



Pneumatic Cylinders

NFPA Series

COMER

SYSTEM

SRL

INDEX:

General characteristics	3
Mounting styles	5
Piston rod characteristics (bore diam 25/150)	6
Single rod cylinder dimensions (bore diam 25/150)	8
Piston rod characteristics (bore diam 200/350)	14
Single rod cylinder dimensions (bore diam 200/350)	16
Double rod cylinder dimensions	22
Port types	23
Ports and cushions adjustment location	23
Rod piston diameter selection	24
Tie rod nuts torque	27
Cushioning lenghts	27
Accessories	28
Seals	30
Seals kit	30
How to order a Comer System cylinder	32
Special options	23

DEFINITIONS:

CYLINDER: appliance which transforms fluid Energy in mechanical force and rectilinear motion

CYLINDER BODY: cylinder internal diameter

PISTON ROD: tool which transmits mechanical force and piston movement

MOUNTING TOOL: appliance to anchor the cylinder



Pneumatic cylinders

Standard construction interchangeable with NFPA for heavy load

Work pressure 8-12 BAR Rated pressure 18 BAR

12 bore sizes

12 rod diameters

15 mounting styles

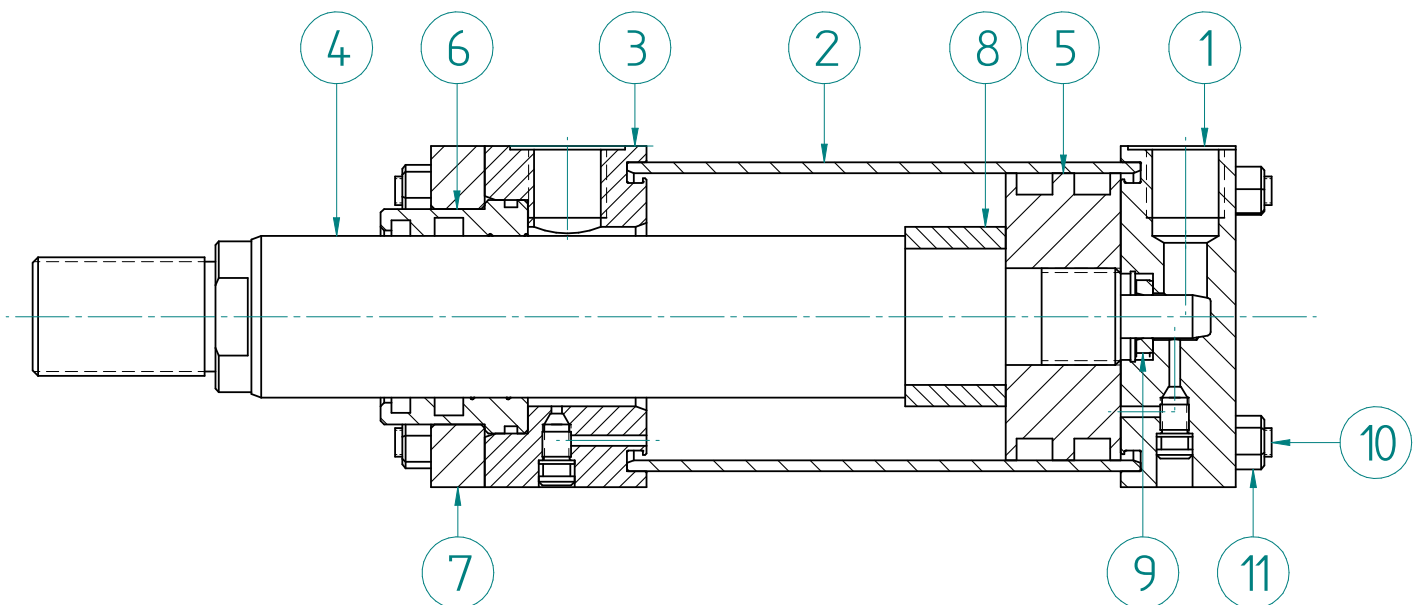
Optional cushioning at the head and cap

Stroke up to 4000 mm

Both male or female rod end

Squared head and cap

Standard BSPP ports, if requie we can supply NPTF toreate ports or flange ports SAE



1 Cap

5 Piston

9 Back cushioning

2 Body

6 Bronze rod glande

10 Tie rod

3 Head

7 Front flange

11 Nut

4 Piston rod

8 Front cushioning

CYLINDER BODY

High quality steel tube, cold wide drawing and yield point to 45 kg/mm². Internal high surface finiture, max roughness 0,25 μ .

PISTON ROD

High quality steel, polished and chrome plated, diameter tolerance f7 and roughness 0,2 μ . If required we can provide with special materials.

HEAD AND CAP ENDS

Made in steel, high level of precision to ensure maximum concentricity between them and the cylinder body.

PISTON

One-piece type, high quality aluminum. Particular attention for the concentricity, to ensure a good working for the seals.

SEALS

High quality gland, piston, head and cap ends seals in nitrile (NBR), compatible with work fluid, temperature range between $-20^{\circ} + 80^{\circ}\text{C}$, max speed 0,6 m/s. If required, related to work conditions, we can supply cylinders with fluorocarbon elastomer (FPM) or special mixture.

CUSHIONING

All cylinders can be provided with cushioning at the head and cap end, with progressive and controller deceleration.

Valves are provided at both ends, to permit a precise cushion adjustment.

LIMITED STROKE

When the stroke is particularly long. La lunghezza consigliabile è:

50 mm for strokes between 1000÷1500 mm

100 mm for strokes between 1500÷2000 mm

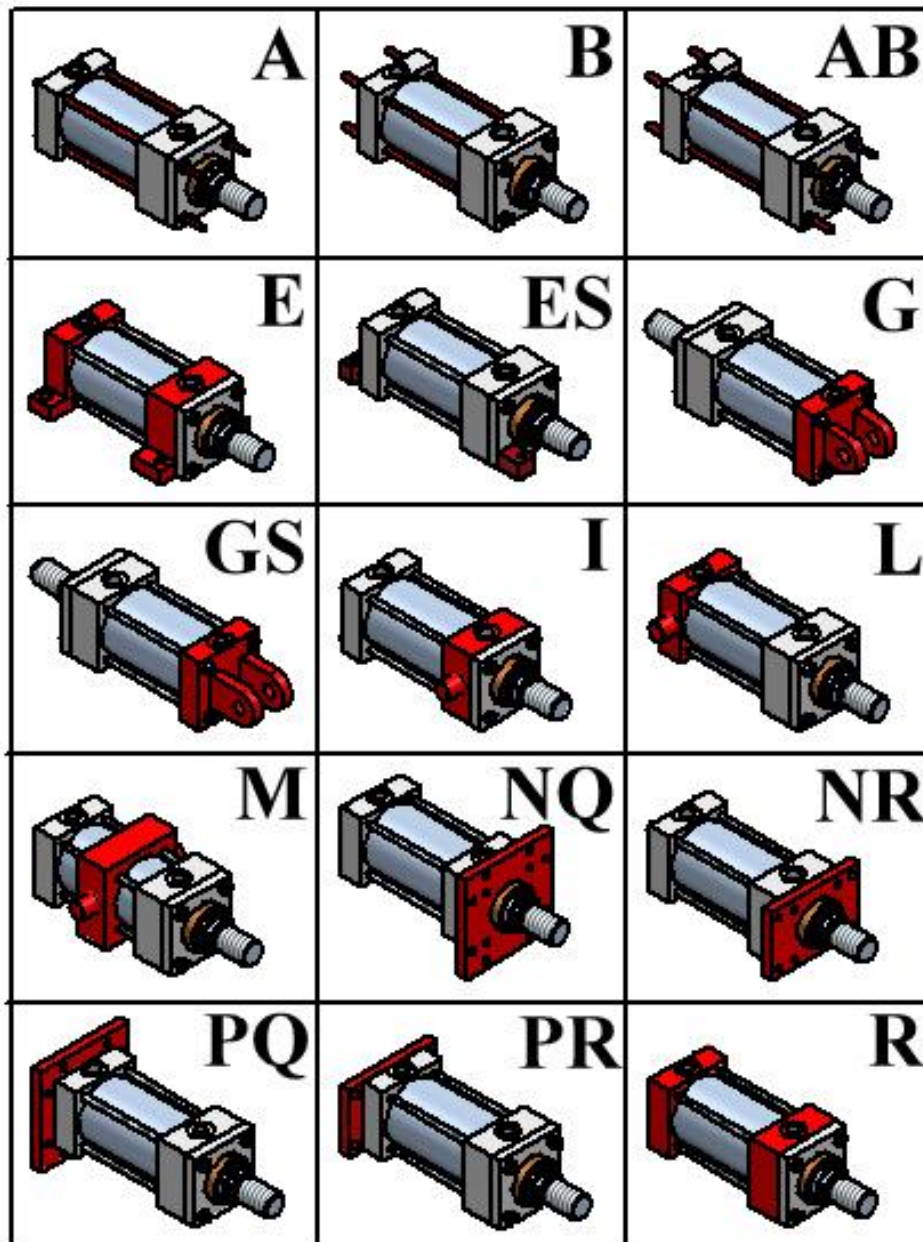
150 mm for strokes between 2000÷2500 mm

For longer strokes please contact our technical office.

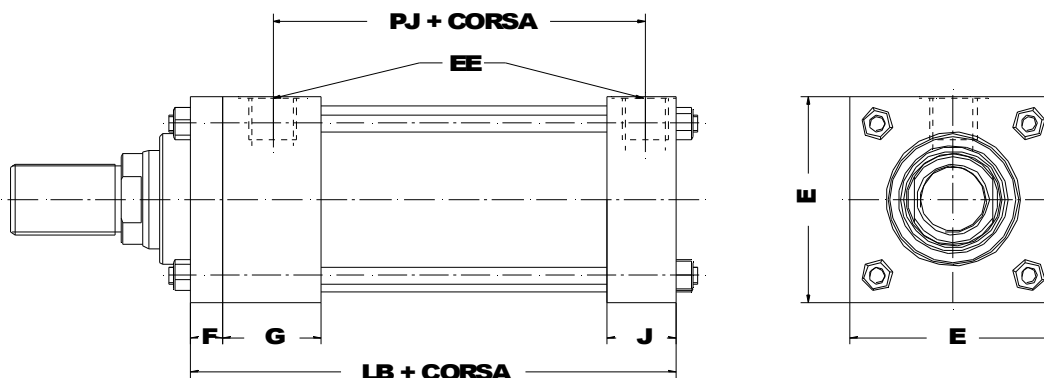
MOUNTING STYLES

Pneumatic cylinder's mounting styles are:

- A (MX3): tie rod extended head end
- B (MX2): tie rod extended cap end
- AB (MX1): tie rod extended both ends
- E (MS2): side lugs
- ES (MS7): side end lug
- G (MP1): cap fixed clevis
- GS (MP2): cap fixed clevis flange
- I (MT1): head trunnion
- L (MT2): cap trunnion
- M (MT4): intermediate fixed trunnion
- NQ (MF5): head square flange
- NR (MF1): head rectangular flange
- PQ (MF6): cap square flange
- PR (MF2): cap rectangular flange
- R (MS4): side tapped



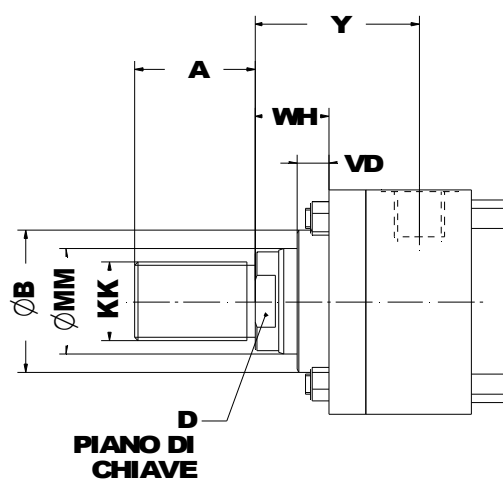
BASE QUOTES



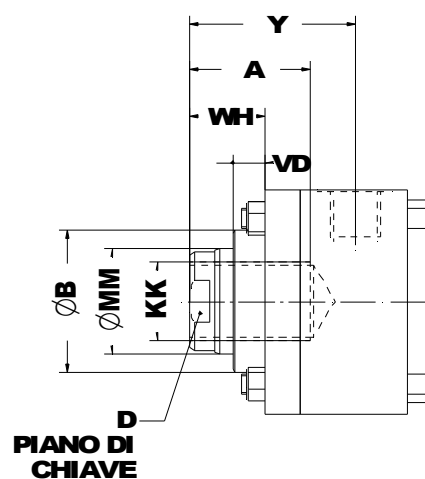
Bore	E	EE	F	G	J	LB	PJ
25	40	G 1/4	10	38	25	98	54
40	50	G 3/8	10	38	25	101	58
50	65	G 3/8	10	38	25	101	58
63	80	G 3/8	10	38	25	105	61
80	100	G 1/2	15	45	32	124	70
100	120	G 1/2	15	45	32	124	70
125	140	G 1/2	15	45	32	130	77
150	165	G 3/4	20	50	38	146	83

PISTON ROD END CHARACTERISTICS

MALE THREAD (M)



FEMALE THREAD (F)



Piston rod thread

Special thread:
If a different rod
end thread is requi-

red, indicate the S
in the cylinder,
pointing the value

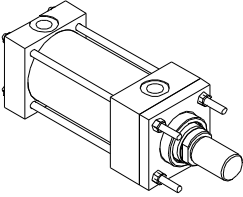
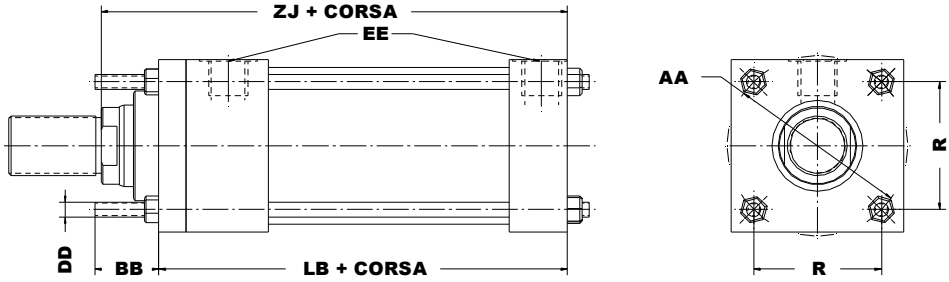
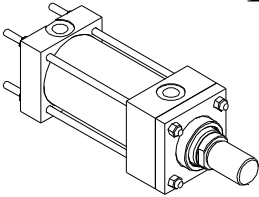
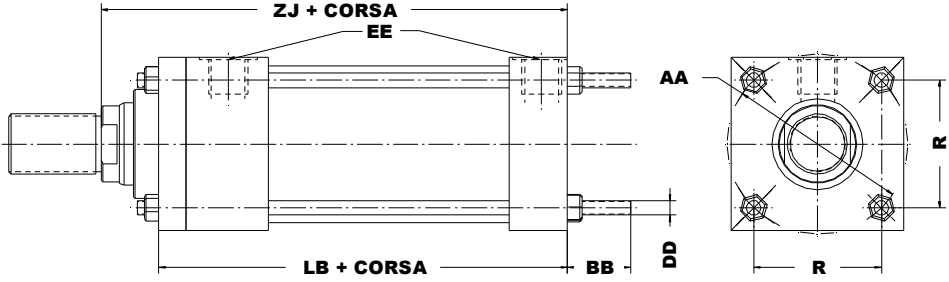
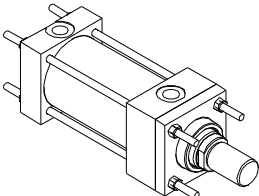
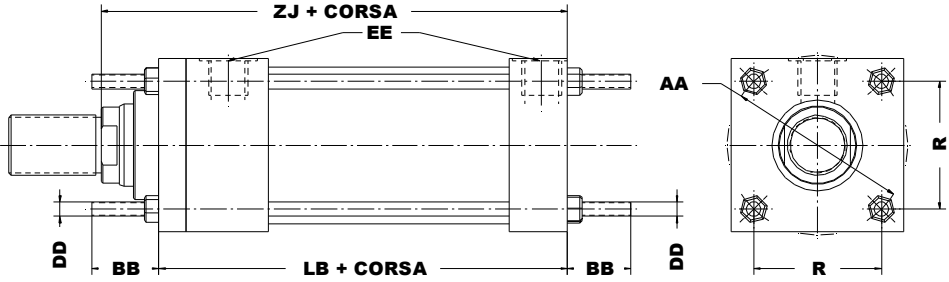
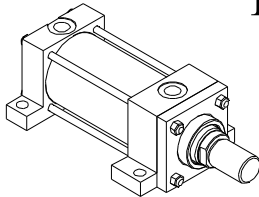
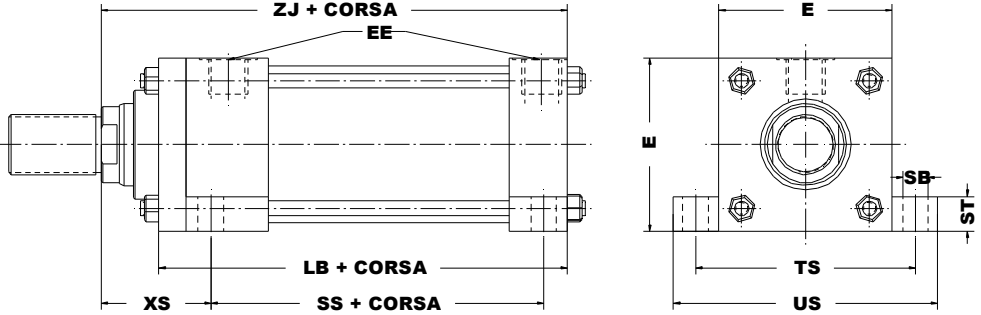
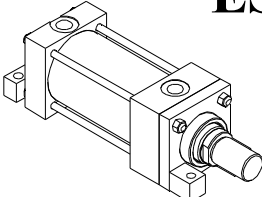
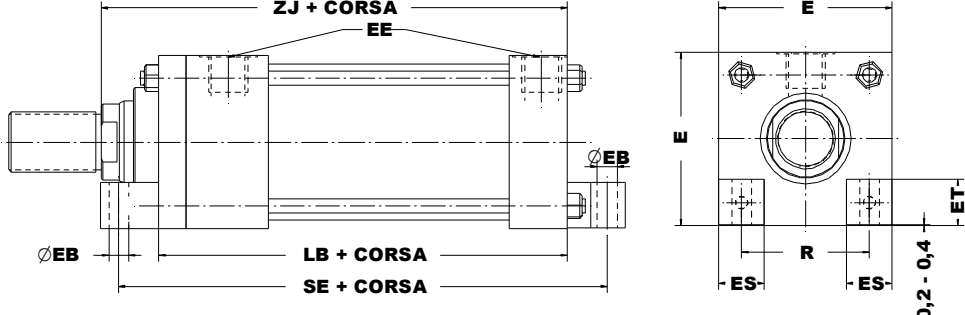
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ad.

PISTON ROD END DIMENSIONS

Bore Ø	Piston rod ØMM	KK - KF METRICO	KK - KF UNF	A	+0,00 B* -0,05	D	VD	Y	WH
25	12	M 8	5/16 - 24	15,9	25,37	10	5	49	15,9
	16	M 10	7/16 - 20	19,0	28,55	13	5	49	15,9
40	16	M 10	7/16 - 20	19,0	28,55	13	5	49	15,9
	25	M 20 x 1,5	3/4 - 16	28,6	38,07	22	12	59	25,4
50	16	M 10	7/16 - 20	19,0	28,55	13	5	49	15,9
	25	M 20 x 1,5	3/4 - 16	28,6	38,07	22	12	59	25,4
	36	M 26 x 1,5	1 - 14	41,3	50,77	30	19	65	31,8
63	16	M 10	7/16 - 20	19,0	28,55	13	5	49	15,9
	25	M 20 x 1,5	3/4 - 16	28,6	38,07	22	12	59	25,4
	36	M 26 x 1,5	1 - 14	41,3	50,77	30	19	65	31,8
	45	M 33 x 2	1 1/4 - 12	50,8	60,30	38	19	71,5	38,1
80	25	M 20 x 1,5	3/4 - 16	28,6	38,07	22	7	59	19,1
	36	M 26 x 1,5	1 - 14	41,3	50,77	30	14	65	25,4
	45	M 33 x 2	1 1/4 - 12	50,8	60,30	38	14	71,5	31,8
	50	M 39 x 2	1 1/2 - 12	57,1	66,65	41	14	74,5	34,9
100	25	M 20 x 1,5	3/4 - 16	28,6	38,07	22	7	59	19,1
	36	M 26 x 1,5	1 - 14	41,3	50,77	30	14	65	25,4
	45	M 33 x 2	1 1/4 - 12	50,8	60,30	38	14	71,5	31,8
	50	M 39 x 2	1 1/2 - 12	57,1	66,65	41	14	74,5	34,9
	63	M 48 x 2	1 7/8 - 12	76,2	79,35	55	17	81	41,3
125	25	M 20 x 1,5	3/4 - 16	28,6	38,07	22	7	59	19,1
	36	M 26 x 1,5	1 - 14	41,3	50,77	30	14	65	25,4
	45	M 33 x 2	1 1/4 - 12	50,8	60,30	38	14	71,5	31,8
	50	M 39 x 2	1 1/2 - 12	57,1	66,65	41	14	74,5	34,9
	63	M 48 x 2	1 7/8 - 12	76,2	79,35	55	17	81	41,3
	75	M 58 x 2	2 1/4 - 12	88,9	95,22	65	17	81	41,3
	90	M 64 x 2	2 1/2 - 12	88,9	107,92	75	17	81	41,3
150	36	M 26 x 1,5	1 - 14	41,3	50,77	30	9	68	22,2
	45	M 33 x 2	1 1/4 - 12	50,8	60,30	38	9	74,5	28,6
	50	M 39 x 2	1 1/2 - 12	57,1	66,65	41	9	77,5	31,8
	63	M 48 x 2	1 7/8 - 12	76,2	79,35	55	12	84	38,1
	75	M 58 x 2	2 1/4 - 12	88,9	95,22	65	12	84	38,1
	90	M 64 x 2	2 1/2 - 12	88,9	107,92	75	12	84	38,1
	100	M 76 x 2	3 - 12	101,6	120,62	85	9	84	38,1

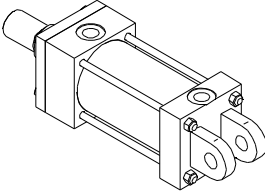
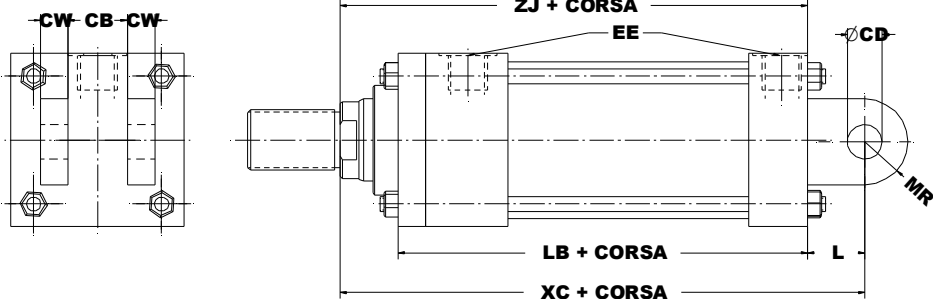
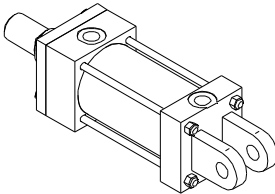
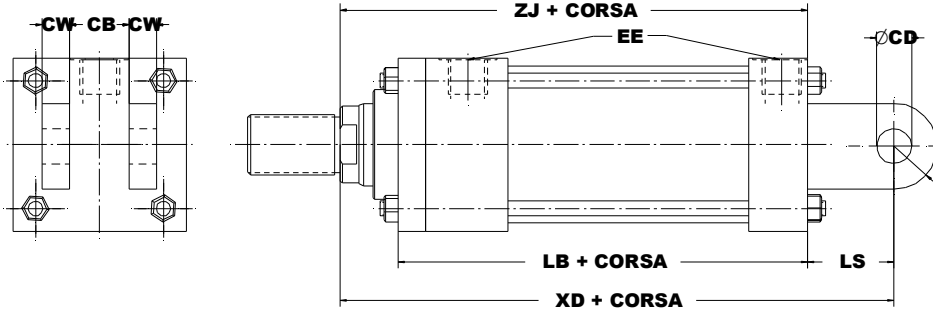
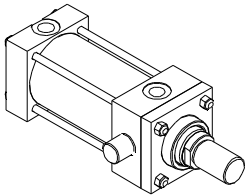
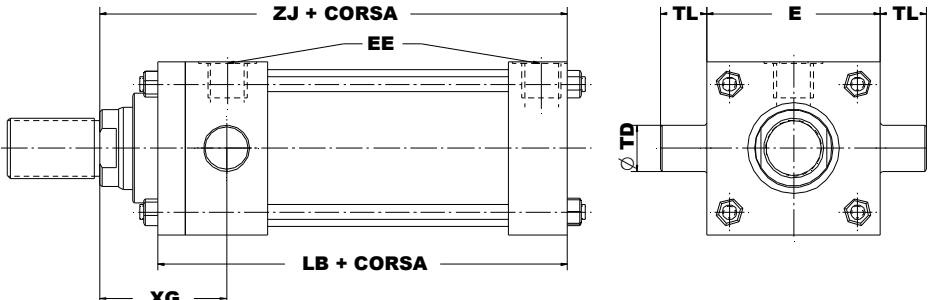
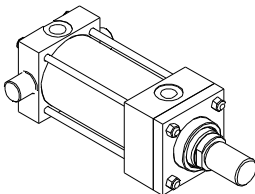
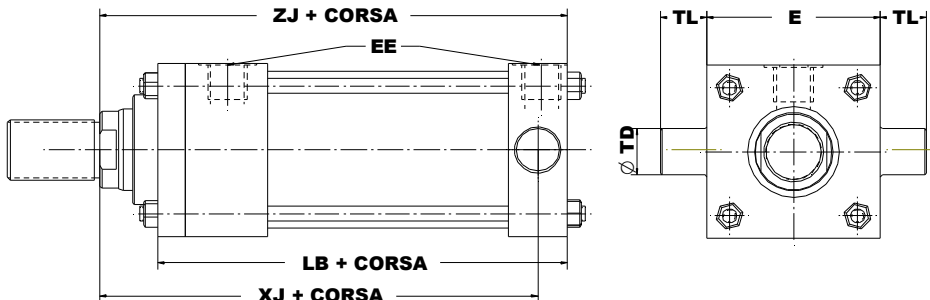
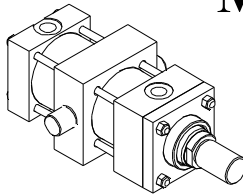
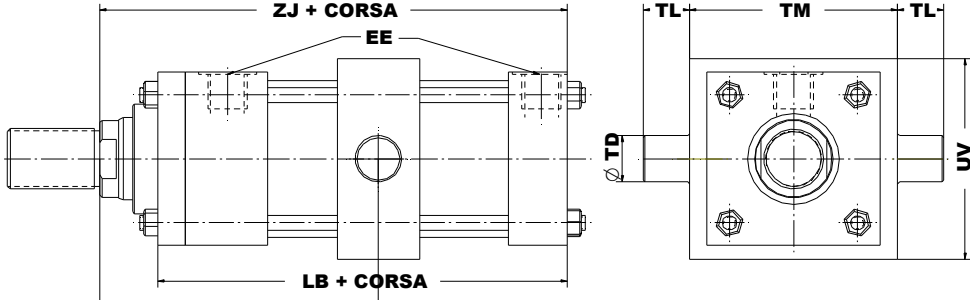
* valevole per i tipi MF1 e MF5 ed eventualmente a richiesta.

TIE ROD EXTENDED - SIDE LUGS

A 	
B 	
AB 	
E 	
ES 	

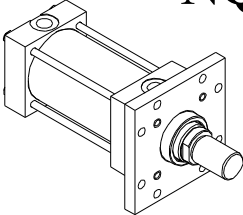
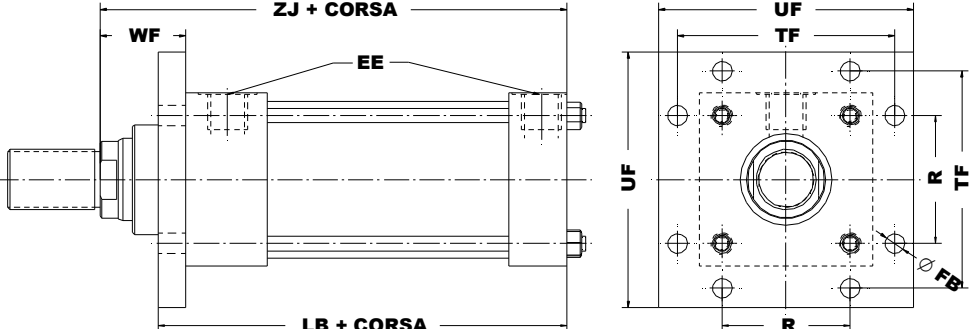
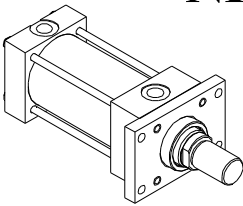
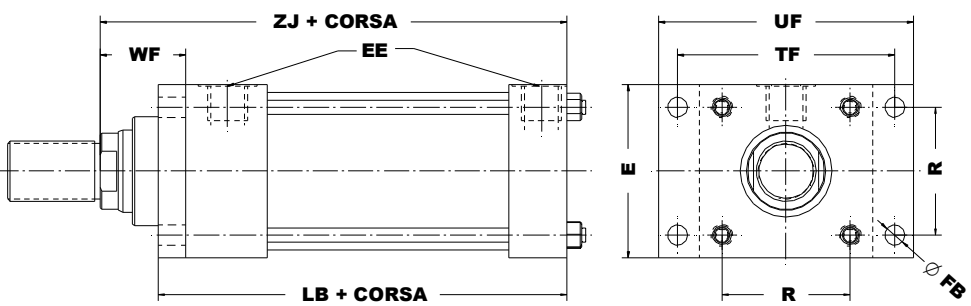
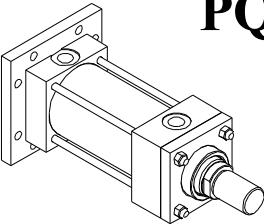
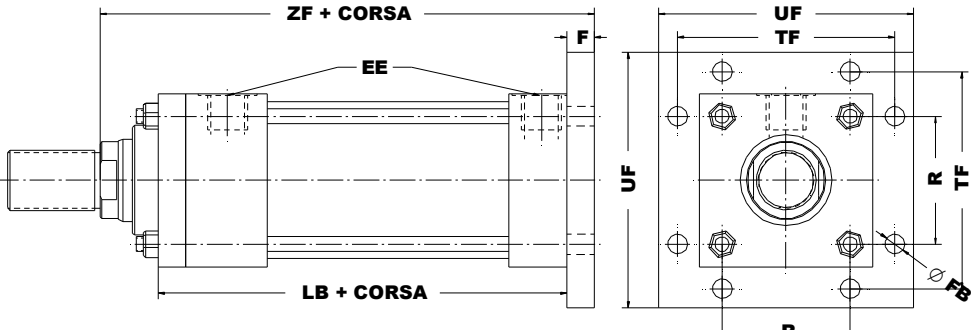
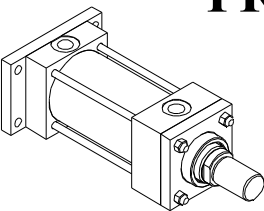
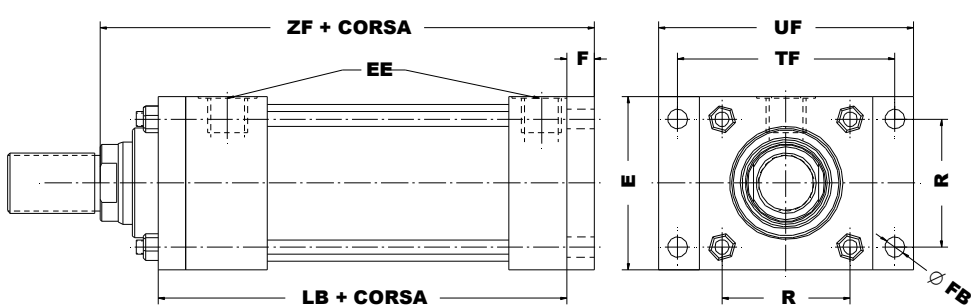
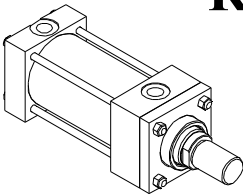
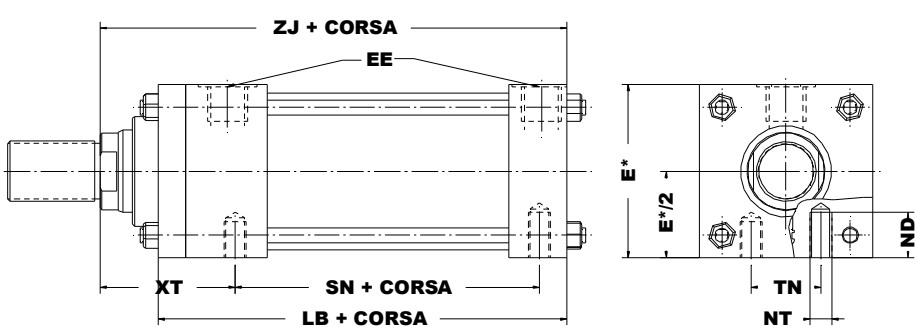
Bore Ø	Piston Rod ØMM	AA	BB	DD*	EE	ES	ET	R	SB	SE	SS	ST	TS	US	XS	ZJ max
25	12	38,9	19	M5 10-24	G ¹ / ₄	-	-	-	6,5	-	73,0	8	54,0	70	33,3	114
	16														33,3	114
40	16	51,3	25	M6 ¹ / ₄ -28	G ³ / ₈	14	14	36,3	11	139, 7	73,0	13	70,0	90	34,9	117
	25														44,5	127
50	16	66,2	28	M8x1 ⁵ / ₁₆ - 24	G ³ / ₈	16	19	46,7	11	149, 2	73,0	13	82,6	100	34,9	117
	25														44,5	127
	36														50,8	133
63	16	78,5	28	M8x1 ⁵ / ₁₆ - 24	G ³ / ₈	20	22	55,6	11	158, 8	76,2	13	95,6	120	34,9	121
	25														44,5	131
	36														50,8	137
	45														57,2	144
80	25	99,1	35	M12x1,25 ³ / ₈ - 24	G ¹ / ₂	25	25	70,1	14	168, 3	82,6	19	120, 7	150	47,6	144
	36														54,0	150
	45														60,3	156
	50														63,5	159
100	25	119,4	35	M12x1,25 ³ / ₈ - 24	G ¹ / ₂	32	32	84,3	14	174, 6	82,6	19	139, 7	165	47,6	144
	36														54,0	150
	45														60,3	156
	50														63,5	159
	63														69,8	166
125	25	147,2	46	M12x1,25 ¹ / ₂ - 20	G ¹ / ₂	35	38	104, 1	22	184, 2	79,4	25	174, 6	210	52,4	150
	36														58,7	156
	45														65,1	162
	50														68,3	165
	63														74,6	172
	75														74,6	172
	90														74,6	172
150	36	175,4	46	M12x1,25 ¹ / ₂ - 20	G ³ / ₄	45	41	123, 9	22	196, 9	92,1	25	200, 0	235	58,7	169
	45														65,1	175
	50														68,3	178
	63														74,6	185
	75														74,6	185
	90														74,6	185
	100														74,6	185

CAP FIXED CLEVIS - TRUNNIONS

G 	
GS 	
I 	
L 	
M 	

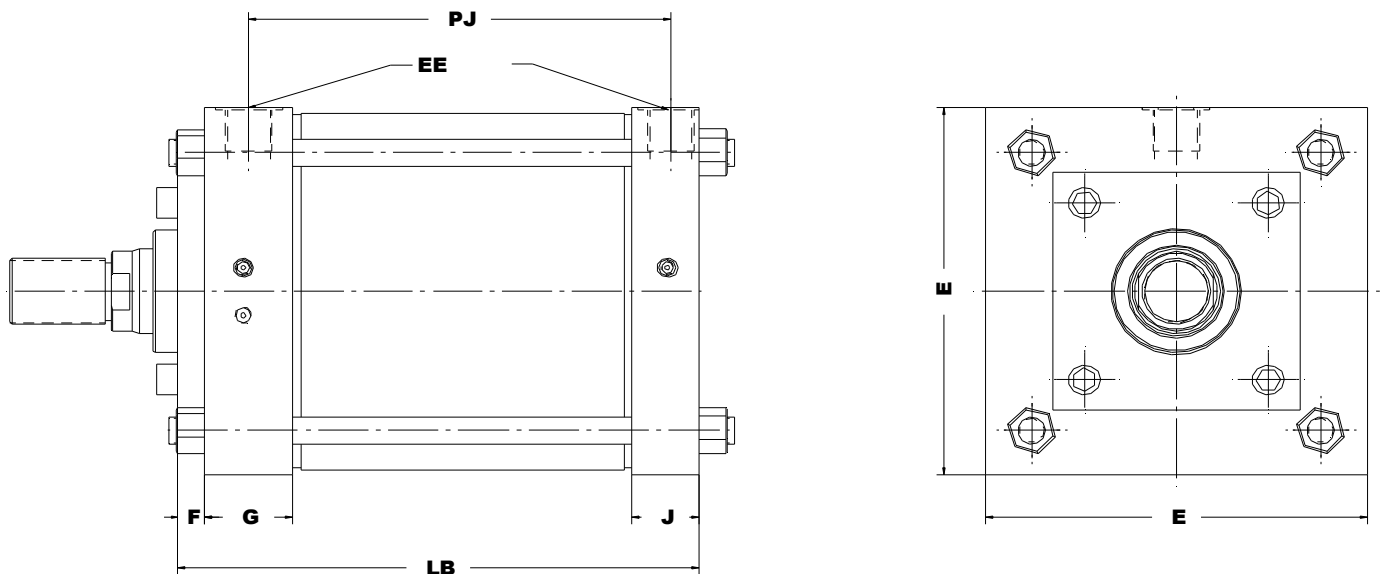
Bore Ø	Piston Rod ØMM	CB	+0,00 CD -0,05	CW	L	LS	MR	+0,00 TD +0,03	TL	TM	UV	XC	XD	XG	XI min	XJ
25	12	-	11,13	-	13	23	12	19,05	19	-	-	127,0	136,5	44,5	-	101,6
	16											127,0	136,5	44,5	-	101,6
40	16	19,9	12,73	13	19	29	16	25,40	25	63,5	65	136,5	146,1	44,5	80	104,7
	25											146,1	155,6	54,0	89	114,3
50	16	19,9	12,73	13	19	29	16	25,40	25	76,2	80	136,5	146,1	44,5	83	104,7
	25											146,1	155,6	54,0	93	114,3
	36											152,4	161,9	60,3	99	120,7
63	16	19,9	12,73	13	19	29	16	25,40	25	88,9	90	139,7	149,2	44,5	83	108,0
	25											149,2	158,8	54,0	93	117,4
	36											155,6	165,1	60,3	99	123,8
	45											161,9	171,5	66,7	105	130,2
80	25	32,6	19,08	16	32	48	24	25,40	25	114,3	110	174,6	190,5	57,2	105	127,0
	36											181,0	196,9	63,5	112	133,4
	45											187,3	203,2	69,8	118	139,7
	50											190,5	206,4	73,0	121	142,9
100	25	32,6	19,08	16	32	48	24	25,40	25	133,4	130	174,6	190,5	57,2	105	127,0
	36											181,0	196,9	63,5	112	133,4
	45											187,3	203,2	69,8	118	139,7
	50											190,5	206,4	73,0	121	142,9
	63											196,9	212,7	79,4	127	149,2
125	25	32,6	19,08	16	32	48	24	25,40	25	158,8	150	181,0	196,9	57,2	105	133,4
	36											187,3	203,2	63,5	112	139,7
	45											193,7	209,6	69,8	118	146,1
	50											196,9	212,7	73,0	121	149,2
	63											203,2	219,1	79,4	127	155,6
	75											203,2	219,1	79,4	127	155,6
	90											203,2	219,1	79,4	127	155,6
150	36	39,7	25,43	20	38	58	30	34,9	35	193,7	180	206,4	225,4	66,7	124	149,2
	45											212,7	231,8	73,0	131	155,6
	50											212,9	235	76,2	134	158,8
	63											222,3	241,3	82,6	140	165,1
	75											222,3	241,3	82,6	140	165,1
	90											222,3	241,3	82,6	140	165,1
	100											222,3	241,3	82,6	140	165,1

FLANGE MOUNTINGS - SIDE TAPPED MOUNTING

 NQ	
 NR	
 PQ	
 PR	
 R	

Bore Ø	Piston Rod ØMM	E*	FB	NT	R	SN	TF	TN	UF	ND	WF	XT	ZF
25	12	38,1	6,5	M5	-	54,0	50,8	13,5	65	6,5	25,4	49,2	123,8
	16									6,5	25,4	49,2	123,8
40	16	50,8	8,0	M6	36,3	57,2	69,8	15,5	85	10	25,4	49,2	127,0
	25									5	34,9	58,7	136,5
50	16	63,5	9,5	M8	46,7	57,2	85,7	22,0	105	10	25,4	49,2	127,0
	25									10	34,9	58,7	136,5
	36									10	41,3	65,1	142,9
63	16	76,2	9,5	M10	55,6	60,3	98,4	31,0	120	13	25,4	49,2	130,2
	25									13	34,9	58,7	139,7
	36									13	41,3	65,1	146,1
	45									11	47,6	71,4	152,4
80	25	95,2	11	M12	70,1	66,7	119,0	38,0	140	20	34,9	61,9	158,8
	36									20	41,3	68,3	165,1
	45									20	47,6	74,6	171,5
	50									13	50,8	77,8	174,6
100	25	114,3	11	M12	84,3	66,7	138,1	52,0	160	20	34,9	61,9	158,8
	36									20	41,3	68,3	165,1
	45									20	47,6	74,6	171,5
	50									20	50,8	77,8	174,6
	63									16	57,2	84,1	181,0
125	25	139,7	14	M16	104,1	73,0	168,2	66,0	195	24	34,9	61,9	165,1
	36									24	41,3	68,3	171,5
	45									24	47,6	74,6	174,6
	50									24	50,8	77,8	181,0
	63									24	57,2	84,1	187,3
	75									24	57,2	84,1	187,3
	90									20	57,2	84,1	187,3
150	36	165,1	14	M20	123,9	79,4	193,7	80,0	220	28	41,3	71,4	187,3
	45									28	47,6	77,8	193,7
	50									28	50,8	81,0	196,9
	63									28	57,2	87,3	203,2
	75									28	57,2	87,3	203,6
	90									28	57,2	87,3	203,6
	100									22	57,2	87,3	203,6

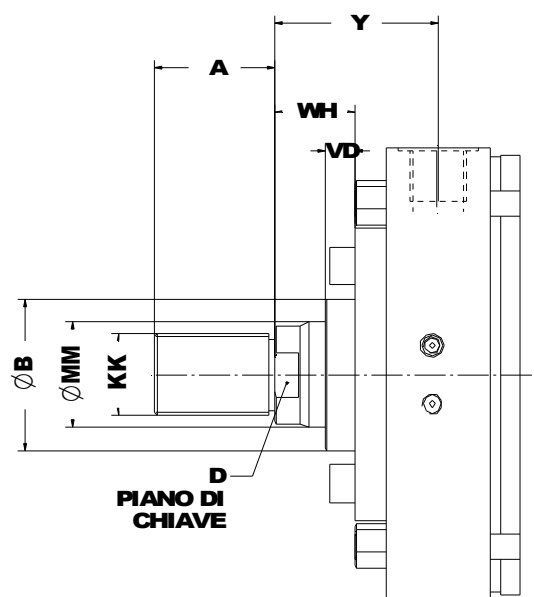
BASE QUOTES



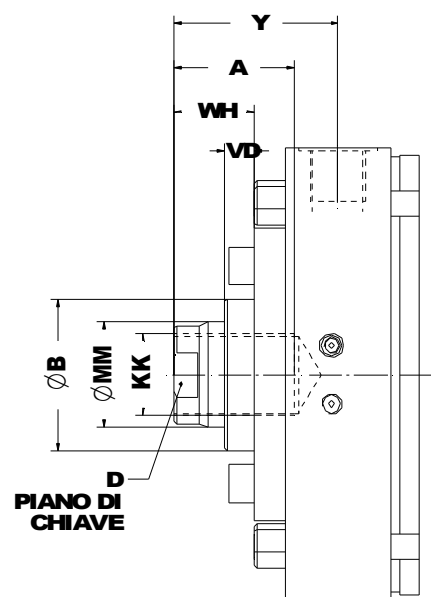
Bore	E	EE	F	G	J	LB	PJ
200	216	G 3/4	20	50	38	150	86
250	270	G 1	20	58	50	181	107
300	324	G 1	20	58	50	194	120
350	375	G 1-1/4	20	70	58	225	142

PISTON ROD END CHARACTERISTICS

MALE THREAD (M)



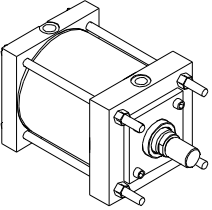
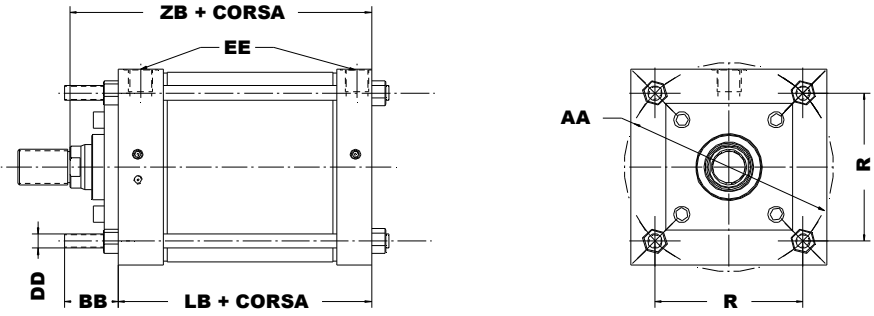
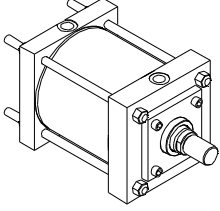
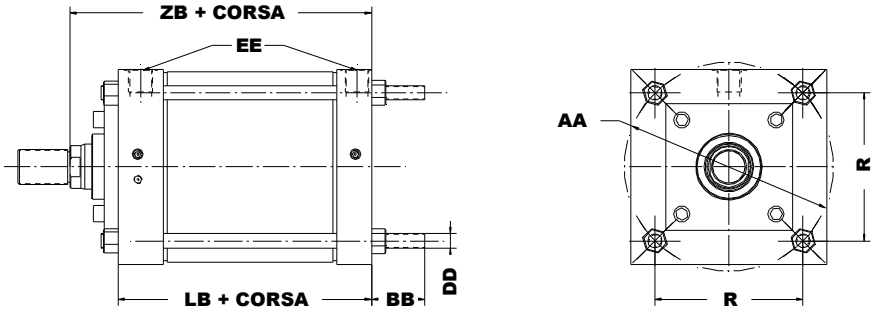
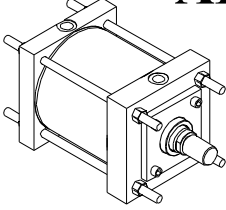
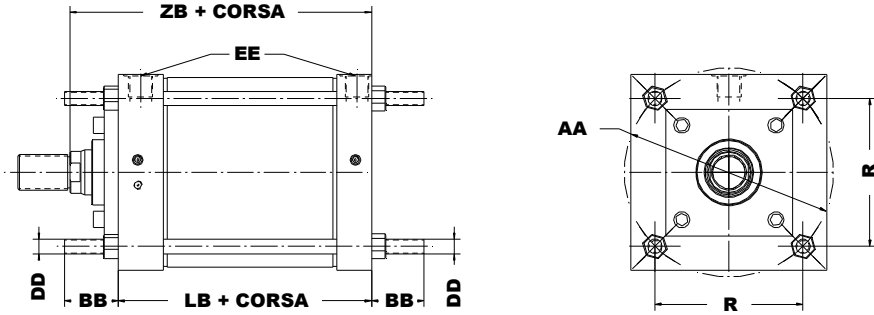
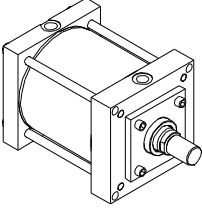
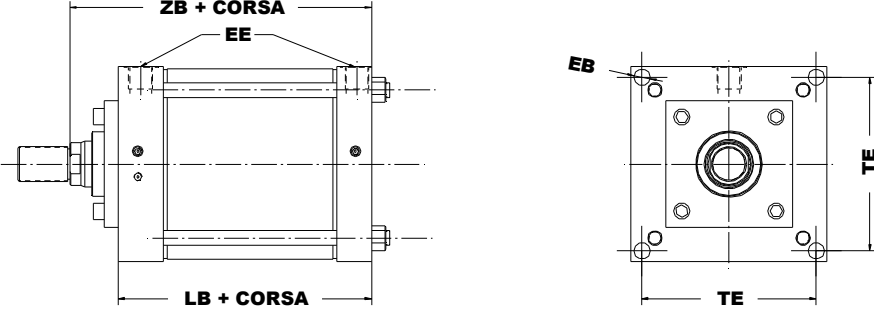
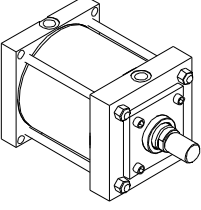
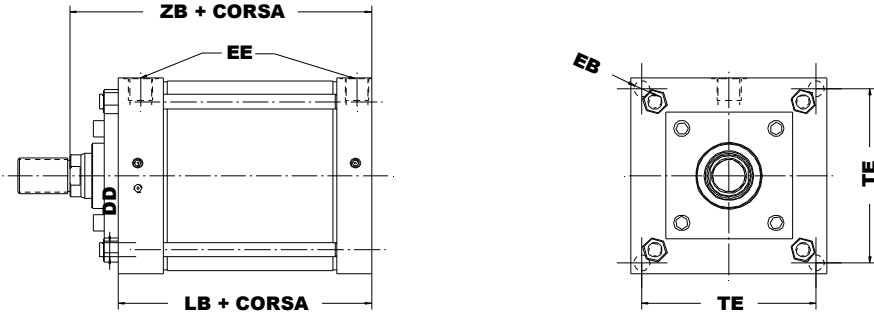
FEMALE THREAD (F)



PISTON ROD END DIMENSIONS

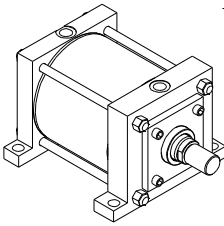
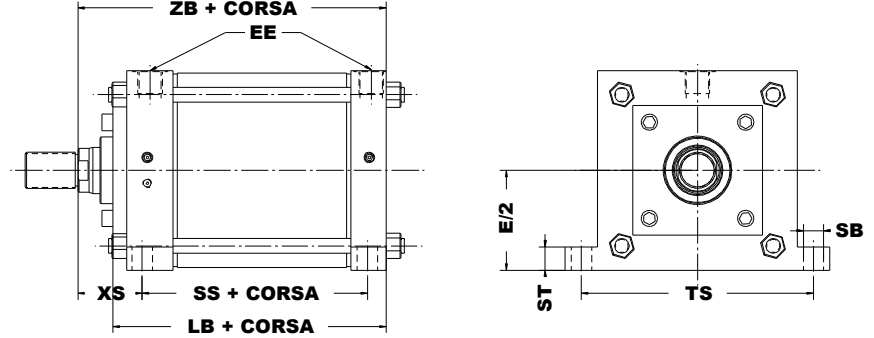
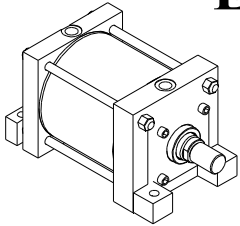
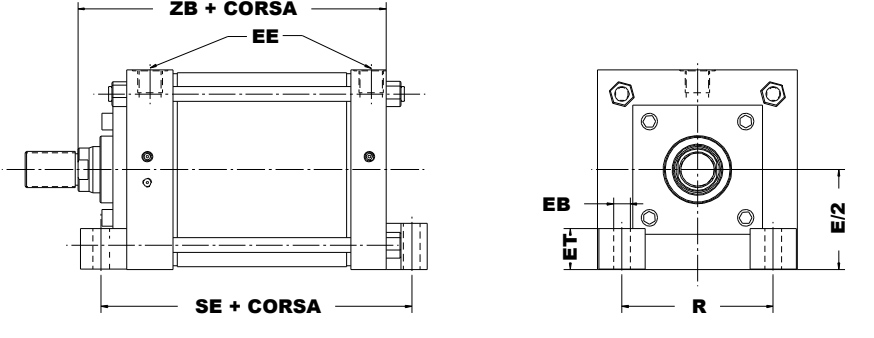
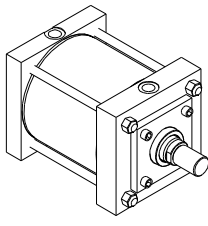
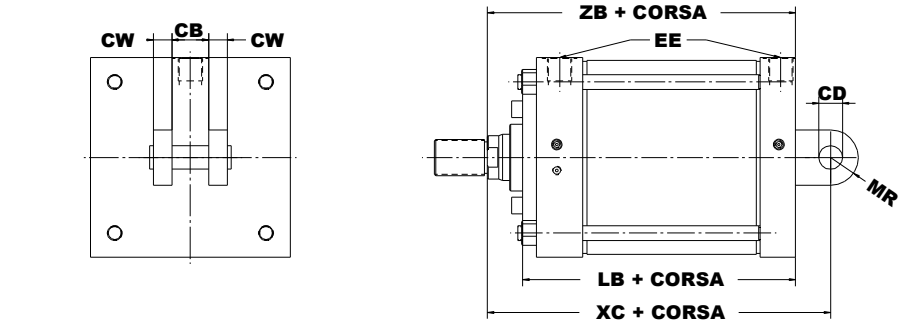
Bore Ø	Piston Rod ØMM	KK - KF METRIC	KK - KF UNF	A	B*	D	VD	Y	WH
200	36	M 26 x 1,5	1 - 14	41,3	50,77	30	9	67,2	22,2
	45	M 33 x 2	1 1/4 - 12	50,8	60,30	38	9	73,6	28,6
	50	M 39 x 2	1 1/2 - 12	57,2	66,65	41	9	76,8	31,8
	63	M 48 x 2	1 7/8 - 12	76,2	79,35	55	12	83,1	38,1
	75	M 58 x 2	2 1/4 - 12	88,9	95,22	65	12	83,1	38,1
	90	M 64 x 2	2 1/2 - 12	88,9	107,92	75	12	83,1	38,1
	100	M 76 x 2	3 -12	101,6	120,62	85	9	83,1	38,1
	125	M 90 x 2	3 1/2 - 12	127,0	146,02	110	12	83,1	38,1
	140	M 100 x 2	4 -12	139,7	158,72	120	12	83,1	38,1
250	45	M 33 x 2	1 1/4 - 12	50,8	60,30	38	9	77,6	28,6
	50	M 39 x 2	1 1/2 - 12	57,2	66,65	41	9	80,8	31,8
	63	M 48 x 2	1 7/8 - 12	76,2	79,35	55	12	87,1	38,1
	75	M 58 x 2	2 1/4 - 12	88,9	95,22	65	12	87,1	38,1
	90	M 64 x 2	2 1/2 - 12	88,9	107,92	75	12	87,1	38,1
	100	M 76 x 2	3 -12	101,6	120,62	85	9	87,1	38,1
	125	M 90 x 2	3 1/2 - 12	127,0	146,02	110	12	87,1	38,1
	140	M 100 x 2	4 -12	139,7	158,72	120	12	87,1	38,1
300	50	M 39 x 2	1 1/2 - 12	57,2	66,65	41	9	80,8	31,8
	63	M 48 x 2	1 7/8 - 12	76,2	79,35	55	12	87,1	38,1
	75	M 58 x 2	2 1/4 - 12	88,9	95,22	65	12	87,1	38,1
	90	M 64 x 2	2 1/2 - 12	88,9	107,92	75	12	87,1	38,1
	100	M 76 x 2	3 -12	101,6	120,62	85	9	87,1	38,1
	125	M 90 x 2	3 1/2 - 12	127,0	146,02	110	12	87,1	38,1
	140	M 100 x 2	4 -12	139,7	158,72	120	12	87,1	38,1
350	63	M 48 x 2	1 7/8 - 12	76,2	79,35	55	12	93,1	38,1
	75	M 58 x 2	2 1/4 - 12	88,9	95,22	65	12	93,1	38,1
	90	M 64 x 2	2 1/2 - 12	88,9	107,92	75	12	93,1	38,1
	100	M 76 x 2	3 -12	101,6	120,62	85	9	93,1	38,1
	125	M 90 x 2	3 1/2 - 12	127,0	146,02	110	12	93,1	38,1
	140	M 100 x 2	4 -12	139,7	158,72	120	12	93,1	38,1

TIE ROD EXTENDED MOUNTINGS - SIDE LUGS MOUNTINGS

A 	
B 	
AB 	
C 	
D 	

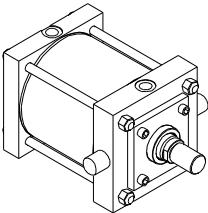
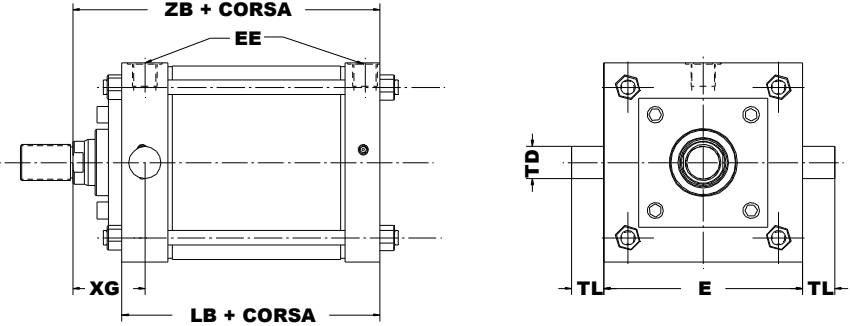
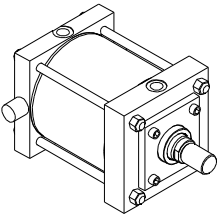
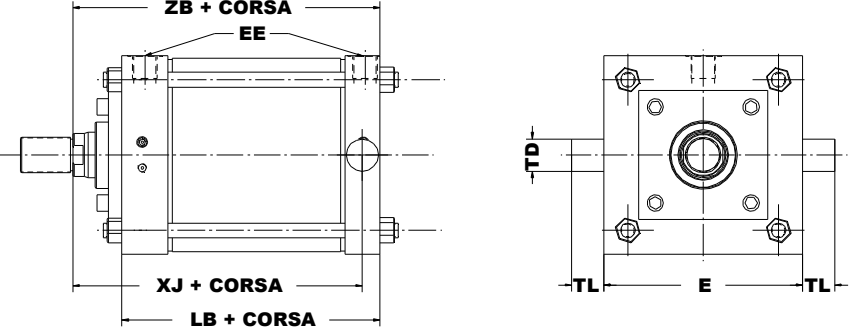
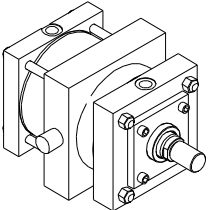
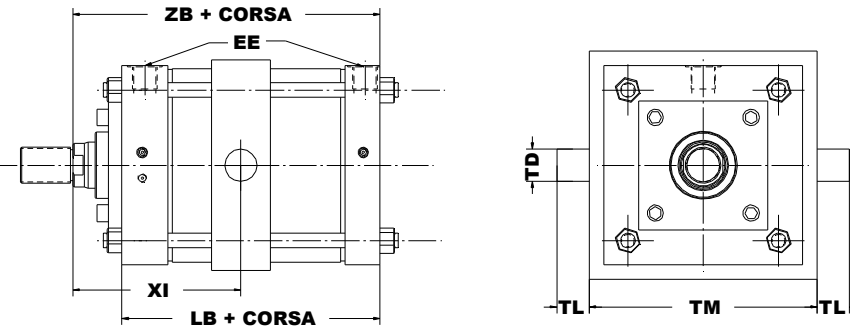
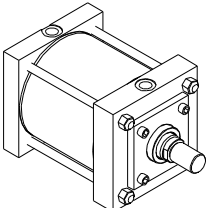
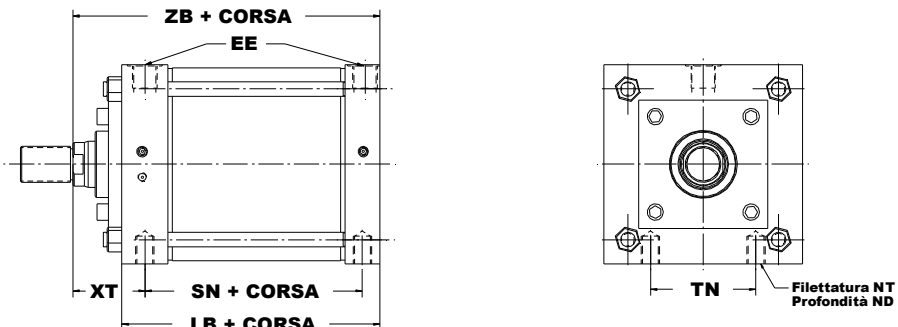
Bore Ø	Piston Rod ØMM	AA	BB	DD*	EB	EE	LB	R	TE	ZB
200	36	231,1	58,7	M16x1,5 $\frac{5}{8}$ - 18	18	G $\frac{3}{4}$	150	163,6	192,3	172,2
	45									178,6
	50									181,8
	63									188,1
	75									188,1
	90									188,1
	100									188,1
	125									188,1
	140									188,1
250	45	284,5	68,3	M20x1,5 $\frac{3}{4}$ - 16	22	G1	181	201,2	238,8	209,6
	50									212,8
	63									219,1
	75									219,1
	90									219,1
	100									219,1
	125									219,1
	140									219,1
300	50	337,8	68,3	M20x1,5 $\frac{3}{4}$ - 16	22	G1	194	238,8	281,9	225,8
	63									232,1
	75									232,1
	90									232,1
	100									232,1
	125									232,1
	140									232,1
350	63	391,2	81,0	M22x1,5 $\frac{7}{8}$ - 14	24	G1 $\frac{1}{4}$	225	276,9	326,9	263,1
	75									263,1
	90									263,1
	100									263,1
	125									263,1
	140									263,1

LUGS MOUNTINGS - CAP FIXED CLEVIS

E 	
ES 	
G 	

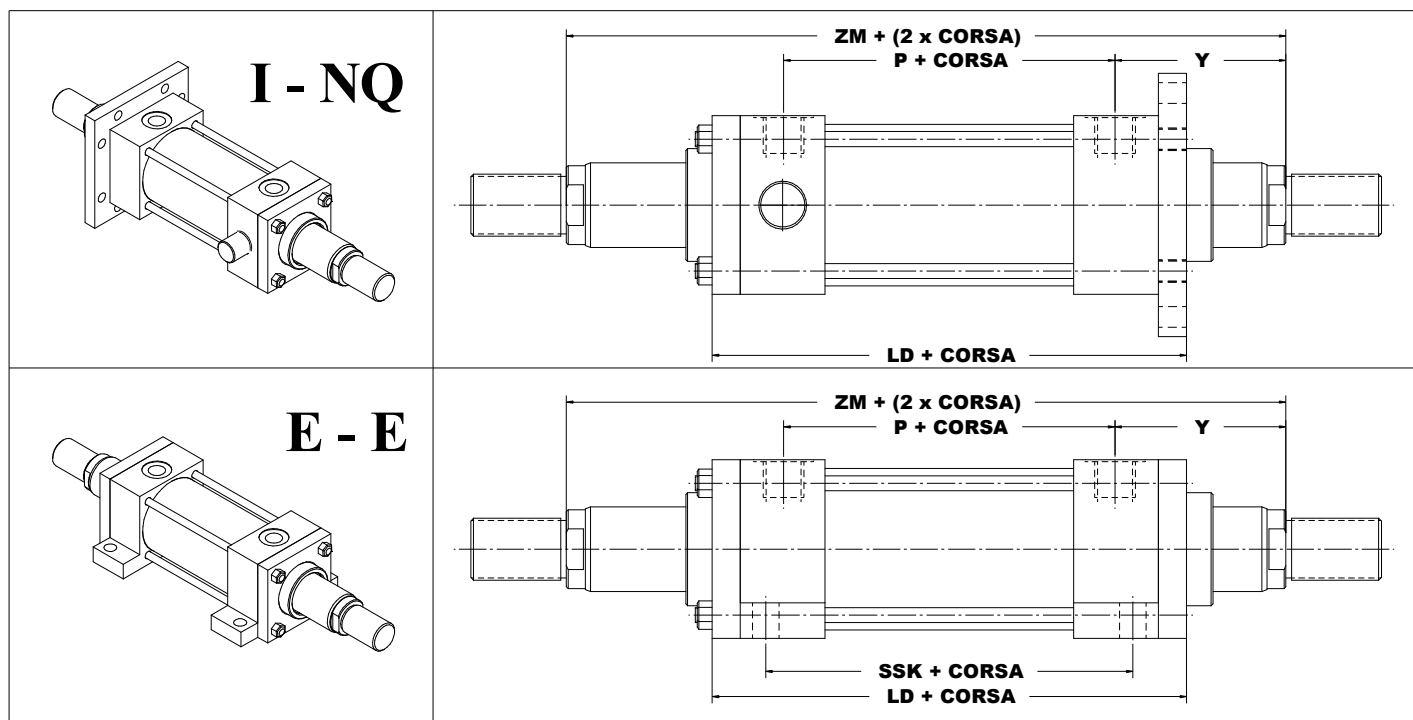
Bore Ø	Piston Rod ØMM	CB	+0,00 CD -0,05	CW	E	EB	ET	MR max	R	SB	SE	SS	ST	TS	XC	XS	ZB
200	36	39,7	25,43	20	216	18	50	30	163,6	22	187,3	95,3	25	25,8	209,6	58,7	172,2
	45														215,9	65,1	178,6
	50														219,1	68,3	181,8
	63														225,4	74,6	188,1
	75														225,4	74,6	188,1
	90														225,4	74,6	188,1
	100														225,4	74,6	188,1
	125														225,4	74,6	188,1
	140														225,4	74,6	188,1
250	45	52,4	34,95	25	270	22	60	41	201,2	26	228,6	117,5	32	314,3	263,5	69,9	209,6
	50														266,7	73,0	212,8
	63														273,1	79,4	219,1
	75														273,1	79,4	219,1
	90														273,1	79,4	219,1
	100														273,1	79,4	219,1
	125														273,1	79,4	219,1
	140														273,1	79,4	219,1
300	50	65,1	44,48	32	324	22	70	54	238,8	26	241,3	130,2	32	368,0	282,6	73,0	225,8
	63														288,9	79,4	232,1
	75														288,9	79,4	232,1
	90														288,9	79,4	232,1
	100														288,9	79,4	232,1
	125														288,9	79,4	232,1
	140														288,9	79,4	232,1
350	63	65,1	50,83	32	375	24	95	60	276,9	33	282,6	149,2	38	431,8	327	85,7	263,1
	75														327	85,7	263,1
	90														327	85,7	263,1
	100														327	85,7	263,1
	125														327	85,7	263,1
	140														327	85,7	263,1

TRUNNIONS - SIDE TAPPED MOUNTING

 I	
 L	
 M	
 R	

Bore Ø	Piston Rod ØMM	E	ND	NT	SN	+0,00 TD -0,03	TL	TM	TN	XG	XI min	XJ	XT	ZB
200	36	216	30	M20	82,6	34,93	35	247,7	114,3	66,7	123,8	152,4	71,4	172,2
	45									73,0	130,2	158,8	77,8	178,6
	50									76,2	133,4	161,9	81,0	181,8
	63									82,6	139,7	168,3	87,3	188,1
	75									82,6	139,7	168,3	87,3	188,1
	90									82,6	139,7	168,3	87,3	188,1
	100									82,6	139,7	168,3	87,3	188,1
	125									82,6	139,7	168,3	87,3	188,1
	140									82,6	139,7	168,3	87,3	188,1
250	45	270	40	M24	104,8	44,45	45	304,8	139,7	76,2	142,9	184,2	79,4	209,6
	50									79,4	146,1	187,3	82,6	212,8
	63									85,7	152,4	193,7	88,9	219,1
	75									85,7	152,4	193,7	88,9	219,1
	90									85,7	152,4	193,7	88,9	219,1
	100									85,7	152,4	193,7	88,9	219,1
	125									85,7	152,4	193,7	88,9	219,1
	140									85,7	152,4	193,7	88,9	219,1
300	50	324	40	M24	117,5	44,45	45	355,6	184,2	79,4	146,1	200,0	82,6	225,8
	63									85,7	152,4	206,4	88,9	232,1
	75									85,7	152,4	206,4	88,9	232,1
	90									85,7	152,4	206,4	88,9	232,1
	100									85,7	152,4	206,4	88,9	232,1
	125									85,7	152,4	206,4	88,9	232,1
	140									85,7	152,4	206,4	88,9	232,1
350	63	375	50	M30	139,7	50,83	50	412,8	212,7	92,1	171,5	235,0	96,8	263,1
	75									92,1	171,5	235,0	96,8	263,1
	90									92,1	171,5	235,0	96,8	263,1
	100									92,1	171,5	235,0	96,8	263,1
	125									92,1	171,5	235,0	96,8	263,1
	140									92,1	171,5	235,0	96,8	263,1

DOUBLE ROD CYLINDERS



Bore	Piston Rod	LD	SSK	P	ZM
25	12	121	85,7	54	152,4
40	16	124	85,7	58	155,6
50	16	124	85,7	58	155,6
63	16	128	88,9	61	158,8
80	25	152	95,3	72	190,6
100	25	152	95,3	72	190,5
125	25	158	92,1	78	196,9
150	36	178	104,8	86	222,3
200	36	182	108,0	92	225,4
250	45	209	123,8	111	263,5
300	50	222	136,5	124	282,6
350	63	257	161,9	147	333,4

For double rod cylinders customer should indicate the desired mounting styles. Mounting style available are A, C, E, I, M.

Dimensional informations not included in this prospect can be provided from previous corresponding table (single rod cylinders).

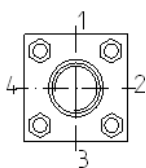
PORTS TYPES

Comer System cylinders are supplied with BSPP standard threaded ports. If required, we can provide metric threaded ports or NPTF. If required, we can provide cylinders with oversize ports. In this case, cylinder dimensions can change. For more information, please contact our technical department.

Bore	Standard BSPP port size	Standard metric port size	Oversize BSPP port size	Oversize metric port size
25	G1/4 - G1/4	M14x1,5	G3/8	M16x1,5
40	G3/8 - G1/4	M14x1,5	G1/2 - G3/8	M16x1,5
50	G3/8 - G1/4	M14x1,5	G1/2 - G3/8	M16x1,5
63	G3/8 - G1/4	M14x1,5	G1/2 - G3/8	M16x1,5
80	G1/2	M22x1,5	G3/4	M26x1,5
100	G1/2	M22x1,5	G3/4	M26x1,5
125	G1/2	M22x1,5	G3/4	M26x1,5
150	G3/4	M26x1,5	G1	M33x2
200	G3/4	M26x1,5	G1	M33x2
250	G1	M33x2	G1-1/4	M42x2
300	G1	M33x2	G1-1/4	M42x2
350	G1-1/4	M33x2	G1-1/2	M48x2

PORTS AND CUSHION ADJUSTMENT LOCATION

The table below shows standard positions of the ports and the cushion adjustment for Comer System cylinders. All cylinders are provided with air-bleed.

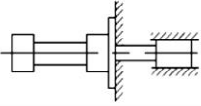
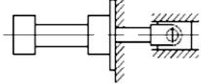
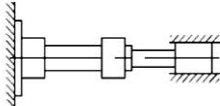
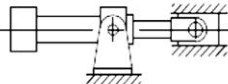
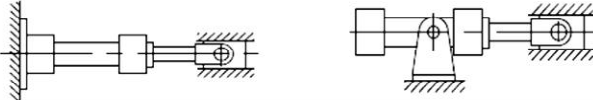
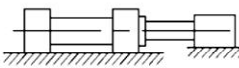
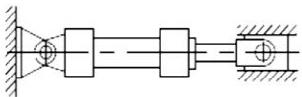
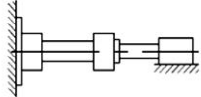
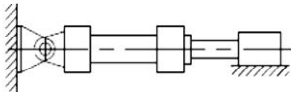


		Mounting style	
		A-B-AB-E-ES-G-GS-M-NQ-NR-PQ-PR-R	I-L
Head	Connection port	1	1
	Cushion, check valve, air-bleed	2	3
Cap	Connection port	1	1
	Cushion, check valve, air-bleed	2	3

If limit switch sensors are required, the standard location is pos. 4. If differently required, the locations above can change, according to customer specifications.

ROD PISTON DIAMETER SELECTION

When the cylinder works in pushing it is suggested to verify if the peak load is adequate. To do this, the steps are the followings. The first thing is to determine the constant k, related to the mounting style that is required:

Type of mounting	Stroke Factor
	0,5
	0,7
	1,0
	1,0
	1,5
	2,0
	2,0
	4,0
	4,0

Calculate the basic length L:

$$L = k * \text{stroke}$$

Calculate the thrust by multiplying the bore area (cm²) per the work pressure (kN).

Interpolating L with the thrust calculated (page 25), it is possible to define the minimum diameter of rod piston able to bear the desired load (page 26).

		Push force (kN)					
Bore (mm)	Push Area (mm ² -cm ²)	2 bar	3 bar	5 bar	7 bar	12 bar	18 bar
25	491 - 4,91	0,1	0,1	0,2	0,3	0,6	0,9
32	804 - 8,04	0,2	0,2	0,4	0,6	1,0	1,4
40	1257 - 12,57	0,3	0,4	0,6	0,9	1,5	2,3
50	1963 - 19,63	0,4	0,6	1,0	1,4	2,4	3,5
63	3117 - 31,17	0,6	0,9	1,6	2,2	3,7	5,6
80	5027 - 50,27	1,0	1,5	2,5	3,5	6,0	9,0
100	7854 - 78,54	1,6	2,4	3,9	5,5	9,4	14,1
125	12272 - 122,72	2,5	3,7	6,1	8,6	14,7	22,1
160	20106 - 201,06	4,0	6,0	10,1	14,1	24,1	36,2
200	31416 - 314,16	6,3	9,4	15,7	22,0	37,7	56,5
250	49087 - 490,87	9,8	14,7	24,5	34,4	58,9	88,4
300	70686 - 706,86	14,1	21,2	35,3	49,5	84,8	127,2
350	96211 - 962,11	19,2	28,9	48,1	67,3	115,5	173,2

		Deduction for pull force (kN)					
Piston Rod Diameter (mm)	Piston Rod Area (mm ² -cm ²)	2 bar	3 bar	5 bar	7 bar	12 bar	18 bar
12	113 - 1,13	0,02	0,03	0,06	0,08	0,14	0,20
16	201 - 2,01	0,04	0,06	0,10	0,14	0,24	0,36
25	491 - 4,91	0,10	0,15	0,25	0,34	0,59	0,88
36	1018 - 10,18	0,20	0,31	0,51	0,71	1,22	1,83
45	1590 - 15,90	0,32	0,48	0,80	1,11	1,91	2,86
50	1963 - 19,63	0,39	0,59	0,98	1,37	2,36	3,53
63	3117 - 31,17	0,62	0,94	1,56	2,18	3,74	5,61
75	4418 - 44,18	0,88	1,33	2,21	3,09	5,30	7,95
90	6362 - 63,62	1,27	1,91	3,18	4,45	7,63	11,45
100	7854 - 78,54	1,57	2,36	3,93	5,50	9,42	14,14
125	12272 - 122,72	2,45	3,68	6,14	8,59	14,73	22,09
140	15394 - 153,94	3,08	4,62	7,70	10,78	18,47	27,71



PISTON ROD SELECTION TABLE

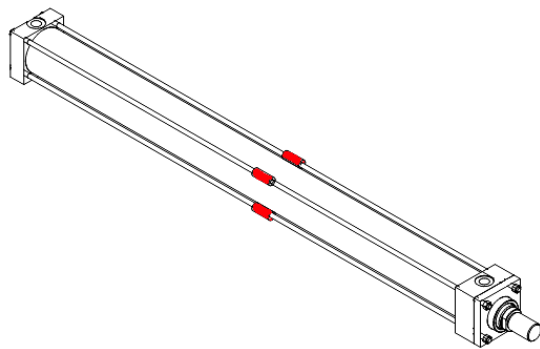
		Thrust (kN)																															
		1	2	3	4	5	6	7	8	9	10	20	30	40	50	60	70	80	90	100	200	300	400	500	600	700	800	900	1000				
B a s i c	100	12	12	12	12	12	12	12	12	12	12	16	25	25	25	25	36	36	36	36	45	63	63	75	90	100	100	100	125	25			
	200	12	12	12	12	12	12	12	16	16	16	25	25	25	25	36	36	36	36	36	50	63	75	75	75	90	100	100	125	125			
	300	12	12	12	16	16	16	16	16	25	25	25	25	36	36	36	36	45	45	45	50	63	75	75	75	90	100	100	125	125			
	400	12	12	16	16	16	25	25	25	25	25	25	36	36	36	36	36	45	45	45	63	63	75	90	90	100	100	125	125	125			
	500	12	16	16	16	25	25	25	25	25	25	25	36	36	36	36	45	45	45	45	63	63	75	90	90	100	125	125	125	125			
	600	12	16	16	25	25	25	25	25	25	25	25	36	36	36	45	45	45	45	45	63	75	75	90	90	100	125	125	125	125	125		
	700	16	16	25	25	25	25	25	25	25	25	25	36	36	45	45	45	45	50	50	63	75	90	90	100	100	125	125	125	125	125		
	800	16	25	25	25	25	25	25	25	25	25	25	36	36	45	45	45	50	50	50	63	75	90	90	100	100	125	125	125	125	140		
	900	16	25	25	25	25	25	25	25	36	36	36	45	45	45	45	50	50	50	50	75	75	90	90	100	100	125	125	125	125	140		
	1000	16	25	25	25	25	25	25	36	36	36	36	45	45	45	50	50	50	63	63	75	90	90	100	125	125	140	140	140	140	140		
L e n g t h	1500	25	25	25	36	36	36	36	36	36	45	50	50	50	63	63	63	63	63	90	90	100	100	125	125	125	140	140	140	140	-		
	2000	25	36	36	36	36	36	36	45	45	50	63	63	63	63	75	75	75	75	75	90	100	125	125	125	140	140	140	140	-	-		
	3000	36	36	36	45	45	45	45	50	50	63	63	63	75	75	75	90	90	90	90	125	125	140	140	-	-	-	-	-	-	-		
	4000	36	45	45	45	50	50	50	63	63	75	75	75	90	90	90	100	100	100	100	125	140	-	-	-	-	-	-	-	-	-		
	5000	36	45	45	50	50	63	63	63	63	75	75	90	90	90	100	100	125	125	125	140	-	-	-	-	-	-	-	-	-	-		
	6000	45	45	50	63	63	63	63	63	75	75	75	90	90	100	100	125	125	125	125	-	-	-	-	-	-	-	-	-	-	-	-	
	7000	45	50	63	63	63	63	75	75	75	75	90	100	100	100	125	125	125	125	140	-	-	-	-	-	-	-	-	-	-	-	-	
	8000	45	50	63	63	75	75	75	75	75	75	75	100	100	125	125	125	140	140	140	-	-	-	-	-	-	-	-	-	-	-	-	-

TIE ROD NUTS TORQUE

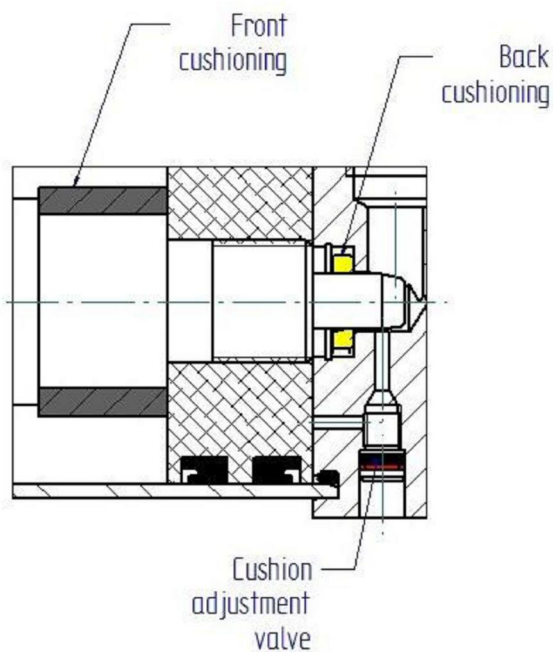
For Comer System cylinder's tie rod, lock nuts of minimum strength grade 10 are used and the tightening torque applied are:

Bore	Tie Rod Diameter	Tightening Torque (Nm)
25	5	3 - 3.5
40	6	8 - 9
50	8	15 - 17
63	8	15 - 17
80	10	33 - 36
100	10	33 - 36
125	12	80 - 85
150	12	80 - 85
200	16	150 - 155
250	20	200 - 205
300	20	200 - 205
350	22	370 - 375

In case of long strokes, tie rod supports are provided. These help to increase the resistance to buckling. The supports move the tie rod radially outwards, minimizing the overextension of the tie rod selves.



CUSHIONING LENGTH

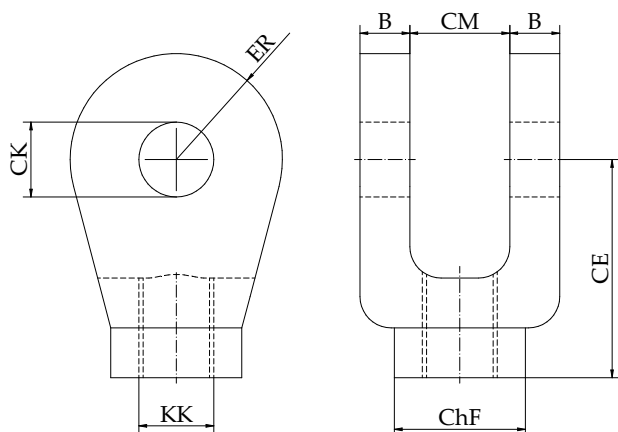


Bore	Cushioning Length	
	Front	Back
25	-	-
40	28	20
50	28	20
63	28	20
80	28	25
100	28	25
125	28	25
150	28	28
200	28	28
250	28	28
300	28	28
350	28	28

CUSHIONING SYSTEM

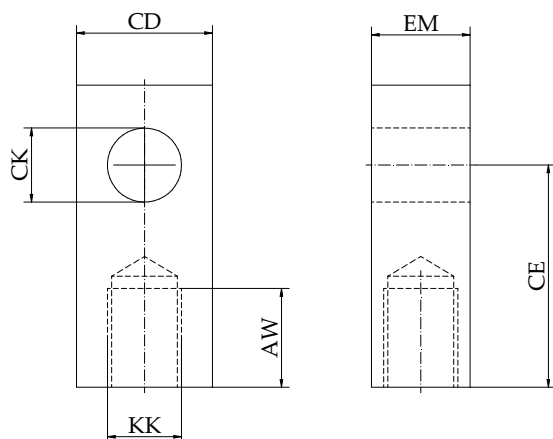
ACCESSORIES

ROD CLEVIS



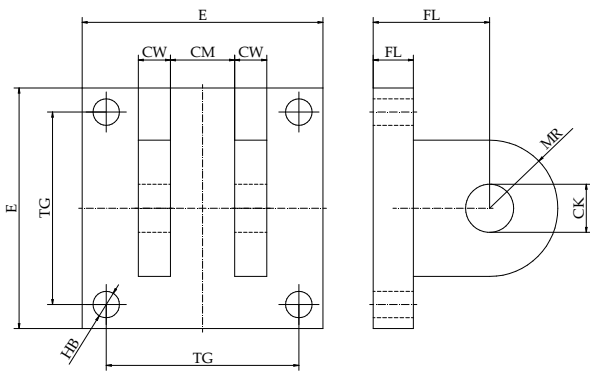
Thread KK	Rod Clevis	B	CE	ChF	+0,10 CK +0,05	CM	ER
M 8	F 12 P	6	57,2	19	11,10	8,8	7
M 10	F 16 P	8	38,1	21	12,70	19,8	12
M 20x1,5	F 25 P	15	54,0	32	19,05	32,6	20
M 26x1,5	F 36 P	20	74,6	40	25,40	38,9	25
M 33x2	F 45 P	25	95,3	55	34,93	51,6	35
M 39x2	F 50 P	30	114,3	56	44,45	64,7	45
M 48x2	F 63 P	35	139,7	75	50,80	64,7	50
M 58x2	F 75 P	40	165,1	95	63,50	77,4	63
M 64x2	F 90 P	40	171,5	95	76,20	77,4	70
M 76x2	F 100 P	50	196,9	-	88,90	102,8	90
M 90x2	F 125 P	58	223,8	-	101,60	116,0	100
M 100x2	F 140 P	58	223,8	-	101,60	116,0	100

PLEIN ROD EYE



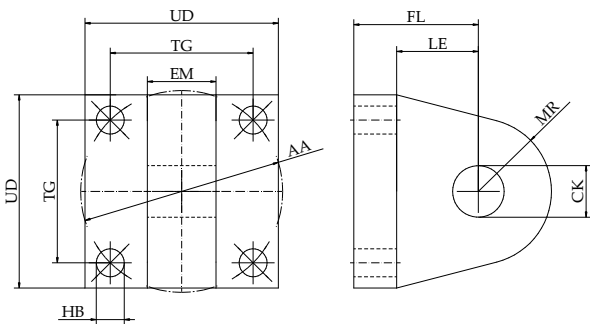
Thread KK	Plein rod eye	AW	CD	CE	+0,10 CK	EM
M 8	OF 12 P	20	22	38,1	11,10	11,1
M 10	OF 16 P	20	25	38,1	12,70	19,1
M 20x1,5	OF 25 P	29	40	52,4	19,05	31,8
M 26x1,5	OF 36 P	42	50	71,4	25,40	38,1
M 33x2	OF 45 P	51	70	87,3	34,93	50,8
M 39x2	OF 50 P	58	90	101,6	44,45	63,5
M 48x2	OF 63 P	77	100	127,0	50,80	63,5
M 58x2	OF 75 P	89	127	147,6	63,50	76,2
M 64x2	OF 90 P	89	150	155,6	76,20	76,2
M 76x2	OF 100 P	102	180	193,7	88,90	101,6
M 90x2	OF 125 P	128	180	193,7	88,90	101,6
M 100x2	OF 140 P	140	200	231,8	101,60	114,3

CLEVIS BRACKET



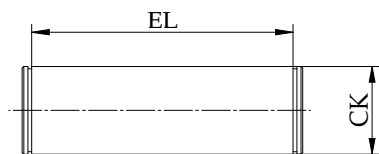
+0,10 CK +0,05	Clevis bracket (female)	CM	CW	FL	HB	LE	MR	TG	UD
11,10	AC 12 P	8,8	10	25,4	7	10	12	44,5	58
12,70	AC 16 P	19,8	13	38,1	10	12	16	64,8	90
19,05	AC 25 P	32,6	15	47,6	13	16	23	97	127
25,40	AC 36 P	38,9	20	57,2	17	20	32	125,7	165
34,93	AC 45 P	51,6	25	76,2	17	22	42	145,5	190
44,45	AC 50 P	64,7	32	92,1	23	22	56	190,5	241
50,80	AC 63 P	64,7	38	108,0	27	25	70	238,8	324
63,50	AC 75 P	77,4	38	114,3	30	25	79	238,8	324
76,20	AC 90 P	77,4	38	152,4	33	25	91	238,8	324
76,20	AC 90 P/2	90,1	38	152,4	33	25	91	238,8	324
88,90	AC 100 P	102,8	50	169,9	46	43	104	304,3	394
101,60	AC 125 P	116,0	50	195,3	52	50	123	349,3	444
101,60	AC 125 P/2	128,2	50	195,3	52	50	123	349,3	444

EYE BRACKET



+0,10 CK +0,05	Eye bracket (male)	EM	FL	HB	LE	MR	TG	UD
11,10	FLA 12 P	11,1	25,4	7	15,4	12	44,5	58
12,70	FLA 16 P	19,1	28,6	11	18,6	14	41,4	65
19,05	FLA 25 P	31,8	47,6	14	32,6	22	64,8	90
25,40	FLA 36 P	38,1	60,3	17	48,3	32	82,6	115
34,93	FLA 45 P	50,8	76,2	17	54,2	41	97	130
44,45	FLA 50 P	63,5	85,7	23	57,7	54	125,7	165
50,80	FLA 63 P	63,5	101,6	27	63,6	62	145,5	190
63,50	FLA 75 P	76,2	120,6	30	75,6	76	167,1	216
76,20	FLA 90 P	76,2	133,3	33	83,3	72	190,5	241
88,90	FLA 100 P	101,6	144,5	46	102,5	95	244,3	320
101,60	FLA 125 P	114,3	163,5	52	113,5	108	290,8	378

PIVOT PIN



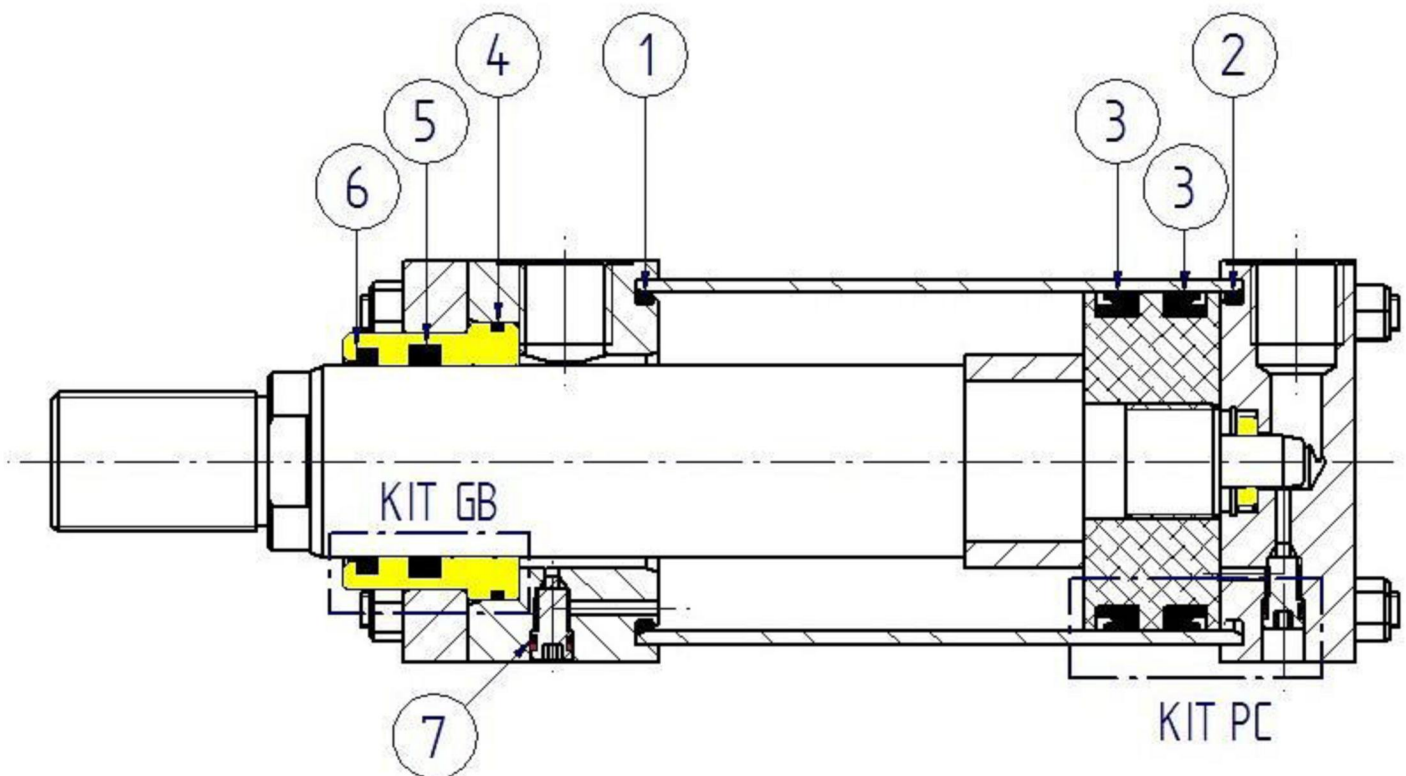
+0,00 CK -0,05	Pivot Pin	+0,0 EL -0,5	+0,00 CK -0,05	Pivot Pin	+0,0 EL -0,5
11,10	P 12 P	33	50,83	P 63 P/2	142
12,73	P 16 P	47	63,53	P 75 P	155
19,08	P 25 P	65	76,23	P 90 P	155
25,43	P 36 P	78	76,23	P 90 P/2	168
34,95	P 45 P	104	88,93	P 100 P	206
44,48	P 50 P	130	101,63	P 125 P	216
50,83	P 63 P	130	101,63	P 125 P/2	232

SEALS

Seals should be chosen according to work conditions of the environment where the cylinder operates, paying particular attention to the fluid characteristics and the temperature. The table below shows the suggested material for the seals, according to the working conditions of the cylinder:

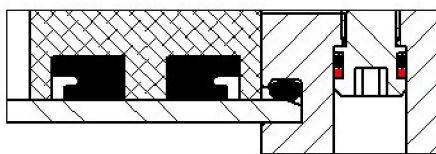
MATE-	CHARACTERISTICS	TEMPERATURE
NBR	High performances in static/dynamic conditions	-20°C ÷ + 80°C
FPM	High temperature	-15°C ÷ + 150°C

SEALS KITS



- | | |
|-------------------------|---------------------------|
| 1 Head seal (O-Ring) | 5 Gland lipseal |
| 2 Cap seal (O-Ring) | 6 Wipeseal |
| 3 Piston seal (lipseal) | 7 Cushioning valve O-ring |
| 4 Gland O-Ring | |

KIT PC : contiene 1, 2, 3, 7

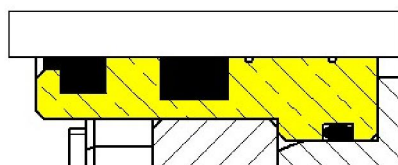


KIT PC

Bore	NBR	FPM
25	PC25P	PC25PV
40	PC40P	PC40PV
50	PC50P	PC50PV
63	PC63P	PC63PV
80	PC80P	PC80PV
100	PC100P	PC100PV
125	PC125P	PC125PV
150	PC150P	PC150PV
200	PC200P	PC200PV
250	PC250P	PC250PV
300	PC300P	PC300PV
350	PC350P	PC350PV

KIT GB: contains 4, 5, 6

KIT BS: contains 4, 5, 6, bronze rod gland



KIT GB

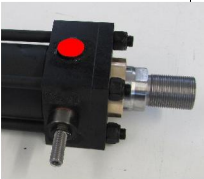
Piston Rod	NBR + polyurethane		NBR		FPM	
12	GB12	BS12	GB12S	BS12S	GB12V	BS12V
16	GB16	BS16	GB16S	BS16S	GB16V	BS16V
25	GB25	BS25	GB25S	BS25S	GB25V	BS25V
36	GB36	BS36	GB36S	BS36S	GB36V	BS36V
45	GB45	BS45	GB45S	BS45S	GB45V	BS45V
50	GB50	BS50	GB50S	BS50S	GB50V	BS50V
63	GB63	BS63	GB63S	BS63S	GB63V	BS63V
75	GB75	BS75	GB75S	BS75S	GB75V	BS75V
90	GB90	BS90	GB90S	BS90S	GB90V	BS90V
100	GB100	BS100	GB100S	BS100S	GB100V	BS100V
125	GB125	BS125	GB125S	BS125S	GB125V	BS125V
140	GB140	BS140	GB140S	BS140S	GB140V	BS140V

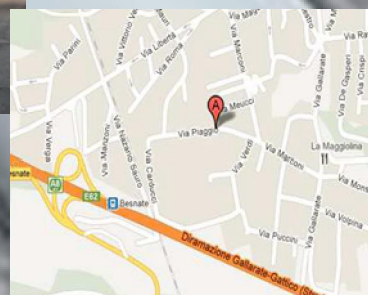
HOW TO ORDER A COMER SYSTEM CYLINDER - ICP SERIES (NFPA)

	SERIE ICP	...	...	...	...	<i>Cf</i>	...	<i>Fa</i>	<i>Fp</i>	<i>S</i>
Bore	Indicate in mm	↑	↑	↑	↑	↑	↑	↑	↑	↑
Piston rod A	Indicate Ø stelo	↑	↑	↑	↑	↑	↑	↑	↑	↑
Rod Thread	Male M o Female F	↑	↑	↑	↑	↑	↑	↑	↑	↑
Piston rod B	Indicate Ø stelo	↑	↑	↑	↑	↑	↑	↑	↑	↑
Rod Thread	Male M o Female F	↑	↑	↑	↑	↑	↑	↑	↑	↑
Stroke	Indicate in mm	↑	↑	↑	↑	↑	↑	↑	↑	↑
Mounting style	A = tie rod extended head end B = tie rod extended cap head AB = tie rod extended both end C = head rectangular flange D = cap rectangular flange E = side lugs ES = side end lug G = cap fixed clevis GS = cap fixed clevis I = head trunnion L = back trunnion M = intermediate fixed trunnion NQ = head square flange NR = head rectangular flange PQ = cap square flange PR = cap rectangular flange R = side tapped	↑	↑	↑	↑	↑	↑	↑	↑	↑
Limited stroke	Indicare in mm	↑	↑	↑	↑	↑	↑	↑	↑	↑
Fa = head cushioning		↑	↑	↑	↑	↑	↑	↑	↑	↑
Fp = cap cushioning		↑	↑	↑	↑	↑	↑	↑	↑	↑
S = special executions	Indicate la change from the standard execution (see the dedicated section page 33)	↑	↑	↑	↑	↑	↑	↑	↑	↑

SPECIAL EXECUTIONS (indicate the required special executions)

S = special executions

V	T	SA	SP	ST	C
					
FPM seals					
Linear transducer					
Head limit switch sensor					
	Cap limit switch sensor				
					
			Heat resistant bellow		
					Connection ports (if not standard)



COMER SYSTEM SRL

Via Piaggio 25 - 21010 Besnate (Va)

Tel: 00390331274812

Fax: 00390331272459

Email: info@comersystem.com

Sito web: www.comersystem.com

