

General

This series of cylinders are 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 - VDMA24562. 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 in the market. The ISO version uses every 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 aluminum or steel. Every cylinder has the magnetic piston and are available in the most common utilized version such as single and double action, push / pull, male and female piston rod, bored piston rod, non-rotating and tandem versions. Three slots have been realized on three sides of the extruded barrel purposely for the use of magnetic sensors. Standard PNEUMAX sensor can be installed on two out of three slots from Ø 32 to Ø 50 or the miniature sensor with proper adapter on remaining slot. For Ø 63 to Ø 100 the three slots can use standard PNEUMAX sensor. The particular design of the piston allows the use of fixed elastic cushion. Bolted heads so that it is possible to realize cylinders strokes longer than traditional compact cylinders.

Construction characteristics

Body	aluminum alloy UNI 9006/1 25 micron anodization
Heads	from Ø 12 to Ø 25 aluminum alloy UNI 9006/1 anodized from Ø 32 to Ø 100 UNI 5076 aluminium die-casting and painted (cataphoresys)
Piston rod bushing	sintered bronze
Piston rod	from Ø 12 to Ø 25 steel AISI 303 chromed, from Ø 32 to Ø 100 C43 chromed (On request stainless steel AISI 303)
Piston	from Ø 12 to Ø 25 plated zinc steel from Ø 32 to Ø 100 aluminum alloy 2011 UNI 9002/5
Piston seals	polyurethane U90E. On request THERBAN®
Piston rod seal	polyurethane U90E. On request THERBAN®
Spring	zinc plated steel for springs
Fixing screws	zinc plated steel

Technical characteristics

Fluid	filtered and lubricated air or non
Maximum working pressure	10 bar
Working temperature	-30°C +80°C with polyurethane seals -5°C +120°C with TEHERBAN® seals

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

Standard strokes for single acting cylinders

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

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 to Ø100	from 5 to 80mm every 5mm

Maximum suggested strokes

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

Maximum suggested strokes with non-rotating device

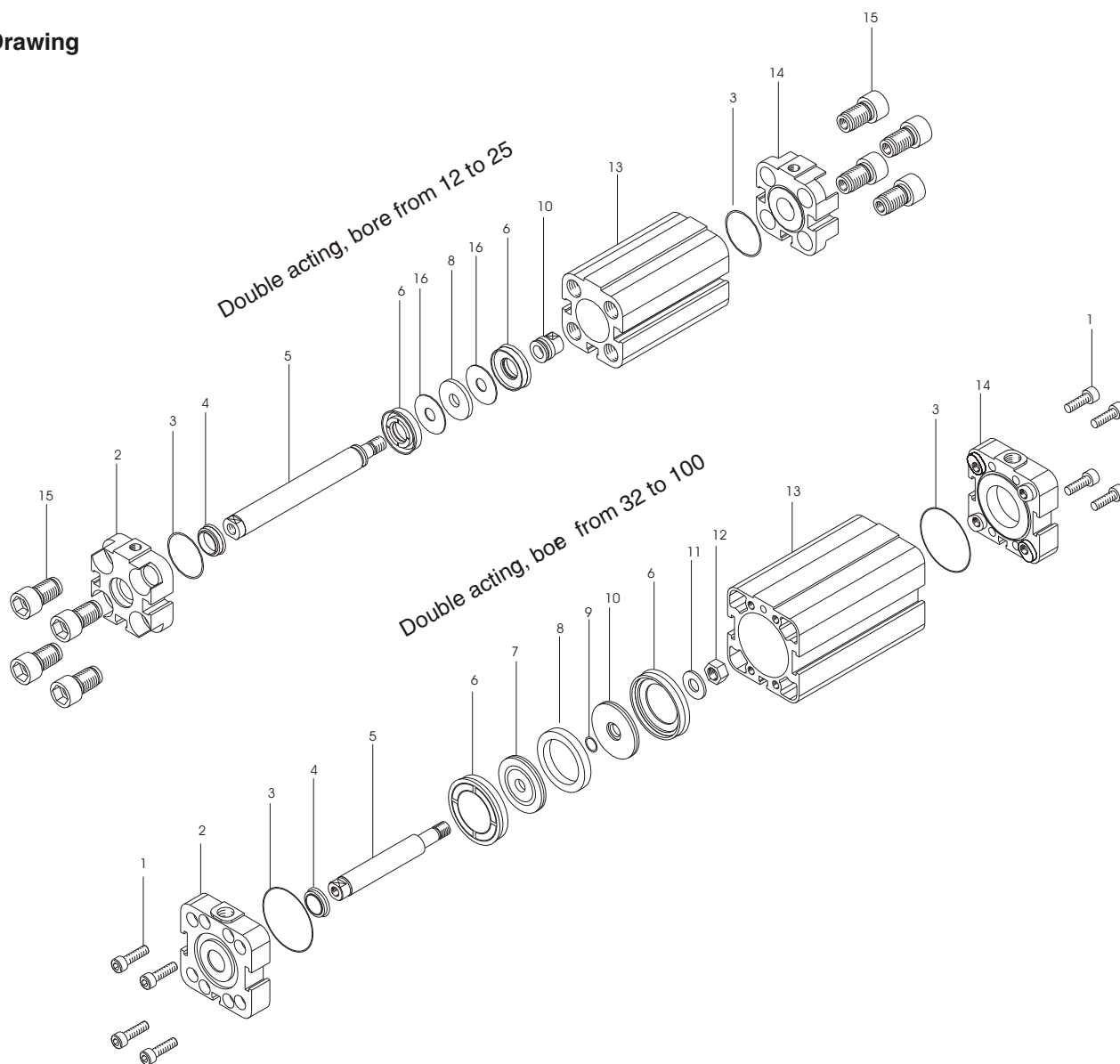
from Ø12 to Ø25	40mm
from Ø32 to Ø100	80mm

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

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

Drawing



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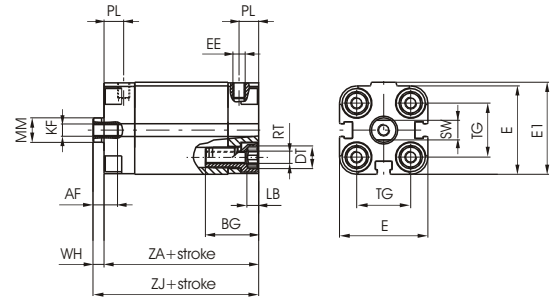
Pos.	Description	N. Pieces
1	Screw	*
2	Front cover assy	1
3	Cover seal	2
4	Piston rod seal	1
5	Piston rod	1
6	Piston seal	2
7	Front half piston	1
8	Magnet	**
9	Half piston seal	1
10	Rear half piston	1
11	Washer	1
12	Nut	1
13	Barrel	1
14	Rear cover assy	1
15	Tie rod nut	8
16	Piston washer	2

* Ø 32 ÷ 50 n° 8 - Ø 63 ÷ 100 n° 16 ** Ø 12 ÷ 32 n° 1 - Ø 40 ÷ 100 n° 2

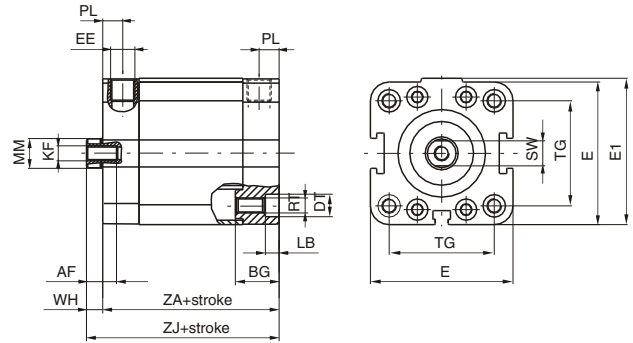
Basic version
Basic version single acting



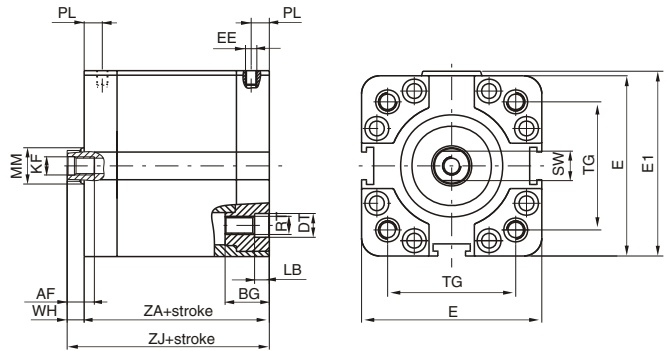
for bore from Ø 12 to Ø 25
use sensors series 1580 only



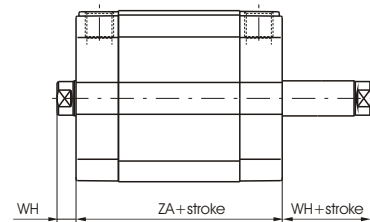
for bore from Ø 32 to Ø 50
use sensors series 1500 and 1580 only



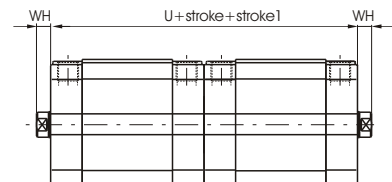
for bore from Ø 63 to Ø 100
use sensors series 1500 only
for sensors series 1580 it is required
the adapter code 1580.01.F



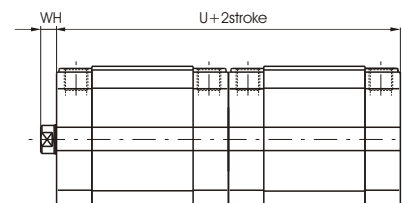
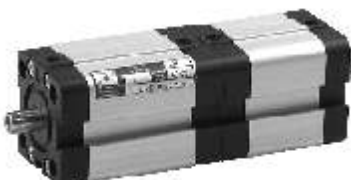
Push/pull version
Push/pull version single acting



Tandem with opposite rods

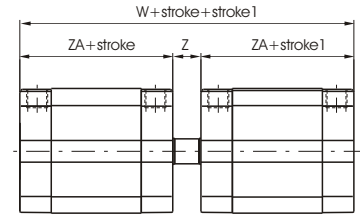


Tandem push with common rods

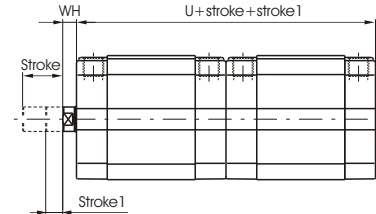




Opposed tandem with common rod



Tandem push with independent rods



Ordering code

Basic version push/pull

15 . Ø . stroke

- 1 = Double acting
- 2 = Front spring
- 3 = Rear spring
- 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
- 2 = AISI 303 chromed stainless steel rod
- 6 = ISO (Ø 32 to 100)
- 7 = ISO THERBAN® (Ø 32 to 100)
- 8 = UNITOP (Ø 12 to 100)
- 9 = UNITOP THERBAN® (Ø 12 to 100)

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
- 2 = AISI 303 chromed stainless steel rod
- 6 = ISO (Ø 32 to 100)
- 7 = ISO THERBAN® (Ø 32 to 100)
- 8 = UNITOP (Ø 12 to 100)
- 9 = UNITOP THERBAN® (Ø 12 to 100)

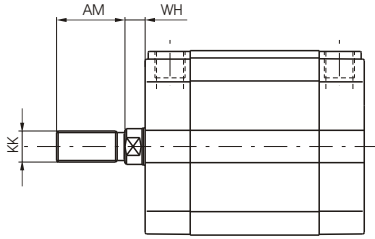
Table of dimensions

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	M 12	
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	2290
gr.	every 5 mm	8	8	12	13	15	19	25	31	50	66

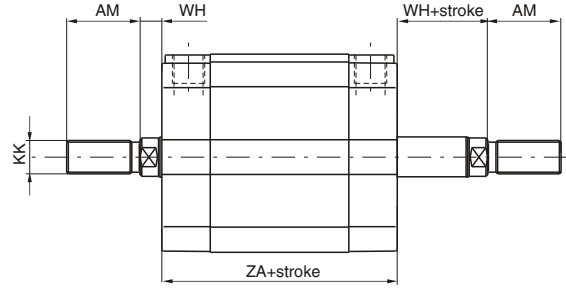
* These dimensions increase of 10 mm for cylinders ø 12 front spring version.

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

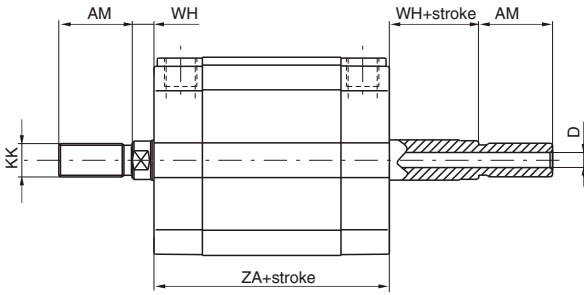
Basic version male piston rod



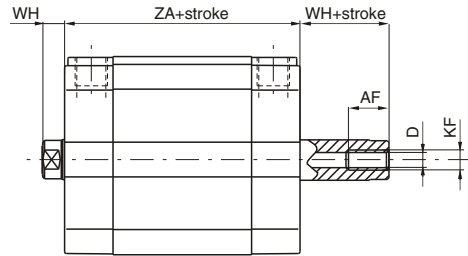
Push - pull version male rod



Push - pull version bored male piston rod

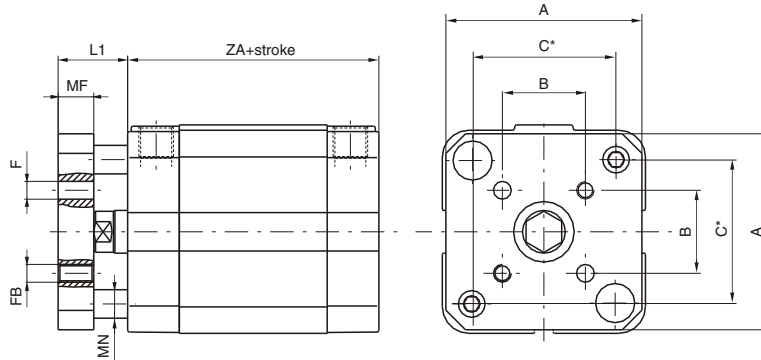


Push - pull version bored female piston rod



Maximum allowed stroke = ZB (see table)

Non-rotating version



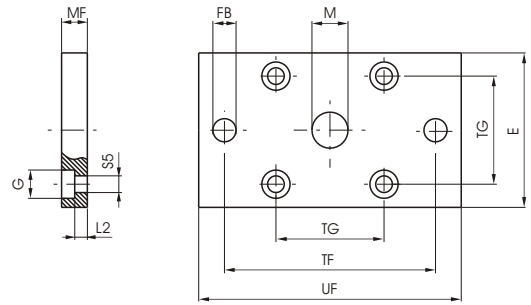
* = Distance between rods centres

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



For bores from 12 to 25



For bores from 32 to 100

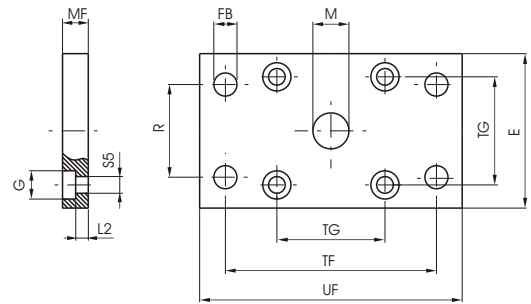
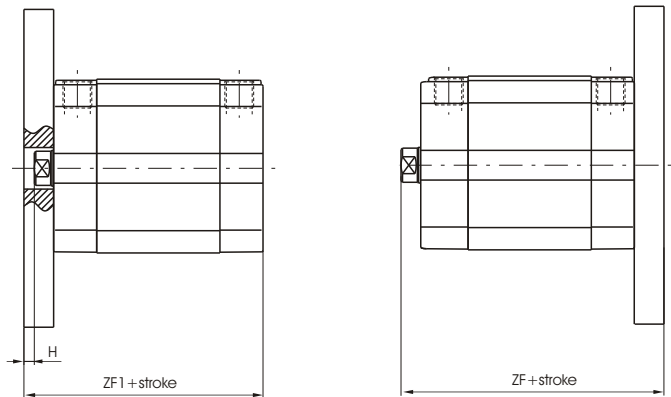


Plate which allows anchorage of the cylinder at a right angle to the plane. It is made with zinc-plated extruded steel or with aluminium.



Front

Rear

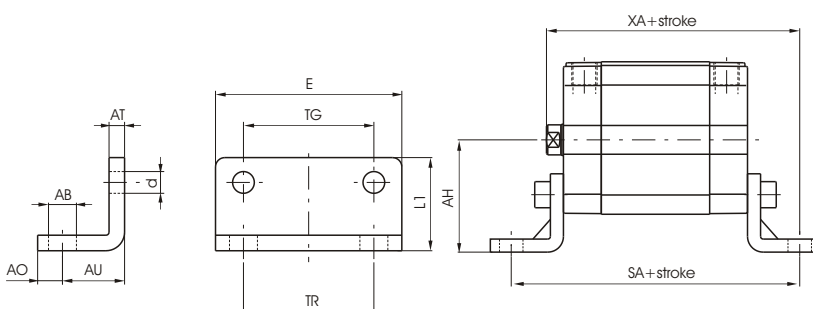


	ISO Dimensions						UNITOP Dimensions											
	32	40	50	63	80	100	12-16	20	25	32	40	50	63	80	100			
Bore	32	40	50	63	80	100	12-16	20	25	32	40	50	63	80	100			
E	45	52	65	75	95	115	29	36	40	50	60	68	87	107	128			
S5 (H13)	6,6	6,6	9	9	11	11	4,5	5,5	5,5	6,6	6,6	9	9	11	11			
FB(H13)	7	9	9	9	12	14	5,5	6,6	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			
Ordering code	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		
ISO 1500.Ø.03F steel	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		
	UNITOP 1580.Ø.03F steel	Weight	Steel	160	250	480	620	1430	1970	100	170	210	270	430	600	1210	1810	2610
		gr.	Aluminium	/	/	/	/	/	/	35	60	70	90	150	210	420	630	900
1580.Ø.03/1F aluminium	Weight	Steel	160	250	480	620	1430	1970	100	170	210	270	430	600	1210	1810	2610	
	gr.	Aluminium	/	/	/	/	/	/	35	60	70	90	150	210	420	630	900	

Feet

Ordering code

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



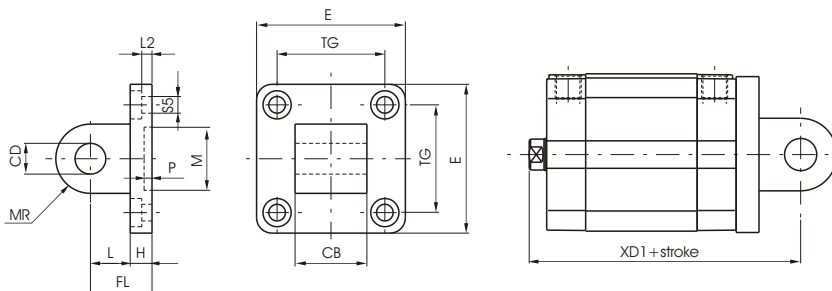
	ISO Dimensions						UNITOP Dimensions								
	32	40	50	63	80	100	12-16	20	25	32	40	50	63	80	100
Bore	32	40	50	63	80	100	12-16	20	25	32	40	50	63	80	100
AB (H14)	7	9	9	9	12	14	5,5	6,6	6,6	6,6	9	9	11	11	13,5
AH (JS15)	32	36	45	50	63	71	22	27	30	32	42,5	47	59,5	65,5	78
AO (±0,2)	11	8	15	13	14	16	4,5	6	6	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

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

UNITOP rear male clevis for bores from 12 to 25

Ordering code

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



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
	Aluminium	13	25

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 Ø20).

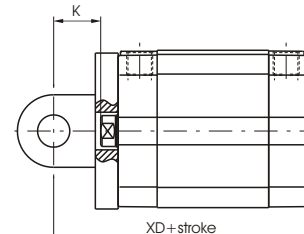
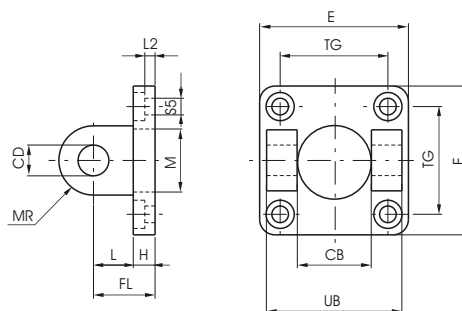
Front female clevis for bores from 32 to 100

Ordering code

ISO
Steel
1500.Ø.08F
front
1500.Ø.09F
rear

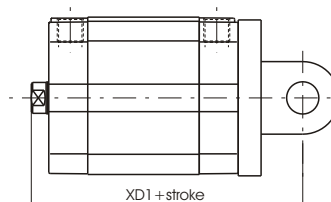
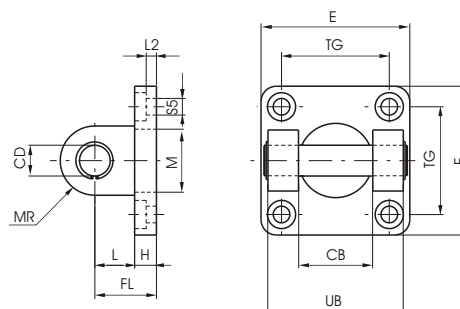
UNITOP (Aluminium)
1580.Ø.11F
front
1580.Ø.10F
rear

UNITOP (Steel)
1580.Ø.13F
front
1580.Ø.12F
rear



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.

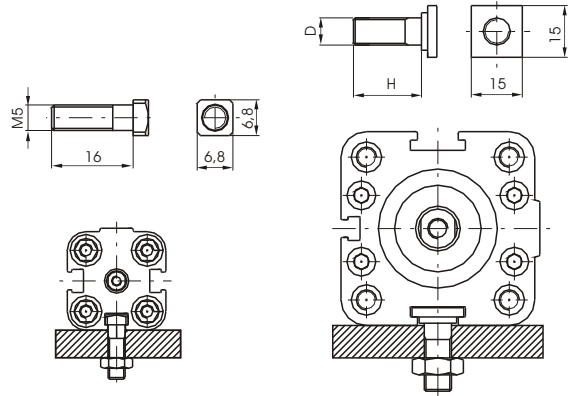
Rear female clevis for bores from 32 to 100



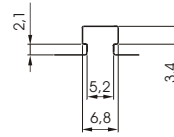
This type of mounting allows anchorage of the cylinder both parallel and at the right angle to the plane. The cylinder rod can oscillate and self-align to the connected load. It's made with aluminium alloy black painted or with zinc plated steel.

		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

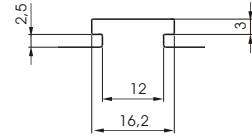
Slot fixing screws



Example of mounting with square head screws



Small slot detail



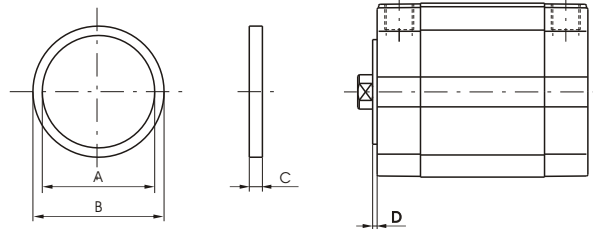
Large slot detail

	Small slot		Large slot	
Code	1500.17F	1500.15F	1500.16F	1500.18F
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

1580.02F



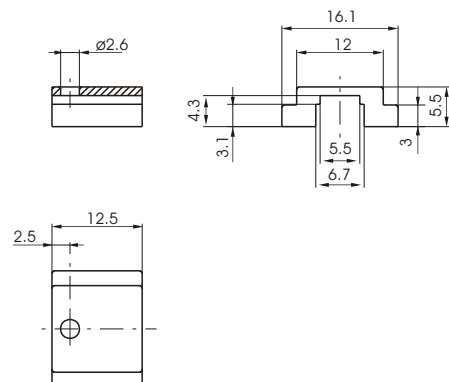
This aluminium ring allows the center assembling of the cylinder.

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

1580.01F



This nylon adapter allows the miniature sensor assembly on large slot.

Weight gr. 3