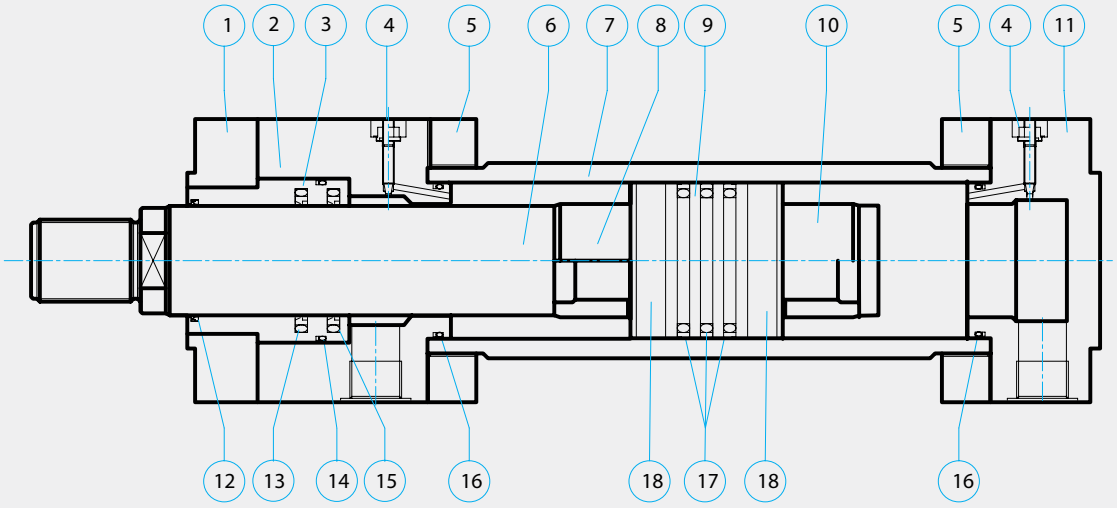
Hydraulic cylinders for heavy duty applications, in compliance with the ISO 6022 standard.
The cylinders are available in many mountings and with several sealing configurations.
The use of bronze guides for the rod and the piston guarantees high performances and a long life.
All the cylinders are tested in compliance with the ISO 10100 standard.

DP

SPECIFICATIONS				
Standard cylinders		ISO 6022 - DIN 24333		
Bore	mm	Bore from 50 to 320		
Pressure	bar	operating 250	max	320
Max stroke	mm	6000		
Stroke tolerance		0 + 2 mm ISO 8131 Standard		
Fluid		Hydraulic mineral oil Phosphoric esters HFC-fluid		
Viscosity		12... 90 mm ²/S		

Seal code	Performance					Fluid		
	High sealing	Low friction	Max speed	Temp °C Min	Max	Hydraulic oil	Phosphoric esters	HFC-fluid
S	√			- 20	+ 80	√		
L		√		- 20	+ 80	√		
H		√		- 20	+ 150	√	√	
G		√		- 20	+ 80			√

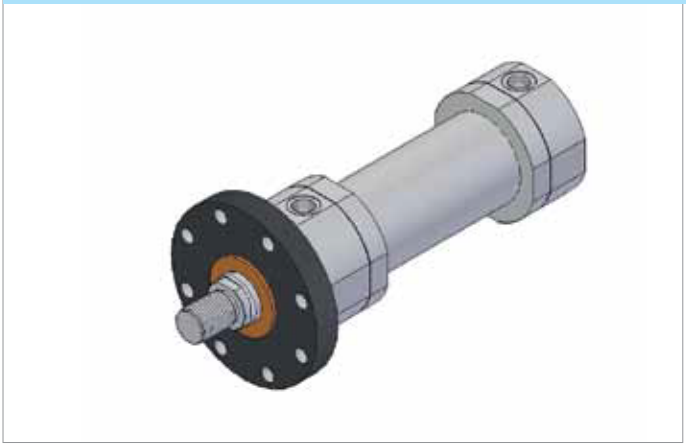
DP

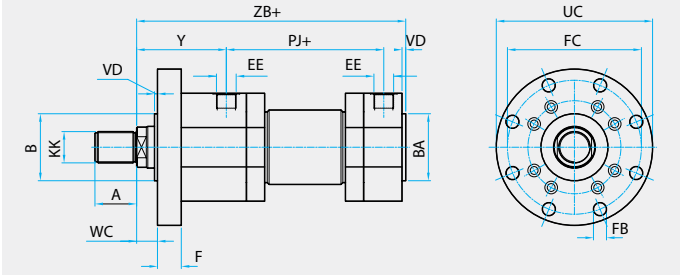


	Component	Material	Specifications
1	Closing flange	Steel	
2	Front head	Steel	
3	Guide bushing	Bronze	
4	Cushioning adjusting + air bleed	Steel	
5	Counter flange	Steel	
6	Piston rod	Hardened and tempered chromeplated steel	Cr 25µm ISO f7 - Ra 0.20 µm
7	Cylinder body	Steel	Honed H8 - Ra 0.40 µm
8	Front cushioning	Hardened steel	
9	Piston	Steel	
10	Rear cushioning	Hardened steel	
11	Rear head	Steel	

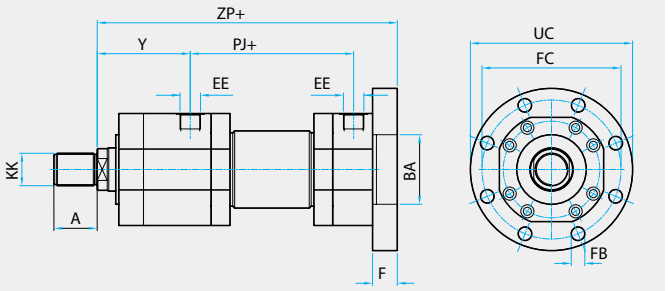
	Component	Groove	Material			
			S	L	H	G
12	Rod wiper		NBR + PTFE	NBR + PTFE	Viton® + PTFE	NBR + PTFE CG
13	Rod seal	ISO 7425/2	PU	NBR + PTFE	Viton® + PTFE	NBR + PTFE CG
14	Head-bushing sealing		NBR + PTFE	NBR + PTFE	Viton® + PTFE	NBR + PTFE CG
15	Rod seal	ISO 7425/2	NBR + PTFE	NBR + PTFE	Viton® + PTFE	NBR + PTFE CG
16	Tube seal		NBR	NBR	Viton®	NBR
17	Piston seals	ISO 7425/1	NBR + PTFE + PU	NBR + PTFE	Viton® + PTFE	NBR + PTFE CG
18	Piston guide		Bronze	Bronze	Bronze	Bronze

A ISO MF3 FRONT FLANGE

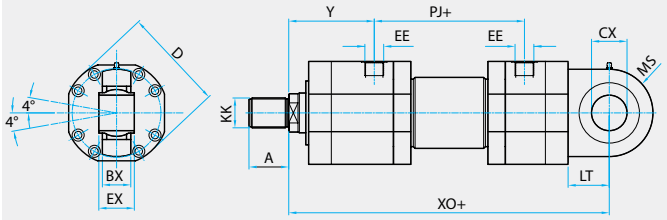




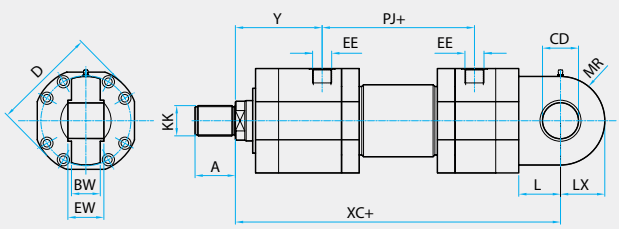
B ISO MF4 REAR FLANGE



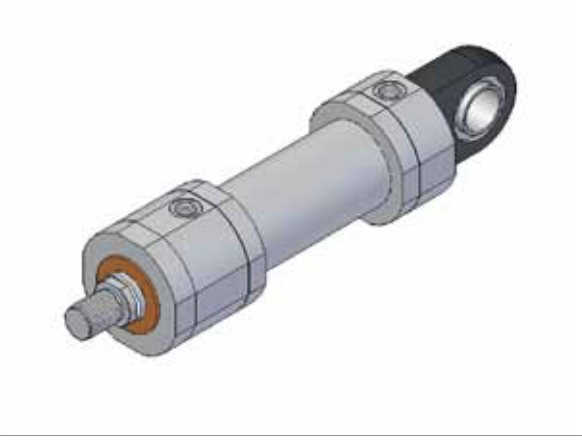
D ISO MP6 DISMANTABLE CLEVIS WITH BALL JOINTED EYE

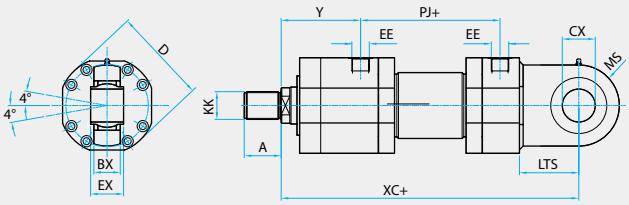


C ISO MP4 DISMANTABLE CLEVIS

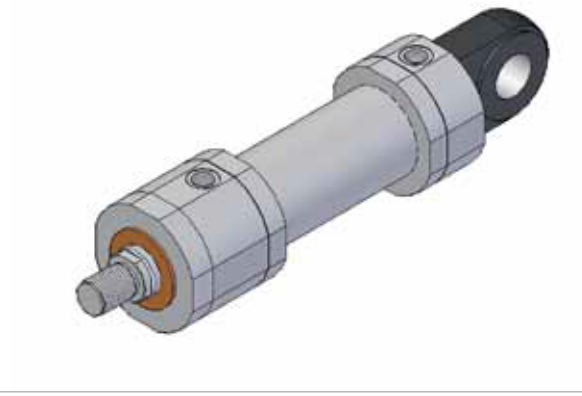


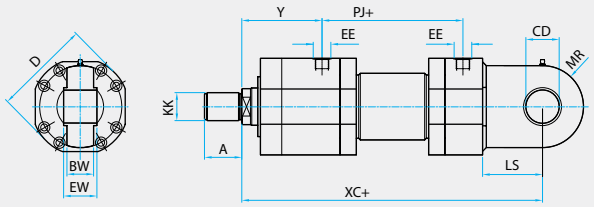
S ISO MP5 EXTENDED WELDED CLEVIS WITH BALL JOINTED EYE



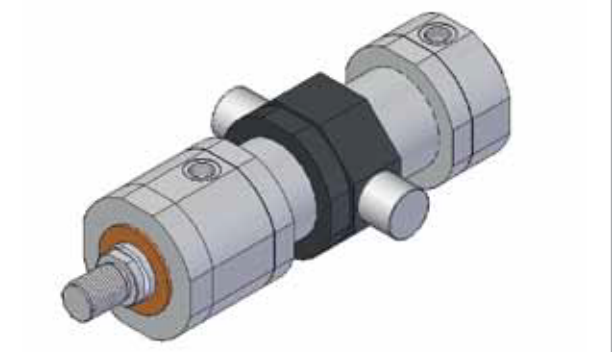


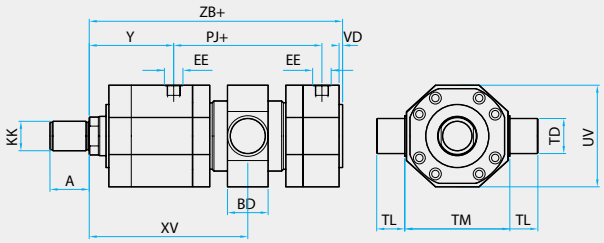
R ISO MP3 EXTENDED WELDED CLEVIS



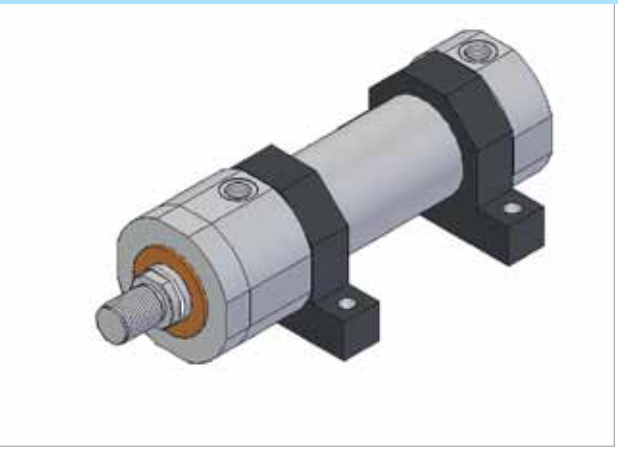


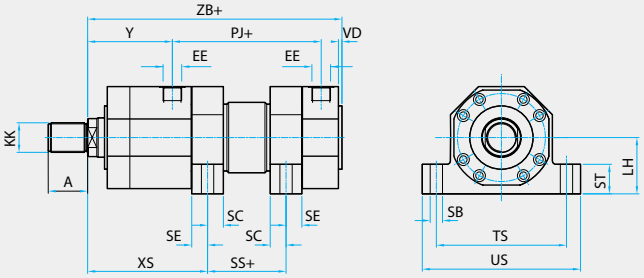
H ISO MT4 INTERMEDIATE TRUNNIONS



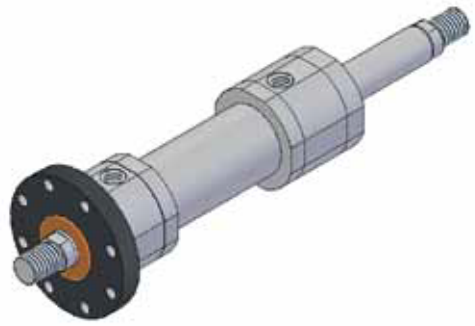


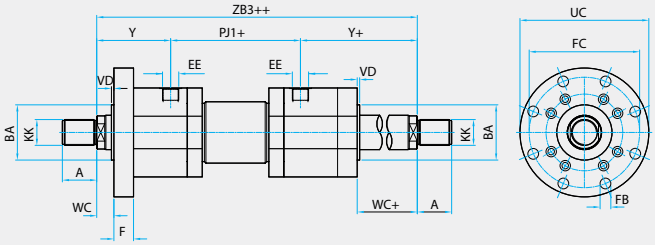
E ISO MS2 FEET



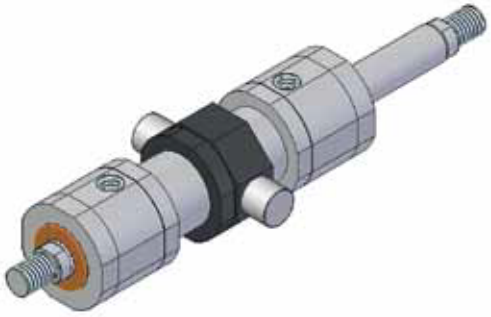


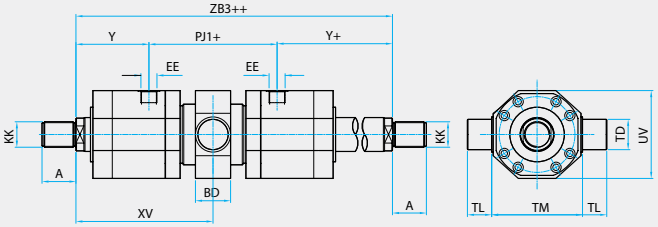
A FRONT FLANGE



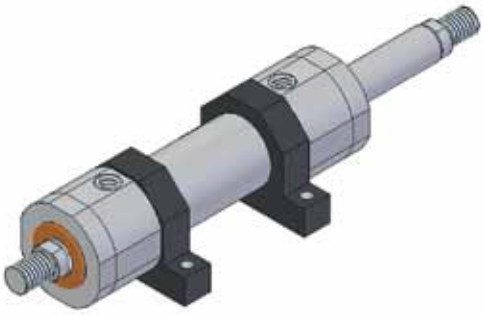


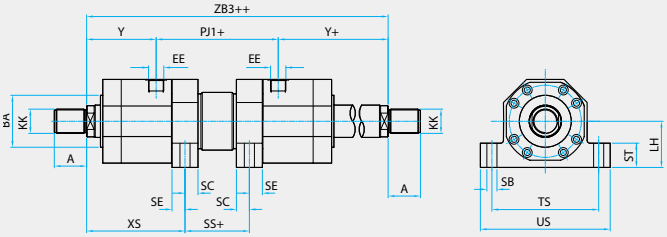
H INTERMEDIATE TRUNNIONS





E FEET





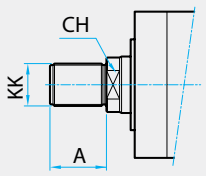
Bore	50	63	80	100	125	140*	160	200	250	320
B f8	63	75	90	110	132	145	160	200	250	320
BA f8	63	75	90	110	132	145	160	200	250	320
BD	38	48	58	73	88	98	108	133	180	220
BW	27	35	40	52	60	65	84	102	130	162
BX	27	35	40	52	60	65	84	102	130	162
CD H9	32	40	50	63	80	90	100	125	160	200
CX H7	32	40	50	63	80	90	100	125	160	200
D max	105	124	148	175	207	255	270	330	412	510
EW	32	40	50	63	80	90	100	125	160	200
EX	32	40	50	63	80	90	100	125	160	200
EE	G 1/2"	G 3/4"	G 3/4"	G 1"	G 1"	G 1 1/4"	G 1 1/4"	G 1 1/4"	G 1 1/2"	G 1 1/2"
F	25	28	32	36	40	40	45	56	63	80
FB	8 x Ø 13.5	8 x Ø 13.5	8 x Ø 17.5	8 x Ø 22	8 x Ø 22	8 x Ø 26	8 x Ø 26	8 x Ø 33	8 x Ø 39	8 x Ø 45
FC	132	150	180	212	250	300	315	385	475	600
L	40	50	63	71	90	115	112	160	200	250
LS	65	78	95	107	130	155	157	216	263	330
LT	40	50	63	71	90	115	112	160	200	250
LTS	65	78	95	107	130	155	157	216	263	330
LH h10	60	68	80	95	115	135	145	170	215	260
MR	38	50	61.5	71	90	113	112	145	178	230
MS	38	50	61.5	71	90	113	112	145	178	230
PJ	120+	136+	156+	172+	205+	208+	235+	278+	325+	350+
PJ1	120+	136+	156+	172+	214+	208+	240+	280+	320+	350+
SB	11	13.5	17.5	22	26	30	33	40	52	62
SC	15.5	17.5	22.5	27.5	30	35.5	37.5	45	50	60
SE	15.5	17.5	22.5	27.5	30	35.5	37.5	45	50	60
ST	32	37	42	52	62	77	77	87	112	152
SS	55+	55+	55+	55+	60+	61+	79+	90+	120+	120+
TD f8	32	40	50	63	80	90	100	125	160	200
TL	25	32	40	50	63	70	80	100	125	160
TM	112	125	150	180	224	265	280	335	425	530
TS	135	155	185	220	270	325	340	405	520	620
UC	155	175	210	250	290	340	360	440	540	675
US	160	185	225	265	325	390	405	480	620	740
UV	108	124	148	175	218	260	280	330	412	510
VD	4	4	5	5	6	5	7	10	12	14
WC	22	25	28	32	36	36	40	45	50	56
XC	305+	348+	395+	442+	520+	580+	617+	756+	903+	1080+
XO	305+	348+	395+	442+	520+	580+	617+	756+	903+	1080+
XS	130	147.5	170.5	192.5	230	254.5	265.5	315	360	425
XV min / max	187 / 132+	212 / 137+	245 / 155+	280 / 160+	340 / 180+	380 / 200+	400 / 220+	450 / 260+	540 / 300+	625 / 325+
Y	98	107	120	134	153	181	185	221	260	310
ZB	244+	274+	305+	340+	396+	430+	467+	550+	652+	764+
ZB3	315++	350++	396++	440++	520++	570++	610++	720++	840++	970++
ZP	265+	298+	332+	371+	430+	465+	505+	596+	703+	830+

Rod (mm)		32	36	40	45	50	56	63	70	80	90	90	100	100	110	125	140	160	180	200	220
CH		28	30	34	36	43	46	52	60	65	75	75	85	85	95	110	120	140	160	180	200
Standard	A	36	36	45	45	56	56	63	63	85	85	90	90	95	95	112	112	125	125	160	160
	KK	M27x2	M27x2	M33x2	M33x2	M42x2	M42x2	M48x2	M48x2	M64x3	M64x3	M72x3	M72x3	M80x3	M80x3	M100x3	M100x3	M125x4	M125x4	M160x4	M160x4
Female	A	28	36	36	45	45	56	56	63	63	85	85	90	90	95	95	112	112	125	125	160
	KF	M20x1,5	M27x2	M27x2	M33x2	M33x2	M42x2	M42x2	M48x2	M48x2	M64x3	M64x3	M72x3	M72x3	M80x3	M80x3	M100x3	M100x3	M125x4	M125x4	M160x4

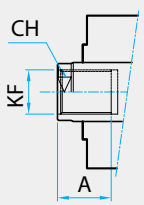
+= add the stroke ++ = add the double of the stroke * = bore not specified in ISO 6022 standard

ROD END

STANDARD



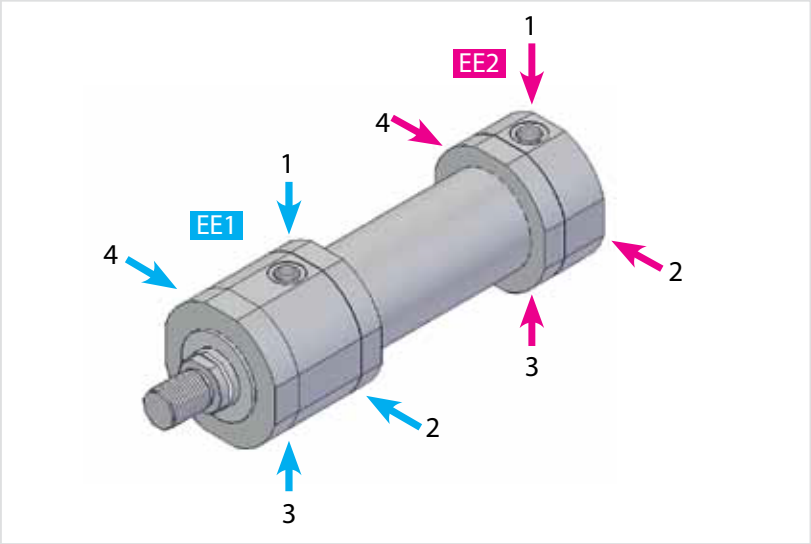
SF FEMALE



The most suitable rod end eye with spherical bearing is the CS version. (Get in touch for more information).

	ROD MATERIAL
RRX	Stainless steel chromeplated rod
RRK	Nikrom rod
RRH	Hardened chromeplated rod

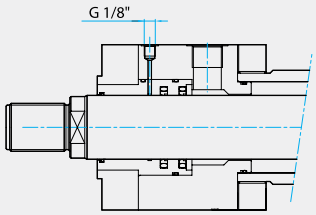
PORT LOCATION



Bore	Side	ISO 1179-1 (GAS) Standard	ISO 1179-1 (GAS) Oversize	SAE 3000 Standard	SAE 3000 Oversize
50	Front	G 1/2"	G 3/4"	-	-
	Rear	G 1/2"	G 3/4"	-	-
63	Front	G 3/4"	G 1"	1/2"	-
	Rear	G 3/4"	G 1"	1/2"	-
80	Front	G 3/4"	G 1"	1/2"	-
	Rear	G 3/4"	G 1"	1/2"	-
100	Front	G 1"	G 1 1/4"	3/4"	1"
	Rear	G 1"	G 1 1/4"	3/4"	1"
125	Front	G 1"	G 1 1/4"	3/4"	1"
	Rear	G 1"	G 1 1/4"	3/4"	1"
140	Front	G 1 1/4"	G 1 1/2"	1"	1 1/4"
	Rear	G 1 1/4"	G 1 1/2"	1"	1 1/4"
160	Front	G 1 1/4"	G 1 1/2"	1"	1 1/4"
	Rear	G 1 1/4"	G 1 1/2"	1"	1 1/4"
200	Front	G 1 1/4"	G 1 1/2"	1"	1 1/4"
	Rear	G 1 1/4"	G 1 1/2"	1"	1 1/4"
250	Front	G 1 1/2"	G 2"	1 1/4"	1 1/2"
	Rear	G 1 1/2"	G 2"	1 1/4"	1 1/2"
320	Front	G 1 1/2"	-	1 1/4"	1 1/2"
	Rear	G 1 1/2"	-	1 1/4"	1 1/2"

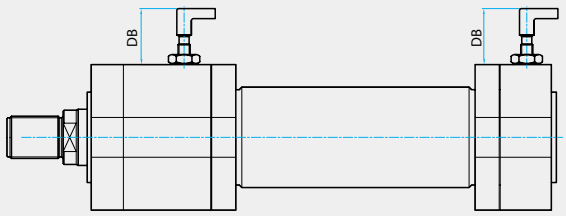
In the standard configuration the oil ports are in position 1.

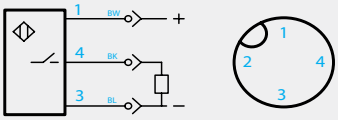
SD BUSHING DRAIN



The bushing drain avoids the accumulation of liquid behind the scraper.
A connection between the scraper and the lip seal allows to send the fluid back to the tank.
The drain is usually installed on the same side of the oil head.

PROXIMITY SWITCHES





Bore (mm)	DB max (mm)
50	80
63	80
80	70
100	60
125	65
160	55
200	50
250	0
320	0

SPV	Front sensor
SPZ	Rear sensor
SPK	Front and rear sensor

ORDERING CODE

DP [ ] 125 / 90 / [ ] A [ ] 500 [ ] S [ ] [ ]

The fields containing sample values are compulsory.

Type: DP

Special version (1): SX

Bore	Rod
50	32
	36
63	40
	45
80	50
	56
100	63
	70
125	80
	90
140 (2)	90
	100
160	100
	110
200	125
	140
250	160
	180
320	200
	220

Possible 2nd rod

Special options/versions (see page 36)

Rod end (see page 35)

	Male thread (standard)
SF	Female thread

Seals (see page 30)

S	Standard (mineral oil)
L	Low friction
H	Viton® (high temperature, phosphoric esters)
G	HFC-fluid

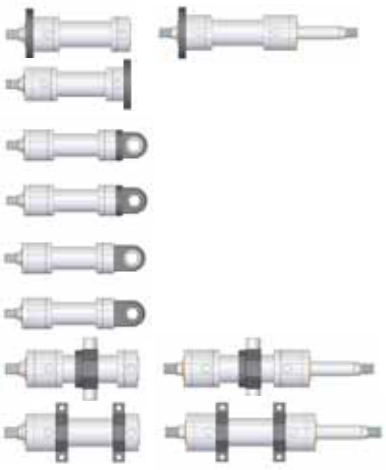
Spacer: Contact our technical department

Stroke: Specify in mm

Adjustable cushioning (4)

	Not cushioned
V	Front only
Z	Rear only
K	Front and rear

	ISO 6022	Mounting
Front flange	MF3	A
Rear flange	MF4	B
Dismantable clevis with ball jointed eye	MP6	D
Dismantable clevis	MP4	C
Extended welded clevis with ball jointed eye	MP5	S
Extended welded clevis	MP3	R
Intermediate trunnions (3)	MT4	H
Feet	MS2	E



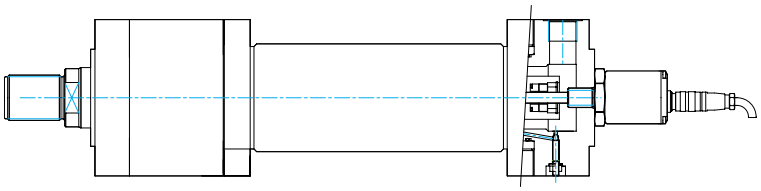
(1) Indicate SX when the cylinder has special options or versions. Then, indicate in the appropriate box, after the ordering code, the corresponding code (see page 36) followed by the drawing number, if any.

(2) Not included in ISO 6022 standard.

(3) For H mounting (MT4), indicate at the end of the code the letters "XV" followed by the XV quote value (see pages 33-34).

(4) The cushioning is not available for bore 250 and 320.

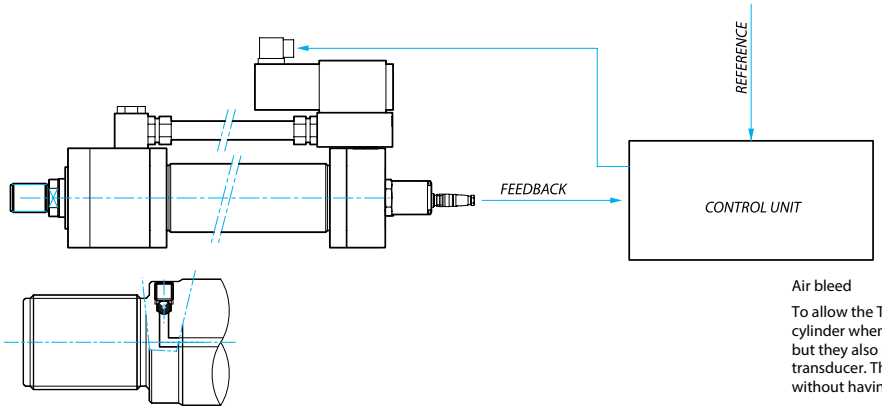
TP servocylinders include an electronic transducer, which allows to obtain the absolute position of the rod. The type of transducer to be used depends on the performance you need. The precision of positioning is determined by 2 elements:
the resolution of the transducer and the drive system of the cylinder.
The standard transudec is the type TEMPOSONIC, that allows high resolutions and different types of control; it supports all the stroke lengths necessary.
For Potentiometric and Induttivo type of transducer contact our technical department.



	MV	MA	MS
Transducer type	Temposonic	Temposonic	Temposonic
Supply voltage	24V DC	24V DC	24V DC
Output	0-10 V	4-20 mA	SSI (Syncronic Serial Interface)
Resolution	Endless	Endless	
Linearity	< ± 0.02% F.S. (min ± 50 µm)	< ±0.02% F.S. (min ± 50 µm)	< ±0.01% F.S. (min ± 50 µm)
Repeatability	< ±0.001% F.S. (min ± 2.5 µm)	< ±0.001% F.S. (min ± 2.5 µm)	< ±0.001% F.S. (min ± 2.5 µm)
Hysteresis	< 4µm	< 4µm	< 4µm
Absorption	100 mA	100 mA	100 mA
Max speed	2 m/s	2 m/s	2 m/s
Temperature	-20 +70 °C	-20 +70 °C	-20 +70 °C
Max stroke	2500	2500	2500

TP servocylinders can be equipped with ISO interface plates, which allow to mount directly on the cylinder the following elements:
- Solenoid valves ON/OFF
- Proportional solenoid valves
- Servovalves

This configuration, together with a CONTROL UNIT, ensures an optimal hydraulic rigidity, which drastically increments the answer time, the repeteability and the precision of the positioning.



Air bleed

To allow the TD servocylinders to work correctly, you need to completely exhaust the air within the cylinder when setting them up. Therefore, these cylinders not only include air bleed on the heads, but they also have an air bleed on the head of the rod for exhausting the air within the chamber of the transducer. The particular position of this air bleed allows working even when the cylinder is operative, without having to remove the rod from its housing.

ORDERING CODE

TP | | MA | 125 / 90 / | A | | 500 | L | | |

The fields containing sample values are compulsory.

Type: TP

Special version (1): SX

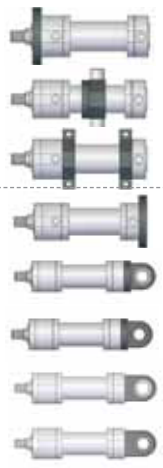
Transducer

Temposonic	MV
	MA
	MS

Bore	Rod
50	32
	36
63	40
	45
80	50
	56
100	63
	70
125	80
	90
140 (2)	90
	100
160	100
	110
200	125
	140
250	160
	180
320	200
	220

Possible 2nd rod

	ISO 6022	Mounting
Front flange	MF3	A
Intermediate trunnions (3)	MT4	H
Feet	MS2	E
Rear flange	MF4	B
Ball jointed eye	MP5	D
Male clevis	MP3	C
Extended ball jointed eye	MP5	S
Male clevis extendend	MP3	R



Contact our technical department

Special options/versions (see page 36)

Rod end (see page 35)

	Male thread (standard)
SF	Female thread

Seals (see page 30)

L	Low friction
H	Viton® (high temperature, phosphoric esters)
G	HFC-fluid

Spacer: Contact our technical department

Stroke: Specify in mm

Adjustable cushioning (4)

	Not cushioned
V	Front only
Z	Rear only
K	Front and rear

(1) Indicate SX when the cylinder has special options or versions. Then, indicate in the appropriate box, after the ordering code, the corresponding code (see page 36) followed by the drawing number, if any.

(2) Not included in ISO 6022 standard.

(3) For H mounting (MT4), indicate at the end of the code the letters "XV" followed by the XV quote value (see pages 33-34).

(4) The cushioning is not available for bore 250 and 320.