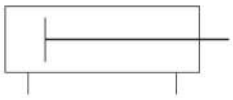
Hydraulic Cylinders

Hydraulic cylinders are devices which convert fluids power into mechanical force or motion. This force or motion will be in a straight line.

Graphic Symbol



"CE" Series Hydraulic Cylinders

CE-Type standard hydraulic cylinders (small bore series) have a variety of applications in various fields.

Specification

Model Number	Cylinder Bore mm	Surge Pressure Kgf/cm^2		Operating Pressure Kgf/cm^2		Operating Speed mm/sec		Max. Stroke mm	Ambt. Temp Range ^{0}C	Stroke Tolerance
		Allowable	Withstand	Max.	Min.	Max.	Min.			
CE- - -140B	40, 50	210*1 (105)	210*1 (105)	140*1 (70)	3	300*2	10	1200*	-10 ~ +80	Ref Table-1
	63, 80							1600*		
	100, 125, 150							200*3		

*1 In case of 'LB' type mounting, pressure will be as given in ( ).
*2 Surge Pressure should be kept within acceptable range.
*3 Stroke should be determined according to buckling strength. Obtain the max. stroke according to the buckling strength from the chart given in the page11.

Tolerance of Stroke

[Table 1]

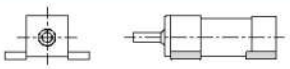
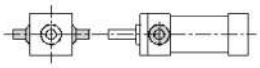
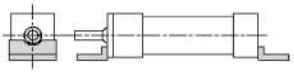
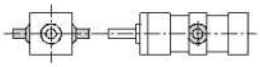
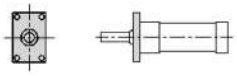
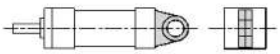
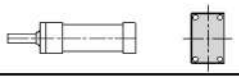
Stroke mm	Tolerance mm
~ 100	+0.8 0
100 ~ 250	+1.0 0
250 ~ 630	+1.25 0
630 ~ 1000	+1.4 0

Model Number Designation

F-	CE	-LA	-100	B	-140	B	-100	-30	80
Special Series	Series Number	Mounting	Cylinder Bore mm	Rod Type	Max. operating Pressure Kgf/cm^2	Location of Cushion	Stroke mm	Design* Number	Design Std.
F: Applicable for Phosphate Ester Type Fluids (Omit if not required)	**CE:** CE Type standard hydraulic cylinder	**LA, LB** **FA, FB** **TA, TC** **CA**	**40, 50** **63, 80** **100, 125** **150**	**B:** Heavy Duty Type **C:** Standard Type	**140 :** 140	**B:** With cushion at both ends **R:** With cushion at rod end **H:** With cushion at head end **N:** No cushion provided	Ex: 100 mm For different stroke length requirement, refer to rating table on page 3 to 10	**30**	**80**

* Design Numbers subjected to change from 30 to 39 but installation dimensions remain same.

Mounting

Name of Mounting Type	Illustration of Mounting type	Name of Mounting Type	Illustration of Mounting type
LA: Foot Mounting Side Lugs		TA: Rod Trunnion	
LB: Foot Mounting Side End Angle		TC: Intermediate Trunnion	
FA: Rod Rectangular Flange		CA: Cap detachable eye/clevis	
FB: Cap/Head Rectangular Flange			

- Care in Application

1 Air Bleeding : Air Bleed screws are provided at head and rod side to remove any air entrapped in the oil chamber. Turn the screw anti-clockwise to remove air. After air removal turn the screw clockwise to close the screw.

2 Cushion : Cylinder cushion are often provided at both ends of the cylinder to slow down near the end of the stroke and prevent the piston from hammering against the end cap.

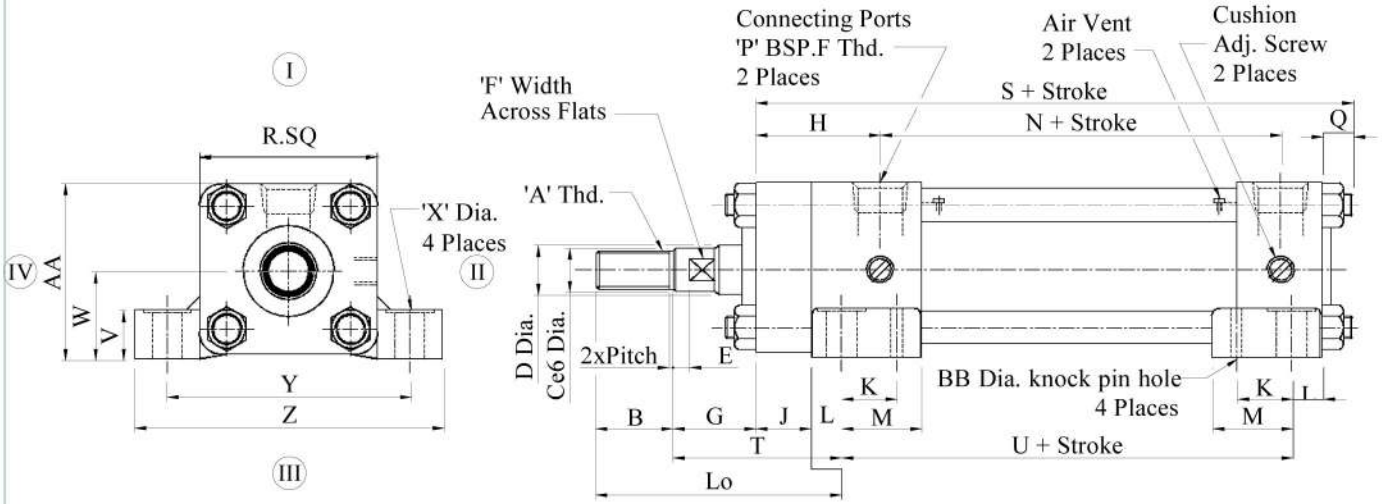
3 Cushion Adjust Valve : Turn the screw clockwise for longer cushioning time and turn screw anti-clockwise for shorter cushion time.

- Effective Length of Cushion

Cylinder Bore mm / Cushion Position	40	50	63	80	100	125	150
Head Side mm	10	13	13	15	15	15	15
Rod Side mm	17	20	20	22	22	25	25

L A : Foot Mounting Side Lugs Type

The positions of connecting port and cushion adjusting screw can not be altered. The position of air vent is indicated in the illustration as the standard. However it is changeable to other position. When required to install the air vent at any other position, please specify it by the following positional numbers (Ⅱ Ⅲ & Ⅳ)



Calculate the approximate weight using the formula below.

Weight = Basic Weight + Added Weight Per Stroke of 100 mm x $\frac{\text{Stroke}}{100}$

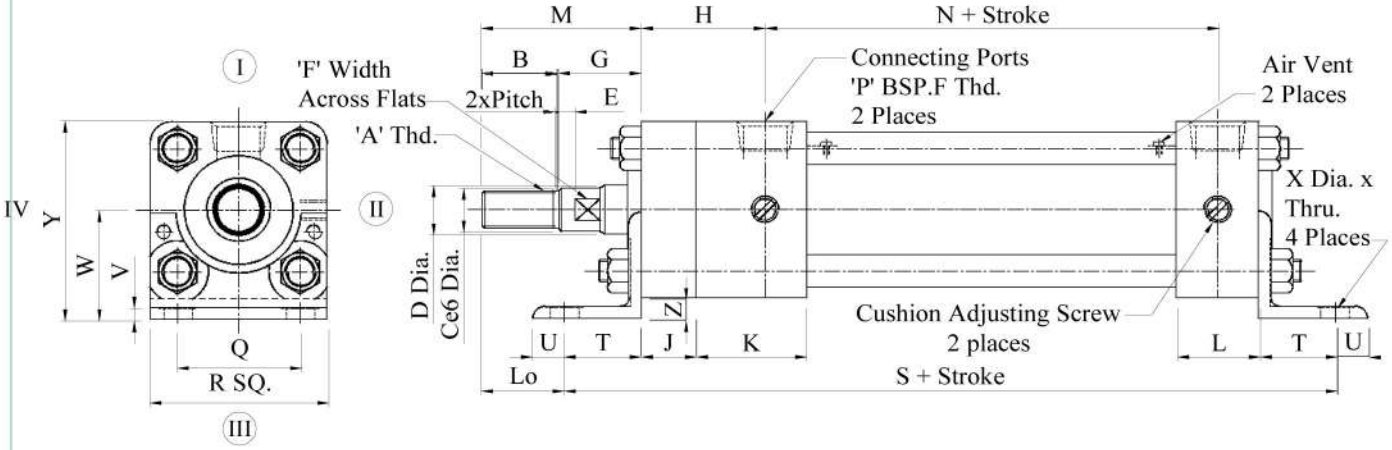
Model Number	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
CELA-40C	M14,P1.5	28	16	18	6	14	30	45	20	20	11	29	94	3/8	11	65	165	61
CELA-40B	M18,P1.5	31.5	20	22.4	6	17												
CELA-50C	M18,P1.5	31.5	20	22.4	6	17	35.5	49.2	21.2	23	11.5	33.5	116	1/2	13	80	195.2	68.2
CELA-50B	M22,P1.5	35.5	26	28	8	23												
CELA-63C	M22,P1.5	35.5	26	28	8	23	40	52	24	23	13.5	31.5	114	1/2	14	95	197	77.5
CELA-63B	M26,P1.5	40	33	35.5	8	29												
CELA-80C	M26,P1.5	40	33	35.5	8	29	47.5	60.5	27	28	16.5	30.5	132	3/4	16	115	231	91
CELA-80B	M33,P1.5	47.5	42	45	10	38												
CELA-100C	M33,P1.5	47.5	42	45	10	38	53	69	35.5	28	17	39	144	3/4	19	136	254.5	105.5
CELA-100B	M42,P1.5	56	53	56	10	46												
CELA-125C	M42,P1.5	56	53	56	10	46	60	80	39	35.5	19.5	51.5	1658	1	21	165	299	118.5
CELA-125B	M55,P2	67	68	71	12	58												
CELA-150C	M50,P1.5	63	64	67	12	54	67	88.5	47.5	35.5	22.5	48.5	178	1	23	200	319.5	137
CELA-150B	M65,P2	80	82	85	12	67												

Model Number	U	V	W	X	Y	Z	AA	BB	Lo.	Weight (Approx.) Kg	
										Basic Weight	Added Wt/100 mm
CELA-40C	112	18	±0.15 33.5	11	90	112	64	5	89	4.6	0.9
CELA-40B									92.5	4.7	1.0
CELA-50C	138	21.2	±0.15 42.5	13	109	132	82.5	5	99.7	7.3	1.4
CELA-50B									103.7	7.5	1.4
CELA-63C	132	25	±0.15 50	15	128	155	97.5	5	113	11.3	2.0
CELA-63B									117.5	11.6	2.3
CELA-80C	155	30	±0.25 60	18	152	185	117.5	8	131	20.0	3.0
CELA-80B									138.5	20.5	3.5
CELA-100C	166	35.5	±0.25 71	20	178	212	139	8	153	33.0	4.6
CELA-100B									161.5	33.7	5.3
CELA-125C	200	42.5	±0.25 85	24	211	250	167.5	8	174.5	57.0	7.0
CELA-125B									185.5	58.2	8.2
CELA-150C	204	50	±0.25 103	28	255	300	203	8	200	89.0	10.3
CELB-150B									217	90.5	11.8

Foot Mounting Side Lugs Type

LB : Foot Mounting Side End Angles Type

The standard positions are as indicated in the illustration ①. However it can be changed to other ones when required to install at any other position. Please specify the following positional numbers (②③ &④) provided. The relative position of connecting port and cushion adjusting screw can not be altered.



Calculate the approximate weight using the formula below.

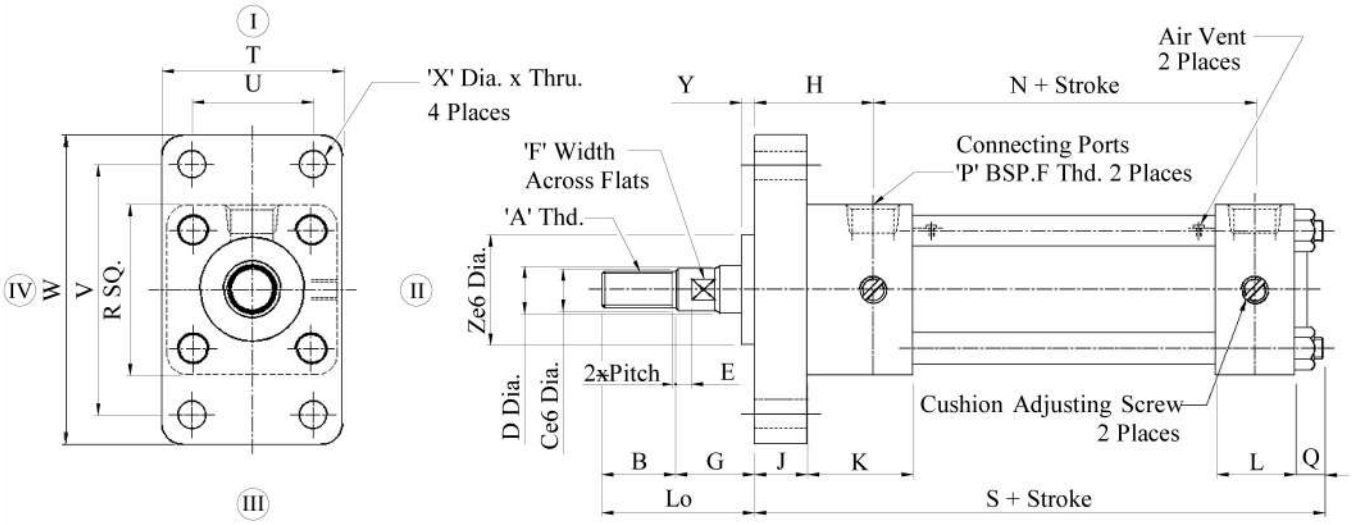
Weight = Basic Weight + Added Weight Per Stroke of 100 mm x $\frac{\text{Stroke}}{100}$

Model Number	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
CELB-40C	M14,P1.5	28	16	18	6	14	30	45	20	40	30	58	94	3/8	44	65	210	28
CELB-40B	M18,P1.5	31.5	20	22.4	6	17						61.5						
CELB-50C	M18,P1.5	31.5	20	22.4	6	17	35.5	49.2	21.2	45	34	67	116	1/2	53	80	252.2	35
CELB-50B	M22,P1.5	33.5	26	28	8	23						71						
CELB-63C	M22,P1.5	33.5	26	28	8	23	40	52	24	45	34	75.5	114	1/2	65	95	257	37
CELB-63B	M26,P1.5	40	33	35.5	8	29						80						
CELB-80C	M26,P1.5	40	33	35.5	8	29	47.5	60.5	27	56	45	87.5	132	3/4	82	115	299	42
CELB-80B	M33,P1.5	47.5	42	45	10	38						95						
CELB-100C	M33,P1.5	47.5	42	45	10	38	53	69	35.5	56	45	100.5	144	3/4	100	136	335.5	50
CELB-100B	M42,P1.5	56	53	56	10	46						109						
CELB-125C	M42,P1.5	56	53	56	10	46	60	80	39	71	60	116	168	1	122	165	398	60
CELB-125B	M55,P2	67	68	71	12	58						127						
CELB-150C	M50,P1.5	63	64	67	12	54	67	88.5	47.5	71	60	130	178	1	147	200	466.5	85
CELB-150B	M65,P2	80	82	85	12	67						147						

Model Number	U	V	W	X	Y	Z	Lo.	Weight (Approx.) Kg	
								Basic Weight	Added Wt/100 mm
CELB-40C	11.5	4.5	±0.15 40	11	72.5	7.5	30	4.5	0.9
CELB-40B							33.5	4.6	1.0
CELB-50C	14.5	5.5	±0.15 47.5	13	87.5	7.5	32	7.1	1.4
CELB-50B							36	7.3	1.6
CELB-63C	22.5	6.5	±0.15 56	15	103.5	8.5	38.5	10.8	2.0
CELB-63B							43	11.1	2.3
CELB-80C	22.5	7.5	±0.25 67	18	124.5	9.5	45.5	19.2	3.0
CELB-80B							53	19.7	3.5
CELB-100C	23	10	±0.25 80	20	148	12	50.5	31.0	4.6
CELB-100B							59	31.7	5.3
CELB-125C	29.5	12.5	±0.25 100	24	182.5	17.5	56	55.6	7.0
CELB-125B							67	56.8	8.2
CELB-150C	44	16	±0.25 118	28	210	18	45	87.0	10.3
CELB-150B							62	88.5	11.8

FA : Rod Rectangular Flange Type

The standard positions are as indicated in the illustration ① However it can be changed to other ones when y required to install at any other position. Specify the following positional numbers(②③& ⑤) provided. The relative position of connecting port and cushion adjusting screw can not be altered.



Calculate the approximate weight using the formula below.

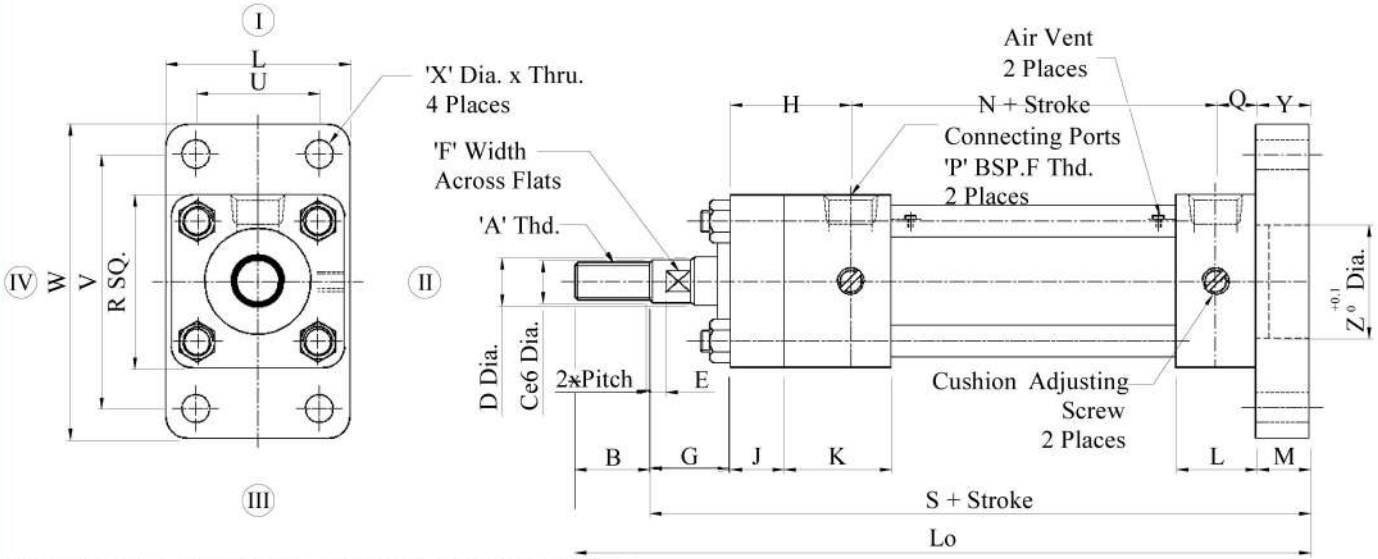
Weight = Basic Weight + Added Weight Per Stroke of 100 mm x $\frac{\text{Stroke}}{100}$

Model Number	A	B	C	D	E	F	G	H	J	K	L	N	P	Q	R	S	T
CEFA-40C	M14, P1.5	28	16	18	6	14	30	45	20	40	30	94	3/8	11	65	165	69
CEFA-40B	M18, P1.5	31.5	20	22.4	6	17											
CEFA-50C	M18, P1.5	31.5	20	22.4	6	17	35.5	49.2	21.2	45	34	116	1/2	13	80	95.2	85
CEFA-50B	M22, P1.5	35.5	26	28	8	23											
CEFA-63C	M22, P1.5	35.5	26	28	8	23	40	52	24	45	34	114	1/2	14	95	197	98
CEFA-63B	M26, P1.5	40	33	35.5	8	29											
CEFA-80C	M26, P1.5	40	33	35.5	8	29	47.5	60.5	27	56	45	132	3/4	16	115	231	118
CEFA-80B	M33, P1.5	47.5	42	45	10	38											
CEFA-100C	M33, P1.5	47.5	42	45	10	38	53	69	35.5	56	45	144	3/4	19	136	254.5	145
CEFA-100B	M42, P1.5	56	53	56	10	46											
CEFA-125C	M42, P1.5	56	53	56	10	46	60	80	39	71	60	168	1	21	165	299	175
CEFA-125B	M55, P2	67	68	71	12	58											
CEFA-150C	M50, P1.5	63	64	67	12	54	67	88.5	47.5	71	60	178	1	23	200	319.5	206
CEFA-150B	M65, P2	80	82	85	12	67											

Model Number	U	V	W	X	Y	Z	Lo.	Weight (Approx.) Kg	
								Basic Weight	Added Wt/100 mm
CEFA-40C	46	95	118	11	6	42.5	58	4.2	0.9
CEFA-40B							61.5	4.3	1.0
CEFA-50C	58	115	145	13	6	50	67	6.7	1.4
CEFA-50B							71	6.9	1.6
CEFA-63C	69	132	165	15	8	63	75.6	10.0	2.0
CEFA-63B							80.0	10.3	2.3
CEFA-80C	87	155	190	18	8	75	87.5	17.8	3.0
CEFA-80B							95	18.3	3.5
CEFA-100C	109	185	224	20	8	85	100.5	28.2	4.6
CEFA-100B							109	28.9	5.3
CEFA-125C	132	224	272	24	8	106	116	50.5	7.0
CEFA-125B							127	51.7	8.2
CEFA-150C	155	265	315	28	8	118	130	78.4	10.3
CEFA-150B							147	79.9	11.8

FB : Head Rectangular Flange Type

The standard positions are as indicated in the illustration ①However it can be changed to other ones when required to install at any other position. Please specify the following positional numbers (②③ &④) provided. The relative position of connecting port and cushion adjusting screw can not be altered.



Calculate the approximate weight using the formula below.

Weight = Basic Weight + Added Weight Per Stroke of 100 mm x $\frac{\text{Stroke}}{100}$

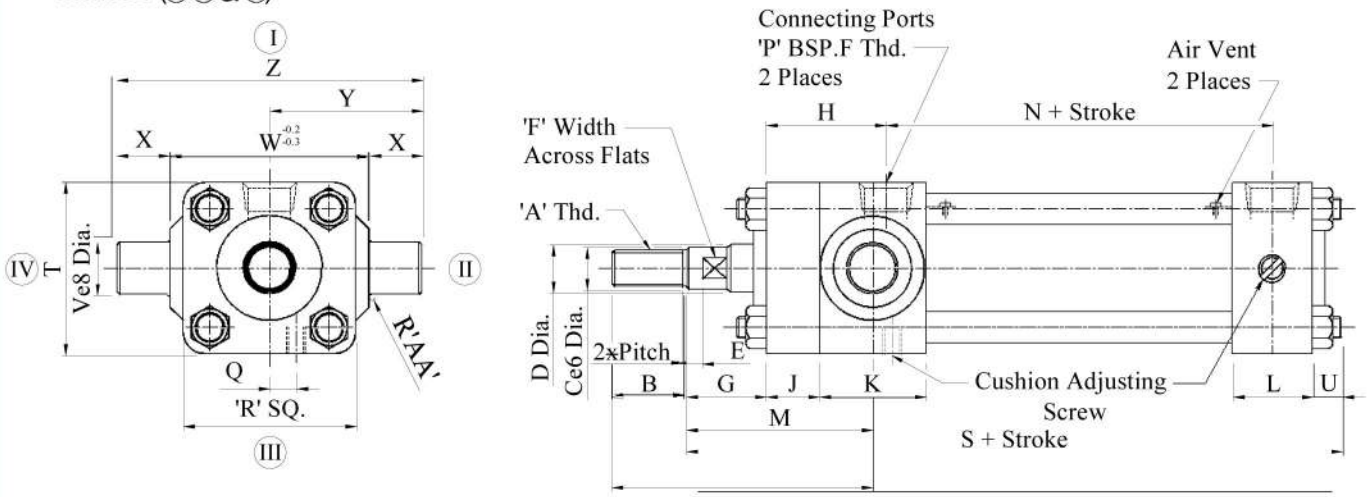
Model Number	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
CEFB-40C	M14, P1.5	28	16	18	6	14	30	45	20	40	30	20	94	3/8	15	65	204	69
CEFB-40B	M18, P1.5	31.5	20	22.4	6	17												
CEFB-50C	M18, P1.5	31.5	20	22.4	6	17	35.5	49.2	21.2	45	34	21.2	116	1/2	17	80	239.2	85
CEFB-50B	M22, P1.5	35.5	26	28	8	23												
CEFB-63C	M22, P1.5	35.5	26	28	8	23	40	52	24	45	34	24	114	1/2	17	95	247	98
CEFB-63B	M26, P1.5	40	33	35.5	8	29												
CEFB-80C	M26, P1.5	40	33	35.5	8	29	47.5	60.5	27	56	45	27	132	3/4	22.5	115	289.5	118
CEFB-80B	M33, P1.5	47.5	42	45	10	38												
CEFB-100C	M33, P1.5	47.5	42	45	10	38	53	69	35.5	56	45	35.5	144	3/4	22.5	136	324	145
CEFB-100B	M42, P1.5	56	53	56	10	46												
CEFB-125C	M42, P1.5	56	53	56	10	46	60	80	39	71	60	39	168	1	30	165	377	175
CEFB-125B	M55, P2	67	68	71	12	58												
CEFB-150C	M50, P1.5	63	64	67	12	54	67	88.5	47.5	71	60	47.5	178	1	30	200	411	206
CEFB-150B	M65, P2	80	82	85	12	67												

Model Number	U	V	W	X	Y	Z	Lo.	Weight (Approx.) Kg	
								Basic Weight	Added Wt/100 mm
CEFB-40C	46	95	118	11	15	42.5	232+Stroke	3.2	0.9
CEFB-40B							235.5+Stroke	5.3	1.0
CEFB-50C	58	115	145	13	16.2	50	270.7+Stroke	8.4	1.4
CEFB-50B							274.7+Stroke	8.6	1.6
CEFB-63C	69	132	165	15	19	63	282.5+Stroke	12.7	2.0
CEFB-63B							287+Stroke	13.0	2.3
CEFB-80C	87	155	190	18	22	75	329.5+Stroke	22.2	3.0
CEFB-80B							337+Stroke	22.7	3.5
CEFB-100C	109	185	224	20	30	85	371.5+Stroke	36.1	4.6
CEFB-100B							380+Stroke	36.8	5.3
CEFB-125C	132	224	272	24	34	106	433+Stroke	63.2	7.0
CEFB-125B							444+Stroke	64.4	8.2
CEFB-150C	155	265	315	28	42.5	118	474+Stroke	101.2	10.3
CEFB-150B							491+Stroke	102.7	11.0

Head Rectangular Flange Type

TA : Rod Side Trunnion Type

The position of connecting port and cushion adjusting screw cannot be altered except those indicated in the illustration. The position of air vent is as indicated in the illustration ① as the standard. However it is changeable to other position, when required to install the air vent at any other position. Please specify it by the following positional numbers (②③&④)



Calculate the approximate weight using the formula below.

Weight = Basic Weight + Added Weight Per Stroke of 100 mm x $\frac{\text{Stroke}}{100}$

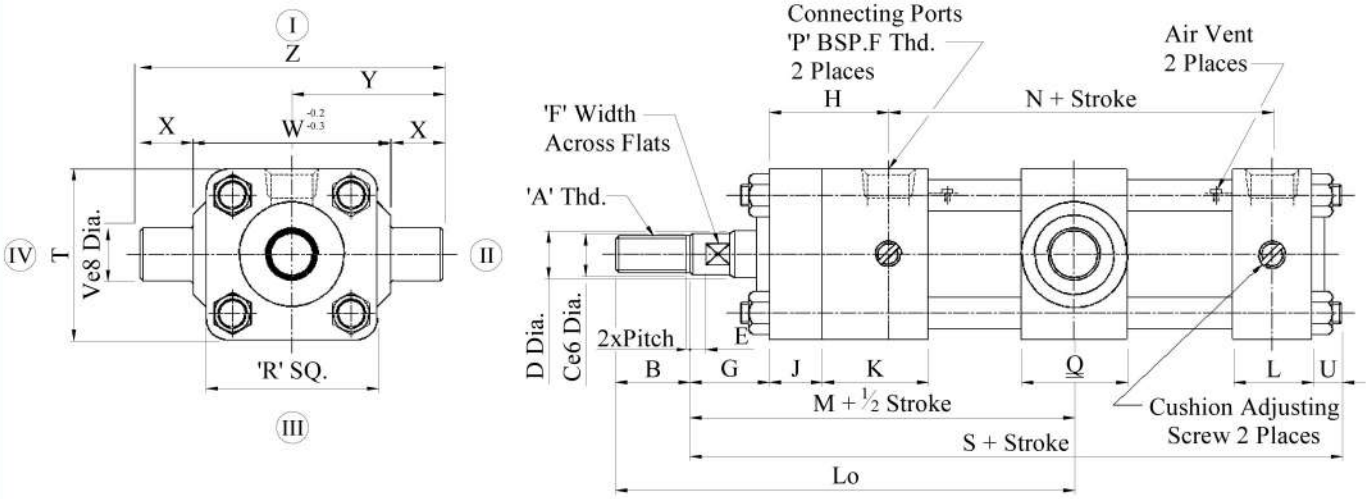
Model Number	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
CETA-40C	M14, P1.5	20	16	18	6	14	30	45	20	40	30	70	94	3/8	10	65	195	32.5
CETA-40B	M18, P1.5	31.5	20	22.4	6	17												
CETA-50C	M18, P1.5	31.5	20	22.4	6	17	35.5	49.2	21.2	45	34	79.2	116	1/2	10	80	231	40
CETA-50B	M22, P1.5	35.5	26	28	8	23												
CETA-63C	M22, P1.5	35.5	26	28	8	23	40	52	24	45	34	86.5	114	1/2	10	95	237	47.5
CETA-63B	M26, P1.5	40	33	35.5	8	29												
CETA-80C	M26, P1.5	40	33	35.5	8	29	47.5	60.5	27	56	45	102.5	132	3/4	10	115	278.5	57.5
CETA-80B	M33, P1.5	47.5	42	45	10	38												
CETA-100C	M33, P1.5	47.5	42	45	10	38	53	69	35.5	56	45	116.5	144	3/4	10	136	307.5	68
CETA-100B	M42, P1.5	56	53	56	10	46												
CETA-125C	M42, P1.5	56	53	56	10	46	60	80	39	71	60	134.5	168	1	10	165	359	82.5
CETA-125B	M55, P2	67	68	71	12	58												
CETA-150C	M50, P1.5	63	64	67	12	54	67	88.5	47.5	71	60	150	178	1	10	200	386.5	100
CETA-150B	M65, P2	80	82	85	12	67												

Model Number	U	V	W	X	Y	Z	AA	Lo.	Weight (Approx.) Kg	
									Basic Weight	Added Wt/100 mm
CETA-40C	11	20	75	20	57.5	115	1	98	4.2	0.9
CETA-40B								101.5	4.3	1.0
CETA-50C	13	25	90	25	70	140	1	110.7	6.8	1.4
CETA-50B								114..7	7.0	1.6
CETA-63C	14	31.5	105	31.5	84	168	2	122	10.3	2.0
CETA-63B								126.5	10.6	2.3
CETA-80C	16	31.5	125	31.5	94	188	2	142.5	18.5	3.0
CETA-80B								150	19.0	3.5
CETA-100C	19	40	146	40	113	226	2	164	29.5	4.6
CETA-100B								172.5	30.2	5.3
CETA-125C	21	50	175	50	137.5	275	2	190.5	53.3	7.0
CETA-125B								201.5	54.5	8.2
CETA-150C	23	63	210	63	168	336	2	213	82.3	10.3
CETA-150B								230	83.8	11.8

Rod Side Trunnion Type

TC : Intermediate Trunnion Type

The standard positions are as indicated in the illustration ①. However it can be changed to other ones when required to install at any other position. Please specify the following positional numbers (②③ & ④) provided. The relative position of connecting port and cushion adjusting screw can not be altered.



Calculate the approximate weight using the formula below.

Weight = Basic Weight + Added Weight Per Stroke of 100 mm x $\frac{\text{Stroke}}{100}$

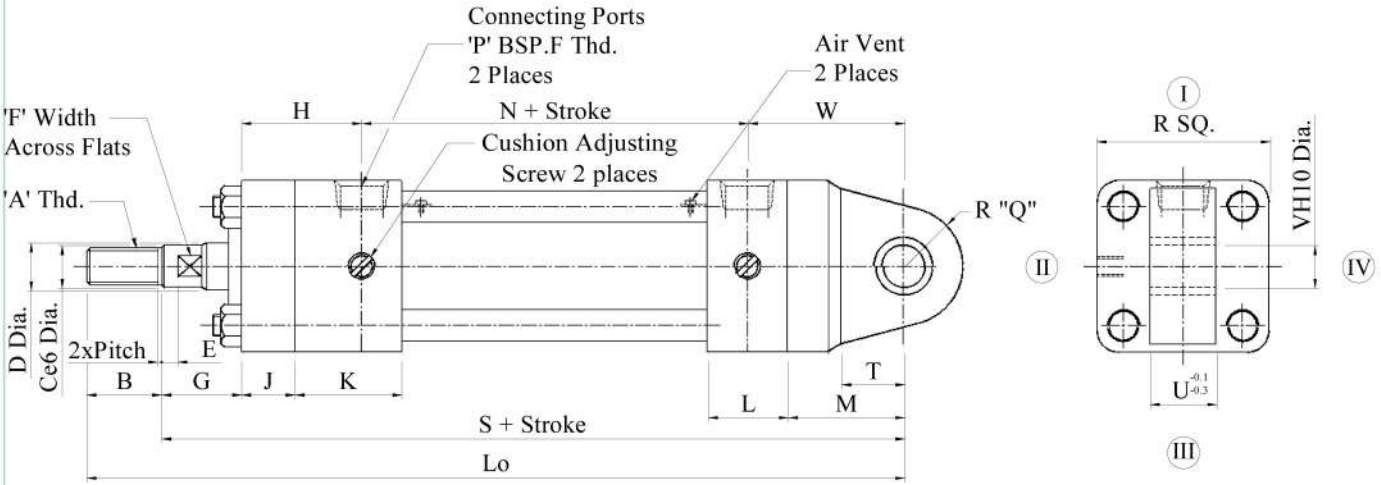
Model Number	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
CETC-40C	M14, P1.5	28	16	18	6	14	30	45	20	40	30	122	94	3/8	40	65	195	32.5
CETC-40B	M18, P1.5	31.5	20	22.4	6	17												
CETC-50C	M18, P1.5	31.5	20	22.4	6	17	35.5	49.2	21.2	45	34	142.7	116	1/2	45	80	231	40
CETC-50B	M22, P1.5	35.5	26	28	8	23												
CETC-63C	M22, P1.5	35.5	26	28	8	23	40	52	24	45	34	149	114	1/2	45	95	237	47.5
CETC-63B	M26, P1.5	40	33	35.5	8	29												
CETC-80C	M26, P1.5	40	33	35.5	8	29	47.5	60.5	27	56	45	174	132	3/4	56	115	278.5	57.5
CETC-80B	M33, P1.5	47.5	42	45	10	38												
CETC-100C	M33, P1.5	47.5	42	45	10	38	53	69	35.5	56	45	194	144	3/4	56	136	307.5	68
CETC-100B	M42, P1.5	56	53	56	10	46												
CETC-125C	M42, P1.5	56	53	56	10	46	60	80	39	71	60	224	168	1	71	165	359	82.5
CETC-125B	M55, P2	67	68	71	12	58												
CETC-150C	M50, P1.5	63	64	67	12	54	67	88.5	47.5	71	60	224.5	178	1	71	200	386.5	100
CETC-150B	M65, P2	80	82	85	12	67												

Model Number	U	V	W	X	Y	Z	AA	Lo.	Weight (Approx.) Kg	
									Basic Weight	Added Wt/100 mm
CETC-40C	11	20	75	20	57.5	115	1	150+1/2Stroke	4.6	0.9
CETC-40B								153.5+1/2Stroke	4.7	1.0
CETC-50C	13	25	90	25	70	140	1	174.2+1/2Stroke	8.5	1.4
CETC-50B								178.2+1/2Stroke	8.7	1.6
CETC-63C	14	31.5	105	31.5	84	168	2	184.5+1/2Stroke	12.5	2.0
CETC-63B								189+1/2Stroke	13.0	2.3
CETC-80C	16	31.5	125	31.5	94	188	2	214+1/2Stroke	21.5	3.0
CETC-80B								221.5+1/2Stroke	22.0	3.5
CETC-100C	19	40	146	40	113	226	2	241.5+1/2Stroke	32.5	4.6
CETC-100B								250+1/2Stroke	34.2	5.3
CETC-125C	21	50	175	50	137.5	275	2	280+1/2Stroke	56.2	7.0
CETC-125B								291+1/2Stroke	57.4	8.2
CETC-150C	23	63	168	63	168	336	2	307.5+1/2Stroke	85.5	10.3
CETC-150B								324.5+1/2Stroke	87.0	11.8

Intermediate Trunnion Type

CA : Head Detachable Clevis Type

The standard positions are as indicated in the illustration①. However it can be changed to other ones when required to install at any other position. Please specify the following positional numbers (②③ &④) provided. The relative position of connecting port and cushion adjusting screw can not be altered.



Calculate the approximate weight using the formula below.

Weight = Basic Weight + Added Weight Per Stroke of 100 mm x $\frac{\text{Stroke}}{100}$

Model Number	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
CECA-40C	M14, P1.5	28	16	18	6	14	30	45	20	40	30	47.5	94	3/8	22.4	65	231.5	27.5
CECA-40B	M18, P1.5	31.5	20	22.4	6	17												
CECA-50C	M18, P1.5	31.5	20	22.4	6	17	35.5	49.2	21.2	45	34	50	116	1/2	26.5	80	267.7	28
CECA-50B	M22, P1.5	35.5	26	28	8	23												
CECA-63C	M22, P1.5	35.5	26	28	8	23	40	52	24	45	34	71	114	1/2	37.5	95	294	45
CECA-63B	M26, P1.5	40	33	35.5	8	29												
CECA-80C	M26, P1.5	40	33	35.5	8	29	47.5	60.5	27	56	45	75	132	3/4	40	115	337.5	45
CECA-80B	M33, P1.5	47.5	42	45	10	38												
CECA-100C	M33, P1.5	47.5	42	45	10	38	53	69	35.5	56	45	90	144	3/4	48	136	378.5	55
CECA-100B	M42, P1.5	56	53	56	10	46												
CECA-125C	M42, P1.5	56	53	56	10	46	60	80	39	71	60	105	168	1	58	165	443	65
CECA-125B	M55, P2	67	68	71	12	58												
CECA-150C	M50, P1.5	63	64	67	12	54	67	88.5	47.5	71	60	128	178	1	80	200	491.5	84
CECA-150B	M65, P2	80	82	85	12	67												

Model Number	U	V	W	Lo.	Weight (Approx.) Kg	
					Basic Weight	Added Wt/100 mm
CECA-40C	25	16	62.5	259.5+Stroke	4.5	0.9
CECA-40B				263+Stroke	4.7	1.0
CECA-50C	31.5	20	67	299.2+Stroke	8.1	1.4
CECA-50B				303.2+Stroke	8.3	1.6
CECA-63C	40	31.5	88	329.5+Stroke	12.4	2.0
CECA-63B				334+Stroke	12.7	2.3
CECA-80C	40	31.5	97.5	377.5+Stroke	22.2	3.0
CECA-80B				385+Stroke	22.7	3.5
CECA-100C	50	40	112.5	426+Stroke	35.5	4.6
CECA-100B				434.5+Stroke	36.2	5.3
CECA-125C	63	50	135	499+Stroke	63.4	7.0
CECA-125B				510+Stroke	64.6	8.2
CECA-150C	80	63	158	554.5+Stroke	97.2	10.3
CECA-150B				571.5+Stroke	98.7	11.8

Theoretical Output

Theoretical output means an output calculated by neglecting all output is proportional to pressure. The theoretical output pressure at levels other than 10 & 140 Kgf/cm^2 should be obtained by a proportional calculation based on the output at pressure of 10 Kgf/cm^2.

Model Numbers	Piston Area cm^2		Speed Ratio	Theoretical Output Kgf			
				At pressure of 10 Kgf/cm^2		At pressure of 140 Kgf/cm^2	
	Head Side	Rod Side	Forward : Reverse	Forward	Reverse	Forward	Reverse
CE -40C	12.5	10.0	1 : 1.25	125	100	1750	1400
CE -50C	19.6	15.7		196	157	2740	2200
CE -63C	31.2	25.0		312	250	4370	3500
CE -80C	50.3	40.4		503	404	7040	5660
CE -100C	78.5	62.6		785	626	11000	8760
CE -125C	123	98.1		1230	981	17200	13700
CE -150C	177	141		1770	1410	24800	19700
CE -40B	12.5	8.6	1 : 1.5	125	86	1750	1200
CE -50B	19.6	13.5		196	135	2740	1890
CE -63B	31.2	21.3		312	213	4370	2980
CE -80B	50.3	34.4		503	344	7040	4820
CE -100B	78.5	53.9		785	539	11000	7550
CE -125B	123	83.1		1230	831	17200	11600
CE -150B	177	120		1770	1200	24800	16800

Max. Stroke Vs. Buckling Strength

How to obtain Max. Stroke

1 Obtain the co-efficient of end 'n' from the table 1 on page 11.
2 Obtain the max. installation length L applying the values of cylinder bore, rod dia., pressure co-efficient of end. etc. to the following chart which is given in the next page.
3 Obtaining the installation length Lo at the time of retraction from the external dimensional drawing. Obtain the maximum stroke 'S' using the formula $S = L - L_o$.

Example When using the standard cylinder of which cylinder bore is 100 mm, rod dia is 56 mm & support type is TC (Intermediate Trunnion type) at pressure of 80 Kgf/cm^2, the maximum stroke becomes as follows:

From following chart
n = 1
L = 1980 (Approx.)

From the external dimensional drawing
Lo = 250 + S/2

Therefore $S = L - Lo = 1980 - (250 + S/2)$
The maximum stroke is 1150 mm
$S \approx 1150$ mm (Approx.)

Max. Installation Length Vs. Cylinder Bore.

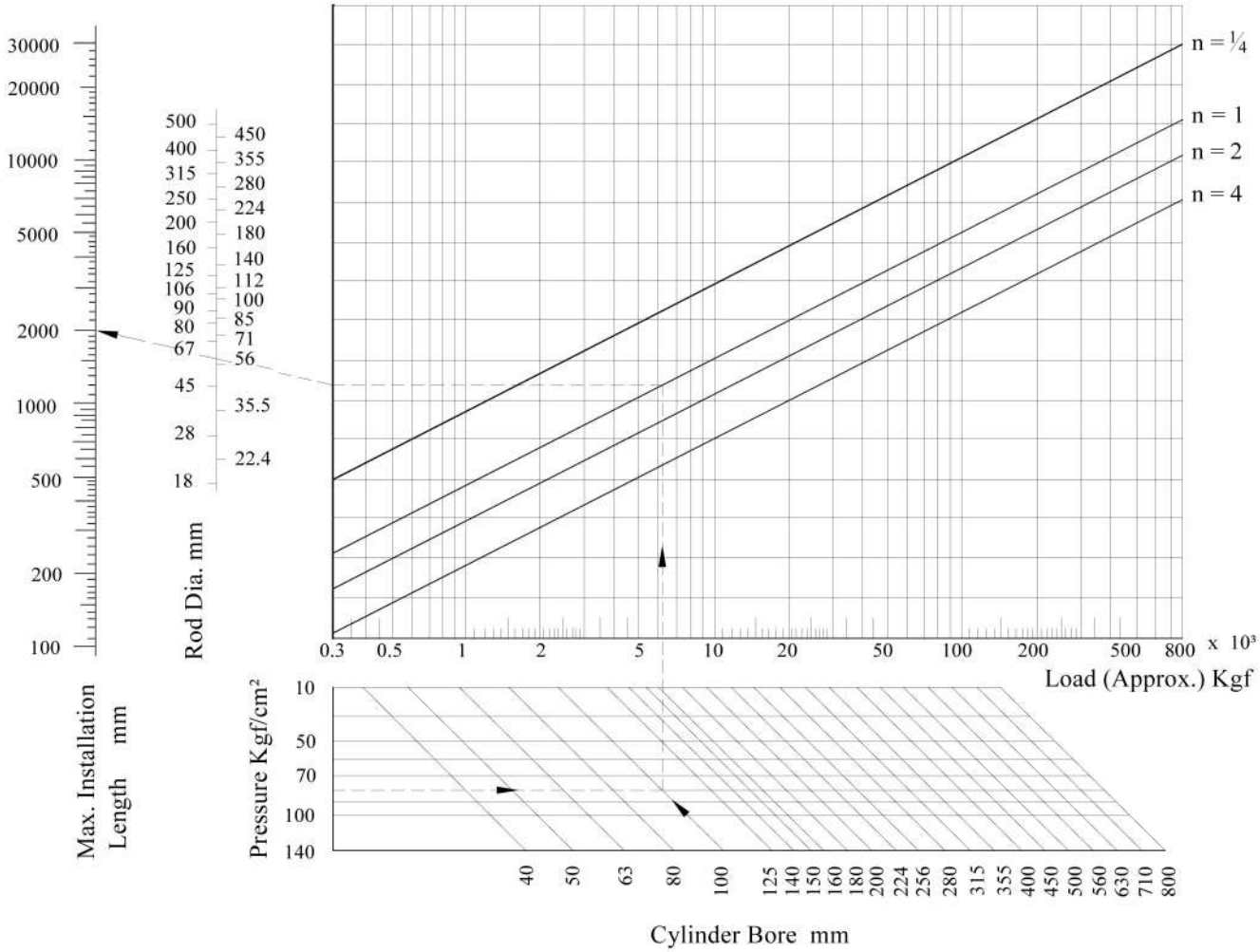
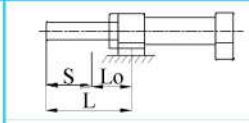
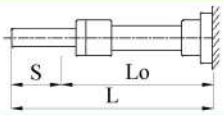
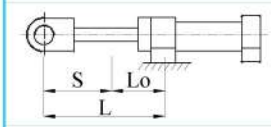
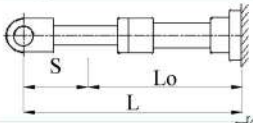
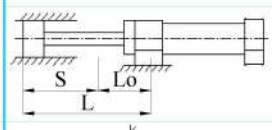
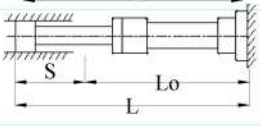
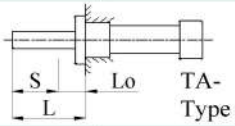
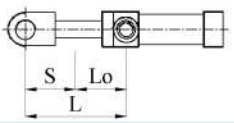
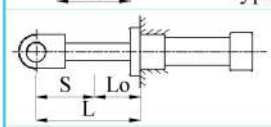
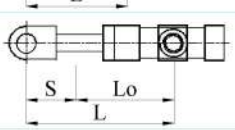
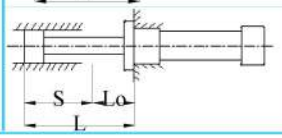
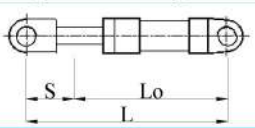


Table - 1

Support Type	Operating Condition	Coefficient of End n	Support Type	Operating Condition	Coefficient of End n
LA-Type LB-Type		1/4	FB-Type		1/4
		2			2
		4			4
FA-Type		1/4	TA-Type		1
		2	TC-Type		
		4	CA-Type		

S = L – Lo S = Stroke mm
L = Installation Length at a time of Expansion
Lo = installation Length at a time of Retraction
L & Lo = mm

Note: Obtain Lo from the externational dimensional drawing

M.R. Enterprises

2013

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Web : www.mrgroupindia.co.in

Standard Hydraulic Cylinder range

WELCOME / CONTENTS

Welcome to the **M.R. Enterprises** standard range of hydraulic cylinders.

This catalogue is designed to give a snapshot of the hydraulic cylinder range available from M.R. Enterprises. It's purpose is to give an idea of standard cylinder dimensions & mounting options for the information of Original Equipment Manufacturers, machinery designers & hydraulic equipment users in general.

M.R. Enterprises are bespoke hydraulic cylinder manufacturers specialising in fast delivery, cost-effective hydraulic cylinder solutions in quantities from one-off to batch work. We produce cylinders from 25mm to 250mm bore, with a huge range of mounting options as standard, and the engineering capability to produce any cylinder configuration to suit the needs of the client. We can design for you, or work to your drawings and specifications.

Our standard range of cylinders has a working pressure of 210 bar. Also available is our Heavy Duty range, rated to work at 350 bar, designed to operate in the most arduous of conditions.

Cylinders can be fitted with a range of electronic position sensing devices, from simple proximity sensors signalling extremities of stroke, to internally fitted infinite resolution linear transducers with a variety of output options.

Please feel free to download this catalogue and incorporate our cylinder designs into your machinery. If you do not see exactly what you are looking for please do not hesitate to contact us, our design team are always on hand to assist you in any way possible

Catalogue Contents

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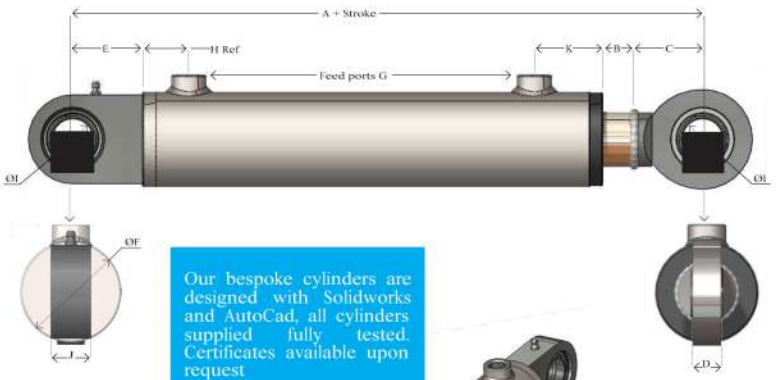
or e-mail mrenterprisespune26@gmail.com

WELDED SPHERICAL BEARING MOUNTED CYLINDERS

A range of cylinders mounted on self-aligning spherical bearings, welded to the rear of the cylinder body and rod-end. Suitable for cylinders with Carbon Steel rod material.



Our bespoke cylinders are designed with Solidworks and AutoCad, all cylinders supplied fully tested. Certificates available upon request

Cylinder Dimensions

Bore DIA	Rod DIA	A	B	C	D	E	F	G	H	I	J	K
40	20 25	206	22	38	19	38	50	1/4"BSP	28	20	19	40
50	25 30 35	230	22	45	23	45	60	3/8"BSP	28	25	23	43
60	30 35 40	261	22	51	28	51	70	3/8"BSP	32	30	28	50
63	30 35 40	261	22	51	28	51	73	3/8"BSP	32	30	28	50
70	35 40 50	259	25	51	28	51	80	3/8"BSP	32	30	28	50
80	40 50 60	302	25	61	30	61	95	1/2"BSP	35	35	30	60
100	40 50 60 70	351	28	69	35	69	115	1/2"BSP	35	40	35	82

Maximum working pressure 210 bar.
Test pressure 300 bar unless otherwise stated.
All cylinders can be used as Double Acting OR Single Acting pull / Single Acting push. Cylinders can be supplied with sintered bronze breathers fitted to ports for single acting applications.
Cylinder material: ST52.3 DOM and CDS tube DIN2393 I.S.O. H8 & H9
Rod material: Standard Grade EN8 DIN UNI CK45, Hard Chrome Plated, minimum 25 microns
Alternative rod materials available: Chrome plated Stainless Steel grades 431S29T / 316 / 304; NIKROM 350
Headbush material: Cast Iron - UNI5007–G25 unless otherwise stated
Bore diameters available from 25mm to 250mm.
350 bar Heavy Duty range of cylinders and alternative rod and bore combinations available
Data given illustrates standard sizes. Bespoke manufacturing options are always available, call or email for further details.

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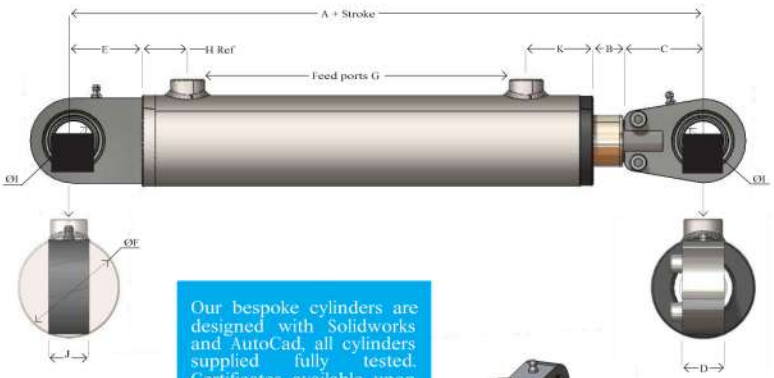
THREADED SPHERICAL BEARING MOUNTED CYLINDERS

A range of cylinders mounted on self-aligning spherical bearings, welded to the rear of the cylinder body, threaded at the rod-end. Suitable for cylinders with stainless steel rod material



Our bespoke cylinders are designed with Solidworks and AutoCad, all cylinders supplied fully tested. Certificates available upon request.

Pop out feature box/info point could go here ?

Cylinder Dimensions

Bore DIA	Rod DIA	A	B	C	D	E	F	G	H	I	J	K
40	20 25	216	20	50	19	38	50	1/4"BSP	28	20	19	40
50	25 30 35	235	22	50	23	45	60	3/8"BSP	28	25	23	43
60	30 35 40	273	25	60	28	51	70	3/8"BSP	32	30	28	50
63	30 35 40	273	25	60	28	51	73	3/8"BSP	32	30	28	50
70	35 40 50	273	30	60	28	51	80	3/8"BSP	32	30	28	50
80	40 50 60	321	35	70	30	61	95	1/2"BSP	35	35	30	60
100	40 50 60 70	379	40	85	35	69	115	1/2"BSP	35	40	35	82

Maximum working pressure 210 bar.
Test pressure 300 bar unless otherwise stated.
Cylinder material: ST52.3 DOM and CDS tube DIN2393 I.S.O. H8 & H9
Rod material: Standard Grade EN8 DIN UNI CK45, Hard Chrome Plated, minimum 25 microns
Alternative rod materials available: Chrome plated Stainless Steel grades 431S29T / 316 / 304; NIKROM 350
Headbush material: Cast Iron - UNI5007–G25 unless otherwise stated
Bore diameters available from 25mm to 250mm.
350 bar Heavy Duty range of cylinders and alternative rod and bore combinations available

Data given illustrates standard sizes. Bespoke manufacturing options are always available, call or email for further details.

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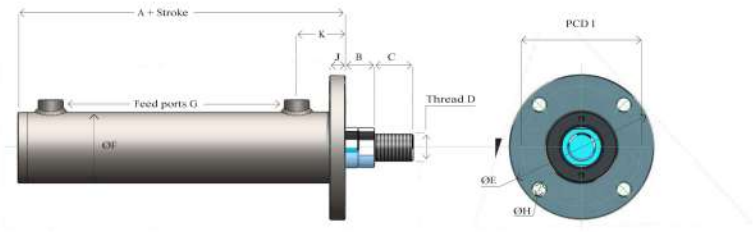
FRONT FLANGE MOUNTED CYLINDERS

A range of cylinders mounted on a circular front flange, with a male threaded rod-end.



Front Flange 40 - 70 bore 4 holes ØH on PCD I
Front Flange 80 - 100 bore 6 holes ØH on PCD I

Our bespoke cylinders are designed with Solidworks and AutoCad, all cylinders supplied fully tested. Certification available upon request

Pop out feature text box could go here ?

Cylinder Dimensions

Bore DIA	Rod DIA	A	B	C	D	E	F	G	H	I	J	K
40	20 25	108	25	25	M16X1.5	109	50	1/4"BSP	11	87	12.5	40
50	25 30 35	118	30	25 30	M16X1.5 M20X1.5	128	60	3/8"BSP	13	105	14.5	43
60	30 35 40	137	30	30 35 40	M20X1.5 M24X2.0 M27X2.0	142	70	3/8"BSP	13	117	16.5	50
63	30 35 40	137	30	30 35 40	M20X1.5 M24X2.0 M27X2.0	142	73	3/8"BSP	13	117	16.5	50
70	35 40 50	143	35	30 40	M24X2.0 M27X2.0	162	80	3/8"BSP	15	127	16.5	50
80	40 50 60	163	35	40 45	M27X2.0 M33X2.0	181	95	1/2"BSP	17	149	18.5	60
100	40 50 60 70	187 192	40 50	40 45 50	M27X2.0 M33X2.0 M39X2.0	194	115	1/2"BSP	17	162	24.5	82

Maximum working pressure 210 bar.
Test pressure 300 bar unless otherwise stated.
Cylinder material: ST52.3 DOM and CDS tube DIN2393 I.S.O. H8 & H9
Rod material: Standard Grade EN8 DIN UNI CK45, Hard Chrome Plated, minimum 25 microns
Alternative rod materials available: Chrome plated Stainless Steel grades 431S29T / 316 / 304; NIKROM 350
Headbush material: Cast Iron - UNI5007–G25 unless otherwise stated
Bore diameters available from 25mm to 250mm.
350 bar Heavy Duty range of cylinders and alternative rod and bore combinations available

Data given illustrates standard sizes. Bespoke manufacturing options are always available, call or email for further details.

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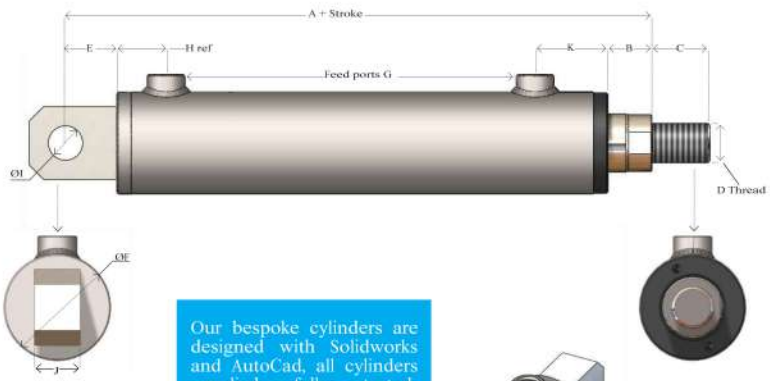
REAR CLEVIS MOUNTED CYLINDERS

A range of cylinders mounted on a welded rear male clevis (sometimes called a Pad-eye), with a male threaded rod-end.



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Cylinder Dimensions

Bore DIA	Rod DIA	A	B	C	D	E	F	G	H	I	J	K
40	20 25	158	25	25	M16X1.5	25	50	1/4"BSP	28	16.20	20	40
50	25 30 35	178	30	25 30	M16X1.5 M20X1.5	30	60	3/8"BSP	30	20.25	25	43
60	30 35 40	202	30	30 35 40	M20X1.5 M24X2.0 M27X2.0	35	70	3/8"BSP	32	25.25	30	50
63	30 35 40	202	30	30 35 40	M20X1.5 M24X2.0 M27X2.0	35	73	3/8"BSP	32	25.25	30	50
70	35 40 50	207	35	30 40	M24X2.0 M27X2.0	35	80	3/8"BSP	35	25.25	30	50
80	40 50 60	235	35	40 45	M27X2.0 M33X2.0	45	95	1/2"BSP	38	30.25	35	60
100	40 50 60 70	267 280	40	40 45 50	M27X2.0 M33X2.0 M39X2.0	55	115	1/2"BSP	38	35.25	40	82

Maximum working pressure 210 bar.
Test pressure 300 bar unless otherwise stated.
Cylinder material: ST52.3 DOM and CDS tube DIN2393 I.S.O. H8 & H9
Rod material: Standard Grade EN8 DIN UNI CK45, Hard Chrome Plated, minimum 25 microns
Alternative rod materials available: Chrome plated Stainless Steel grades 431S29T / 316 / 304; NIKROM 350
Headbush material: Cast Iron - UNI5007–G25 unless otherwise stated
Bore diameters available from 25mm to 250mm.
350 bar Heavy Duty range of cylinders and alternative rod and bore combinations available

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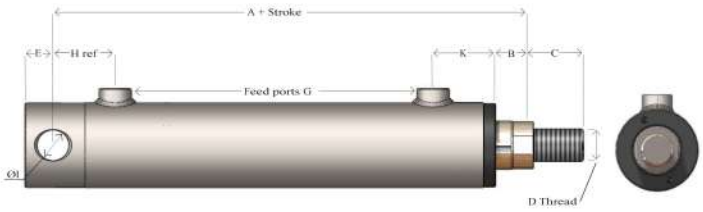
REAR PIN MOUNTED CYLINDERS

A range of cylinders mounted on a simple pin hole to the rear, with a male threaded rod-end.

Key features: Max working pressure 210 bores from 25mm to 250mm



Our bespoke cylinders are designed with Solidworks and AutoCad, all cylinders supplied fully tested. Certificates available upon request

Cylinder Dimensions

Bore DIA	Rod DIA	A	B	C	D	E	F	G	H	I	K
40	20 25	143	25	25	M16X1.5	15	50	1/4"BSP	35	16.20	40
50	25 30 35	163	30	25 30	M16X1.5 M20X1.5	20	60	3/8"BSP	45	20.25	43
60	30 35 40	182.5	30	30 35 40	M20X1.5 M24X2.0 M27X2.0	22.5	70	3/8"BSP	48	25.25	50
63	30 35 40	182.5	30	30 35 40	M20X1.5 M24X2.0 M27X2.0	22.5	70	3/8"BSP	48	25.25	50
70	35 40 50	187.5	35	35 40	M24X2.0 M27X2.0	22.5	80	3/8"BSP	48	25.25	50
80	40 50 60	213	35	40 45	M27X2.0 M33X2.0	25	95	1/2"BSP	55	30.25	60
100	40 50 60 70	245 250	40	40 45 50	M27X2.0 M33X2.0 M39X2.0	30	115	1/2"BSP	65	35.25	82

Maximum working pressure 210 bar.
Test pressure 300 bar unless otherwise stated.
Cylinder material: ST52.3 DOM and CDS tube DIN2393 I.S.O. H8 & H9
Rod material: Standard Grade EN8 DIN UNI CK45, Hard Chrome Plated, minimum 25 microns
Alternative rod materials available: Chrome plated Stainless Steel grades 431S29T / 316 / 304; NIKROM 350
Headbush material: Cast Iron - UNI5007–G25 unless otherwise stated
Bore diameters available from 25mm to 250mm.
350 bar Heavy Duty range of cylinders and alternative rod and bore combinations available

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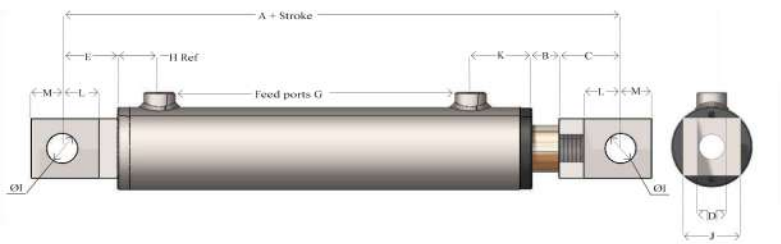
FORKED CLEVIS MOUNTED CYLINDERS

A range of cylinders mounted on forked clevises, welded to the rear, threaded at the rod-end.



Our bespoke cylinders are designed with Solidworks and AutoCad, all cylinders supplied fully tested. Certificates available upon request

Cylinder Dimensions

Bore DIA	Rod DIA	A	B	C	D	E	F	G	H	I	J	K	L	M
40	20 25	201	20	39	16	34	50	1/4"BSP	28	16.2	35	40	24	16
50	25 30 35	225	22	45	20	40	60	3/8"BSP	28	20.25	40	43	30	20
60	30 35 40	257	25	50	25	45	70	3/8"BSP	32	25.25	50	50	30	25
63	30 35 40	257	25	50	25	45	73	3/8"BSP	32	25.25	50	50	30	25
70	35 40 50	282	30	65	30	50	80	3/8"BSP	32	30.25	60	50	35	30
80	40 50 60	320	35	75	35	55	95	1/2"BSP	35	35.25	70	60	40	35
100	40 50 60 70	355	40	75	35	55	115	1/2"BSP	35	35.25	70	82	40	35

Maximum working pressure 210 bar.
Test pressure 300 bar unless otherwise stated.
Cylinder material: ST52.3 DOM and CDS tube DIN2393 I.S.O. H8 & H9
Rod material: Standard Grade EN8 DIN UNI CK45, Hard Chrome Plated, minimum 25 microns
Alternative rod materials available: Chrome plated Stainless Steel grades 431S29T / 316 / 304; NIKROM 350
Headbush material: Cast Iron - UNI5007–G25 unless otherwise stated
Bore diameters available from 25mm to 250mm.
350 bar Heavy Duty range of cylinders and alternative rod and bore combinations available

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BESPOKE CYLINDER MANUFACTURING

With our many years of experience in cylinder design and manufacture, and extensive engineering facilities, we can produce cylinders to individual designs, from one-offs to large batches.

We specialise in fast turn-around, cost effective cylinder solutions to O.E.M. Manufacturing, Offshore, Marine & Agricultural industries, amongst many others.

Our design work is done in Solidworks & AutoCAD, and we have the ability to send and accept drawings in most electronic formats.

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Hydraulic cylinder forces table

Bore DIA	Rod DIA	Extension Force kg			Retraction Force kg		
		@140 Bar	@170 Bar	@210 Bar	@140 Bar	@170 Bar	@210 Bar
40	20	1761	2138	2641	1320	1603	1981
40	25	1761	2138	2641	1073	1303	1609
50	25	2751	3341	4127	2063	2505	3095
50	30	2751	3341	4127	1761	2138	2641
50	35	2751	3341	4127	1403	1704	2105
60	30	3961	4810	5942	2971	3608	4457
60	35	3961	4810	5942	2613	3173	3920
60	40	3961	4810	5942	2201	2672	3301
63	35	4367	5303	6551	3377	3667	4529
63	40	4367	5303	6551	3019	3165	3910
63	50	4367	5303	6551	2607	1963	2425
70	35	5392	6547	8008	4044	4911	6066
70	40	5392	6547	8008	3631	4409	5447
70	50	5392	6547	8008	2641	3207	3961
80	40	7043	8552	10564	5282	6414	7923
80	50	7043	8552	10564	4292	5211	6437
80	60	7043	8552	10564	3081	3741	4622
100	40	11004	13362	16506	9243	11224	13865
100	50	11004	13362	16506	8253	10022	12380
100	60	11004	13362	16506	7043	85517	10564
100	70	11004	13362	16506	5612	68146	84181

All data is given in good faith but without responsibility and may be subject to change without notice, all dimensions in mm

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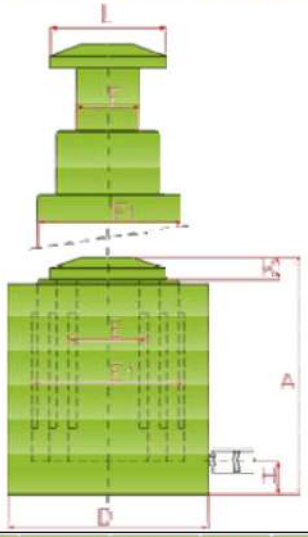
Single Acting Telescopic Cylinders



	Capacity	Stages	Capacity 3	Capacity 2	Capacity 1	Stroke 3	Stroke 2	Stroke 1	Area 3	Area 2	Area 1	Oil Cap.	A	Weight	D	E	E1	F	F1	H	K	L
	Tn	*	kN	kN	kN	mm	mm	mm	cm^2	cm^2	cm^2	cm^3	mm	Kg	mm	mm	mm	mm	mm	mm	mm	mm
☐	10	2	-	109	303		270	135	-	16	44	810	250	16.2	110	45	75	36	68	20	16	50
☐	10	3	109	303	652	435	290	145	16	44	95	2250	280	33.4	152	45	110	36	95	21	19	75
☐	15	2	-	163	436		300	150	-	24	64	1308	280	23.4	125	55	90	50	80	25	16	66
☐	15	3	163	436	842	500	340	170	24	64	123	3543	320	50.9	175	55	125	50	110	25	19	95
☐	30	2	-	303	652		300	150	-	44	95	2088	304	38.3	152	75	110	68	100	27	18	89
☐	30	3	303	652	1380	600	400	200	44	95	201	6803	355	96.2	220	75	160	68	150	27	20	123

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