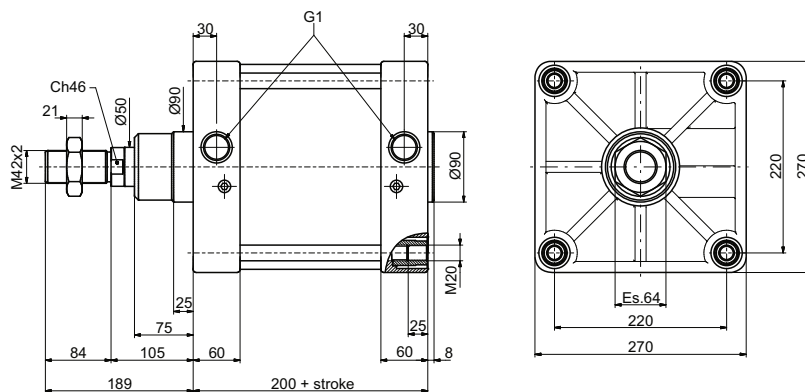


Basic version

Ordering code

1315.250.stroke.01A
magnetic, aluminium barrel

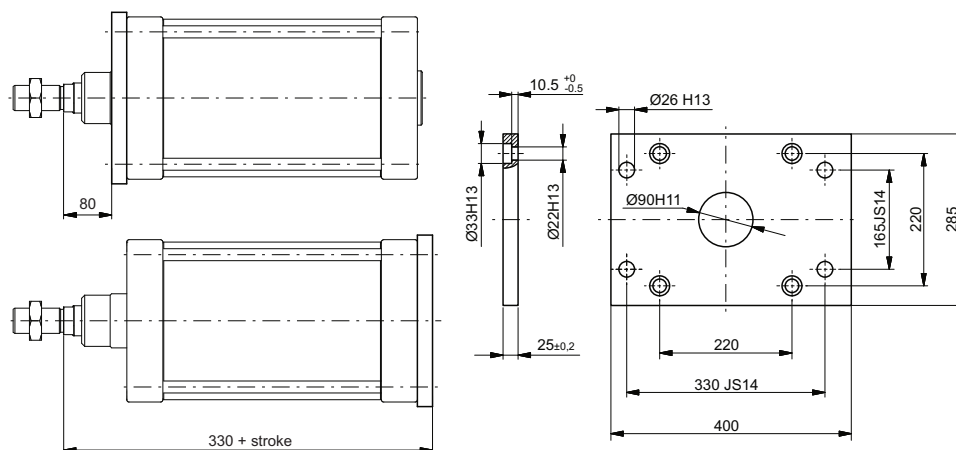


Weight : 28.170 gr. (increase of 380 gr. each 10 mm stroke)

Front and rear flanges

Ordering code

1315.250.03F
front and rear flange
(Steel)

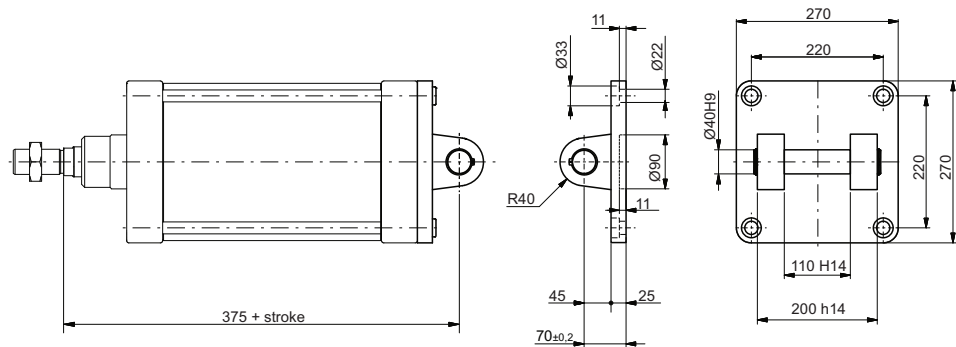


Weight gr. 1.825

Rear clevis complete with pin

Ordering code

1315.250.09F

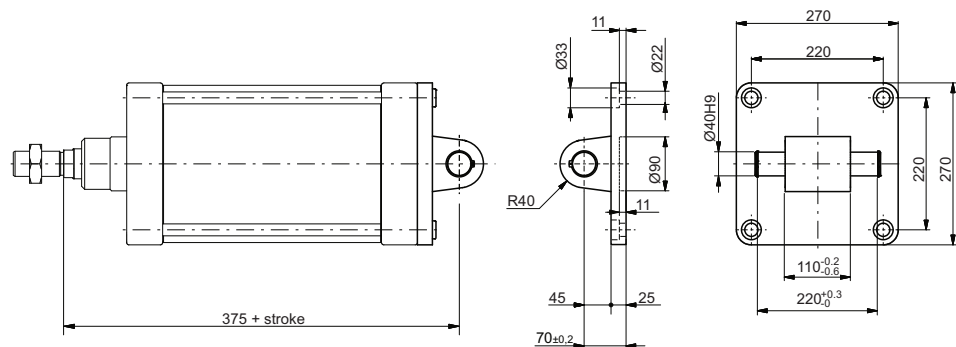


Weight gr. 7.800

Rear male clevis

Ordering code

1315.250.09/1F

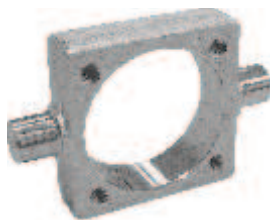


Weight gr. 8.300

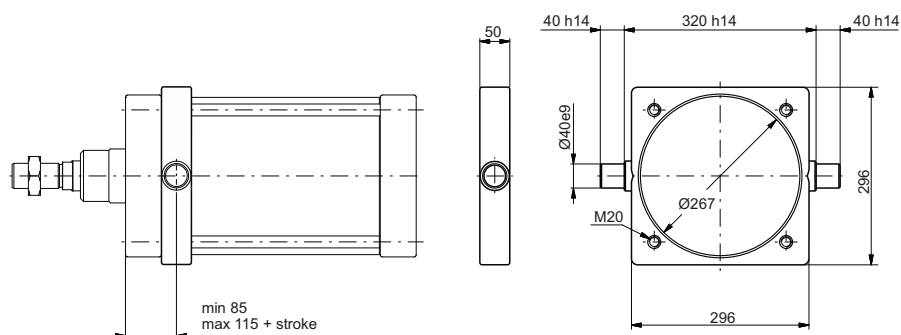
Intermediate trunnion

Ordering code

1305.250.12F
(Steel)



Weight gr. 1.300



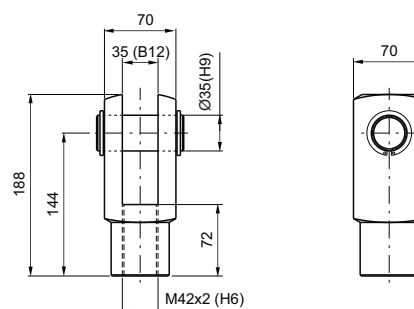
Fork with pin

Ordering code

1302.250.13F
(Steel)



Weight gr. 3700



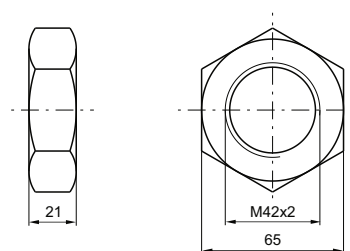
Rod lock nut

Ordering code

1302.250.18F
(Steel)



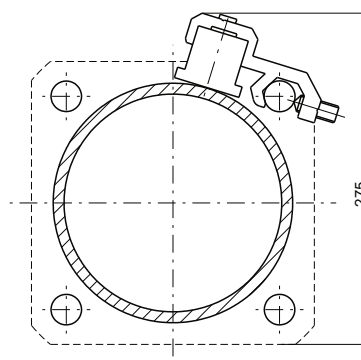
Weight gr. 260



Sensor bracket - codes 1500._,RS._, HS._

Ordering code

1306.D



For technical characteristics and Sensors ordering code see
Chapter 6 "magnetic sensors"

General

This series of pneumatic cylinders is manufactured according to ISO 6431 standards adapted to VDMA 24562 and CNOMO/AFNOR 49003 that guarantee the interchangeability of the cylinders even without mounted anchoring.

Construction characteristics

End plates	from Ø32 to Ø125: UNI 5079 aluminium alloy casting painted black by cataphoresis from Ø160 to Ø200: UNI 3051 aluminium chilled painted black by cataphoresis
Rod	stainless steel or C43 chromed steel
Barrel	oxidised aluminium
Cushion bushings	hardened aluminium
Rod-guide bushing	self-lubricating sintered bronze
Piston	vulcanized rubber block on steel core with incorporated plastoferrite permanent magnet, or without magnet for non magnetic version (plus rear spacer).
Seals	standard: NBR Oil resistant rubber, PUR Piston rod and cushion seals (FPM seals available upon request)
Cushion adjustment screws	brass

Technical characteristics

Fluid	filtered and lubricated air
Pressure	10 bar
Operating temperature	-5 °C - +70 °C with standard seals (magnetic or non magnetic piston) -5 °C - +80 °C with FPM seals for 1319 and 1320 series (magnetic piston) -5 °C - +150 °C with FPM seals for 1321 series (non magnetic piston)
Cushioning	Ø 32 - 40 - 50 - 63 - 80 - 100 - 125 - 160 - 200
length	mm 28 - 32 - 32 - 40 - 44 - 50 - 55 - 55 - 55

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.

Stroke tolerance (ISO 15552)

Standard strokes (for all diameters)

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

Bore	Stroke	Tolerance
32 - 40 - 50	up to 500	+2 0
	over 500 up to 1250	+3.2 0
63 - 80 - 100	up to 500	+2.5 0
	over 500 up to 1250	+4 0
125 - 160 - 200	up to 500	+4 0
	over 500 up to 1250	+5 0

Minimum and maximum springs load (stroke 0 - 50mm)

Bore	Ø32	Ø40	Ø50 - Ø63	Ø80 - Ø100	Ø125
Min. load(N)	15	25	50	100	150
Max. load(N)	40	80	115	200	250

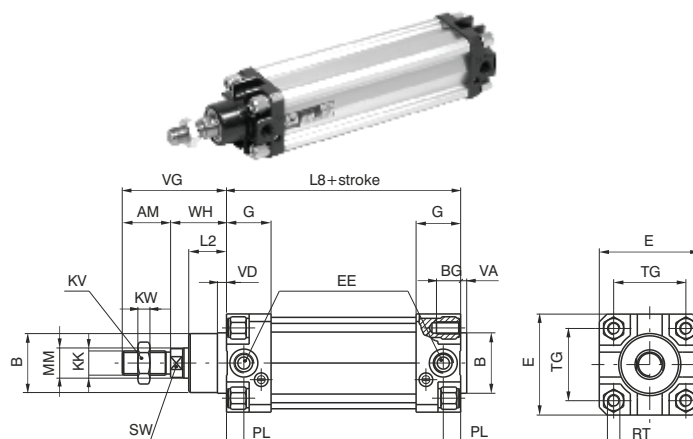
Basic version "01"

Ordering code

1319.Ø.stroke.01 magnetic chromed rod
1320.Ø.stroke.01 magnetic stainless steel rod
1321.Ø.stroke.01 non magnetic chromed rod
13- -Ø.stroke.01V FPM seals
13- -Ø.stroke.01MA Front springs (Ø32-Ø125)*
13- -Ø.stroke.01MP Rear springs (Ø32-Ø125)*

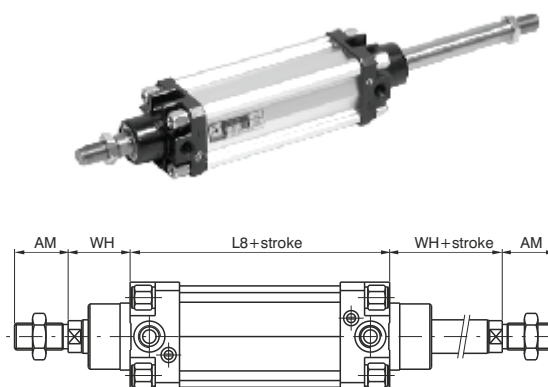
* Max. stroke 50

This is the configuration that represents the basic cylinder according to ISO-VDMA standards. It can be directly anchored on machine parts using the four thread on the end cover. For other applications see the following pages where different types of attachments are shown.

**Push/Pull version "02"**

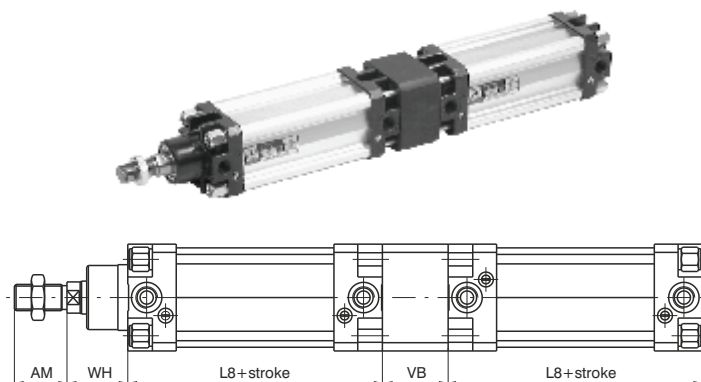
Ordering code

1319.Ø.stroke.02 magnetic chromed rod
1320.Ø.stroke.02 magnetic stainless steel rod
1321.Ø.stroke.02 non magnetic chromed rod
13- -Ø.stroke.02V FPM seals

**Tandem push with a common rods "G"**

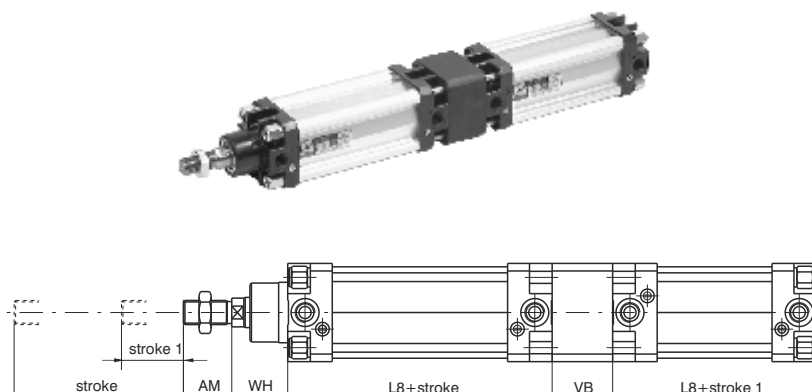
Ordering code

1319.Ø.stroke.G magnetic chromed rod
1320.Ø.stroke.G magnetic stainless steel rod
1321.Ø.stroke.G non magnetic chromed rod

**Tandem push with independent rods "F"**

Ordering code

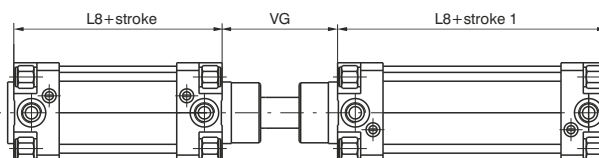
1319.Ø.stroke.stroke1.F magnetic chromed rod
1320.Ø.stroke.stroke1.F magnetic stainless steel rod
1321.Ø.stroke.stroke1.F non magnetic chromed rod



Opposed tandem with common rod "D"

Ordering code

1319.Ø.stroke.stroke1.D magnetic chromed rod
1320.Ø.stroke.stroke1.D magnetic stainless steel rod
1321.Ø.stroke.stroke1.D non magnetic chromed rod



Tandem with opposed rods "E"

Ordering code

1319.Ø.stroke.stroke1.E magnetic chromed rod
1320.Ø.stroke.stroke1.E magnetic stainless steel rod
1321.Ø.stroke.stroke1.E non magnetic chromed rod

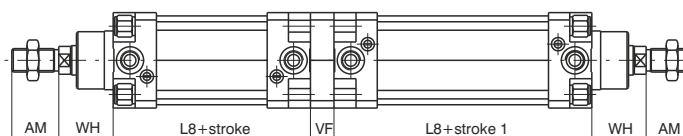


Table of dimensions

Bore		32	40	50	63	80	100	125	160	200
AM		22	24	32	32	40	40	54	72	72
B (d 11)		30	35	40	45	45	55	60	65	75
BG		14	14	16	16	21	21	23	24	24
E		46	52	65	75	95	115	140	180	220
EE		G 1/8"	G 1/4"	G 1/4"	G 3/8"	G 3/8"	G 1/2"	G 1/2"	G 3/4"	G 3/4"
G		25	29	29,5	36	36	40	45	49	49
KK		M10X1,25	M12X1,25	M16x1,5	M16x1,5	M20x1,5	M20x1,5	M27x2	M36x2	M36x2
KV		17	19	24	24	30	30	41	55	55
KW		6	7	8	8	9	9	12	18	18
L2		16	20	25	25	32	35	45	50	60
L8 *		94	105	106	121	128	138	160	180	180
MM		12	16	20	20	25	25	32	40	40
PL		9	11,5	13	14	16	18	19	24	25
RT		M6	M6	M8	M8	M10	M10	M12	M16	M16
SW		10	13	17	17	22	22	27	32	32
TG		32,5	38	46,5	56,5	72	89	110	140	175
VA		4	4	4	4	4	4	6	5	5
VB		25	30	40	40	50	50	75	70	75
VD		5	6	6	6	10	10	12	10	10
VF		12	12	16	16	20	20	25	30	30
VG		48	54	69	69	86	91	119	152	167
WH		26	30	37	37	46	51	65	80	95
Weight	Stroke 0	480	730	1150	1600	2800	3600	7800	15000	21500
gr.	every 10 mm	25	32	56	60	90	100	140	265	325

* For strokes over 50mm, the length does not increase proportionally to the stroke, and allowance must be made for adequate spring allocation (see table of L8 dimensions).

"L8" dimensions for "rear spring" and "front spring"

Bore	32	40	50	63	80	100	125
L8 (Stroke 51 - 100)	134	150	151	166	183	193	230
L8 (Stroke 101 - 150)	174	195	196	211	238	248	300
L8 (Stroke 151 - 200)	214	240	241	256	293	303	370

Construction characteristics

End plates	UNI 5079 aluminium alloy casting painted black by cataphoresis
Rod	C43 chromed steel Ra = 0.2
Barrel	UNI 9006/1 aluminium alloy square section, hardened 30 micron oxidate
Cushion bushings	2011 UNI 9002/5 hardened alloy aluminium
Piston	polyacetal resin, self-lubricated and anti-wear, with plastroferrite rings in magnetic version
Piston seals	NBR oil-resistant rubber, PUR Piston rod and cushion seals
Cushioning adjustment screw	brass

Technical characteristics

Fluid	filtered and lubricated air
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)
- 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.

Bore	Usable surface (square profile) cm ²	Max couple on the rod (max torque) Nm	Grade precision (rest rod, without load) anti-rotation	Cushion length mm.
32	8.31	0.5	12'	22
40	12.41	0.8	12'	27
50	18.41	1.1	12'	27
63	29.67	1.5	12'	32

Standard strokes (for all diameters)

from 0 to 150, every 25 mm

Other stroke for these following bores:

Ø 32 80 mm
Ø 40 80 - 160 mm
Ø 50 80 - 160 - 200 - 250 mm
Ø 63 80 - 160 - 200 - 300 - 320 mm

Stroke Tolerance (ISO 15552)

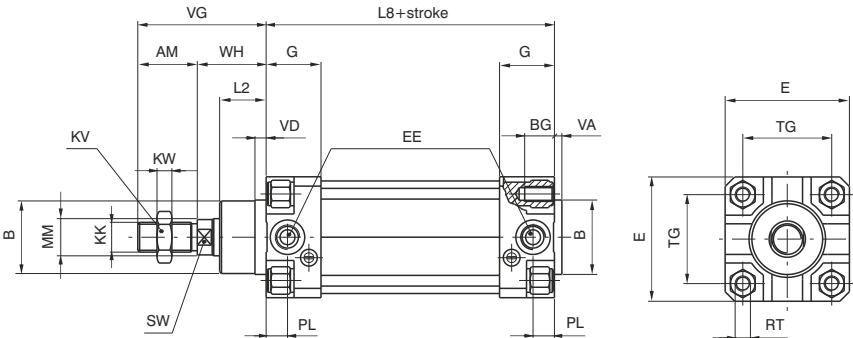
Bore	Stroke	Tolerance
32 - 40 - 50 - 63	up to 500	$\begin{matrix} +2 \\ 0 \end{matrix}$



Basic version

Ordering code

- 1348.Ø.stroke.01
magnetic chromed rod
- 1349.Ø.stroke.01
magnetic stainless
steel rod
- 1350.Ø.stroke.01
non-magnetic
chromed rod



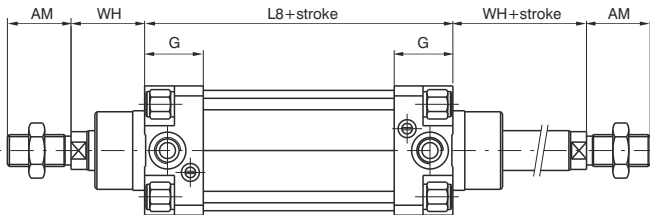
This is the configuration that represents the basic cylinder according to ISO standards. It can be directly anchored on machine parts using the four threads on the end cover. For other applications see the following pages where different types of attachments shown.

Bore		32	40	50	63
AM		22	24	32	32
B (d 11)		30	35	40	45
BG		12	12	16	16
E		46	52	65	75
EE		G 1/8"	G 1/4"	G 1/4"	G 3/8"
G		25	29	29.5	36
KK		M10x1.25	M12x1.25	M16x1.5	M16x1.5
KV		17	19	24	24
KW		6	7	8	8
L 2		16	20	25	25
L 8		94	105	106	121
MM		12	16	20	20
PL		9	11.5	13	14
RT		M6	M6	M8	M8
SW		10	13	17	17
TG		32.5	38	46.5	56.5
VA		4	4	4	4
VD		5	6	6	6
VG		48	54	69	69
WH		26	30	37	37
Weight	stroke 0	505	705	1320	1710
gr.	every 10 mm	24	33	53	58

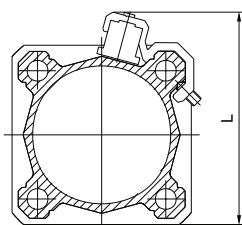
Push/pull version

Ordering code

- 1348.Ø.stroke.02
magnetic chromed rod
- 1349.Ø.stroke.02
magnetic stainless
steel rod
- 1350.Ø.stroke.02
non-magnetic
chromed rod

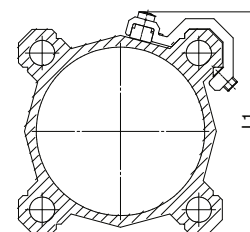


Sensor brackets



Sensor brackets codes 1500._, RS._, HS._			Sensor brackets codes 1580._, MRS._, MHS._		
Code	Bore	L	Code	Bore	L1
1320.A	Ø32	60	1320.AS	Ø32	48
	Ø40	65		Ø40	54
1320.B	Ø50	77	1320.BS	Ø50	66
	Ø63	87		Ø63	76
1320.C	Ø80	105	1320.CS	Ø80	96
	Ø100	125		Ø100	112
1320.D	Ø125	145	/	/	/
1320.E	Ø160	184	/	/	/
1320.F	Ø200	222	/	/	/

for cylinders: 1319 - 1320, 1325 - 1345, 1330 - 1332, 1348 - 1349

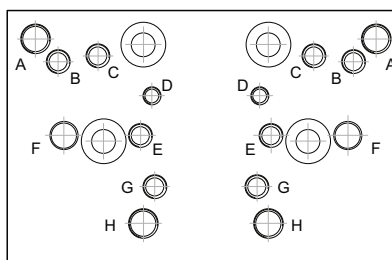


Sensor for microcylinders

For technical characteristics and ordering codes see Chapter 6 (magnetic sensors)

Distributor supports

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



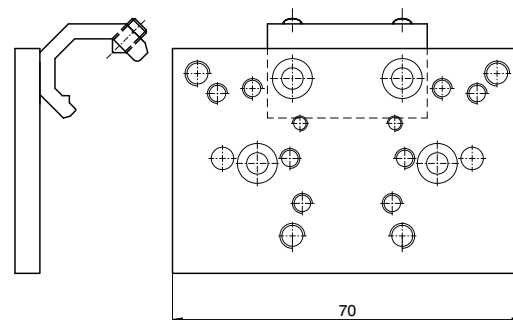
Fixing holes for valves series:

A = 414/2
B = 824
C = 828, T488, 488, 484
D = 2400
E = 2600
F = Bases for ISO distributors
G = 858/2
H = T424

For cylinders series 1319 - 1321 / 1325 - 1326 / 1345 - 1347 / 1330 - 1333 / 1348 - 1350

Ordering code

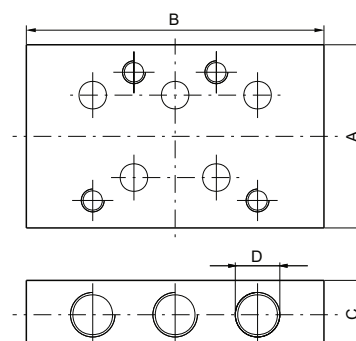
1320.15 (Ø32 - Ø40)
1320.16 (Ø50 - Ø63)
1320.17 (Ø80 - Ø100)
1320.18 (Ø125)
1320.19 (Ø160)
1320.20 (Ø200)



Bases for ISO distributors

Ordering code

1320.21 bases for ISO 1 electro distributor
1320.22 bases for ISO 2 electro distributor



Dimensions

		A	B	C	D
1320.21	bases for ISO 1 electro distributor	40	75	15	G 1/8"
1320.22	bases for ISO 2 electro distributor	50	95	20	G 1/4"

General

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

Construction characteristics

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

Technical characteristics

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

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

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

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

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

Our Technical Department will be glad to help.

Standard strokes (for all diameters)

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

Stroke tolerance (ISO 15552)

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

Basic version "01"

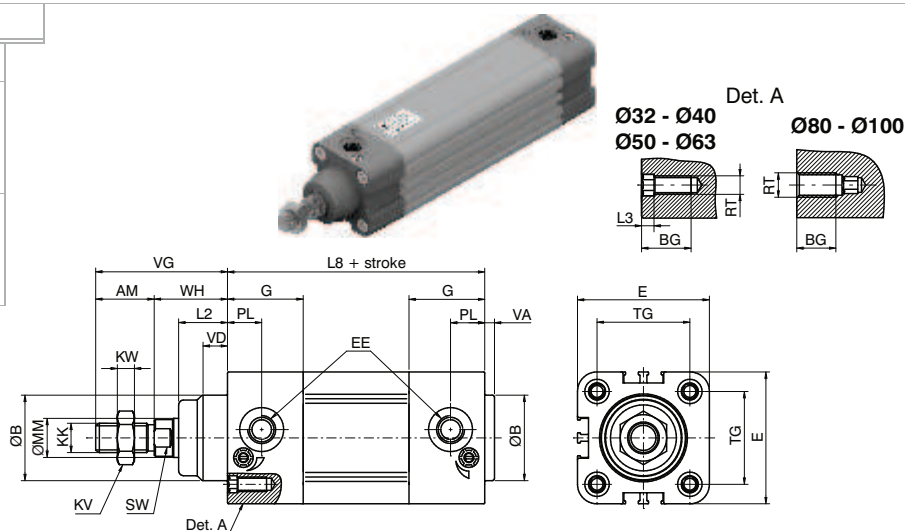
Ordering code

TECHNOPOLYMER COVERS

1386.Ø.stroke.01 Magnetic chromed rod
 1387.Ø.stroke.01 Magnetic stainless steel rod
 1388.Ø.stroke.01 Non magnetic chromed rod

ALUMINIUM COVERS

1396.Ø.stroke.01 Magnetic chromed rod
 1397.Ø.stroke.01 Magnetic stainless steel rod
 1398.Ø.stroke.01 Non magnetic chromed rod

**Push/pull version "02"**

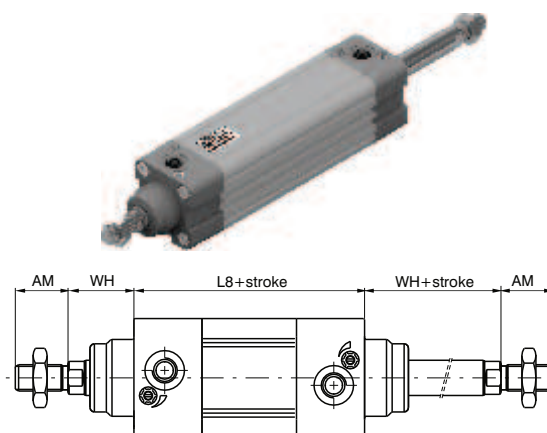
Ordering code

TECHNOPOLYMER COVERS

1386.Ø.stroke.02 Magnetic chromed rod
 1387.Ø.stroke.02 Magnetic stainless steel rod
 1388.Ø.stroke.02 Non magnetic chromed rod

ALUMINIUM COVERS

1396.Ø.stroke.02 Magnetic chromed rod
 1397.Ø.stroke.02 Magnetic stainless steel rod
 1398.Ø.stroke.02 Non magnetic chromed rod

**Tandem push with common rods "G"**

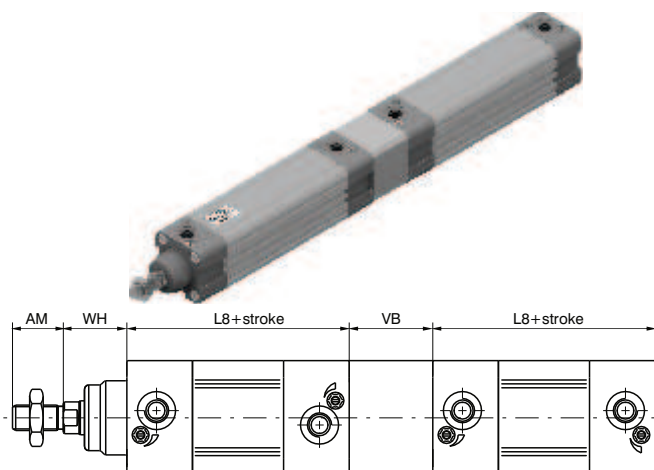
Ordering code

TECHNOPOLYMER COVERS

1386.Ø.stroke.G Magnetic chromed rod
 1387.Ø.stroke.G Magnetic stainless steel rod
 1388.Ø.stroke.G Non magnetic chromed rod

ALUMINIUM COVERS

1396.Ø.stroke.G Magnetic chromed rod
 1397.Ø.stroke.G Magnetic stainless steel rod
 1398.Ø.stroke.G Non magnetic chromed rod

**Tandem push with independent rods "F"**

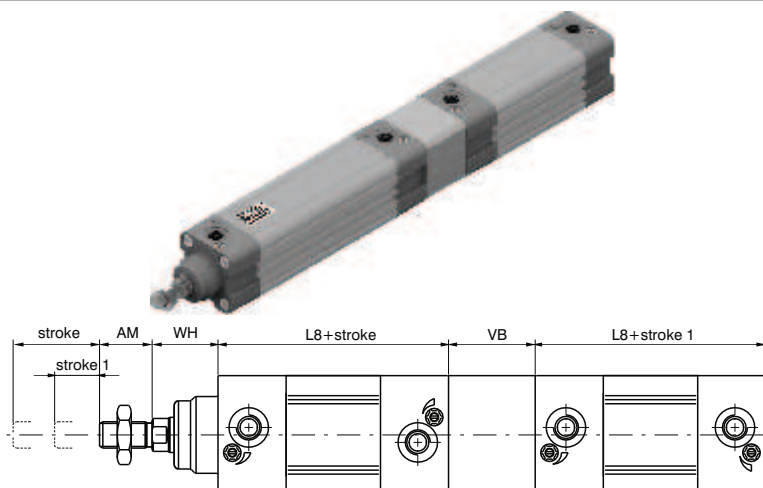
Ordering code

TECHNOPOLYMER COVERS

1386.Ø.stroke.stroke1.F Magnetic chromed rod
 1387.Ø.stroke.stroke1.F Magnetic stainless steel rod
 1388.Ø.stroke.stroke1.F Non magnetic chromed rod

ALUMINIUM COVERS

1396.Ø.stroke.stroke1.F Magnetic chromed rod
 1397.Ø.stroke.stroke1.F Magnetic stainless steel rod
 1398.Ø.stroke.stroke1.F Non magnetic chromed rod



Opposed tandem with common rod "D"

Ordering code

TECHNOPOLYMER COVERS

1386.Ø.stroke.stroke1.D Magnetic chromed rod

1387.Ø.stroke.stroke1.D Magnetic stainless steel rod

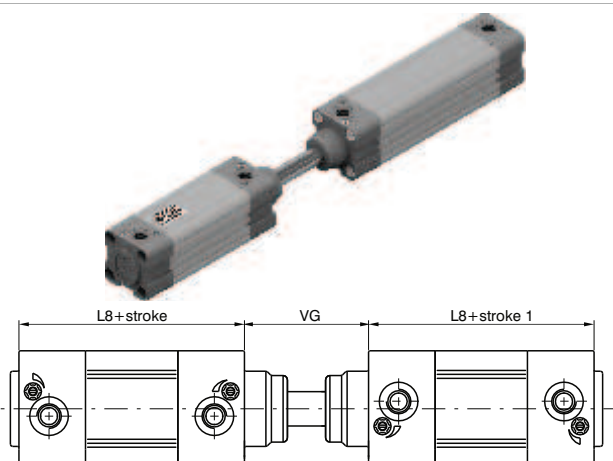
1388.Ø.stroke.stroke1.D Non magnetic chromed rod

ALUMINIUM COVERS

1396.Ø.stroke.stroke1.D Magnetic chromed rod

1397.Ø.stroke.stroke1.D Magnetic stainless steel rod

1398.Ø.stroke.stroke1.D Non magnetic chromed rod



Tandem with opposed rods "E"

Ordering code

TECHNOPOLYMER COVERS

1386.Ø.stroke.stroke1.E Magnetic chromed rod

1387.Ø.stroke.stroke1.E Magnetic stainless steel rod

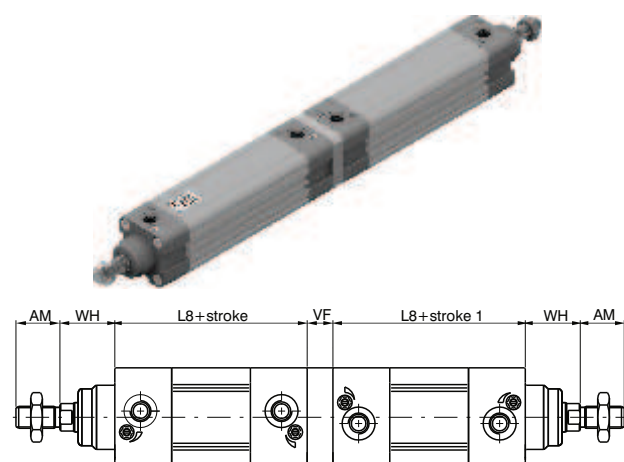
1388.Ø.stroke.stroke1.E Non magnetic chromed rod

ALUMINIUM COVERS

1396.Ø.stroke.stroke1.E Magnetic chromed rod

1397.Ø.stroke.stroke1.E Magnetic stainless steel rod

1398.Ø.stroke.stroke1.E Non magnetic chromed rod



Variants

Ordering code

13_Ø.stroke_.P = Version with PUR seals

13_Ø.stroke_.K = Version with aluminium piston

13_Ø.stroke_.PK = Version with PUR seals and aluminium piston

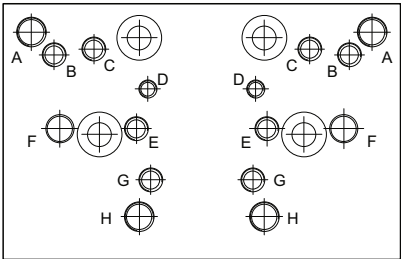
Table of dimensions

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



Distributor supports

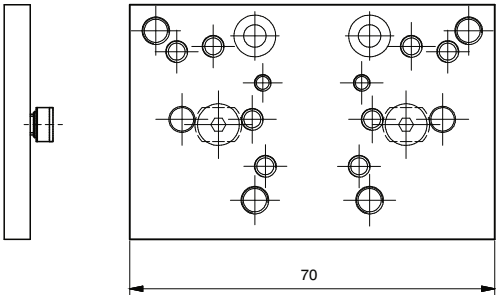
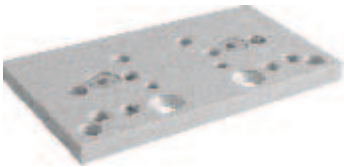
This accessory permits to mount a valve or an electrovalve on a side of the cylinder. The plate can be fitted on the cylinder profiled barrel, and, on it, can be mounted either a threaded distributor or a base on which can be mounted an ISO distributor. Once installed the connections must be done with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



Fixing holes for valves series:

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

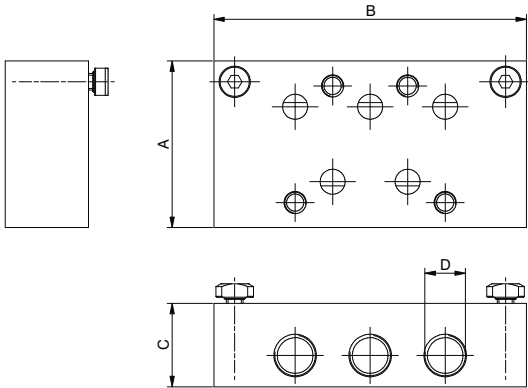
Ordering code
1386.15



Attention: do not use ISO distributor for base mounting

Bases for ISO distributors

Ordering code	
1320.23	bases for ISO 1 electrodistributor
1320.24	bases for ISO 2 electrodistributor



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

Construction characteristics

End plates	die-casting aluminium
Rod	C43 chromed steel or stainless steel
Barrel	aluminium alloy anodised
Rod-guide bushing	spheroid bronze on steel band with P.T.F.E. coat
Piston	Ø32 - Ø100 acetal resin, aluminium on request Ø125 - Ø200 aluminium
Seals	standard: NBR oil resistant rubber, PUR piston rod seals (PUR seals available upon request)
Cushion adjusting screws	brass

Technical characteristics

Fluid	filtered and preferably lubricated air or not (if lubricated the lubrication must be continuous)
Max. pressure	10 bar
Operating temperature	-5°C - +70°C with standard seals -30°C - +80°C with PUR seals -5°C - +80°C with FPM seals for 1390 and 1391 series (magnetic piston) -5°C - +150°C with FPM seals for 1392 series (no magnetic piston)
Bore	Ø 32 - 40 - 50 - 63 - 80 - 100 - 125 - 160 - 200
Cushioning length	mm 27 - 31 - 31 - 37 - 40 - 44 - 44 - 50 - 55
Cushioning length "K" and "PK" version	mm 20 - 20 - 22 - 22 - 32 - 32 - / - / - /

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

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

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

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

Our Technical Department will be glad to help.

Standard strokes (for all diameters)

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

Stroke tolerance (ISO 15552)

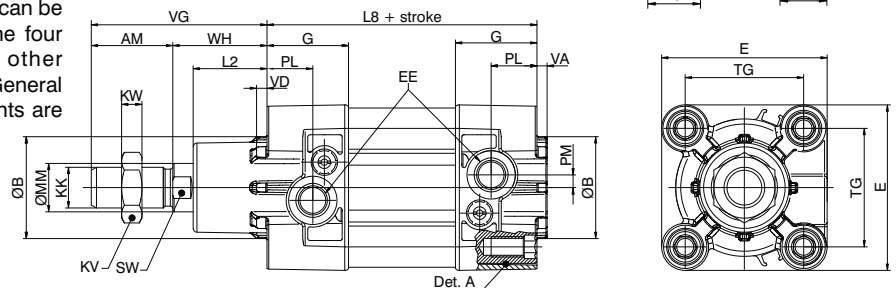
Bore	Stroke	Tolerance
32 - 40 - 50	up to 500	+2 0
	over 500 up to 1250	+3.2 0
63 - 80 - 100	up to 500	+2.5 0
	over 500 up to 1250	+4 0
125 - 160 - 200	up to 500	+4 0
	over 500 up to 1250	+5 0

Basic version "01"

Ordering code

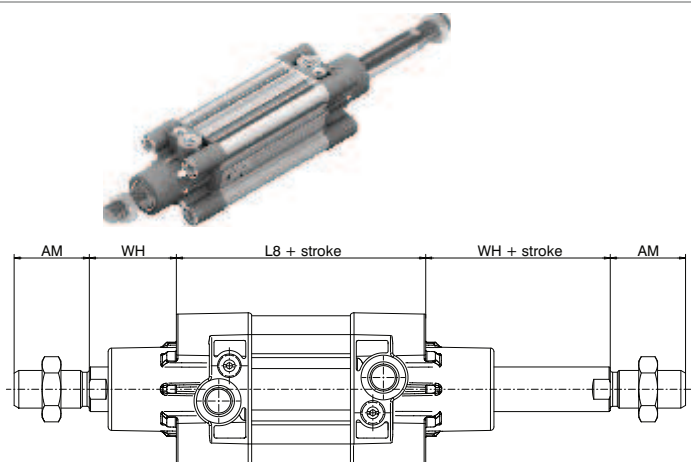
1390.Ø.stroke.01 Magnetic chromed rod
1391.Ø.stroke.01 Magnetic stainless steel rod
1392.Ø.stroke.01 Non magnetic chromed rod

This is the configuration representing the basic cylinder according to ISO-VDMA standards. It can be directly anchored on machine parts using the four threads on the end cover screws. For other applications see "Cylinder section" on the General Catalogue, where different types of attachments are shown.

**Push/pull version "02"**

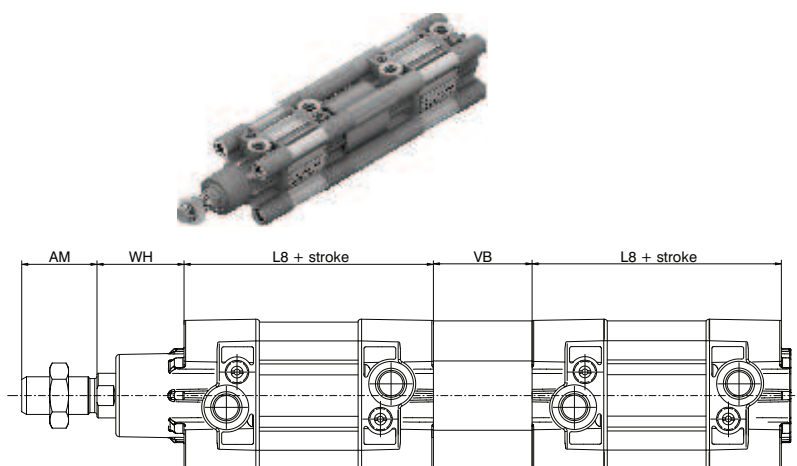
Ordering code

1390.Ø.stroke.02 Magnetic chromed rod
1391.Ø.stroke.02 Magnetic stainless steel rod
1392.Ø.stroke.02 Non magnetic chromed rod

**Tandem push with common rods "G"**

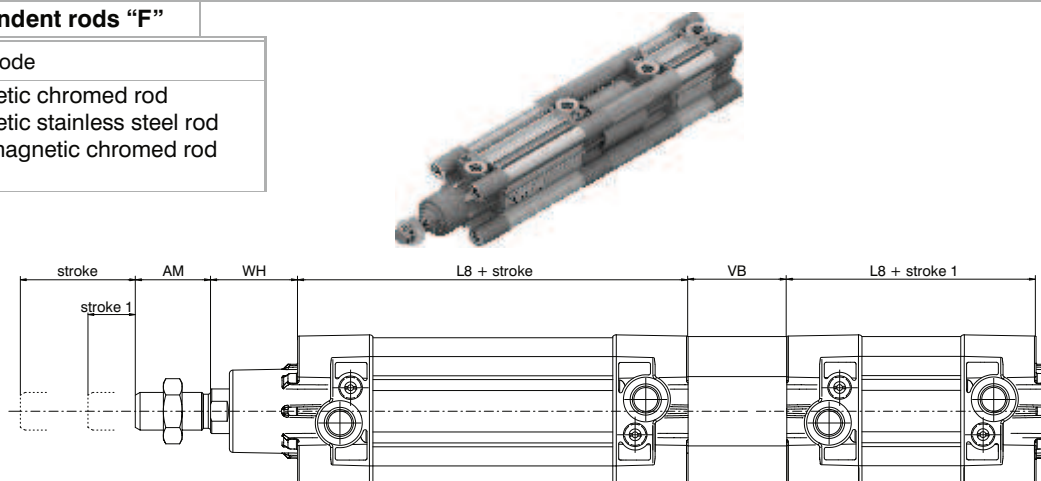
Ordering code

1390.Ø.stroke.G Magnetic chromed rod
1391.Ø.stroke.G Magnetic stainless steel rod
1392.Ø.stroke.G Non magnetic chromed rod

**Tandem push with independent rods "F"**

Ordering code

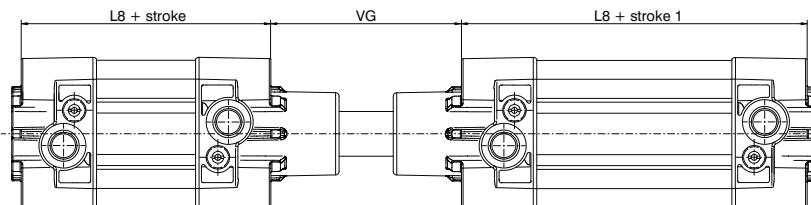
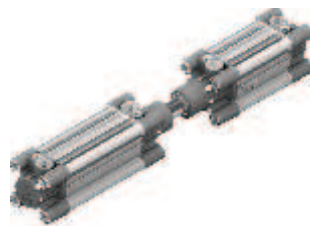
1390.Ø.stroke.stroke1.F Magnetic chromed rod
1391.Ø.stroke.stroke1.F Magnetic stainless steel rod
1392.Ø.stroke.stroke1.F Non magnetic chromed rod



Opposed tandem with common rod "D"

Ordering code

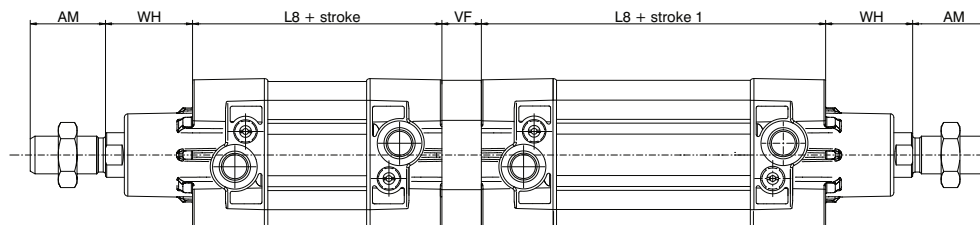
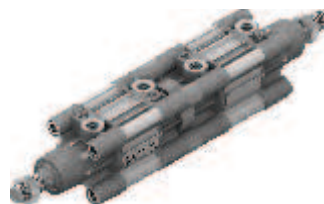
1390.Ø.stroke.stroke1.D Magnetic chromed rod
1391.Ø.stroke.stroke1.D Magnetic stainless steel rod
1392.Ø.stroke.stroke1.D Non magnetic chromed rod



Tandem with opposed rods "E"

Ordering code

1390.Ø.stroke.stroke1.E Magnetic chromed rod
1391.Ø.stroke.stroke1.E Magnetic stainless steel rod
1392.Ø.stroke.stroke1.E Non magnetic chromed rod



Version with PUR seals

Variants

Ordering code

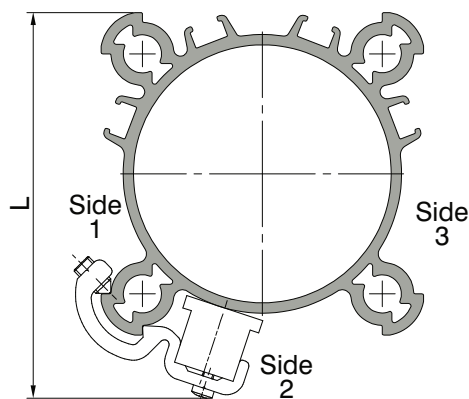
139_Ø.stroke._.P = Version with PUR seals
139_Ø.stroke._.K = Version with aluminium piston (from Ø32 to Ø100)
139_Ø.stroke._.PK = Version with PUR seals and aluminium piston (from Ø32 to Ø100)
139_Ø.stroke._.V = Version with FPM seals and aluminium piston

Table of dimensions

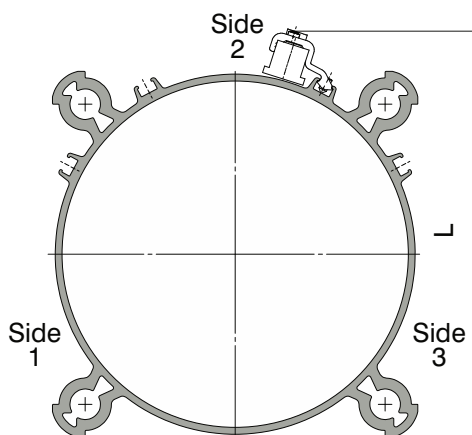
Bore	32	40	50	63	80	100	125	160	200
AM	22	24	32	32	40	40	54	72	72
B (d 11)	30	35	40	45	45	55	60	65	75
BG	16	16	18	18	16	16	21	25	25
E	47	54	65	76	95	113	138	180	216
EE	G 1/8"	G 1/4"	G 1/4"	G 3/8"	G 3/8"	G 1/2"	G 1/2"	G 3/4"	G 3/4"
G	29.5	33	32	36	38.5	41.5	48	49	49
KK	M10X1.25	M12X1.25	M16x1.5	M16x1.5	M20x1.5	M20x1.5	M27x2	M36x2	M36x2
KV	17	19	24	24	30	30	41	55	55
KW	6	7	8	8	9	9	12	18	18
L2	19	22	29	29	35	36	45	50	60
L3	4	4	5	5	/	/	/	/	/
L8	94	105	106	121	128	138	160	180	180
MM	12	16	20	20	25	25	32	40	40
PL	13	16	18	18	16	18	25	26	25
PM	3	4	5	4.5	2.5	6	8	11	11
RT	M6	M6	M8	M8	M10	M10	M12	M16	M16
SW	10	13	17	17	22	22	27	36	36
TG	32.5	38	46.5	56.5	72	89	110	140	175
VA	4	4	4	4	4	4	6	6	6
VB	33	41	51	51	65	71	75	70	75
VD	4	4	4	4	4	4	6	6	6
VF	12	12	16	16	20	20	25	30	30
VG	48	54	69	69	86	91	119	152	167
WH	26	30	37	37	46	51	65	80	95
Weight	stroke 0	460	650	1030	1360	2180	2890	5700	11200
gr.	every 10 mm	23	32	45	49	75	81	130	195

On the ECOLIGHT series it is possible to use three sensor types, according to bore, as indicated below:

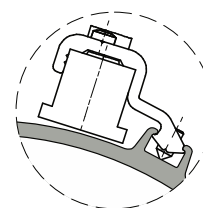
Sensors code **1500.**
RS.
HS.



Ø32 - Ø100: the sensors can be fixed on the three sides as indicated in the drawing, by using suitable brackets (except for Ø32 on side 2)



Ø125 - Ø200: the sensors can be fixed on the three sides as indicated in the drawing, by using suitable bracket



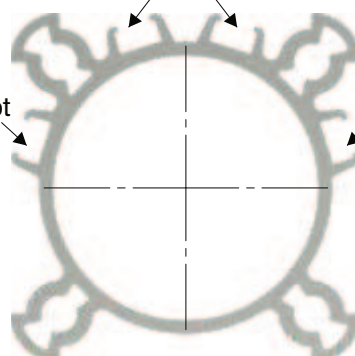
Code	Bore	L
1390.A	Ø32	58
	Ø40	65
1390.B	Ø50	75
	Ø63	86
1390.C	Ø80	105
	Ø100	122
1390.D	Ø125	150
	Ø160	190
	Ø200	225

Sensors code **1580.**
MRS.
MHS.



Feeding connections side sensors slots

lateral sensor slot



lateral sensor slot

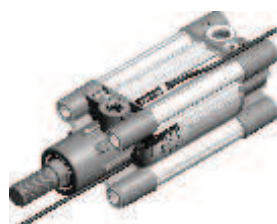
Sensors code **1590.**
LRS.
LHS.



1590 series sensor only
1580 and 1590 series sensors
1580 and 1590 series sensors



Ø32 - Ø63



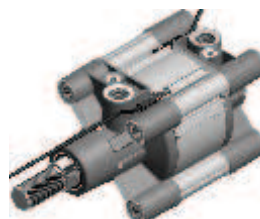
CYLINDERS - BORE SIZES Ø32 to Ø63:

The two slots on connection side are plugged, therefore only sensor 1590 can be used. Suitable for top housing and once placed by means of its screw, it can be fixed in desired position.

1580 and 1590 series sensors



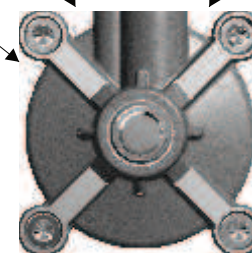
Ø80



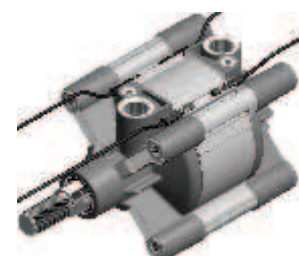
CYLINDERS - BORE SIZE Ø80:

The two top housing can be accessed from the front of the unit, one housing can be accessed from the front end cap and the opposite housing from the rear end cap. It is therefore possible to use both type of sensors: 1580 - 1590.

1580 and 1590 series sensors



Ø100 - Ø200

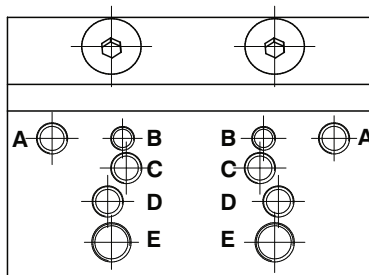


CYLINDERS - BORE SIZE Ø100-Ø200:

All four housings can be accessed from the front of the unit. It is therefore possible to use both type of sensors: 1580 - 1590.

Distributor supports

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

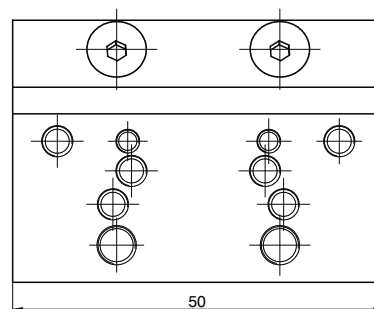
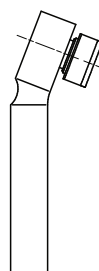


Fixing holes for valves series:

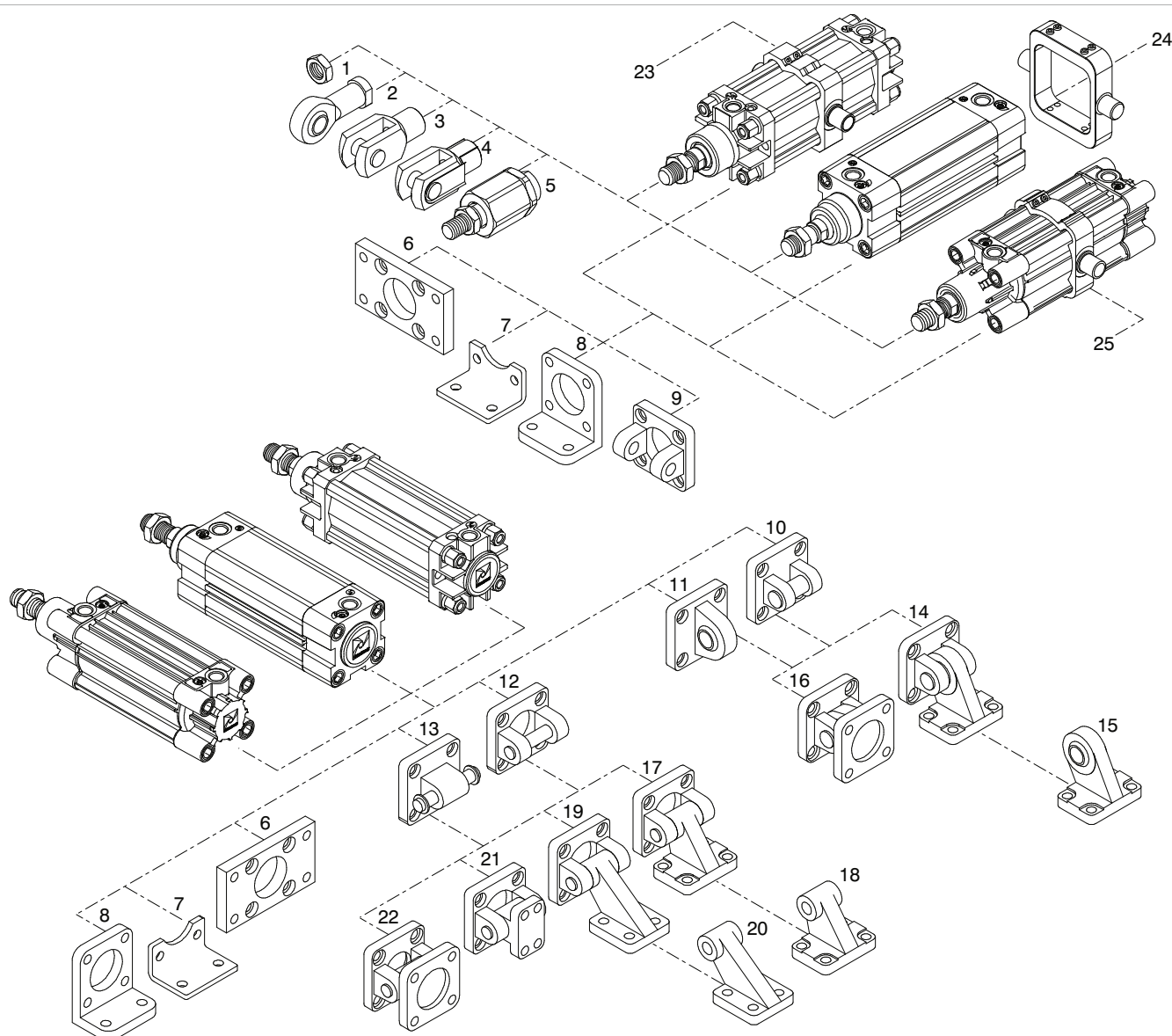
A = 488 / 484
B = 2400
C = T488
D = 2600
E = T424

Ordering code

1390.25 (for Ø32)
1390.26 (for Ø40)
1390.27 (for Ø50)
1390.28 (for Ø63)
1390.29 (for Ø80)
1390.30 (for Ø100)



Attention: do not use ISO distributor for base mounting



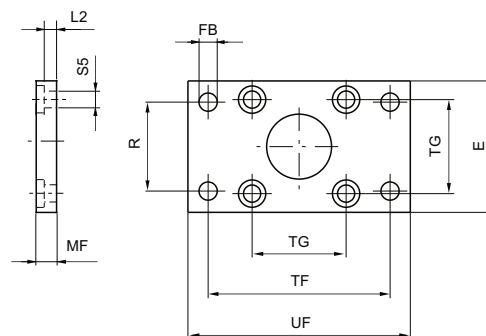
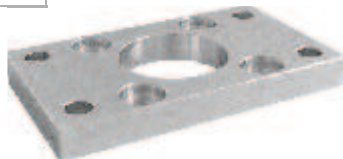
Pos.	Description	Ordering code	
		Aluminium	Steel
1	Rod nut	/	1320.Ø.18F
2	Ball joint	/	1320.Ø.32F
3	Forks	/	1320.Ø.13F
4	Fork with clips	/	1320.Ø.13/1F
5	Self-aligning joint	/	1320.Ø.33F
6	Flange (MF1-MF2)	1390.Ø.03F 1390.Ø.03FP	1380.Ø.03F
7	Short mounting foot brackets (in sheet metal MS1)	/	1320.Ø.05/1F
8	Standard mounting foot brackets	1320.Ø.05F	/
9	Front clevis	1380.Ø.08F	1320.Ø.19F
10	Rear narrow clevis (AB6)	1380.Ø.30F	1320.Ø.29F
11	Rear male clevis (with jointed head according to DIN 648K standard)	1380.Ø.15F	1320.Ø.25F
12	Rear female clevis (MP2)	1380.Ø.09F	1320.Ø.20F
13	Rear male clevis (MP4)	1380.Ø.09/1F	1320.Ø.21F
14	Complete square angle trunnion (pos.10 + pos.15)	/	1320.Ø.27F
15	Simple square counter clevis (pos.14)	/	1320.Ø.28F
16	Square angle trunnion with jointed head (pos.10 + pos.11)	1380.Ø.36F	1320.Ø.26F
17	Square angle trunnion (AB7) (pos.18 + pos.12)	1380.Ø.35F	1320.Ø.23F
18	Simple square counter clevis (pos.17)	1320.Ø.11/2F	1320.Ø.24F
19	Simple rear trunnion with support brackets (pos.20 + pos.12)	1380.Ø.11F	/
20	Simple square counter clevis (pos.19)	1320.Ø.11/1F	/
21	Standard trunnion	1380.Ø.10F	/
22	Standard complete trunnion (pos.12 + pos.13)	1380.Ø.22F	1320.Ø.22F
23	1319 - 1321 cylinders series Intermediate trunnion	1320.Ø.12BF	1320.Ø.12F
24	1386 - 1388 / 1396 - 1398 Ecoplus series Intermediate trunnion	/	1386.Ø.12F
25	1390 - 1392 Ecolight series Intermediate trunnion	1390.Ø.12F	/

Front and rear flanges (MF1 - MF2)

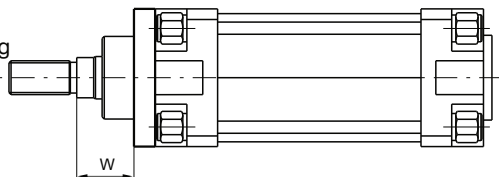
Ordering code

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

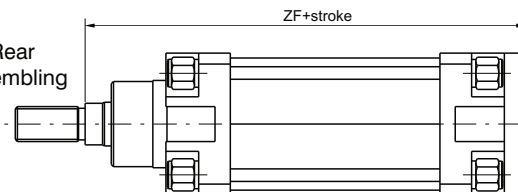
Plate which allows anchorage of the cylinder at a right angle to the plane. It is made of zinc-plated extruded steel.



Front assembling



Rear assembling

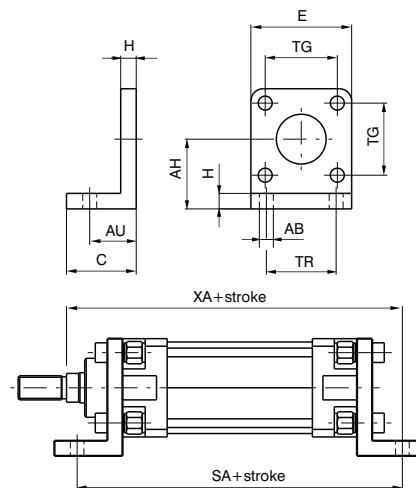


Bore	E	FB (H 13)	MF (JS 14)	R (JS 14)	TF (JS 14)	TG	UF	ZF	W	L2	S5	Weight(gr.) steel	Weight(gr.) aluminium	Weight(gr.) Die-casting aluminium
32	45	7	10	32	64	32,5	80	130	16	5	6,6	190	65	60
40	52	9	10	36	72	38	90	145	20	5	6,6	250	90	69
50	65	9	12	45	90	46,5	110	155	25	6,5	9	480	170	130
63	75	9	12	50	100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

Standard mounting foot brackets

Ordering code

Aluminium: **1320.Ø.05F**
(1 piece)



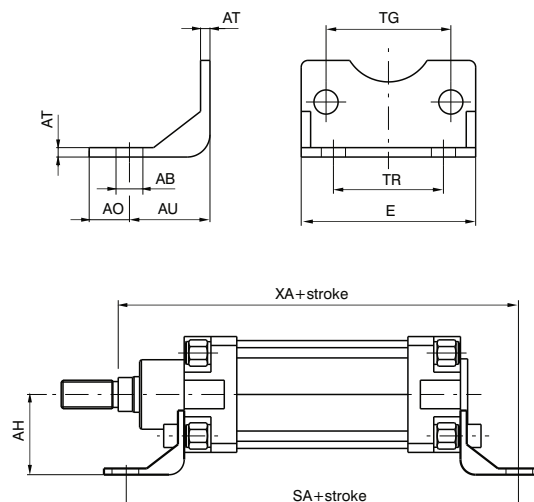
Elements used to anchor the cylinder parallel to the mounting plane. They are made of cast aluminium, painted black.

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

Short mounting foot brackets (in sheet metal MS1)

Ordering code

Steel: **1320.0.05/1F**
(1 piece)



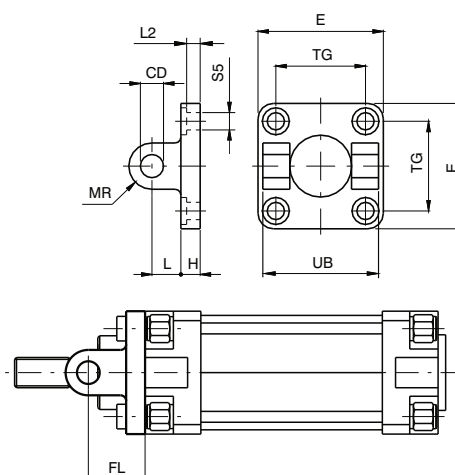
Elements used to anchor the cylinder parallel to the mounting plane. They are made of steel, and painted black.

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

Front clevis (not specified by ISO-VDMA standards)

Ordering code

Aluminium: **1380.0.08F**
Steel: **1320.0.19F**

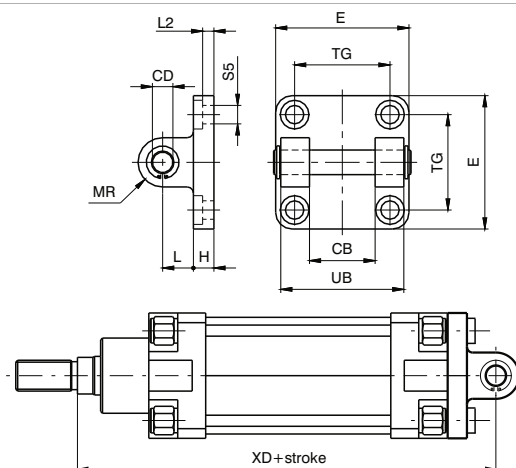


Used to mount the cylinder either parallel or at a right angle to the mounting plane; allows the cylinder to self-align under load. Made of aluminium alloy or steel (see ordering code) and painted black.

Bore	32	40	50	63	80	100	125	160	200
CD (H9)	10	12	12	16	16	20	25	30	30
E	Aluminium	45	52	65	75	95	115	140	180
	Steel	45	55	65	75	95	115	140	180
FL (± 0.2)	22	25	27	32	36	41	50	55	60
H	Aluminium	9	9	11	11	14	14	20	25
	Steel	10	10	10	12	14	16	20	20
L	Aluminium	13	16	16	21	22	27	30	35
	Steel	12	15	17	20	22	25	30	35
MR	10	12	12	16	16	20	25	25	25
TG	32,5	38	46,5	56,5	72	89	110	140	175
UB (h14)	45	52	60	70	90	110	130	170	170
L2 (± 0.5)	5,5	5,5	6,5	6,5	10	10	10	10	11
S5 (H13)	6,6	6,6	9	9	11	11	14	18	18
Weight gr.	Aluminium	50	75	125	190	380	620	1180	2900
	Steel	150	235	340	550	1010	1710	3360	8960

Rear clevis (MP2)

Ordering code

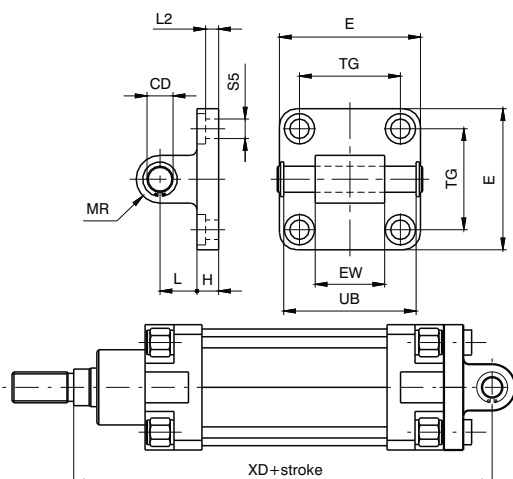
Aluminium: **1380.0.09F**
Steel: **1320.0.20F**


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

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

Rear male clevis (MP4)

Ordering code

Aluminium: **1380.0.09/1F**
Steel: **1320.0.21F**


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

Bore		32	40	50	63	80	100	125	160	200
CD		10	12	12	16	16	20	25	30	30
E	Aluminium	45	52	65	75	95	115	140	180	220
	Steel	45	55	65	75	95	115	140	180	220
EW		26 ^(+0,2/-0,6)	28 ^(+0,2/-0,6)	32 ^(+0,2/-0,6)	40 ^(+0,2/-0,6)	50 ^(+0,2/-0,6)	60 ^(+0,2/-0,6)	70 ^(+0,5/-1,2)	90 ^(+0,5/-1,2)	90 ^(+0,5/-1,2)
H	Aluminium	9	9	11	11	14	14	20	20	25
	Steel	10	10	10	12	14	16	20	20	20
L	Aluminium	13	16	16	21	22	27	30	35	35
	Steel	12	15	17	20	22	25	30	35	40
MR		10	12	12	16	16	20	25	25	25
TG		32,5	38	46,5	56,5	72	89	110	140	175
UB (^{h14})		46	53	61	71	91	111	132	171,5	171,5
XD		142	160	170	190	210	230	275	315	335
L2 (±0,5)		5,5	5,5	6,5	6,5	10	10	10	10	11
S5		6,6	6,6	9	9	11	11	14	18	18
Weight	Aluminium	90	130	190	340	580	960	1890	2830	3940
	Steel	210	330	430	810	1350	2400	4300	6880	8560

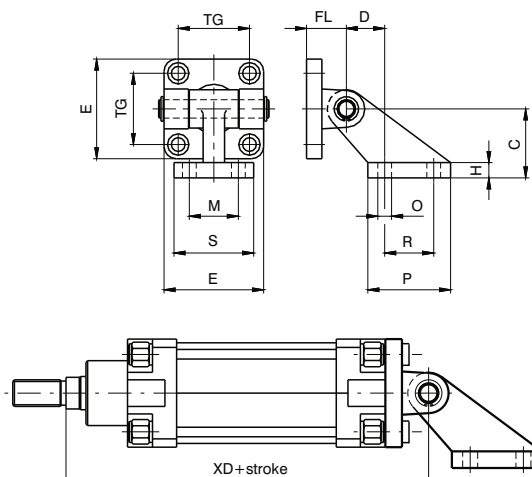
Simple rear trunnion with support brackets (not specified by ISO-VDMA standards)

Ordering code

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



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



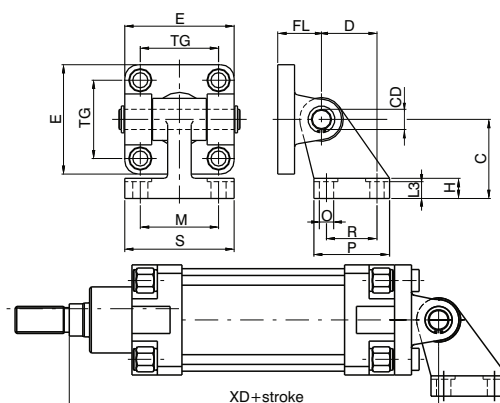
Bore	32	40	50	63	80	100	125	160	200
C (±0,2)	32	45	45	63	63	90	90	140	140
D (±0,5)	18	25	25	32	32	40	40	50	50
E	45	52	65	75	95	115	140	180	220
H	8	10	10	12	12	17	17	20	20
FL	22	25	27	32	36	41	50	55	60
M (JS 14)	25	32	32	40	40	50	50	63	63
TG	32,5	38	46,5	56,5	72	89	110	140	175
O (H 13)	7	9	9	11	11	14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

Square angle trunnion

Ordering code

Aluminium: **1380.Ø.35F**
Counter clevis can be ordered
separately with code 1320.Ø.11/2F

Steel: **1320.Ø.23F** (Ø32-Ø100)
Counter clevis can be ordered
separately with code 1320.Ø.24F



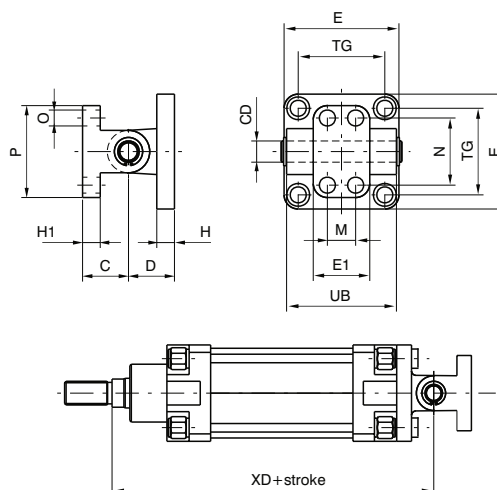
Bore		32	40	50	63	80	100	125	160	200
E	Aluminium	45	52	65	75	95	115	140	180	220
	Steel	45	55	65	75	95	115	140	180	220
TG		32,5	38	46,5	56,5	72	89	110	140	175
FL		22	25	27	32	36	41	50	55	60
D (JS14)		21	24	33	37	47	55	70	97	105
CD		10	12	12	16	16	20	25	30	30
C (JS15)		32	36	45	50	63	71	90	115	135
H	Aluminium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

Standard trunnion (not specified by ISO-VDMA standards)

Ordering code

Aluminium: **1380.Ø.10F**


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



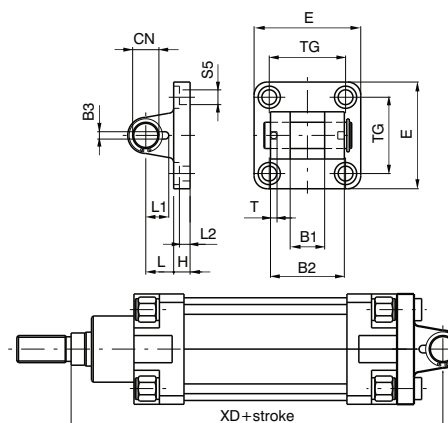
Bore	32	40	50	63	80	100	125	160	200
C (± 0.2)	18	26	26	34	34	41	41	55	55
CD	10	12	12	16	16	20	25	30	30
D	22	25	27	32	36	41	50	55	60
E	45	52	65	75	95	115	140	180	220
E1	25	32	32	46	46	56	56	71	71
H	10	10	12	12	16	16	20	20	25
H1	8	10	10	12	12	16	16	20	20
M (± 0.2)	-	16	16	25	25	32	32	43	43
N (± 0.2)	28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

Rear narrow clevis

Ordering code

Aluminium: **1380.Ø.30F**
Steel: **1320.Ø.29F** (Ø32-Ø125)


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



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

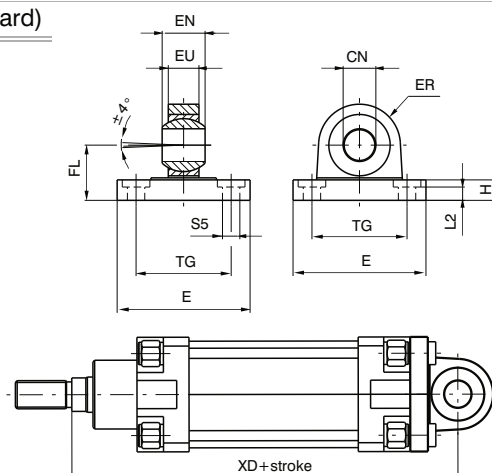
Rear male clevis (with jointed head according to DIN 648K standard)

Ordering code

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



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



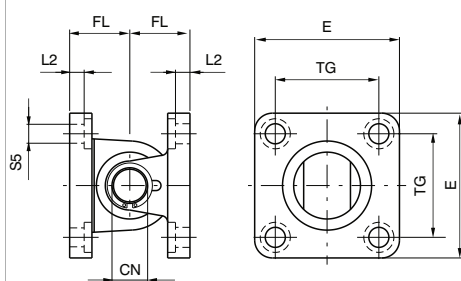
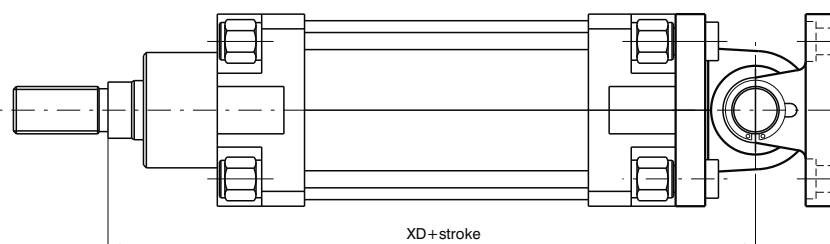
Bore		32	40	50	63	80	100	125	160	200
CN (H 7)		10	12	16	16	20	20	30	35	35
E	Aluminium	45	52	65	75	95	115	140	180	220
	Steel	45	55	65	75	95	115	140	180	220
EN (-0.1)		14	16	21	21	25	25	37	43	43
ER	Aluminium	16	19	21	24	28.5	30	40	45	48
	Steel	15	18	20	23	27	30	40	/	/
EU		10.5	12	15	15	18	18	25	28	28
FL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

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

Ordering code

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

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



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

Standard complete trunnion

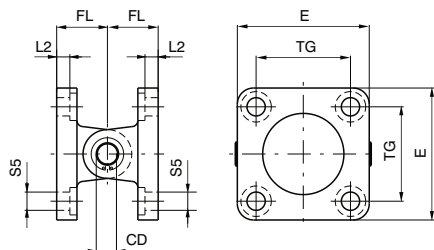
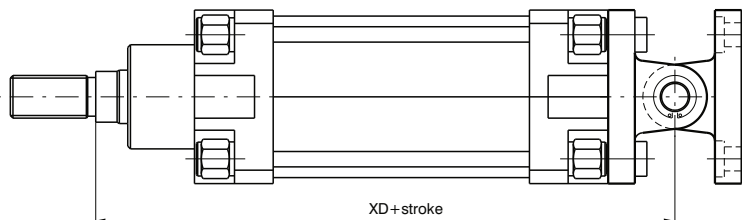
Ordering code

Aluminium: **1380.Ø.22F**

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

Steel: **1320.Ø.22F**

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



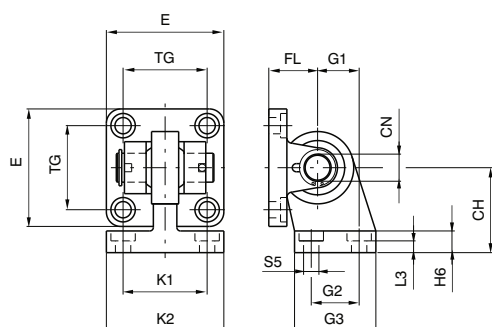
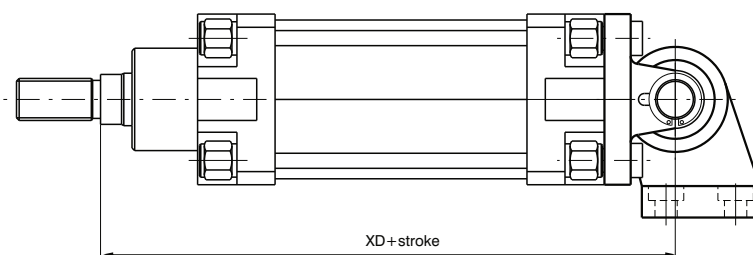
Bore	32	40	50	63	80	100	125	160	200
CD	10	12	12	16	16	20	25	30	30
E	45	55	65	75	95	115	140	180	220
FL	22	25	27	32	36	41	50	55	60
L2 (±0.5)	5,5	5,5	6,5	6,5	10	10	10	10	11
S5	6,6	6,6	9	9	11	11	14	18	18
TG	32,5	38	46,5	56,5	72	89	110	140	175
XD	142	160	170	190	210	230	275	315	335
Weight gr.	360	580	780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

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

Ordering code

Steel: **1320.Ø.27F**

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

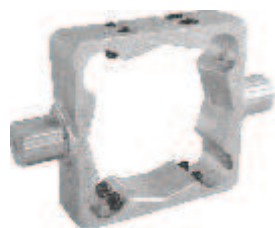


Bore	32	40	50	63	80	100	125
CH (JS 15)	32	36	45	50	63	71	90
CN	10	12	16	16	20	20	30
E	45	55	65	75	95	115	140
FL (JS 15)	22	25	27	32	36	41	50
G1 (JS 15)	21	24	33	37	47	55	70
G2 (JS 14)	18	22	30	35	40	50	60
G3	31	35	45	50	60	70	90
H6	10	10	12	12	14	15	20
K1 (JS 14)	38	41	50	52	66	76	94
K2	51	54	65	67	86	96	124
L3 (+0.5/-0)	8,5	8,5	10,5	10,5	11,5	12,5	17
S5	6,6	6,6	9	9	11	11	14
TG	32,5	38	46,5	56,5	72	89	110
XD	142	160	170	190	210	230	275
Weight gr.	330	480	830	1220	2100	3580	7000

Intermediate trunnion Series 1319 - 1321

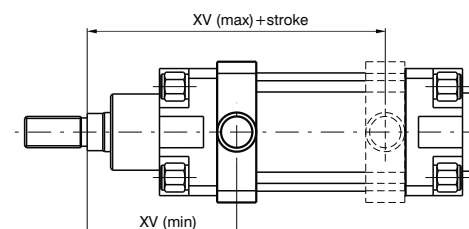
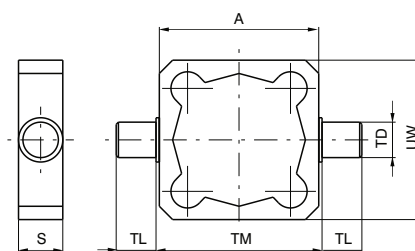
Ordering code

Steel: **1320.Ø.12F**



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

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



Bore	32	40	50	63	80	100	125	160	200
A	49	62	73	87	109	130	155	190	240
S	18	21	21	27	27	32	32	40	40
TD (e9)	12	16	16	20	20	25	25	32	32
TL (h14)	12	16	16	20	20	25	25	32	32
TM (h14)	50	63	75	90	110	132	160	200	250
UW	59	62	73	87	109	130	155	190	240
XV (max.)	85	96	102	109	123.5	131.5	162	193	204
XV (min.)	61	69	78	86	96.5	108.5	128	150	168
Weight gr.	180	270	330	650	890	1550	1950	3580	5850

Intermediate trunnion Series 1386 - 1388 - 1396 - 1398

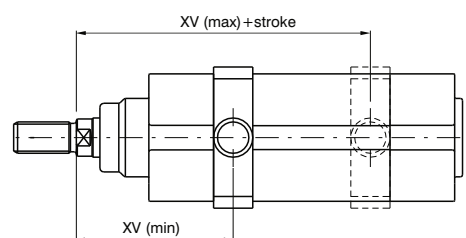
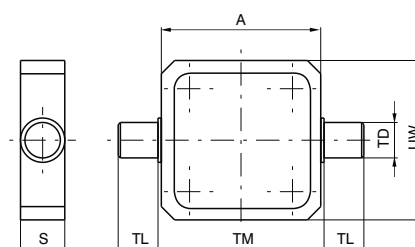
Ordering code

Steel: **1386.Ø.12F**



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

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



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

Intermediate trunnion Series 1319 - 1321

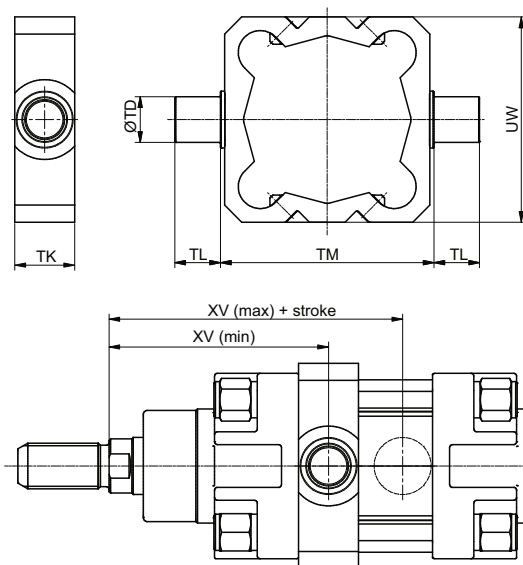
Ordering code

1320.Ø.12BF
(Aluminium with
steel bushes)


Aluminium Intermediate Trunnion with steel bushes to be mounted on the barrel. This solution allows the cylinder to rotate around the hinge which can be mounted in any position between the end caps. It is attached to the barrel by means of 8 grub screws which secure the Trunnion to the extruded barrel. In the case of heavy duty applications it is recommended that the Trunnion is secured using expansion pins.

In case off applications with high speed, high load and high pressure please contact our technical office.

Please note: If the Trunnion is mounted in direct contact with the cylinder end cap, it will not be possible to fit magnetic sensors at the end of stroke.



Bore	32	40	50	63	80	100
TD	Ø12	Ø16	Ø16	Ø20	Ø20	Ø25
TL	12	16	16	20	20	25
TM	50	63	75	90	110	132
TK	18	21	21	27	27	32
UW	54	60	72	87	109	130
XV min.	61	69	78	86	96.5	108.5
XV max.	85	96	102	109	123.5	131.5
Weight gr.	70	110	140	280	370	630

Intermediate trunnion Series 1390 - 1392

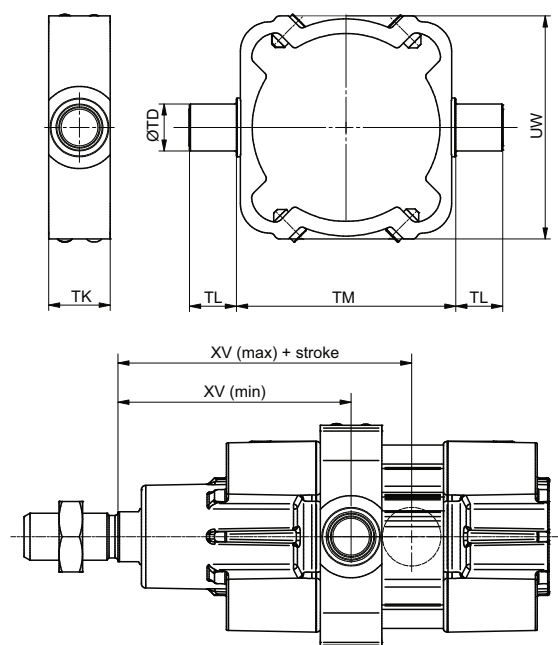
Ordering code

1390.Ø.12F
(Aluminium with
steel bushes)


Aluminium Intermediate Trunnion with steel bushes to be mounted on the barrel. This solution allows the cylinder to rotate around the hinge which can be mounted in any position between the end caps. It is attached to the barrel by means of 8 grub screws which secure the Trunnion to the extruded barrel. In the case of heavy duty applications it is recommended that the Trunnion is secured using expansion pins.

In case off applications with high speed, high load and high pressure please contact our technical office.

Please note: If the Trunnion is mounted in direct contact with the cylinder end cap, it will not be possible to fit magnetic sensors at the end of stroke 1500._, RS._, HS._ series.



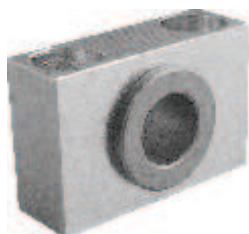
Bore	32	40	50	63	80	100
TD	Ø12	Ø16	Ø16	Ø20	Ø20	Ø25
TL	12	16	16	20	20	25
TM	53*	63	75	90	110	132
TK	18	21	21	27	27	32
UW	56	64	76	92	112	134
XV min.	65	74	80	87	99	109
XV max.	81	91	100	108	121	130.5
Weight gr.	60	100	125	240	320	540

* (Ø32, TM: not according to standard ISO 15552

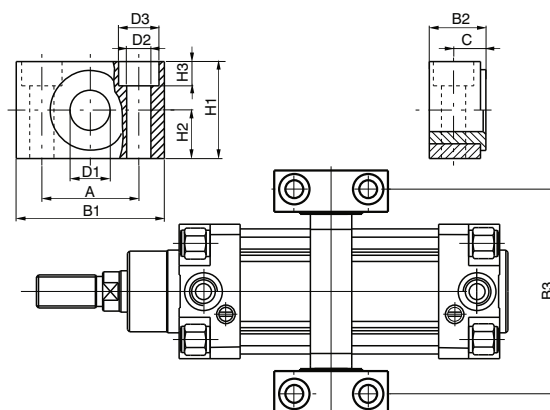
Support for intermediate trunnion

Ordering code

1320.Ø.12/1F
(1 piece)



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



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

Rod forks and nuts

Ordering code

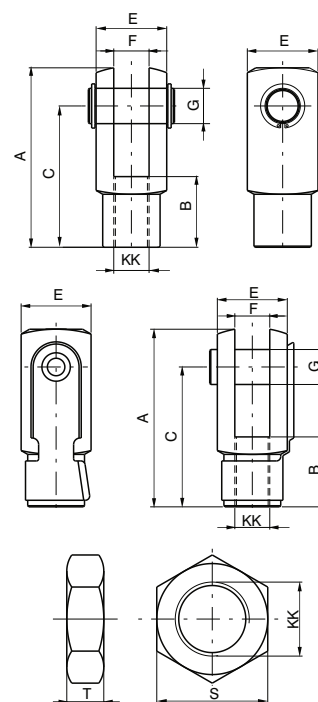
1320.Ø.13F



1320.Ø.13/1F
(from ø32 to ø100)



1320.Ø.18F



Fork:

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

Nut:

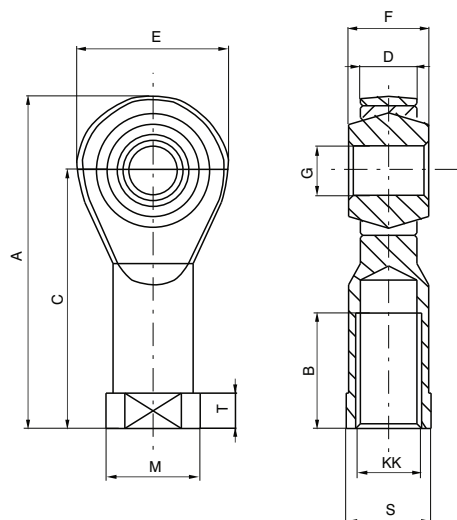
Used to block the position of the fork.

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

Ball joint

Ordering code

1320.Ø.32F

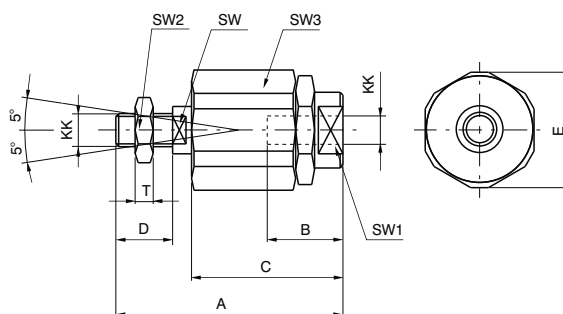


Bore	32	40	50	63	80	100	125	160	200
A	57	66	85	85	102	102	145	165	165
B	20	22	28	28	33	33	51	56	56
C	43	50	64	64	77	77	110	125	125
D (-0.1)	10.5	12	15	15	18	18	25	28	28
E	28	32	42	42	50	50	70	80	80
F	14	16	21	21	25	25	37	43	43
G (H 7)	10	12	16	16	20	20	30	35	35
KK	M10x1.25	M12x1.25	M16x1.5	M16x1.5	M20x1.5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

Self-aligning joint

Ordering code

1320.Ø.33F



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

Construction characteristics

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

Technical characteristics

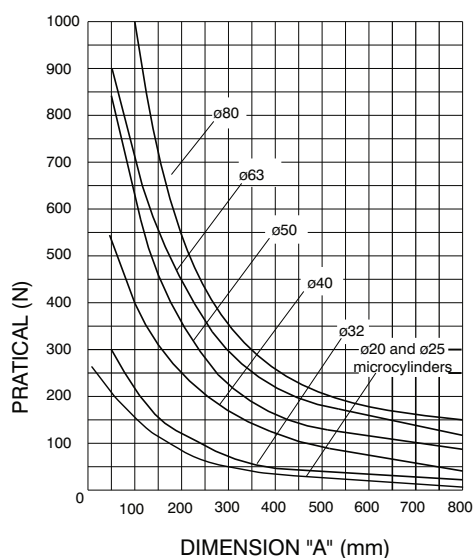
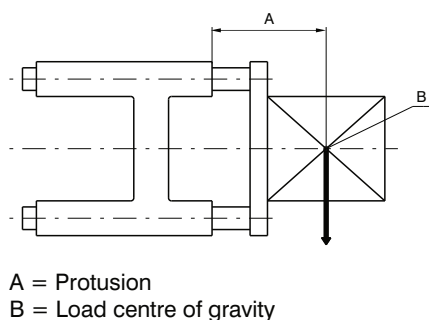
Max. suggested strokes for 1200 series:

Diameter	20	25
Stroke mm	200	250

Max. suggested strokes for 1320 series:

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

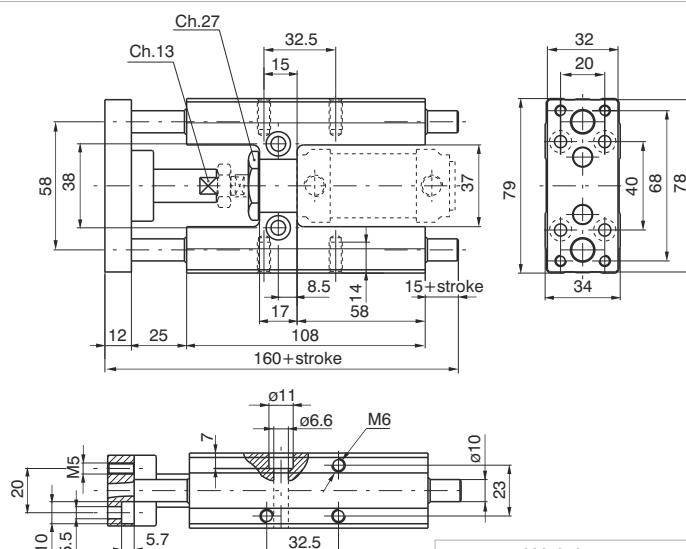
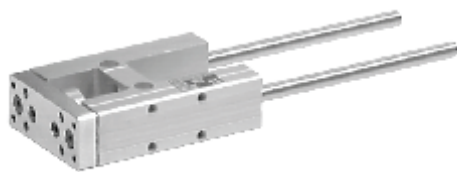
Loading diagram based on dimension "A"



Use and maintenance

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

Dimensions for microcylinders ISO 6432



Ordering code

1260.Ø.stroke.GLB
(Microcylinders ISO 6432
must be ordered separately)

Standard strokes

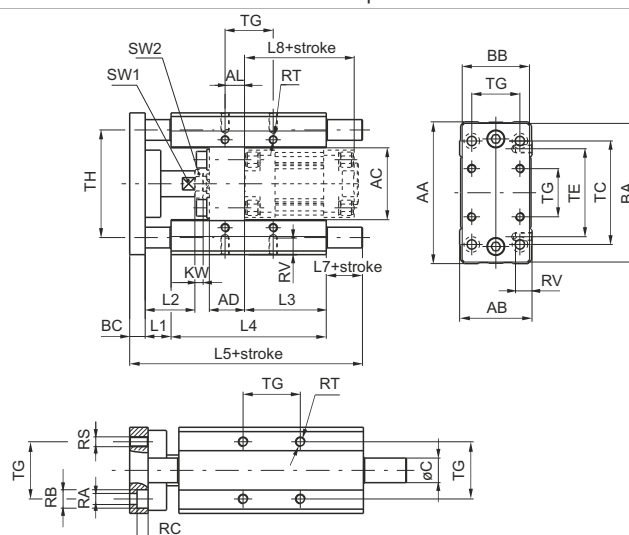
Standard strokes
 Ø 20 100 - 150 - 200 mm
 Ø 25 100 - 150 - 200 - 250 mm

Weight gr.

stroke 100	every 50 mm
970	60

Sensors and sensor clamps: Use standard sensors and clamps.

Dimensions for microcylinders ISO 15552



Ordering code

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

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

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

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

Standard strokes

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

Sensor clamps and brackets for 1319-1320 series

Use standard sensors and brackets on the rear and following special brackets on front of cylinders for use sensors codes 1500., RS., HS. which have the following ordering codes:

1320.AGL sensor bracket for cylinders Ø32 and Ø40
1320.BGL sensor bracket for cylinders Ø50 and Ø63
1320.CGL sensor bracket for cylinders Ø80

General

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

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

The piston rod lock device is not a safety device.

Construction characteristics

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

Technical characteristics

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

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

Use and maintenance

Operate within the specified technical characteristics.

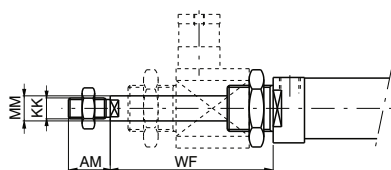
The piston rod lock does not require maintenance if properly utilised.

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

Spare parts are not available.

Microcylinders for piston rod lock

Threaded end covers version

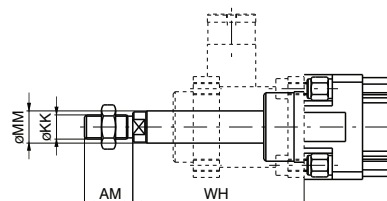


Ordering code

12_ _Ø.stroke.B

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

Cylinders for piston rod lock

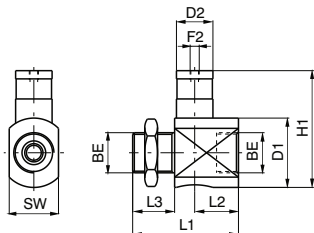


Ordering code

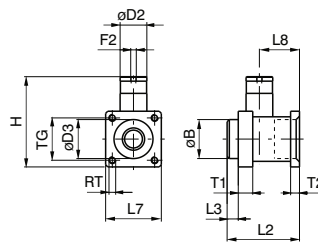
13 --Ø.stroke.--B

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

Piston rod lock complete



Do not use as safety device



Ordering code

1260.Ø.51BS

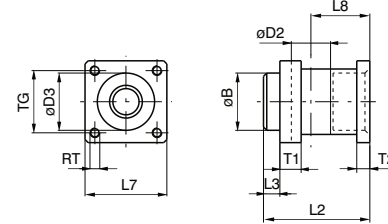
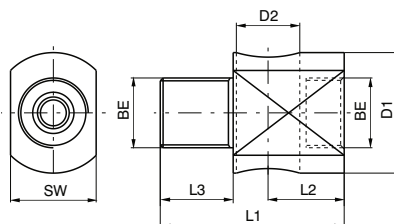
Ø	12	16	20	25	32
Weight gr.	82	82	140	140	188

Ordering code

1320.Ø.51BS

Ø	32	40	50	63	80	100	125
Weight gr.	191	276	535	852	1772	2412	5250

Piston rod lock bracket



Ordering code

1260.Ø.51S

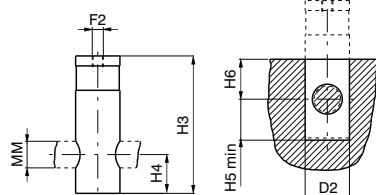
Ø	12	16	20	25	32
Weight gr.	60	60	85	85	133

Ordering code

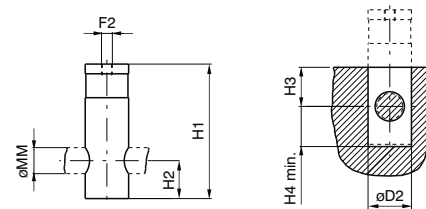
1320.Ø.51S

Ø	32	40	50	63	80	100	125
Weight gr.	142	171	360	486	1060	1700	3500

Piston rod lock and housing



Do not use as safety device



Ordering code

1260.Ø.51B (Ø12-Ø25)

1320.32.51B (Ø32)

Ø	12	16	20	25	32
Weight gr.	22	22	55	55	55

Ordering code

1320.Ø.51B

Ø	32	40	50	63	80	100	125
Weight gr.	49	105	175	366	712	712	1750

Table of dimensions (series 1200)

Bore	AM	BE	D1	D2	F2	H1	H3	H4	H5	H6	KK	L1	L2	L3	MM	SW	WF
12	16	M16x1.5	20	16	M5	35	35	10	11	10	M6x1	42	21	12	6	20	55
16	16	M16x1.5	20	16	M5	35	35	10	11	10	M6x1	42	21	12	6	20	55
20	20	M22x1.5	38	20	M5	64	62	17.5	19	18	M8x1.25	58	24	23	8	27	73
25	22	M22x1.5	38	20	M5	64	62	17.5	19	18	M10x1.25	58	24	23	10	27	77
32	20	M30x1.5	39.5	20	M5	64	62	17.5	18.5	18	M10x1.25	60	26	22	12	35	76.5

Table of dimensions (series 1300)

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