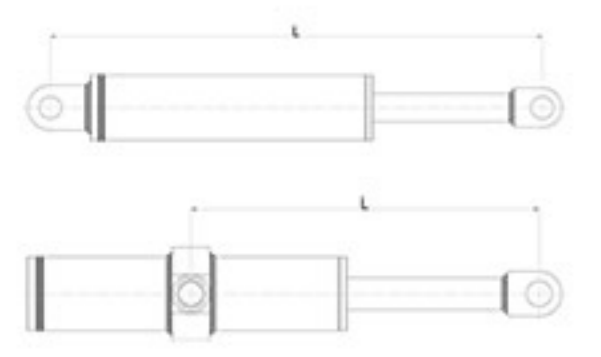
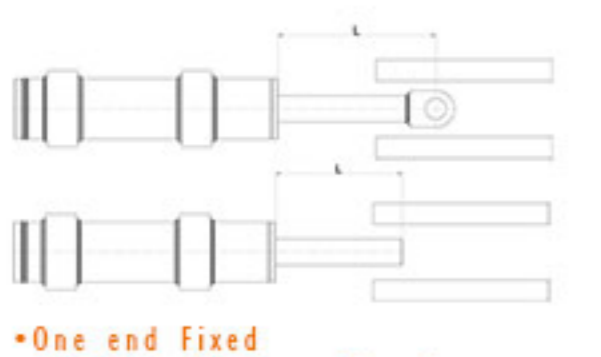


CLASS A MOUNTING



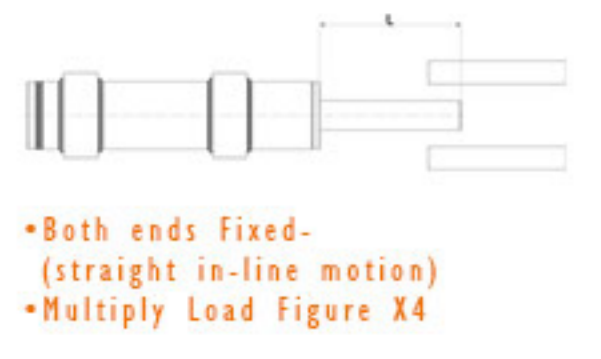
• Both ends Rounded or Pinned.
• Use Load Figure Shown in Chart

CLASS B MOUNTING



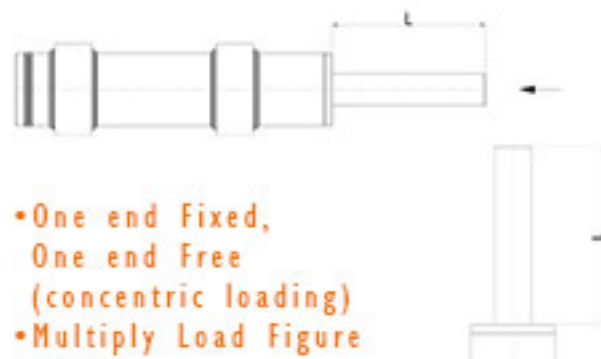
• One end Fixed
• Other Rounded or Pinned (straight in-line motion)
• Multiply Load Figure X2

CLASS C MOUNTING



• Both ends Fixed- (straight in-line motion)
• Multiply Load Figure X4

CLASS D MOUNTING



• One end Fixed, One end Free (concentric loading)
• Multiply Load Figure X0.25

• The Kappa 250 Series of hydraulic cylinders has been designed to give a high level of reliability in the earth moving, open cast mining, underground mining, excavation, exploration and waste removal applications
• Only the highest grade chrome bar is used to ensure that rods have a longer life and reduced friction on gland seals
• Only DIN 2391 ST52 precision honed tube is used to increase seal life
• Induction hardened chrome rods available depending on the application
• Alternative ports and port positions available depending on the application
• Any cylinder manufactured to any design or requirement and according to customer specification

250 SERIES ORDERING CODES

PISTON Ø	ROD Ø	ORDERING CODE
40	20	~40/20
40	25	~40/25
50	25	~50/25
50	32	~50/32
63	32	~63/32
63	40	~63/40
80	40	~80/40
80	50	~80/50
100	50	~100/50
100	65	~100/65
125	65	~125/65
125	80	~125/80
160	80	~160/80
160	100	~160/100
200	100	~200/100
200	125	~200/125

MOUNTING	ORDER CODE
FRONT FLANGE	FF
REAR FLANGE	RF
MALE TRUNNION	MT
FOOT MOUNTING	FO
MALE CLEVIS	MC
FEMALE CLEVIS	FC
SPHERICAL CLEVIS	SB

MOUNTING	ORDER CODE
FRONT FLANGE	FF
REAR FLANGE	RF
MALE TRUNNION	MT
FOOT MOUNTING	FO
MALE CLEVIS	MC
FEMALE CLEVIS	FC
SPHERICAL CLEVIS	SB

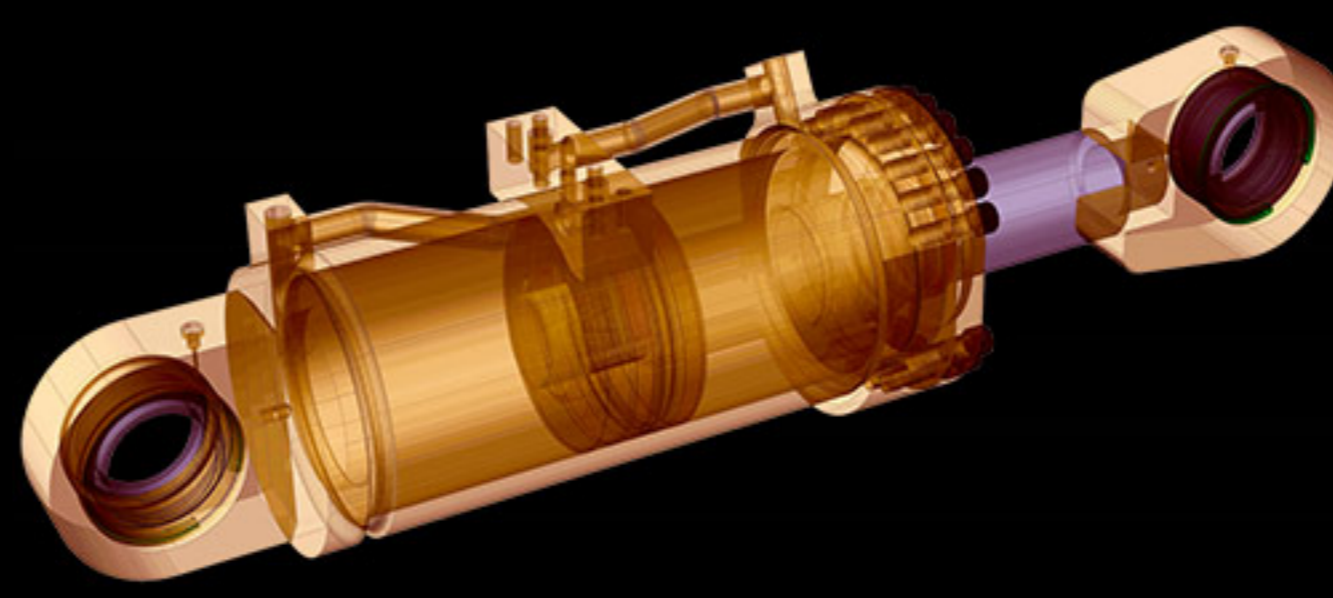
NOMINAL PRESSURE • 25.0 Mpa (250 BAR | 3625PSI)
STATIC MOUNTING PRESSURE • 37.5 Mpa (375 BAR | 5440PSI)
MOUNTING POSITION • Optional
HYDRAULIC FLUID • Mineral Oil to DIN51524
FLUID TEMP. RANGE • -30°C to +100°C
STROKING SPEED • Up to 1.0 m/s

HYDRAULIC CYLINDER FORMULAE

CYLINDER CAPACITY FLOW RATE IN LITRES PER MINUTE (L/min)
 • L/min = AREA X SPEED = π (CM) X π (CM) X SPEED (m/s) X 60
 • L/min = 10.17 CM X 10.17 CM X 0.02 m/s X 60 = 9 L/min

CYLINDER FORCE IN KG (KG)
 • KG = AREA X PRESSURE = π (CM) X π (CM) X PRESSURE (BAR) X 0.1
 • KG = 10.17 CM X 10.17 CM X 180 BAR X 0.1 = 14.414 KG
 • TONS = KG / 1000 = 14.41 TONS

CYLINDER STROKE TIME IN SECONDS PER STROKE
 • SECONDS = STROKE LENGTH (CM) / SPEED (m/s)
 • SECONDS = 10 CM / 0.02 m/s = 5 SECONDS



BUCKLING TABLE

BUCKLING TABLE

L	Ø 20	25	32	40	50	65	80	100	125	160
550	18									
600	15									
700	11	27								
800	8	20	55							
1000	5	13	35	87						
1200	9	24	60	147						
1400	6	18	44	108						
1600	14	34	93	236						
1800	11	27	65	187						
2000	9	22	53	151	347					
2250	7	17	42	120	274					
2500	6	14	34	97	222	542				
2750	11	28	80	184	488					
3000	5	10	24	67	154	377				
3250	8	20	57	131	321	785				
3500	7	17	49	113	277	675				
3750	6	15	43	99	241	588				
4000	5	13	38	87	212	517				
4500	10	30	68	167	408	1097				
5000	8	24	55	135	330	888				
5500	7	20	46	112	273	734				
6000	6	17	38	94	230	617				
6500	5	14	33	80	196	526				
7000	12	28	69	169	453					
7500	11	25	60	147	395					
8000	9	22	53	129	347					
8500	8	19	47	114	307					
9000	7	17	42	102	274					
9500	7	15	37	91	246					
10000	6	14	34	82	222					
11000	5	11	28	68	183					
12000	9	23	57	154						
13000	8	20	49	131						
14000	7	17	42	113						
15000	6	15	36	98						
16000	5	13	32	86						

HYDRAULIC CYLINDER OPERATIONAL FORCE IN TON

ROD	Ø40	Ø40	Ø50	Ø50	Ø63	Ø63	Ø80	Ø80	Ø100	Ø100	Ø125	Ø125	Ø160	Ø160	Ø200	Ø200
70 BAR	0.65	0.63	1.03	0.81	1.61	1.30	2.63	2.14	4.12	3.17	6.28	5.07	10.55	8.57	16.49	13.42
100 BAR	0.90	0.88	1.37	1.07	2.18	1.78	3.51	2.81	5.49	4.24	8.59	6.99	14.07	11.40	21.99	17.99
140 BAR	1.25	1.25	1.96	1.56	3.11	2.49	5.02	4.02	7.85	6.13	12.27	10.00	20.10	16.42	31.42	25.14
210 BAR	1.75	1.75	2.74	2.14	4.36	3.50	7.03	5.62	10.99	8.59	17.18	13.95	28.15	22.38	43.98	35.98
250 BAR	2.14	2.14	3.68	2.88	5.78	4.65	9.40	7.52	14.72	11.34	22.38	18.11	37.70	30.63	58.91	47.87



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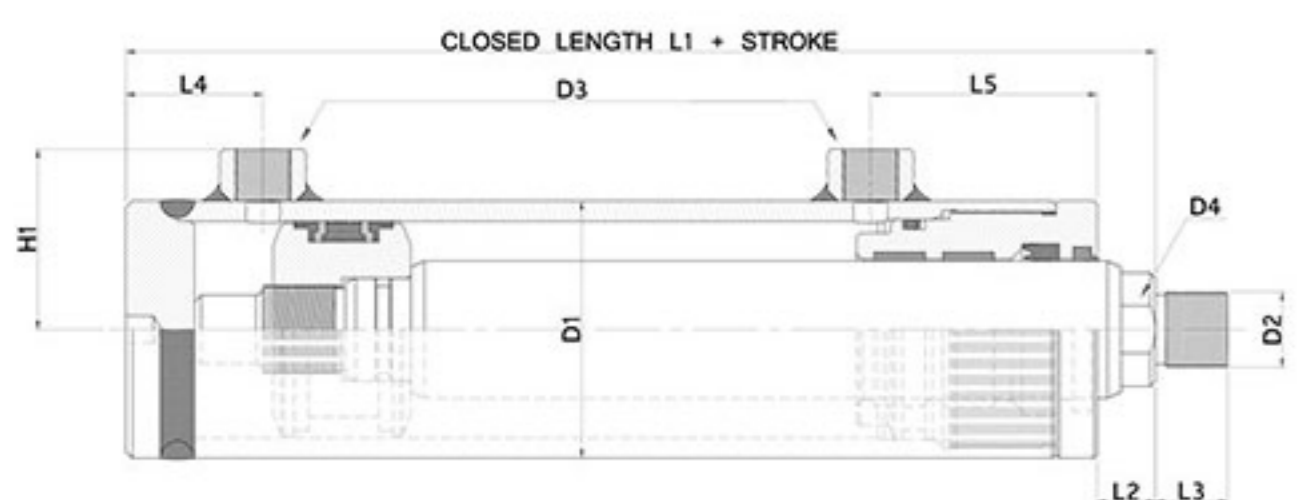
KAPPA 250 SERIES TECHNICAL DATA

250

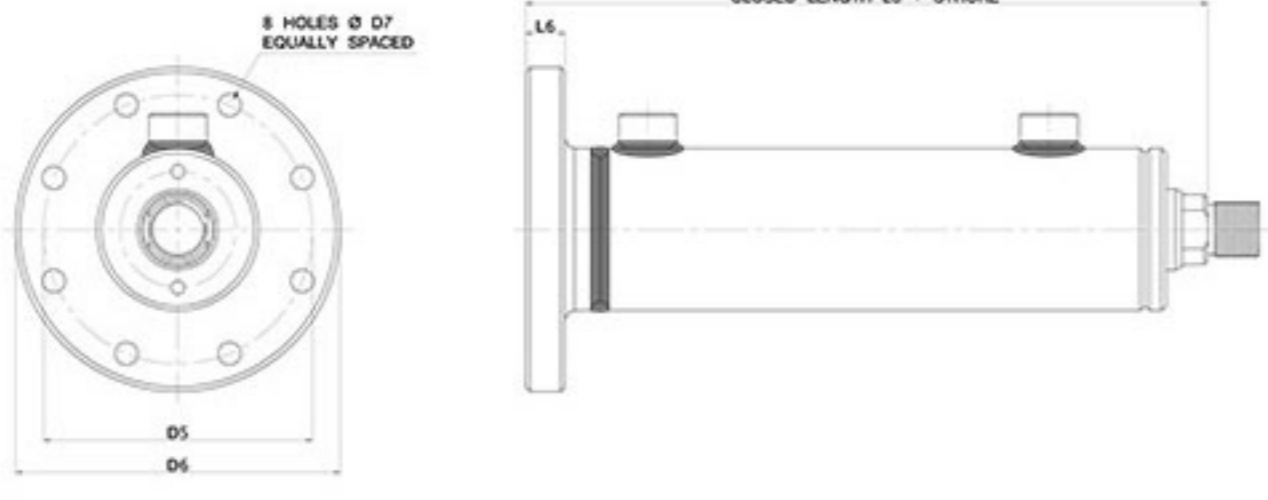
Ø AND LENGTH IN mm | LOAD FIGURES IS kN | SAFETY FACTOR 3:1

FORCE

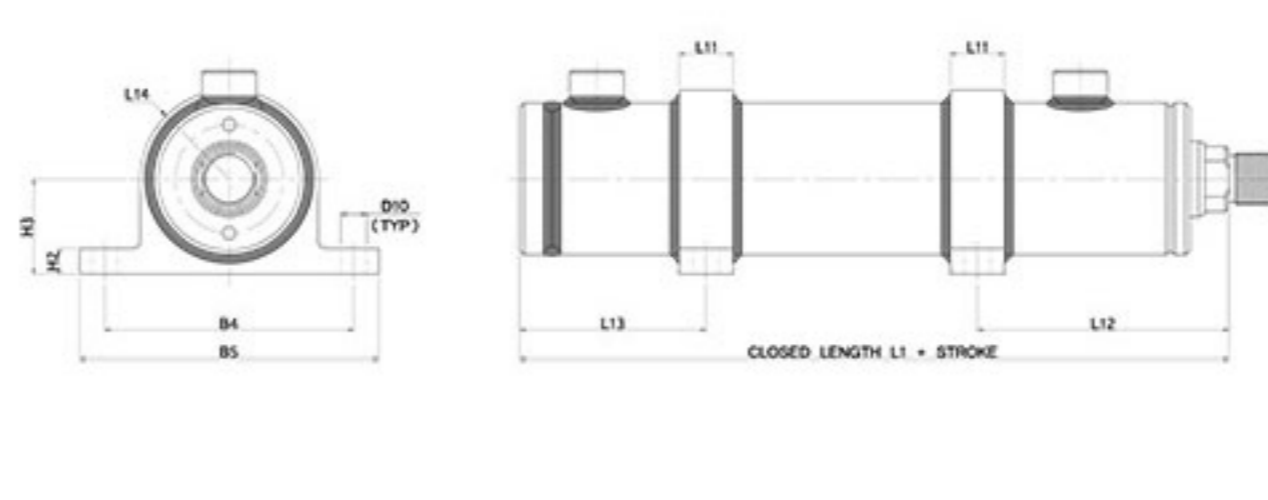
BASIC HYDRAULIC CYLINDER



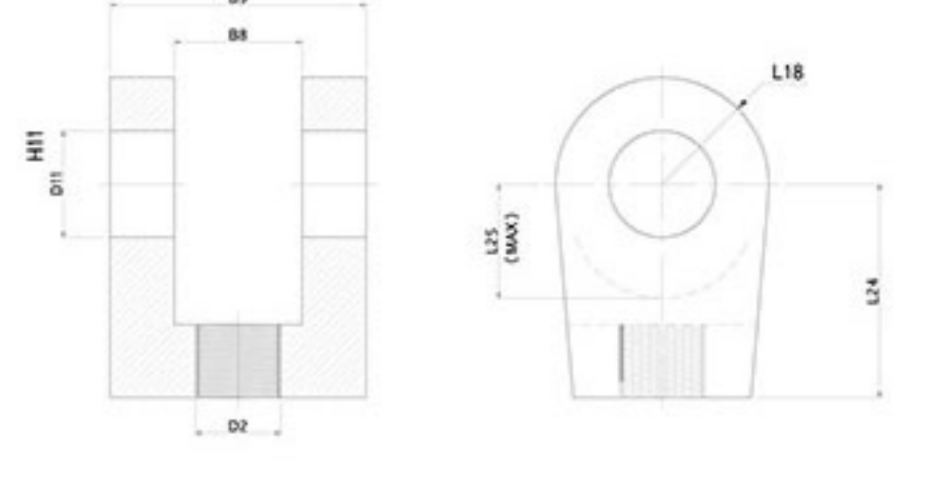
REAR FLANGE MOUNTING (RF)



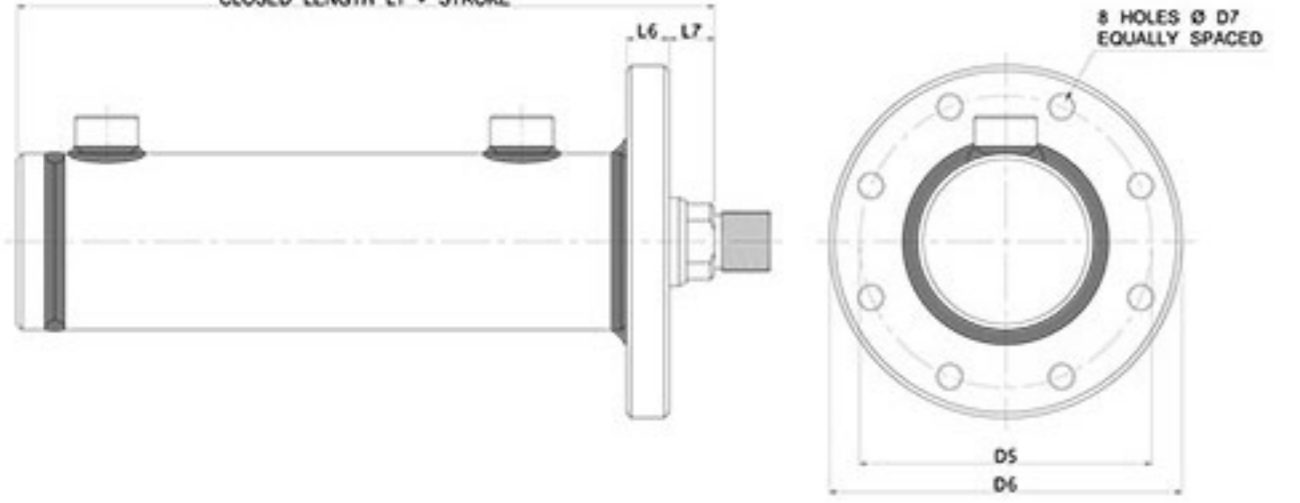
FOOT MOUNTING (FO)



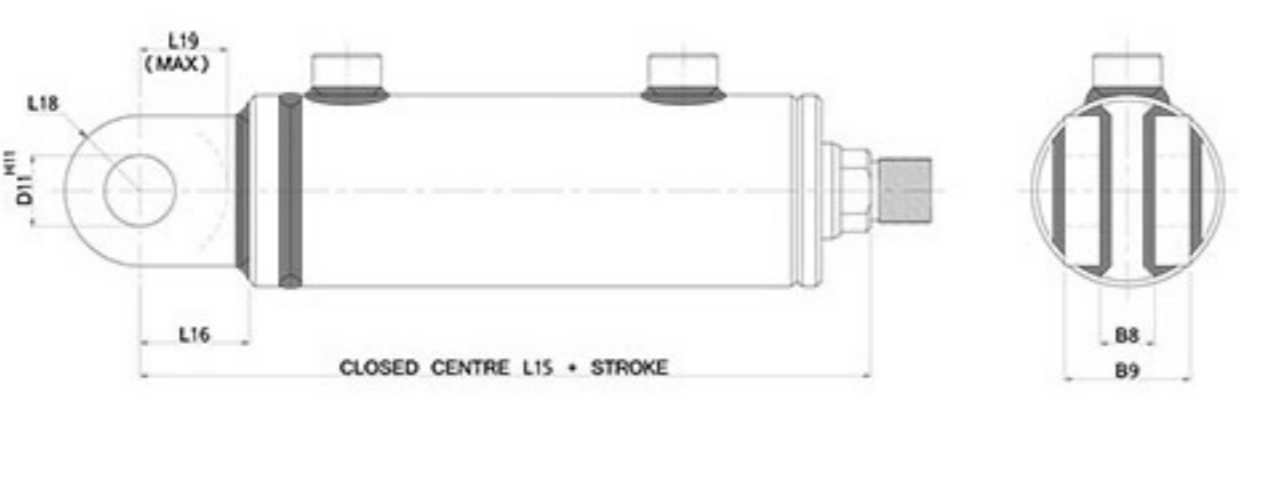
FRONT FEMALE CLEVIS (FC)



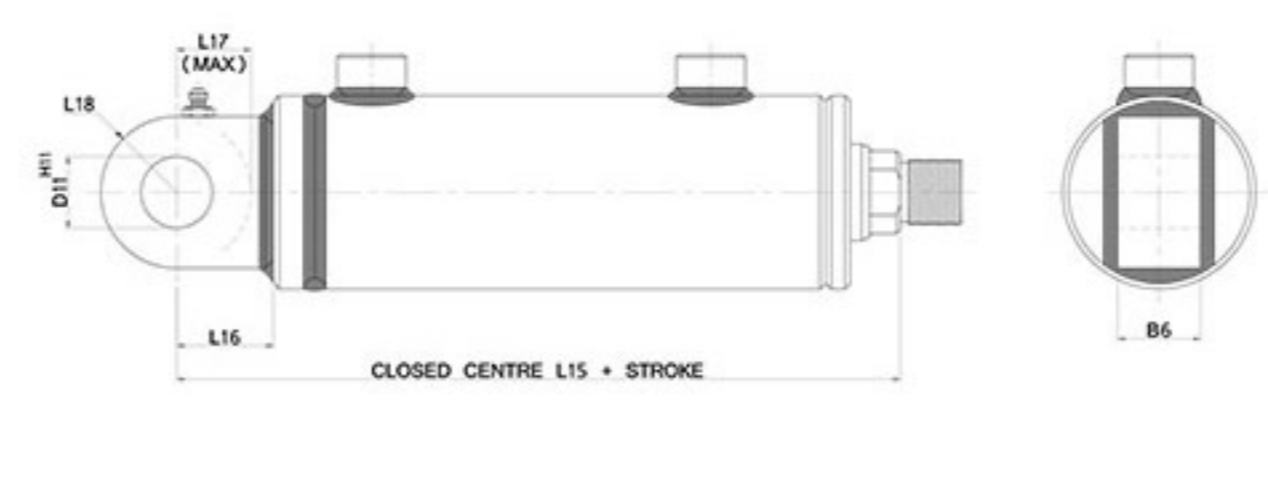
FRONT FLANGE MOUNTING (FF)



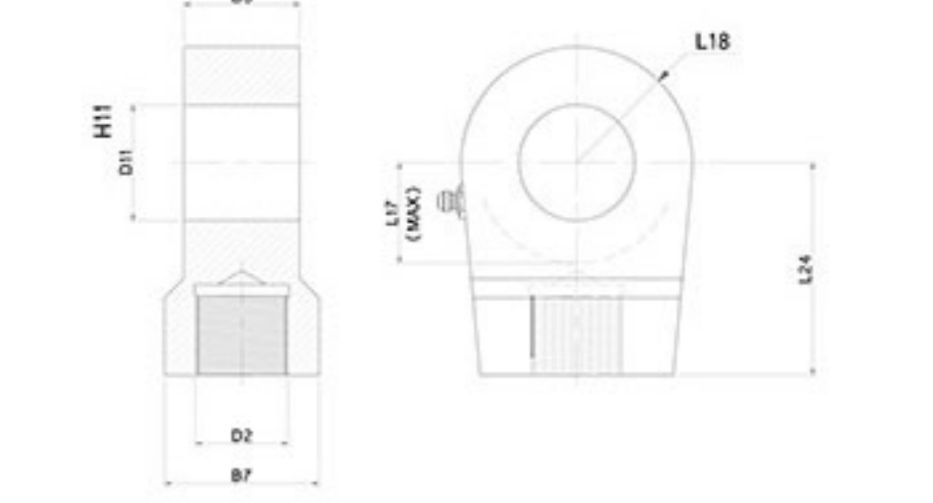
FEMALE CLEVIS MOUNTING (FC)



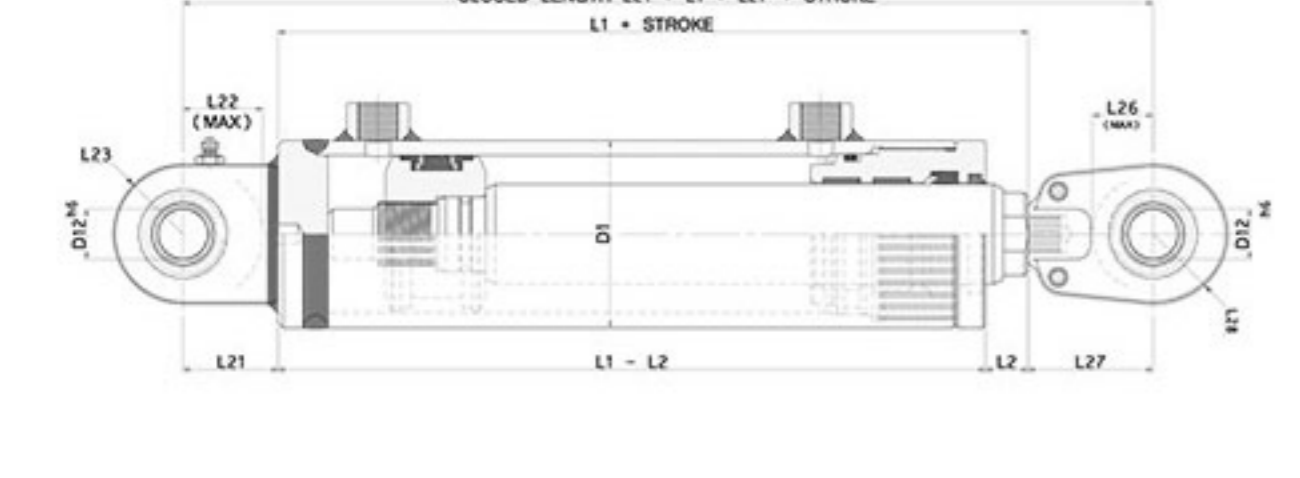
MALE CLEVIS MOUNTING (MC)



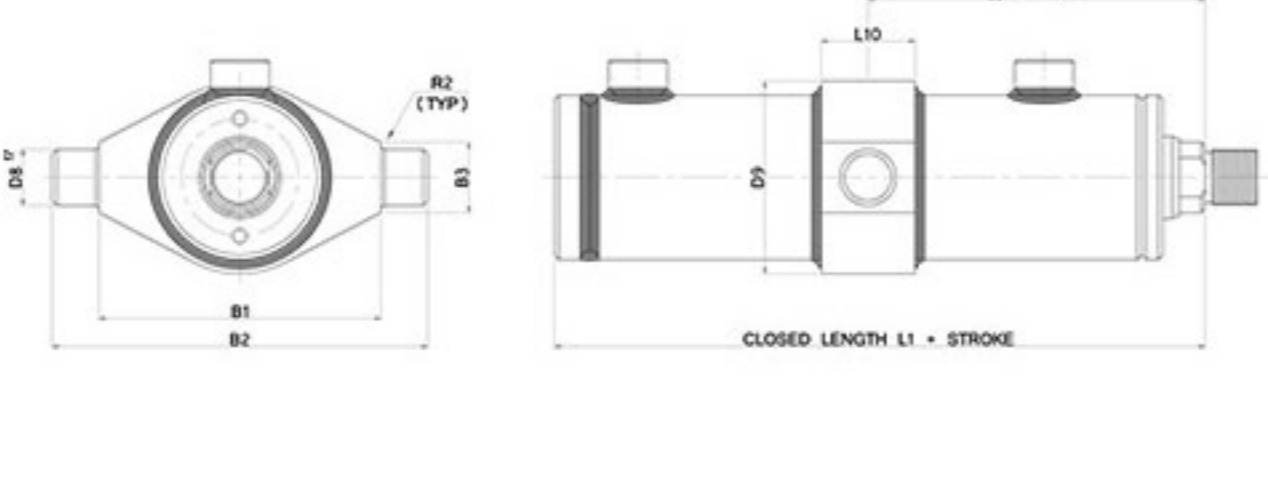
FRONT MALE CLEVIS (MC)



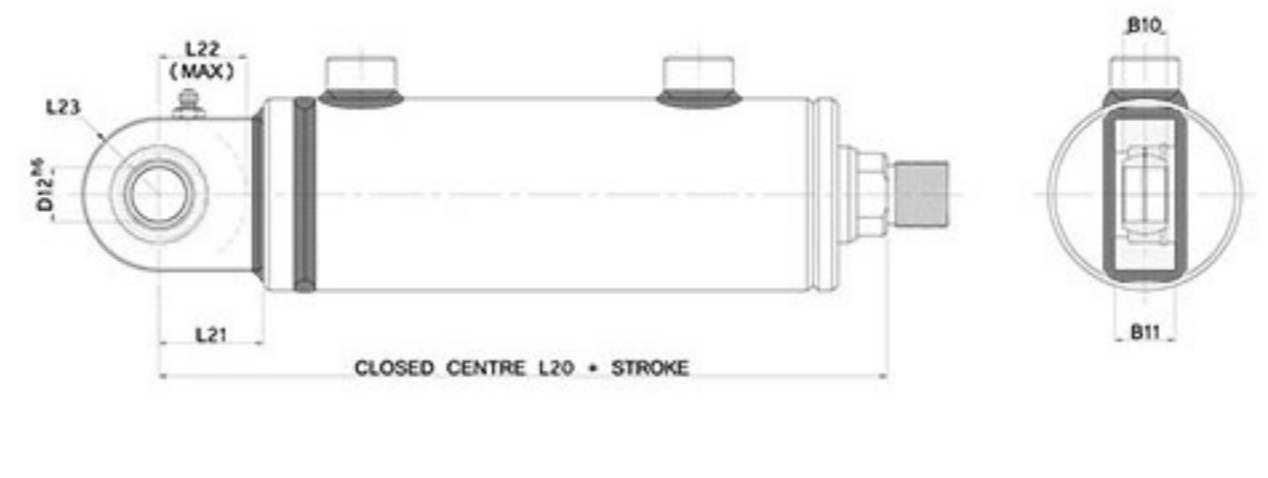
CYLINDER BEARING CLEVIS



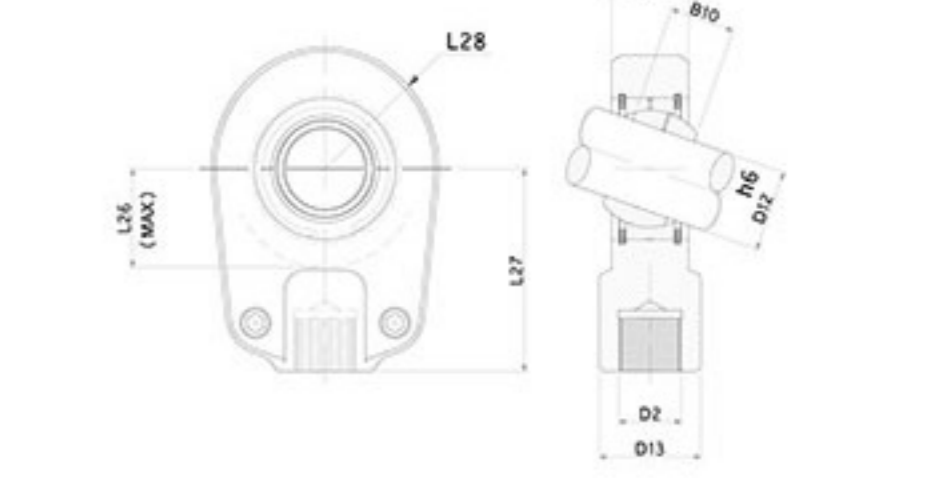
TRUNNION MOUNTING (MT)



REAR SPHERICAL CLEVIS (SB)



FRONT SPHERICAL CLEVIS (FC)



CONVERSION FACTORS

- 1Kw = 1.34 Hp
- 1 Hp = 0.75 Kw
- 1Kw = 1000 WATTS
- 1000 KG = 1 TON
- 1 KG = 2.2 POUNDS
- 1 NEWTON METER (nm) = 8.9 IN-LBS
- 1 NEWTON METER (nm) = 0.74 FT-LBS
- 10 NEWTON METERS (nm) = 1 DNm
- 1 US GALLON = 3.79 LITRES
- 1 IMPERIAL GALLON = 4.5 LITRES
- 1 CU INCH = 16.4 cc
- 1 INCH = 25.4 mm
- 1 METER = 39.4 INCH
- 0.01 mm = 4 THOUSANDS OF AN INCH
- 1 BAR = 14.5 PSI
- 1 Mpa = 10 BAR
- 1 BAR = 100 Kpa

- OTHER PRODUCTS AND RANGES**
- 150 SERIES
 - BICHEMAN MILL
 - TRUCK ADJUSTER
 - DOUBLE ACTING TELESCOPIC CYLINDER
 - SINGLE ACTING TELESCOPIC CYLINDER
 - ALL MAKES OF SIDE TIPPER CYLINDER
 - ALL MAKES OF FRONT BODY HOIST CYLINDER
 - ALL MAKES OF UNDERBODY HOIST CYLINDER
 - ACTUATOR CYLINDER
 - ACCUMULATOR CYLINDER
 - CYLINDER TO CUSTOMER SPECS
 - MILL TYPE CYLINDER
 - DRAW GEAR CYLINDER
 - BRAKE ENGIN CYLINDER
 - FULL STAINLESS STEEL CYLINDER FOR WATER APPLICATIONS
 - TIE ROD CYLINDER
 - SPRING AND GRAVITY RETURN CYLINDER
 - FILTER PRESS CYLINDER

- OTHER SERVICES**
- CYLINDER REBURISHMENT
 - SERVICE EXCHANGE
 - HONING
 - CHROMING
 - MACHINING
 - CYLINDER TESTING

Cylinder Size	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	H1	H2	H3	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16	L17	L18	L19	L20	L21	L22	L23	L24	L25	L26	L27	L28
40/20 40/25	90	130	25	110	140	20	35	22	50	16	19	50	M16X1.5	3/8" BSP	65	120	140	11	20	64	13	20	20	25	37	12	35	116	10	15	25	45	21	18	134	100	25	25	90	60	33	156	40	30	25	32	154	38	32	25	55	35	25	50	28
50/25 50/32	105	145	30	115	145	25	35	26	55	20	23	60	M16X1.5	3/8" BSP	75	125	145	11	25	74	13	25	25	35	42	15	40	123	13	15	27	49	21	18	141	115	30	25	98	60	38	163	40	32	30	32	168	45	38	27.5	60	35	25	50	28
63/32 63/40	120	170	40	135	165	32	50	33	72	22	28	75	M22X1.5	3/8" BSP	90	145	170	14	30	90	13	30	30	32	50	15	50	140	16	21	34	53.5	25	20	160	120	40	30	105	70	45	185	45	37	37.5	37	191	51	43	32.5	70	40	30	60	32
80/40 80/50	135	199	50	150	185	40	60	41	90	28	35	92	M35X1.5	1/2" BSP	106	165	200	18	40	110	17	40	40	49	61	20	55	156	16	34	36	64	26	24	180	135	50	40	126	80	55	216	60	50	45	50	225	69	59	50	95	55	45	85	47
100/50 100/65	160	240	60	190	225	50	65	51	111	35	40	115	M45X1.5	1/2" BSP	135	200	240	22	50	135	17	50	50	61	72	20	70	173	20	44	38	69	29	28	201	155	60	50	140	90	68	243	70	60	50	60	261	88	78	61.5	115	65	55	105	58
125/65 125/80	195	295	75	235	275	60	80	61	131	44	50	145	M58X1.5	3/4" BSP	165	235	270	22	60	170																																			