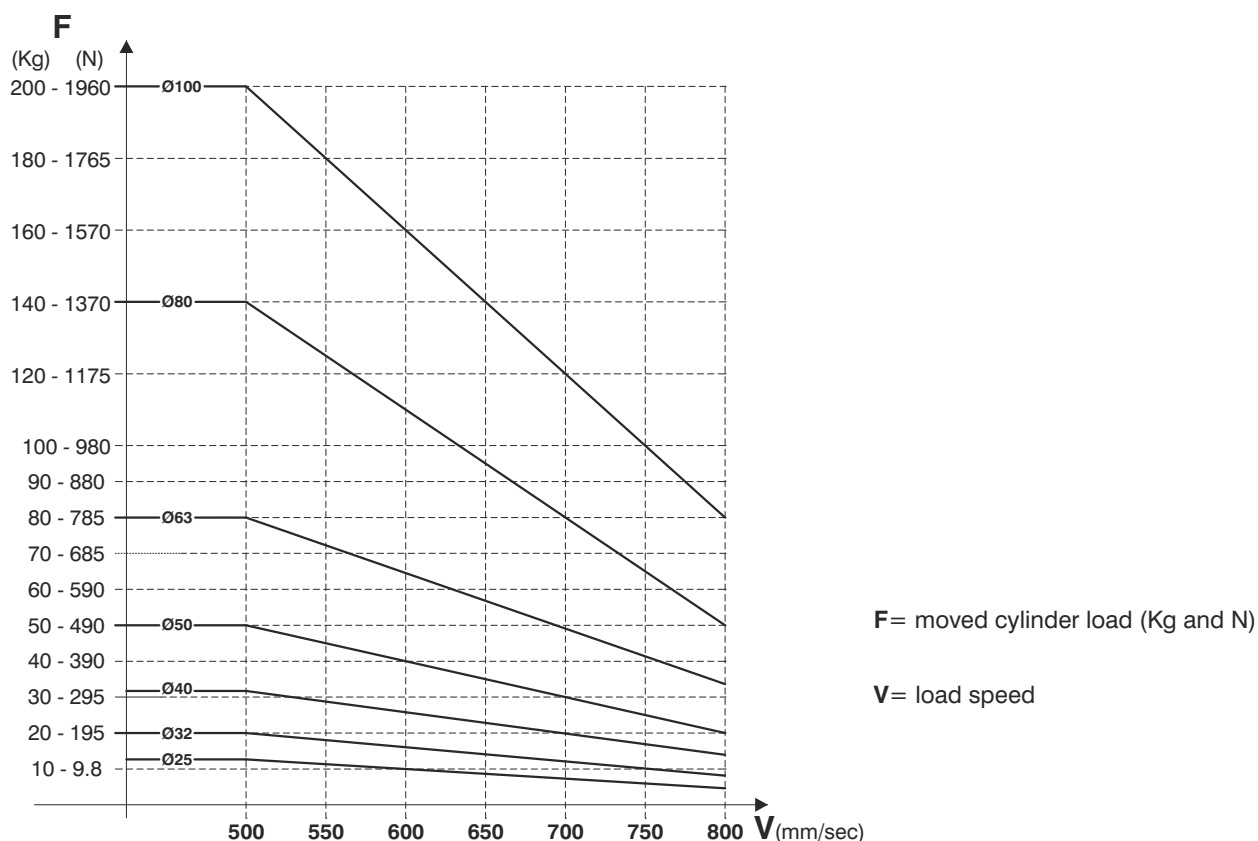
Rear mounting

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	Ø32 and Ø40 acetal resin (aluminium on request) Ø50 and Ø63 aluminium (with FPM seals, aluminium for all of standard diameters)
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

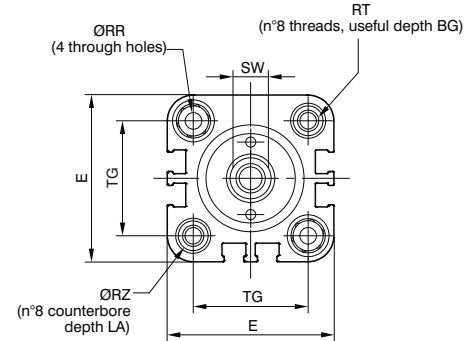
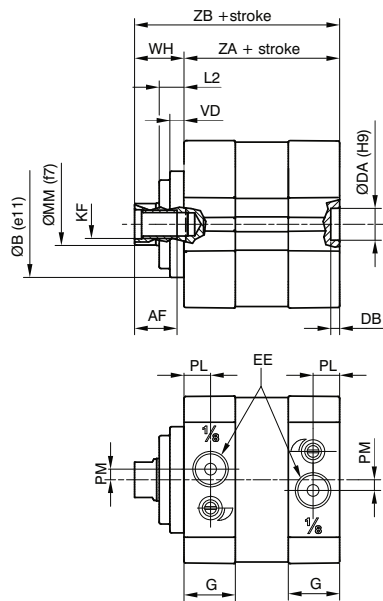
		Stroke																											
		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	100	125	150	160	200	250	300	320	350	400	450	500
Bore		WITHOUT CUSHIONING DEVICE																											
Ø32		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
Ø40		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				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

DOUBLE ACTING
PUSH/PULL ROD
BORED version

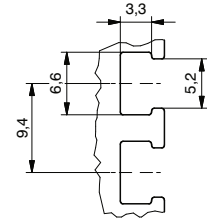
		Stroke															
		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80
Bore		WITHOUT CUSHIONING DEVICE								WITH CUSHIONING DEVICE							
Ø32		●	●	●	●	●	●	●	●								
Ø40		●	●	●	●	●	●	●	●								
Ø50		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ø63		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Available versions

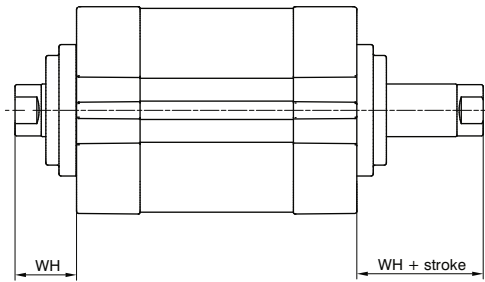
BASIC version



Sensor slot detail
type "B"
(n° 6 slots)



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

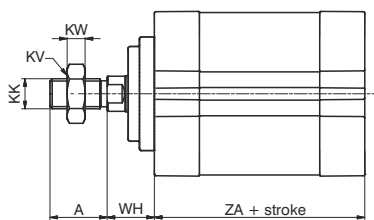
- 10 = Basic, female threaded rod
- 11 = Basic, male threaded rod
- 12 = through rod, female threaded rod
- 13 = through rod, male threaded rod
- 14 = through rod, bored female threaded rod
- 15 = through rod, bored male threaded rod

** It is possible to order the Ø32 and Ø40 cylinders with an aluminium piston by replacing the '1' with '2' in the ordering code.
Example: 1540.32.10.10.1 (Acetyl Resin Piston)
1540.32.10.20.1 (Aluminium Piston version)

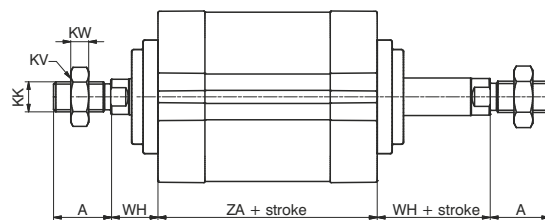
Table of dimensions

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

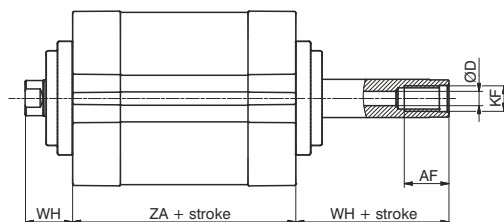
Basic version male piston rod



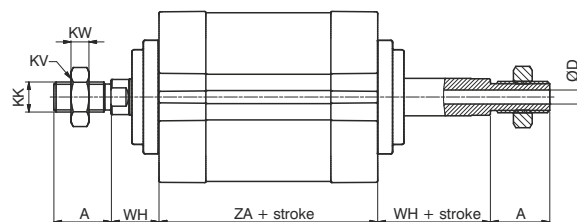
Push/pull version male rod



Push - pull version bored female piston rod

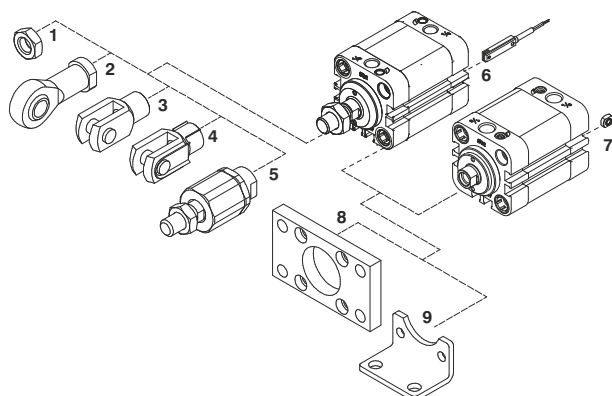


Push - pull version bored male piston rod

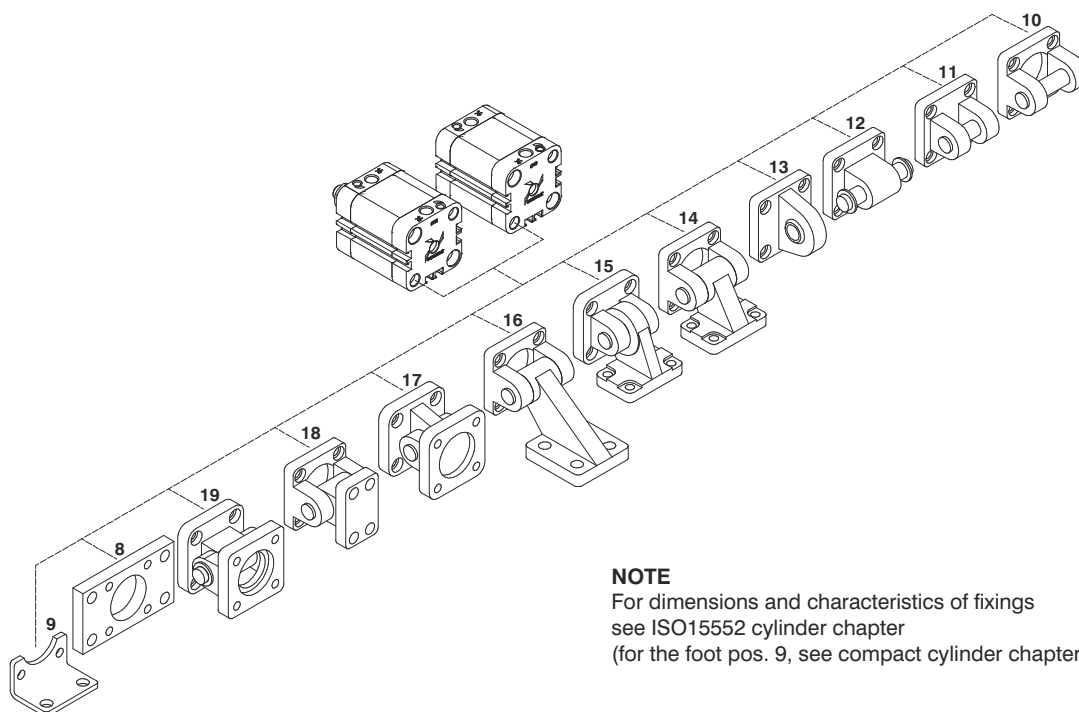


Bore	A (0/-0,5)	AF (min)	ØD	KF	KK	KV	KW	WH (±1)	ZA (±0,5)
Ø32	22	12	4,5	M8	M10x1,25	17	6	14	44
Ø40	24	16	6	M10	M12x1,25	19	7	14	45
Ø50	32	20	8	M12	M16x1,5	24	8	18	45
Ø63	32	20	8	M12	M16x1,5	24	8	18	49

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)

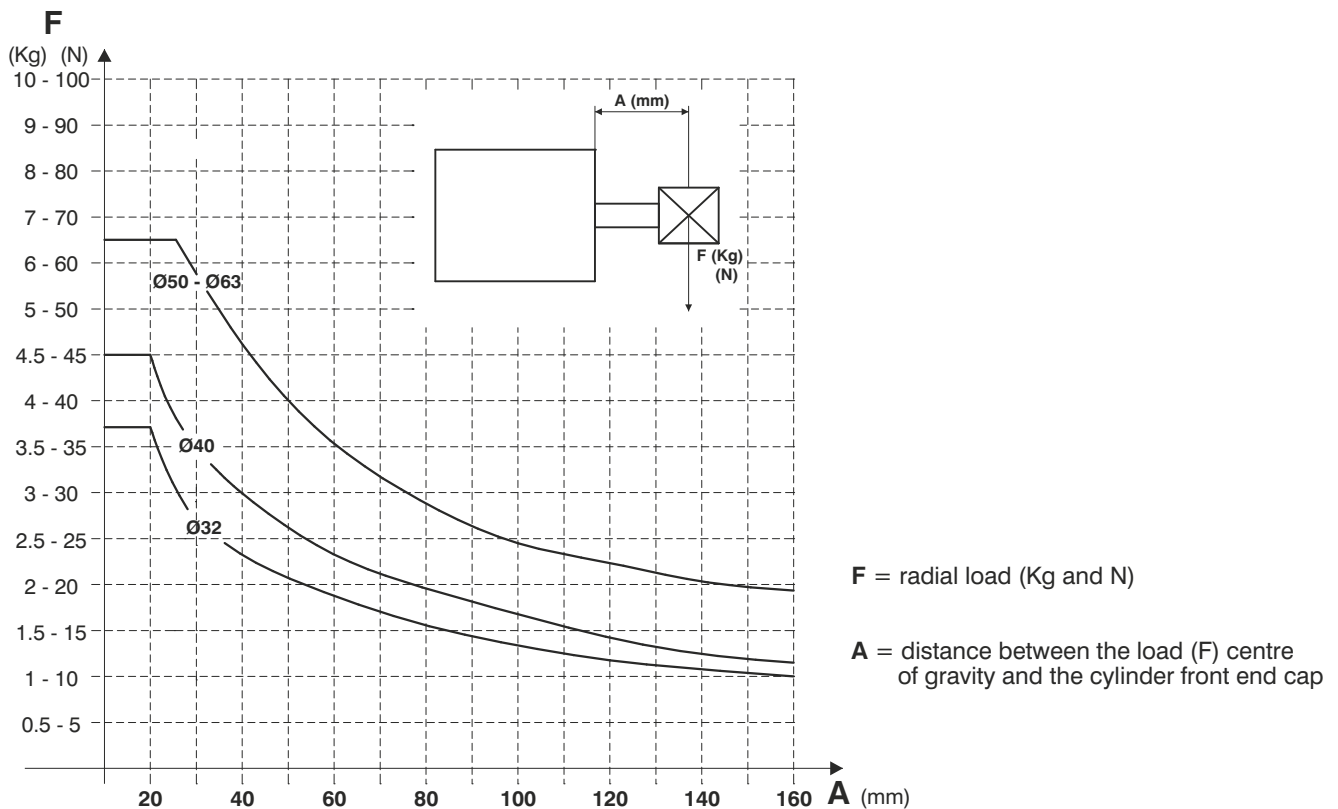
**NOTE**

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

Fixing

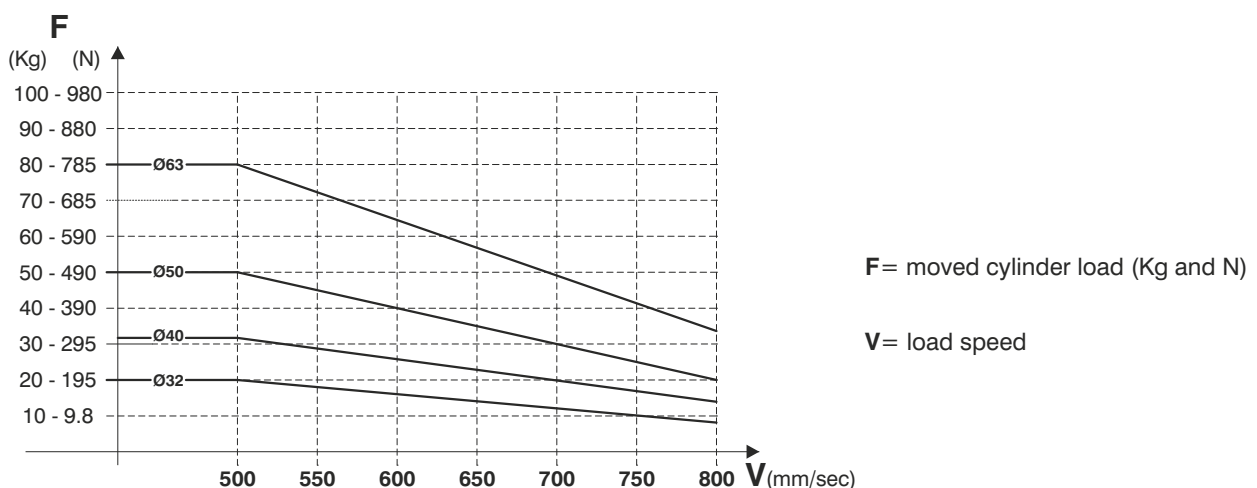
Pos.	Description	Ordering code	
		Aluminium	Steel
8	Flange (MF2)	1390.Ø.03FP	1380.Ø.03F
9	Foot (MS1)	/	1540.Ø.05/1F
10	Rear female clevis (MP2)	1380.Ø.09F	1320.Ø.20F
11	Narrow rear female clevis (AB6)	1380.Ø.30F	1320.Ø.29F
12	Rear male clevis (MP4)	1380.Ø.09/1F	1320.Ø.21F
13	Rear male clevis (with jointed 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.

General

Profiled tube has two "T" slots on the side hosting sensors 1580._, MRS._, MHS._. without adaptors. Two additional connections are also available on rear cover for cylinder feeding.

Construction characteristics

End plates	aluminium anodised
Rod	C43 chromed steel or stainless steel
Barrel	aluminium alloy anodised
Piston	acetal resin, aluminium on request
Piston-seal	PUR
Rod-seal	PUR (FPM upon request)
Adjusting screw	zinc plated steel
Shock absorber	NBR

Technical characteristics

Fluid	filtered air, with or without lubrication (If lubricated the lubrication must be continuous)
Max. pressure	10 bar
Operating temperature	-5° C - +70°C

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.

Maximum standard strokes

Size 25	200 mm
Size 32 - 63	300 mm

Sections (cm²)

Size	25	32	40	50	63
Out stroke (cm ²)	5.28	8.09	13.09	20.28	32.68
In stroke (cm ²)	4.49	6.96	11.08	17.14	29.54

In order to calculate the theoretical force generated by the unit, both outstroke and instroke, it is necessary to use the following equation

$$\text{FORCE(Kg)} = \text{Surface (cm}^2\text{)} \times \text{Pressure(bar)}$$

It is also necessary to remember that the theoretical force must be reduced by 10-15% in order to account for the unit internal friction.

Maximum rod radial movement (°)

Size	25	32	40	50	63
rod radial movement	±0.8	±0.7	±0.6	±0.5	±0.4

Maximum torque applicable on the piston rod (Nm):

Size	25	32	40	50	63
Maximum torque	0.8	1	1.3	1.8	2.1

The maximum torque values must also be accounted for while mounting accessories on the piston rod.

Basic version "1" female rod

Ordering code

SIDE CONNECTION

1370.size.stroke.1 Magnetic chrome plated rod

1371.size.stroke.1 Magnetic stainless steel rod

1372.size.stroke.1 Non magnetic chrome plated rod

1373.size.stroke.1 Non magnetic stainless steel rod

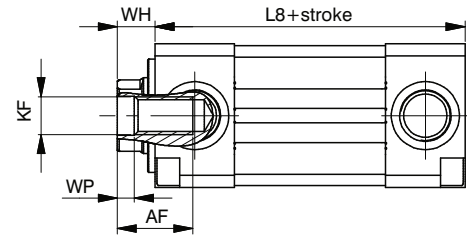
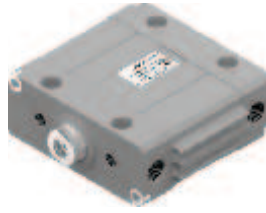
REAR CONNECTION

1370.size.stroke.1.P Magnetic chrome plated rod

1371.size.stroke.1.P Magnetic stainless steel rod

1372.size.stroke.1.P Non magnetic chrome plated rod

1373.size.stroke.1.P Non magnetic stainless steel rod



Basic version "2" male rod

Ordering code

SIDE CONNECTION

1370.size.stroke.2 Magnetic chrome plated rod

1371.size.stroke.2 Magnetic stainless steel rod

1372.size.stroke.2 Non magnetic chrome plated rod

1373.size.stroke.2 Non magnetic stainless steel rod

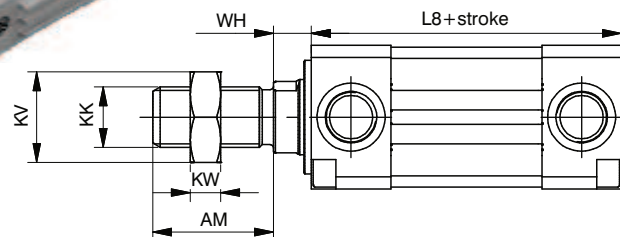
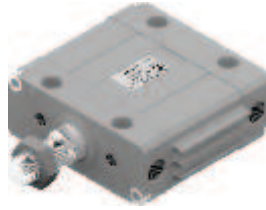
REAR CONNECTION

1370.size.stroke.2.P Magnetic chrome plated rod

1371.size.stroke.2.P Magnetic stainless steel rod

1372.size.stroke.2.P Non magnetic chrome plated rod

1373.size.stroke.2.P Non magnetic stainless steel rod



Female Push/Pull version "3"

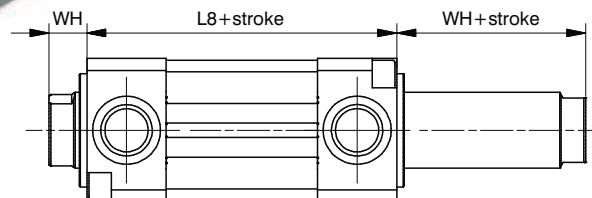
Ordering code

1370.size.stroke.3 Magnetic chrome plated rod

1371.size.stroke.3 Magnetic stainless steel rod

1372.size.stroke.3 Non magnetic chrome plated rod

1373.size.stroke.3 Non magnetic stainless steel rod



Male Push/Pull version "4"

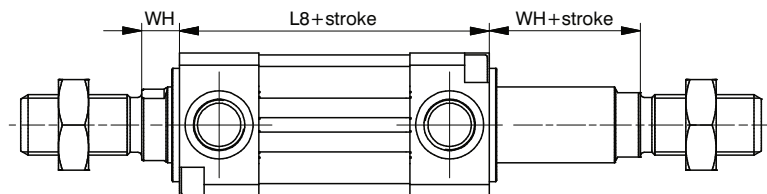
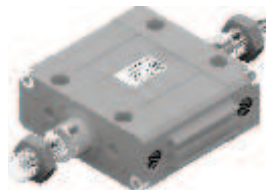
Ordering code

1370.size.stroke.4 Magnetic chrome plated rod

1371.size.stroke.4 Magnetic stainless steel rod

1372.size.stroke.4 Non magnetic chrome plated rod

1373.size.stroke.4 Non magnetic stainless steel rod



Variants

Ordering code

137_size.stroke._K = Version with aluminium piston

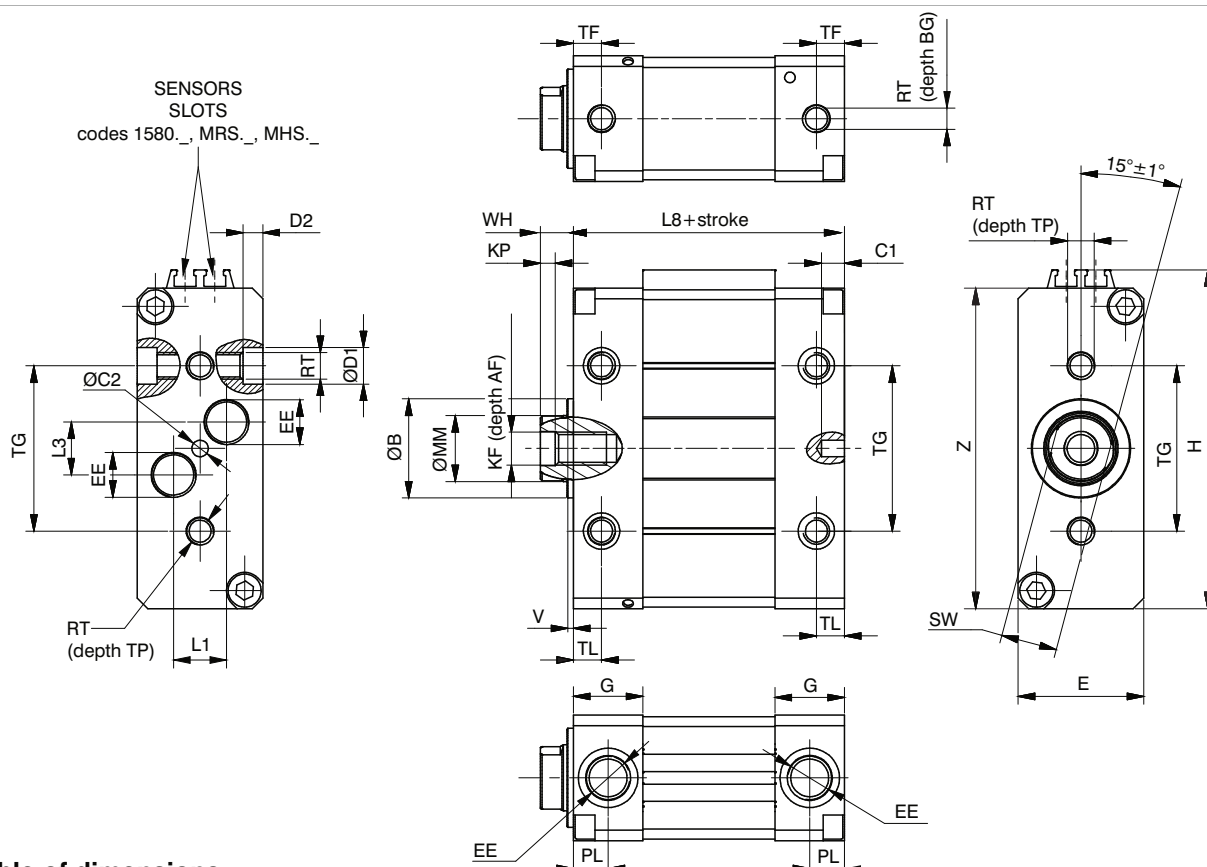


Table of dimensions

Size		25	32	40	50	63	
AM		22	22	24	32	32	
AF		12	14	16	20	20	
Ø B (h9)		16	20	25	30	30	
BG		8	9	9	12	14	
C1		7	7	7	7	7	
C2 (H9)		4	4	4	5	5	
Ø D1		8	10	10	11	15	
D2		4	4	5	6	6	
E		20	24	30	38	50	
EE		M5	G1/8"	G1/8"	G1/4"	G1/4"	
G		12	17	17	21	21	
H		56,5	65,5	82,5	102,5	127	
KF		M5	M6	M8	M10	M10	
KK		M10x1,25	M10x1,25	M12x1,25	M16x1,5	M16x1,5	
KP		2	2,5	3	4,5	4,5	
KV		17	17	19	24	24	
KW		6	6	7	8	8	
L1		6	7,5	7,5	16	19	
L3		10	14,5	14,5	16	21	
L8		62	72	76	82	82	
Ø MM		10	12	16	20	20	
PL		6,5	8,5	8,5	10,5	10,5	
RT		M5	M6	M6	M8	M10	
SW (H13)		8	10	13	17	17	
TF		5	8,5	8,5	8,5	8,5	
TG		25	32	40	50	60	
TL		5	8,5	8,5	8,5	8,5	
TP		8	9	9	12	14	
V		2	2	2	2	2	
VG		30	30	33	42	42	
WH		8	8	9	10	10	
Z		51	60	77	97	1215	
Weight gr.	Versions	1 stroke 0	180	285	482	848	1350
		2 stroke 0	203	309	520	929	1431
	every 10 mm		22	29	49	79	118
Weight gr.	Versions	3 stroke 0	195	314	534	959	1478
		4 stroke 0	242	362	610	1096	1615
	every 10 mm		28	38	65	103	143

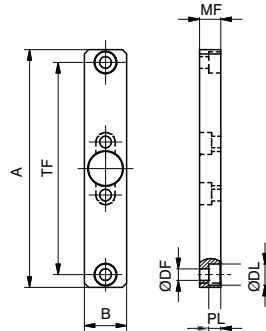
Front and rear flange

Ordering code

1370.size.03



Size 25-32-40



Size 50-63

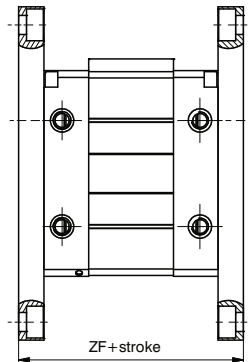
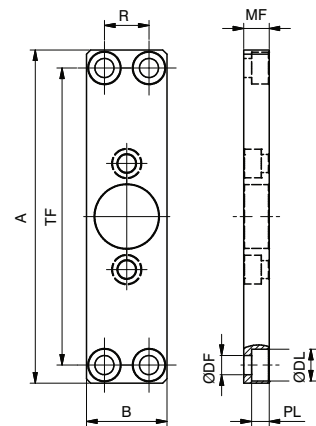


Plate which allows anchorage of the cylinder at a right angle to the plane. Mounted to the cylinder by screws.

Size	25	32	40	50	63
A	112	130	146	157	157
B	20	24	30	38	50
ØDF	5.5	6.6	6.6	9	9
ØDL	10	11	11	15	15
PL	5.7	6.5	6.3	8.3	8.3
MF	10	10	10	12	15
R	/	/	/	21	33
TF	100	115	132	140	140
ZF	82	92	96	106	112

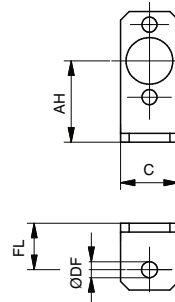
Foot bracket

Ordering code

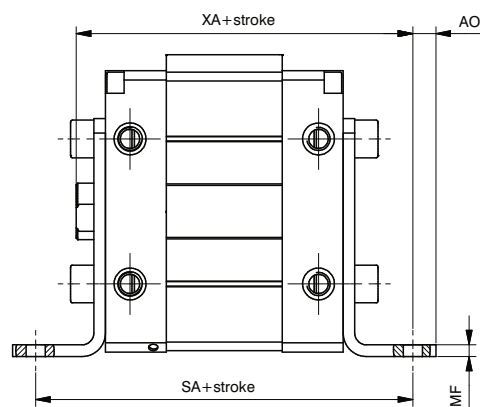
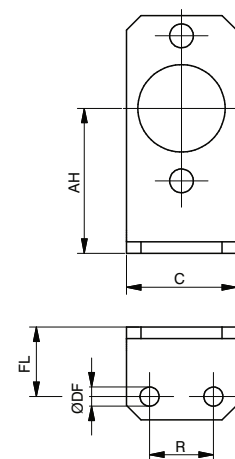
1370.size.05/1F
(n° 1 piece)



Size 25



Size 25-40-50-63

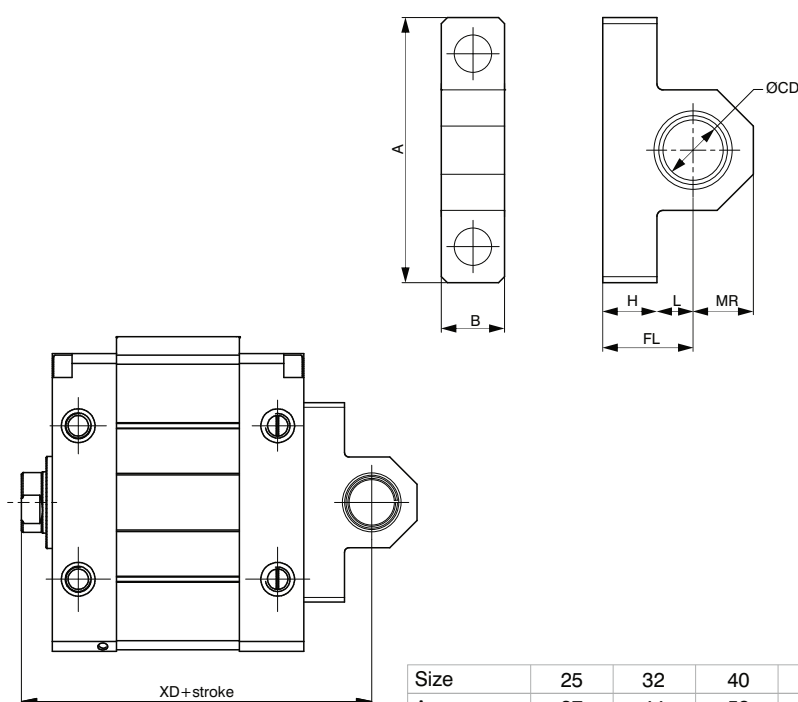


Brackets used to anchor the cylinder parallel to the mounting plane. Manufactured from steel with a rust proof protective treatment. Mounted to the cylinder end caps with bolts.

Size	25	32	40	50	63
AH	28	32	40	50	63
AO	7	5.5	7	8	10
C	20	24	30	38	50
ØDF	5.5	5.5	5.5	6.6	9
FL	16	18	20	24	27
MF	3	3	4	4	4
R	/	13	16	22	30
SA	94	108	116	130	136
XA	86	98	105	116	119

Rear male clevis

Ordering code

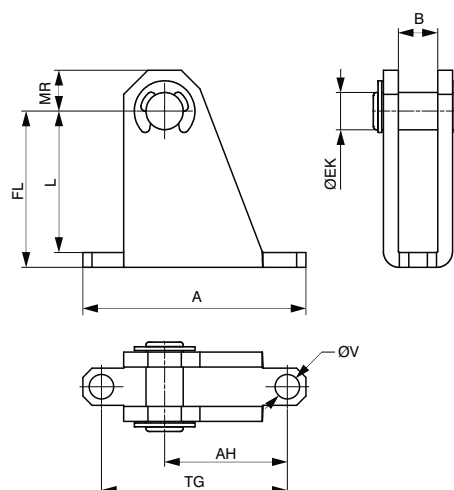
1370.size.09/1F

This type of mounting allows anchorage of the cylinder either parallel or right angle to plane; the cylinder rod can oscillate and self-align as necessary when under load.

Size	25	32	40	50	63
A	37	44	52	65	78
B	9	10.5	10.5	20	25
ØCD (H7)	8	10	12	12	16
FL	14	15	18	20	24
H	6	9	9	11	11
L	8	6	9	9	13
MR	7.5	10	13	13	17
XD	84	95	103	112	116

Rear clevis

Ordering code

1370.size.09F

To be used in conjunction with 09/1 clevis. Similar to type 08 but includes a hinge pin. This type of mounting allows anchorage of the cylinder either parallel or right angle to plane; the cylinder rod can oscillate and self-align as necessary when under load. Manufactured from sheet metal with rust proof protective treatment.

Size	25	32	40	50	63
A	49	60	60	46	60
AH	25.5	33	29.5	24	32
B	9.1	10.6	10.6	20.1	25.1
ØEK	8	10	12	12	16
FL	35	42	51	55	68
L	32	38	47	50	63
MR	9.5	11	14	14	18
TG	40	50	50	30	40
ØV	5.5	6.6	6.6	9	11

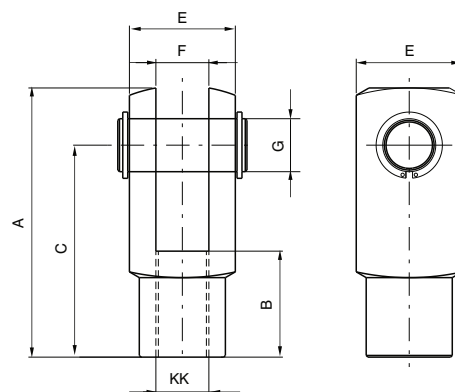
Fork

Ordering code

1320.32.13F
(for ø25 and ø32)

1320.40.13F
(for ø40)

1320.50.13F
(for ø50)

1320.63.13F
(for ø63)


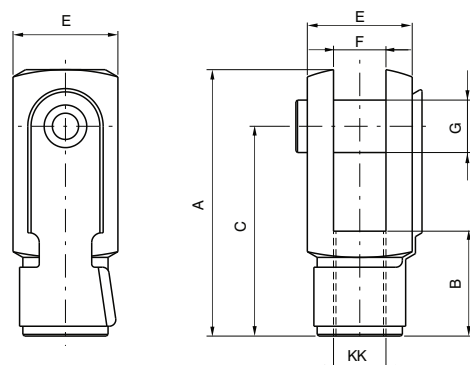
Fork with a clips

Ordering code

1320.32.13/1F
(for ø25 and ø32)

1320.40.13/1F
(for ø40)

1320.50.13/1F
(for ø50)

1320.63.13/1F
(for ø63)


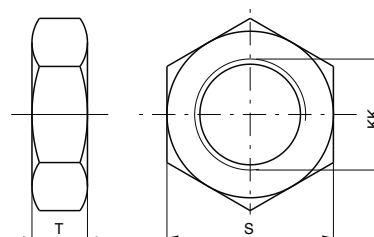
Nut

Ordering code

1320.32.18F
(for ø25 and ø32)

1320.40.18F
(for ø40)

1320.50.18F
(for ø50)

1320.63.18F
(for ø63)


Fork:

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

Nut:

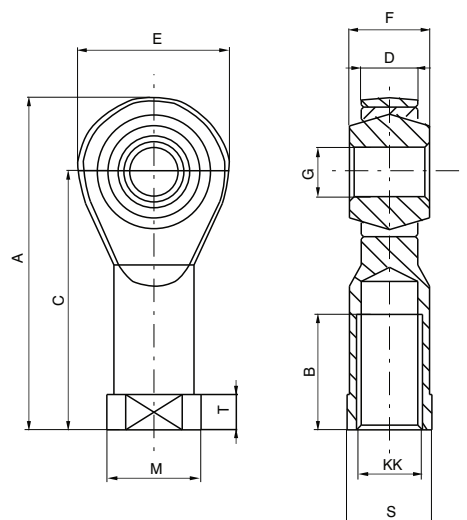
Used to block the position of the fork.

Bore	25	32	40	50	63
A	52	52	62	83	83
B	20	20	24	32	32
C	40	40	48	64	64
E	20	20	24	32	32
F(B12)	10	10	12	16	16
G	10	10	12	16	16
S	17	17	19	24	24
T	6	6	7	8	8
KK	M10X1.25	M10X1.25	M12X1.25	M16X1.5	M16X1.5
Weight	forks	100	100	140	340
gr.	nut	15	15	20	20

Ball joint

Ordering code

1320.32.32F
(for $\varnothing 25$ and $\varnothing 32$)
1320.40.32F
(for $\varnothing 40$)
1320.50.32F
(for $\varnothing 50$)
1320.63.32F
(for $\varnothing 63$)

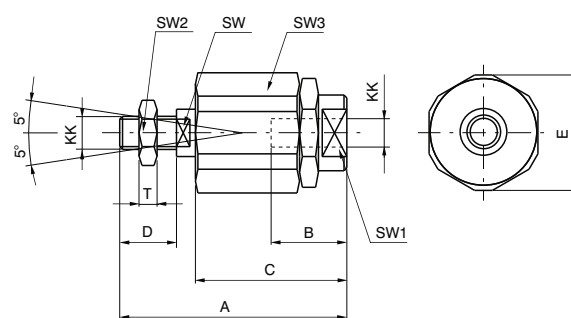


Bore	25	32	40	50	63
A	57	57	66	85	85
B	20	20	22	28	28
C	43	43	50	64	64
D (-0,1)	10.5	10.5	12	15	15
E	28	28	32	42	42
F	14	14	16	21	21
G (H 7)	10	10	12	16	16
KK	M10x1.25	M10x1.25	M12x1.25	M16x1.5	M16x1.5
M	19	19	22	27	27
S	17	17	19	22	22
T	6.5	6.5	6.5	8	8
Weight gr.	76	76	110	220	220

Self-aligning joint

Ordering code

1320.32.33F
(for $\varnothing 25$ and $\varnothing 32$)
1320.40.33F
(for $\varnothing 40$)
1320.50.33F
(for $\varnothing 50$)
1320.63.33F
(for $\varnothing 63$)



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