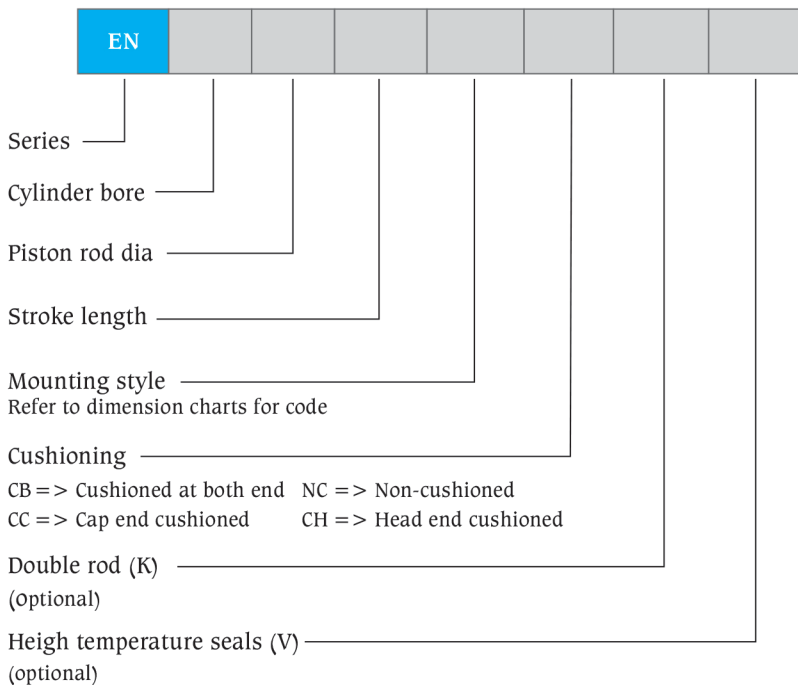




Cylinder selection guide

Operating pressure at kg/sq. cm				Theoretical forces (at mechanical efficiency = 100%)							
				50		80		100		160	
Piston dia mm	Rod dia mm	Piston area sq. cm	Rod area sq. cm	Push kgf	Pull kgf	Push kgf	Pull kgf	Push kgf	Pull kgf	Push kgf	Pull kgf
25	16	4.91	2.01	245.47	144.92	392.75	231.88	490.94	289.85	785.5	463.76
32	20	8.04	3.14	402.18	245.08	643.48	392.12	804.35	490.15	1286.96	784.24
40	18	12.57	2.55	628.4	501.15	1005.44	801.84	1256.8	1002.30	2010.88	1603.68
	25		4.91		382.93		612.69		765.86		1225.38
50	25	19.64	4.91	981.88	736.41	1571	1178.25	1963.75	1472.81	3142	2356.5
	35		9.62		500.76		801.21		1001.51		1602.42
63	35	31.18	9.62	1558.82	1077.71	2494.12	1724.33	3117.65	2155.41	4988.24	3448.66
	45		15.91		763.51		1221.61		1527.01		2443.22
80	45	50.27	15.91	2513.6	1718.28	4021.76	2749.25	5027.2	3436.56	8043.52	5498.5
	56		24.63		1281.94		2051.10		2563.87		4102.20
100	45	78.55	15.91	3927.5	3132.18	6284	5011.49	7855	6264.36	12568	10022.98
	70		38.49		2003.03		3204.84		4006.05		6409.68
125	56	122.73	24.63	6136.72	490.51	9818.75	7848.09	12273.44	9810.11	19637.5	15696.18
	90		63.63		2955.44		4728.71		5910.89		9457.42
160	70	201.09	38.49	10054.4	8129.93	16087.04	13007.88	20108.8	16259.85	32174.08	26015.76
	110		95.05		5302.13		8483.4		10604.25		16966.8
200	90	314.2	63.63	15710	12528.73	25136	20045.96	31420	25057.45	50272	40091.92
	130		132.75		9072.53		14516.04		18145.05		29032.08

Ordering details of EN series hydraulic cylinders



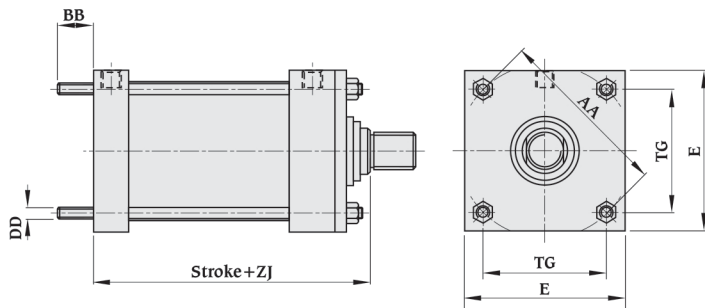
Example

EN series hydraulic cylinder with bore 80mm, piston rod dia 45mm, stroke 300mm, mounting cap fixed clevis and non-cushioned at both ends will be specified as

EN	80	45	300	RP 1	NC	-	-
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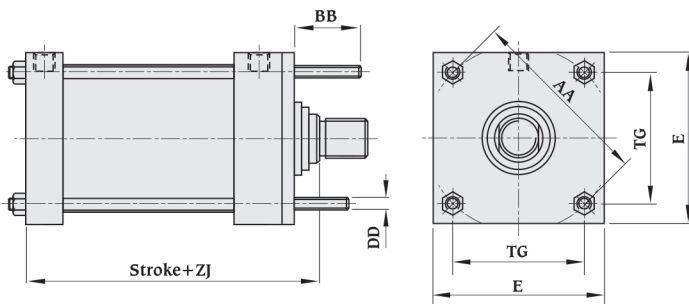
All dimensions are in millimeters unless otherwise stated.

Tie rod extended
for cap end style (TC)



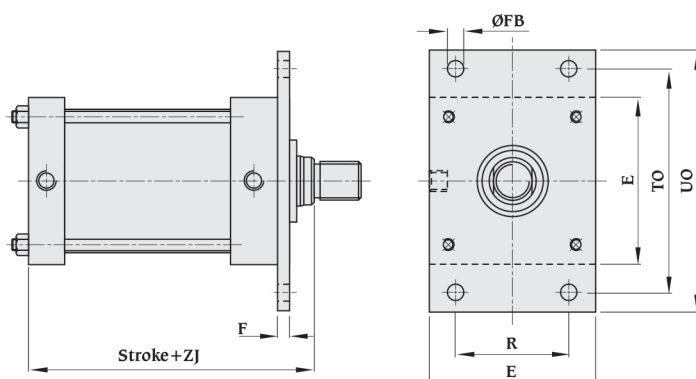
Bore size	AA	BB	DD	E	TG	ZJ
32	53.7	25	M8x1.25P	54	38	147
40	59.3	35	M8x1.25P	63	42	164
50	73.5	46	M12x1.75P	75	52	169
63	90.5	46	M12x1.75P	90	64	178
80	117.3	59	M16x2P	115	83	194
100	137.1	59	M16x2P	130	97	244
125	178.1	81	M22x2.5P	165	126	258
160	219.2	92	M27x3P	205	155	275
200	268.7	115	M30x3.5P	245	190	328

Tie rod extended
for head end style (TH)



Bore size	AA	BB	DD	E	TG	ZJ
32	53.7	25	M8x1.25P	54	38	147
40	59.3	35	M8x1.25P	63	42	164
50	73.5	46	M12x1.75P	75	52	169
63	90.5	46	M12x1.75P	90	64	178
80	117.3	59	M16x2P	115	83	194
100	137.1	59	M16x2P	130	97	244
125	178.1	81	M22x2.5P	165	126	258
160	219.2	92	M27x3P	205	155	275
200	268.7	115	M30x3.5P	245	190	328

Head rectangular
flange style (FF)

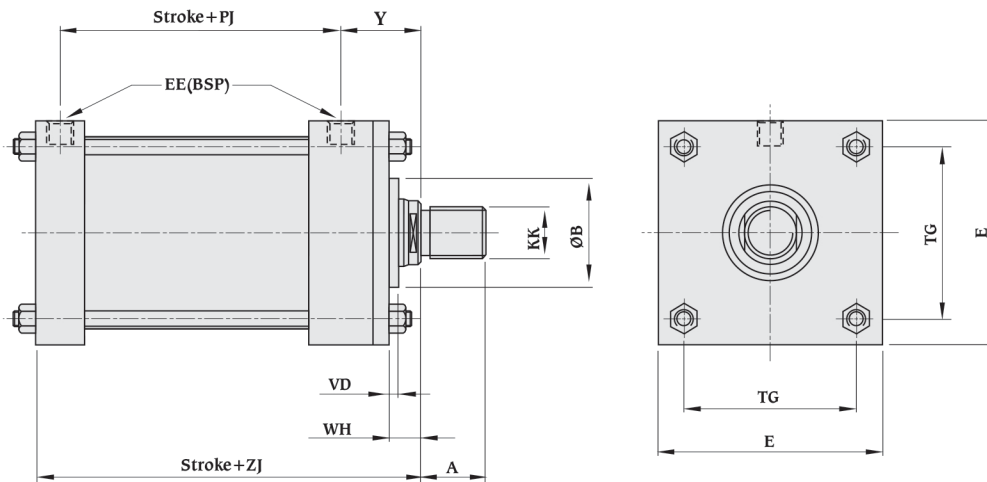
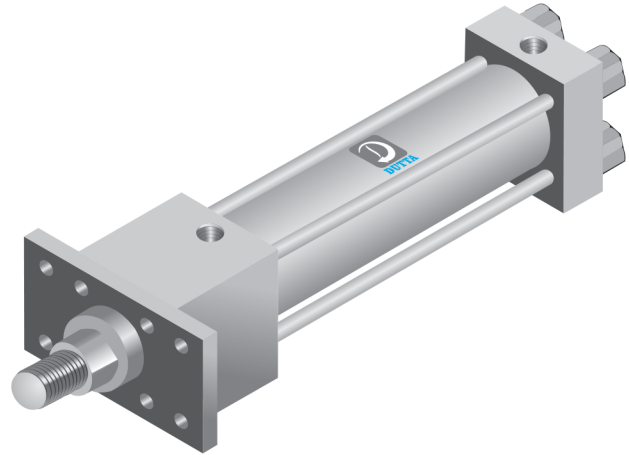


Bore size	E	F	ØFB	R	TO	UO	ZJ
32	54	10	9	36	74	95	147
40	63	10	11	41	87	115	164
50	75	10	14	52	105	142	169
63	90	12	14	65	117	160	178
80	115	15	18	83	149	190	194
100	130	20	18	97	162	220	244
125	165	20	22	126	208	260	258
160	205	26.7	26	155	253	320	275
200	245	30	33	190	300	380	328

All dimensions are in millimeters unless otherwise stated.

Features and specifications

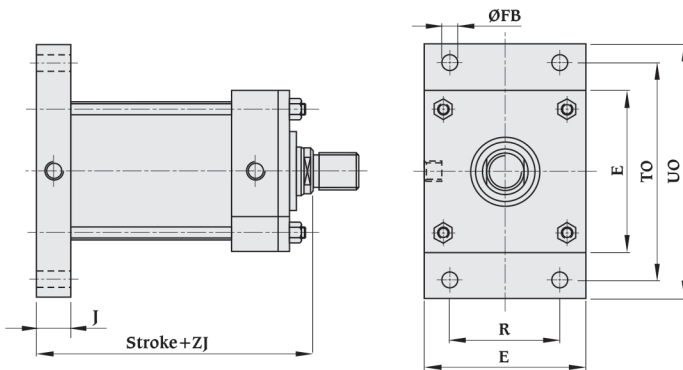
- Standard construction, square head, tie rod design
- 10 standard mounting styles available
- Provision for smaller as well as bigger rod diameter for each bore size
- Wide range of mounting accessories
- Bore sizes : 32mm to 200mm
- Strokes available in any practical stroke length
- Maximum working pressure : 160 bar
- Piston rods : 18mm to 130mm
- Single and double rod designs
- Cushioning available from 63mm bore onwards only
- Cushions available at either end
- Temperature range : - 20°C to +80°C (standard)
- 20°C to +150°C (optional)
- Standard fluid : Mineral oil DIN 51524 (HL, HLP)
- Seal types to suit a wide variety of operating environments



Piston dia	Rod dia		A		KK		ØB		WH	VD	EE	Y	PJ	TG	TG	ZJ
32		20		26		M16x1.5P		35	20.5	9.5	1/4"	61.5	74	54	38	147
40	18	25	18	28	M14x1.5P	M20x1.5P	40	40	23.6	11.6	1/4"	66	86	63	42	164
50	25	35	28	36	M20x1.5P	M27x2P	40	55	23.6	11.6	1/4"	66	91	75	52	169
63	35	45	36	45	M27x2P	M39x2P	55	65	21.6	9.6	3/8"	67.5	95	90	64	178
80	45	56	45	56	M39x2P	M42x2P	65	72	20.6	5.6	1/2"	75.6	101	115	83	194
100	45	70	45	63	M39x2P	M56x2P	65	90	32.2	3.2	3/4"	104	115	130	97	244
125	56	90	56	85	M42x2P	M76x2P	72	108	30.7	5.2	3/4"	103	130	165	126	258
160	70	110	63	95	M56x2P	M95x2P	-	-	25	-	1"	115	135	205	155	275
200	90	130	85	112	M76x2P	M120x2P	108	155	39	14.6	1-1/4"	133	165	245	190	328

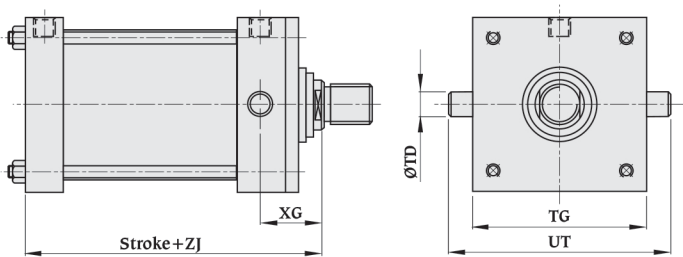
All dimensions are in millimeters unless otherwise stated.

Cap rectangular flange style (RF)



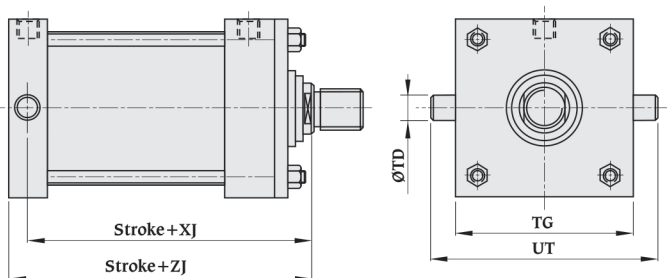
Bore size	E	ØFB	J	R	TO	UO	ZJ
32	54	9	24	36	94	95	147
40	63	11	25	41	87	115	164
50	75	14	25	52	105	142	169
63	90	14	30	65	117	160	178
80	115	18	35	83	149	190	194
100	130	18	50	97	162	220	244
125	165	22	50	126	208	260	258
160	205	26	50	155	253	320	275
200	245	33	60	190	300	380	328

Head trunnion style (TR 1)



Bore size	TC	ØTD	UT	XG	ZJ
32	54	16	78	52.5	147
40	63	25	113	56	164
50	75	25	125	56	169
63	90	30	150	58	178
80	115	35	185	64.6	194
100	130	40	210	91	244
125	165	42	249	89	258
160	205	48	301	96	275
200	245	54	353	116	328

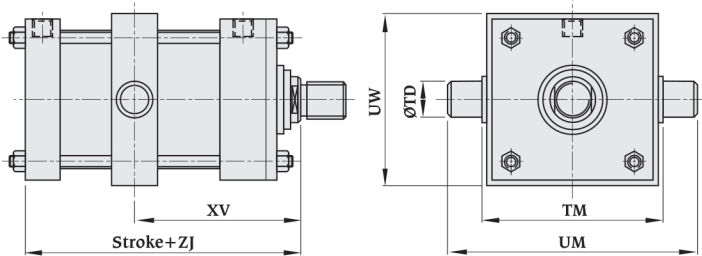
Cap trunnion style (TR 2)



Bore size	TC	ØTD	UT	XJ	ZJ
32	54	16	78	135	147
40	63	25	113	151.5	164
50	75	25	125	156.5	169
63	90	30	150	163	178
80	115	35	185	176.5	194
100	130	40	210	219	244
125	165	42	249	233	258
160	205	48	301	250	275
200	245	54	353	298	328

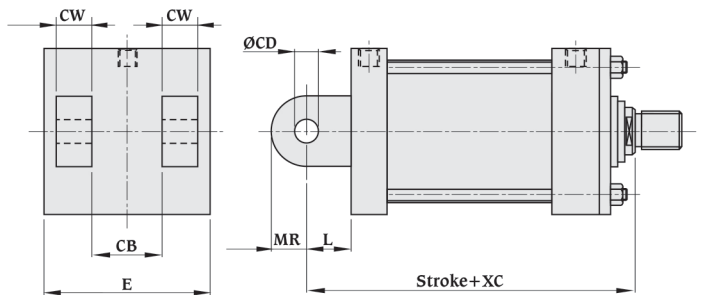
All dimensions are in millimeters unless otherwise stated.

**Intermediate fixed
trunnion style (TR 4)**



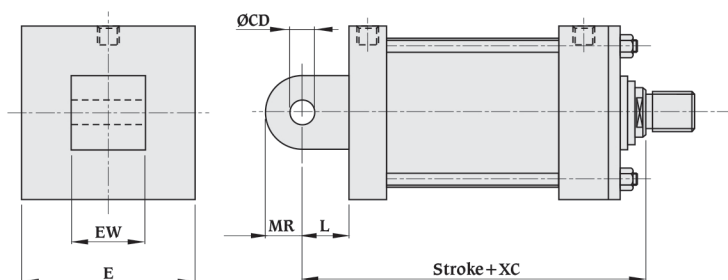
Bore size	Ø TD	TM	UM	UW	XV	ZJ
32	16	55	79	75	To be specified	147
40	25	76	126	92		164
50	25	89	139	112		169
63	30	100	160	126		178
80	35	127	197	160		194
100	40	140	220	180		244
125	42	178	262	215		258
160	48	215	311	260		275
200	54	279	387	355		328

**Cap fixed
clevis style (RP 1)**



Bore size	CB	Ø CD	CW	E	L	MR	XC
32	16	12	8	54	19	17	166
40	20	14	10	63	19	17	183
50	30	20	15	75	32	29	201
63	30	20	15	90	32	29	210
80	40	28	20	115	39	34	233
100	50	36	25	130	54	50	298
125	60	45	30	165	57	53	315
160	70	56	35	205	63	59	338
200	80	70	40	245	82	78	413

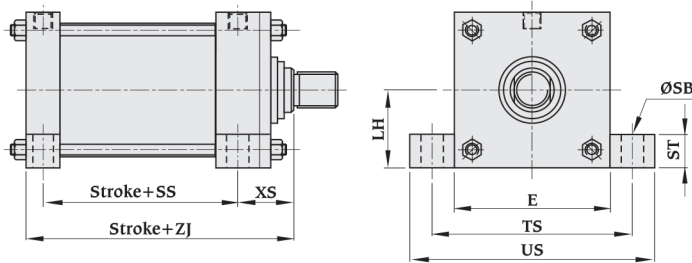
**Cap fixed
eye style (RP 3)**



Bore size	Ø CD	E	EW	L	MR	XC
32	12	54	16	19	17	166
40	14	63	20	19	17	183
50	20	75	30	32	29	201
63	20	90	30	32	29	210
80	28	115	40	39	34	233
100	36	130	50	54	50	298
125	45	165	60	57	53	315
160	56	205	70	63	59	338
200	70	245	80	82	78	413

All dimensions are in millimeters unless otherwise stated.

Side lugs
(foot) style (SL)



Bore size	E	LH	Ø SB	SS	ST	TS	US	XS	ZJ
32	54	27	9	82.5	12	73	93	52.5	147
40	63	31.5	11	95	13	83	104	56	164
50	75	37.5	14	100	19	102	127	56	169
63	90	45	18	104.5	26	124	161	58	178
80	115	57.5	18	111.5	26	149	186	64.6	194
100	130	65	21	128.5	32	172	216	91	244
125	165	82.5	26	143.5	32	210	254	89	258
160	205	102.5	33	154.5	38	260	318	96	275
200	245	122.5	39	182	44	311	381	116	328

All dimensions are in millimeters unless otherwise stated.

All dimensions are in millimeters unless otherwise stated.