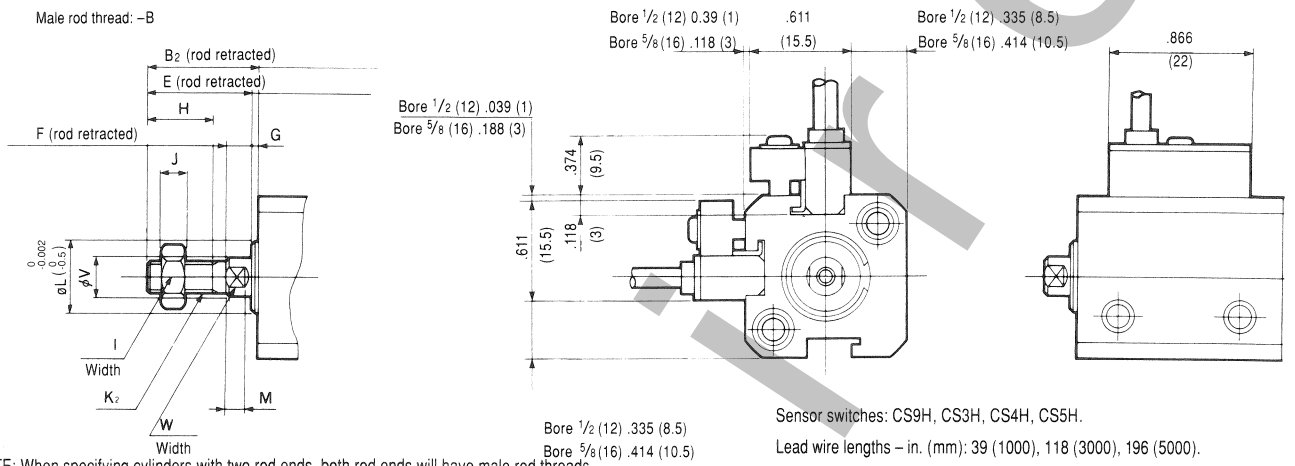
OPTIONS

MALE ROD THREAD, PLAIN ROD, SENSOR MOUNTING

Bores 1/2 (12) & 5/8 (16)



NOTE: When specifying cylinders with two rod ends, both rod ends will have male rod threads.

NOTE 1: Rod nut sold separately. See chart.

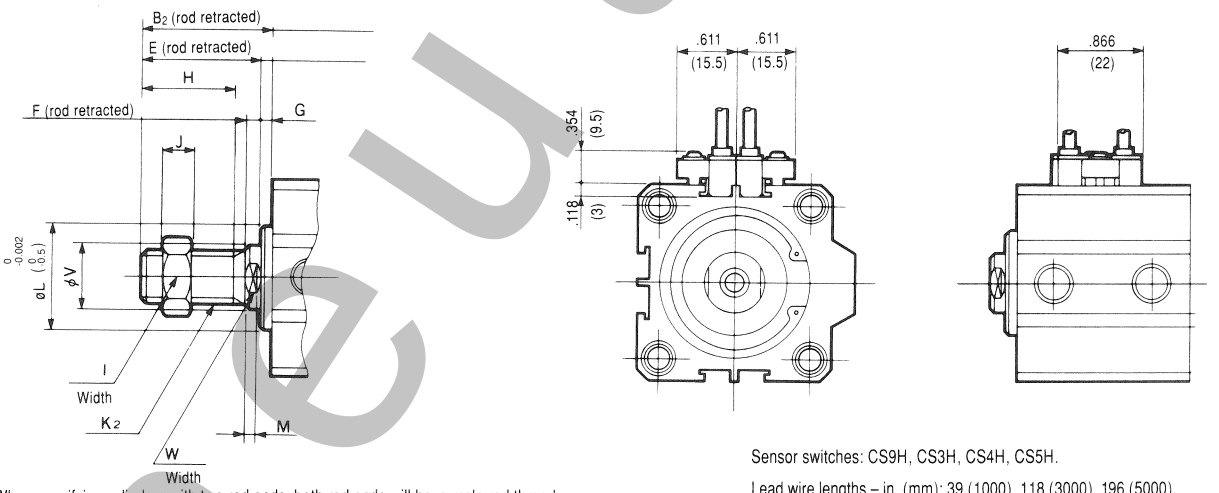
Plain rod end (–N) specifications: Dimensions are identical to female rod except there is no thread. When specifying cylinders with two rod ends, both rod ends will have plain rod.

Sensor switches: CS9H, CS3H, CS4H, CS5H.

Lead wire lengths – in. (mm): 39 (1000), 118 (3000), 196 (5000).

Drawing shows 1/2" nominal (12mm actual) bore. 5/8" nominal (16mm) bore design allows switches to be mounted in both directions. Refer to page 61 for switch mounting locations.

Bores 3/4 (20) thru 4 (100)



NOTE: When specifying cylinders with two rod ends, both rod ends will have male rod threads.

NOTE 1: Rod nut sold separately. See chart.

Plain rod end (–N) specifications: Dimensions are identical to female rod except there is no thread. When specifying cylinders with two rod ends, both rod ends will have plain rod.

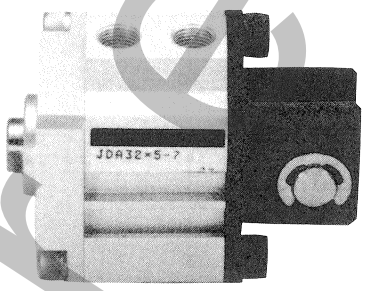
Sensor switches: CS9H, CS3H, CS4H, CS5H.

Lead wire lengths – in. (mm): 39 (1000), 118 (3000), 196 (5000).

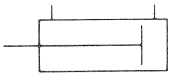
Bore Nominal in. (mm)	Dimension – inch (mm)												Rod nut part #
	B2	E	F	G	H	I	J	K2	L	M	V	W	
1/2 (12)	.669 (17)	.630 (16)	.157 (4)	.039 (1)	.394 (10)	.315 (8)	.157 (4)	10-32	.433 (11)	.118 (3)	.236 (6)	.197 (5)	RN-4
5/8 (16)	.689 (17.5)	.630 (16)	.157 (4)	.059 (1.5)	.394 (10)	.315 (8)	.157 (4)	10-32	.433 (11)	.118 (3)	.236 (6)	.197 (5)	RN-4
3/4 (20)	.807 (20.5)	.748 (19)	.157 (4)	.059 (1.5)	.512 (13)	.394 (10)	.197 (5)	1/4-20	.591 (15)	.118 (3)	.315 (8)	.236 (6)	RN-6
1 (25)	.906 (23)	.827 (21)	.157 (4)	.079 (2)	.591 (15)	.472 (12)	.197 (5)	5/16-18	.669 (17)	.118 (3)	.394 (10)	.315 (8)	RN-8
1 1/4 (32)	.984 (25)	.866 (22)	.157 (4)	.118 (3)	.591 (15)	.551 (14)	.236 (6)	3/8-16	.866 (22)	.118 (3)	.472 (12)	.394 (10)	RN-10
1 1/2 (40)	1.378 (35)	1.260 (32)	.157 (4)	.118 (3)	.984 (25)	.748 (19)	.315 (8)	1/2-13	1.102 (28)	.118 (3)	.630 (16)	.551 (14)	RN-12
2 (50)	1.457 (37)	1.299 (33)	.197 (5)	.157 (4)	.984 (25)	1.063 (27)	.433 (11)	3/4-10	1.496 (38)	.118 (3)	.787 (20)	.669 (17)	RN-14
2 1/2 (63)	1.457 (37)	1.299 (33)	.197 (5)	.157 (4)	.984 (25)	1.063 (27)	.433 (11)	3/4-10	1.575 (40)	.118 (3)	.787 (20)	.669 (17)	RN-14
3 1/4 (80)	1.732 (44)	1.535 (39)	.236 (6)	.197 (5)	1.181 (30)	1.260 (32)	.512 (13)	7/8-9	1.772 (45)	.157 (4)	.984 (25)	.866 (22)	RN-15
4 (100)	1.969 (50)	1.772 (45)	.276 (7)	.197 (5)	1.378 (35)	1.417 (36)	.551 (14)	1-8	2.165 (55)	.157 (4)	1.260 (32)	1.063 (27)	RN16

HUMPHREY PIVOT MOUNT CYLINDERS

DOUBLE ACTING



SYMBOL



SPECIFICATIONS

Item	Nominal bore size inch (mm)									
	1/2 (12)	5/8 (16)	3/4 (20)	1 (25)	1 1/4 (32)	1 1/2 (40)	2 (50)	2 1/2 (63)	3 1/4 (80)	4 (100)
Operation	All double acting types									
Media	Air									
Pressure – PSI (kgf/cm^2)	30 ~ 100 (2 ~ 7)		25 ~ 100 (1.5 ~ 7)			15 ~ 100 (1 ~ 7)				
Temperature °F (°C)	32 ~ 140 (0 ~ 60)									
Operating speeds in./sec. (mm/sec.)	1 ~ 20 (30 ~ 500)					1 ~ 13.5 (30 ~ 350)			1 ~ 10 (30 ~ 20)	
Bumpers	Not available					Optional				
Lubrication	Not required									
Port size	10 ~ 32			1/8 NPT		1/4 NPT			3/8 NPT	

NOTE: Refer to page 56 for handling information.

BORES AND STROKES

Operation	Nominal bore in. (mm)	Standard Strokes – in. [maximum stroke]	
		w/o magnet	w/magnet
Double	1/2 (12)	1/4, 3/8, 1/2, 5/8, 3/4, 1 [2 1/8]	3/8, 1/2, 5/8, 3/4, 1 [1 7/8]
	5/8 (16)	1/4, 3/8, 1/2, 5/8, 3/4, 1 [2 1/8]	3/8, 1/2, 5/8, 3/4, 1 [1 5/8]
	3/4 (20)	1/4, 3/8, 1/2, 5/8, 3/4, 1 [2 5/8]	3/8, 1/2, 5/8, 3/4, 1 [2 1/4]
	1 (25)	1/4, 1/2, 3/4, 1, 1 1/4, 1 1/2, 2 [2 5/8]	1/2, 3/4, 1, 1 1/4, 1 1/2, 2 [2 1/4]
	1 1/4 (32)	1/4, 1/2, 3/4, 1, 1 1/4, 1 1/2, 2 [4 3/8]	1/2, 3/4, 1, 1 1/4, 1 1/2, 2, [4]
	1 1/2 (40)	1/4, 3/8, 1/2, 5/8, 3/4, 1, 1 1/4, 1 1/2, 2, 3, 4 [4 3/8]	3/8, 1/2, 5/8 3/4, 1, 1 1/4, 1 1/2, 2, 3, 4, [4]
	2 (50) 2 1/2 (63)	1/2, 3/4, 1, 1 1/4, 1 1/2, 2, 3, 4 [4 3/8]	1/2, 3/4, 1, 1 1/4, 1 1/2, 2, 3, 4 [4]
	3 1/4 (80) 4 (100)	1/2, 3/4, 1, 1 1/4, 1 1/2, 2, 3, 4 [4 5/8]	1/2, 3/4, 1, 1 1/4, 1 1/2, 2, 3, 4 [4 1/4]

NOTES: Stroke tolerance: +.039" (1)/-0"
See page 56 for non-standard strokes.

HOW TO ORDER INFORMATION

HJ | DA | [ ] | 25 x 1/4 | – [ ] – [ ] – [ ] | 7

SERIES: Block cylinder

TYPE
DA: Double acting

TYPE
Blank: No option
S: Magnet[2]
F: Fluoroelastomer[3]

BORE[1] x STROKE

ROD OPTIONS[5]
Blank: Female rod
B: Male rod
N: Plain rod

Blank: No bumper
R: Bumper[4]

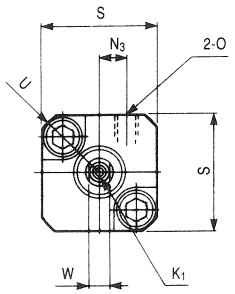
7: Pivot mount (includes pivot pin)

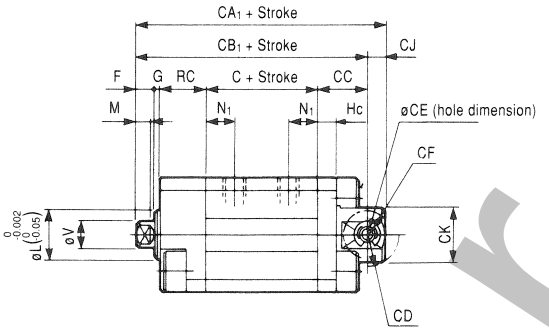
NOTE: Pivot mount bracket nut sold separately.

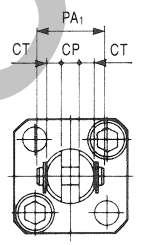
NOTE: Ordering strokes over 1", use __"__ /__. Examples: 1" 1/4, 2" 1/8.
NOTE 1: When ordering bore size, specify by using actual mm bore size.
NOTE 2: Refer to sensor section for sensor switch selection and information.
NOTE 3: Fluoroelastomer option not available with Magnet (S) and Bumper (R) options.
NOTE 4: Bumper option only available in bore sizes 1 1/2 (40) thru 4 (100).
NOTE 5: Refer to page 50 for male rod thread (B) and plain rod (N) information.
Rod nuts sold separately.

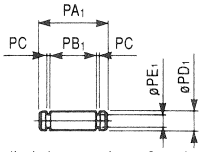
DOUBLE ACTING PIVOT MOUNT CYLINDERS (OPTION CODE 7)

Bores 1/2 (12) through 2 (50)



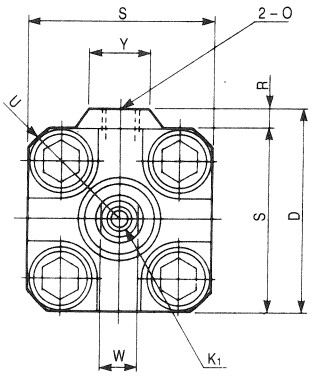


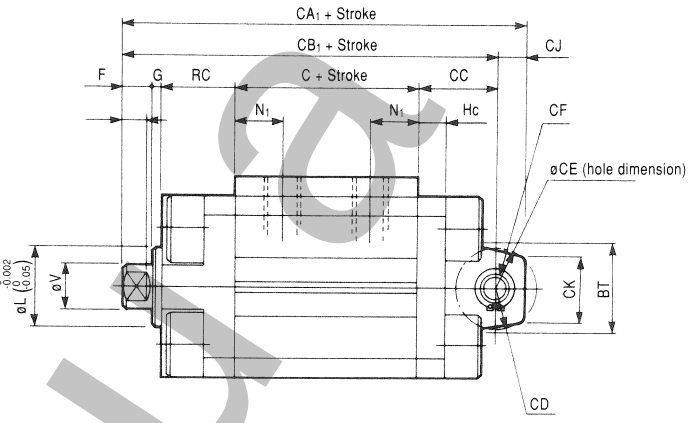


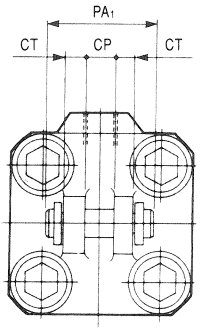


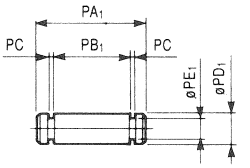
(Includes snap rings - 2 pcs.)

Bores 2 1/2 (63) through 4 (100)









(Includes snap rings - 2 pcs.)

Bore Nominal in. (mm)	Dimension – inch (mm)												
		Pivot mount (without magnet)			Pivot mount (with magnet)								
	BT	C	CA1	CB1	C	CA1	CB1	CC	CD (Radius)	CE	CF (Radius)	CJ	CK
1/2 (12)	–	.669 (17)	1.850 (47)	1.693 (43)	.918 (23.3)	2.099 (53.3)	1.941 (49.3)	.433 (11)	.295 (7.5)	.157 (4)	.197 (5)	.157 (4)	.472 (12)
5/8 (16)	–	.728 (18.5)	2.008 (51)	1.811 (46)	1.224 (31.1)	2.504 (63.6)	2.307 (58.6)	.472 (12)	.394 (10)	.197 (5)	.236 (6)	.197 (5)	.630 (16)
3/4 (20)	–	.768 (19.5)	2.362 (60)	2.047 (52)	1.142 (29)	2.737 (69.5)	2.422 (61.5)	.669 (17)	.551 (14)	.315 (8)	.433 (11)	.315 (8)	.866 (22)
1 (25)	–	.827 (21)	2.441 (62)	2.126 (54)	1.201 (30.5)	2.815 (71.5)	2.500 (63.5)	.669 (17)	.630 (16)	.315 (8)	.433 (11)	.315 (8)	1.024 (26)
1 1/4 (32)	–	.965 (24.5)	2.776 (70.5)	2.382 (60.5)	1.339 (34)	3.150 (80)	2.756 (70)	.748 (19)	.787 (20)	.394 (10)	.492 (12.5)	.394 (10)	1.339 (34)
1 1/2 (40)	–	1.024 (26)	2.835 (72)	2.441 (62)	1.398 (35.5)	3.209 (81.5)	2.815 (71.5)	.748 (19)	.787 (20)	.394 (10)	.492 (12.5)	.394 (10)	1.339 (34)
2 (50)	1.102 (28)	1.102 (28)	3.110 (79)	2.598 (66)	1.477 (37.5)	3.485 (88.5)	2.973 (75.5)	.748 (19)	.669 (17)	.551 (14)	.551 (14)	.512 (13)	.787 (20)
2 1/2 (63)	1.378 (35)	1.260 (32)	3.268 (83)	2.756 (70)	1.634 (41.5)	3.642 (92.5)	3.130 (79.5)	.748 (19)	.669 (17)	.551 (14)	.551 (14)	.512 (13)	.787 (20)
3 1/4 (80)	1.890 (48)	1.665 (42.3)	4.736 (120.3)	3.945 (100.3)	2.039 (51.8)	5.110 (129.8)	4.323 (109.8)	1.260 (32)	.945 (24)	.787 (20)	.787 (20)	.787 (20)	.984 (25)
4 (100)	2.165 (55)	2.059 (52.3)	5.366 (136.3)	4.579 (116.3)	2.433 (61.8)	5.740 (145.8)	4.953 (125.8)	1.260 (32)	.945 (24)	.787 (20)	.827 (21)	.787 (20)	.984 (25)

Bore Nominal in. (mm)	Dimension – inch (mm)											
	CP	CT	D	F	G	K1	L	M	N1	N3	O	PA1	PB1
1/2 (12)	.157 (4)	.118 (3)	–	.157 (4)	.039 (1)	4-40 UNC × .236 (6) dp.	.433 (11)	.118 (3)	.256 (6.5)	.236 (6)	10-32	.591 (15)	.417 (10.6)
5/8 (16)	.197 (5)	.138 (3.5)	–	.157 (4)	.059 (1.5)	4-40 UNC × .236 (6) dp.	.433 (11)	.118 (3)	.276 (7)	.236 (6)	10-32	.669 (17)	.496 (12.6)
3/4 (20)	.315 (8)	.197 (5)	1.417 (36)	.157 (4)	.059 (1.5)	8-32 UNC × .236 (6) dp.	.591 (15)	.118 (3)	.296 (7.5)	–	10-32	.961 (24.4)	.772 (19.6)
1 (25)	.315 (8)	.197 (5)	1.654 (42)	.157 (4)	.079 (2)	10-32 UNF × .236 (6) dp.	.669 (17)	.118 (3)	.315 (8)	–	10-32	.961 (24.4)	.772 (19.6)
1 1/4 (32)	.472 (12)	.315 (8)	1.969 (50)	.157 (4)	.118 (3)	1/4-20 UNC × .236 (6) dp.	.866 (22)	.118 (3)	.354 (9)*	–	1/8 NPT	1.339 (34)	1.150 (29.2)
1 1/2 (40)	.472 (12)	.315 (8)	2.303 (58.5)	.157 (4)	.118 (3)	5/16-18 UNC × .236 (6) dp.	1.102 (28)	.118 (3)	.394 (10)*	–	1/8 NPT	1.339 (34)	1.150 (29.2)
2 (50)	.787 (20)	.492 (12.5)	2.815 (71.5)	.197 (5)	.157 (4)	3/8-16 UNC × .236 (6) dp.	1.496 (38)	.118 (3)	.394 (10)	–	1/4 NPT	2.165 (55)	1.850 (47)
2 1/2 (63)	.787 (20)	.591 (15)	3.327 (84.5)	.197 (5)	.157 (4)	3/8-16 UNC × .236 (6) dp.	1.575 (40)	.118 (3)	.472 (12)	–	1/4 NPT	2.362 (60)	2.047 (52)
3 1/4 (80)	1.260 (32)	.630 (16)	4.094 (104)	.236 (6)	.197 (5)	1/2-13 UNC × .236 (6) dp.	1.772 (45)	.157 (4)	.492 (12.5)	–	3/8 NPT	2.913 (74)	2.598 (66)
4 (100)	1.260 (32)	.630 (16)	4.882 (124)	.276 (7)	.197 (5)	3/4-10 UNC × .236 (6) dp.	2.165 (55)	.157 (4)	.669 (17)	–	3/8 NPT	2.913 (74)	2.598 (66)

Bore Nominal in. (mm)	Dimension – inch (mm)										
	PC	PD1	PE1	R	Rc	Hc	S	U (Radius)	V	W	X
1/2 (12)	.028 (0.7)	.157 (4)	.098 (2.5)	–	.394 (10)	.157 (4)	.984 (25)	.630 (16)	.236 (6)	.197 (5)	–
5/8 (16)	.028 (0.7)	.197 (5)	.118 (3)	–	.394 (10)	.157 (4)	1.142 (29)	.748 (19)	.236 (6)	.197 (5)	–
3/4 (20)	.035 (0.9)	.315 (8)	.236 (6)	.079 (2)	.394 (10)	.157 (4)	1.339 (34)	.866 (22)	.315 (8)	.236 (6)	.394 (10)
1 (25)	.035 (0.9)	.315 (8)	.236 (6)	.079 (2)	.394 (10)	.157 (4)	1.575 (40)	.984 (25)	.394 (10)	.315 (8)	.394 (10)
1 1/4 (32)	.035 (0.9)	.394 (10)	.315 (8)	.236 (6)	.394 (10)	.157 (4)	1.732 (44)	1.177 (29.9)	.472 (12)	.394 (10)	.630 (16)
1 1/2 (40)	.035 (0.9)	.394 (10)	.315 (8)	.256 (6.5)	.394 (10)	.157 (4)	2.047 (52)	1.378 (35)	.630 (16)	.551 (14)	.630 (16)
2 (50)	.045 (1.15)	.551 (14)	.528 (13.4)	.374 (9.5)	.394 (10)	.276 (7)	2.441 (62)	1.614 (41)	.787 (20)	.669 (17)	.787 (20)
2 1/2 (63)	.045 (1.15)	.551 (14)	.528 (13.4)	.374 (9.5)	.394 (10)	.315 (8)	2.953 (75)	1.969 (50)	.787 (20)	.669 (17)	.787 (20)
3 1/4 (80)	.053 (1.35)	.787 (20)	.748 (19)	.394 (10)	.591 (15)	.394 (10)	3.701 (94)	2.441 (62)	.984 (25)	.866 (22)	1.024 (26)
4 (100)	.053 (1.35)	.787 (20)	.748 (19)	.394 (10)	.787 (20)	.394 (10)	4.488 (114)	2.953 (75)	1.260 (32)	1.063 (27)	1.024 (26)

• Dimension is .276 (7) for 1 1/4 (32) bore with 1/4" stroke. Dimension is .287 (7.3) for 1 1/2 (40) bore with 1/4" stroke.

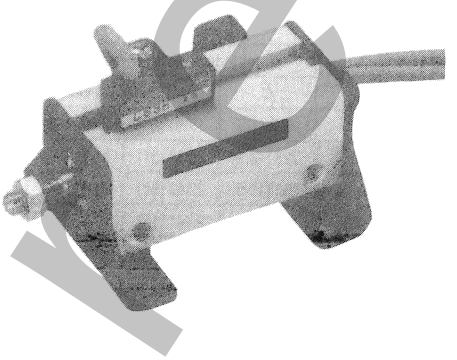
NOTE 1: Please refer to page 50 for male rod thread information.

NOTE 2: Plain rod is same as female rod end except no threads.

NOTE 3: Please refer to page 50 for sensor switch dimensional information.

FOOT MOUNT

FOR DOUBLE AND SINGLE ACTING TYPES



HOW TO ORDER

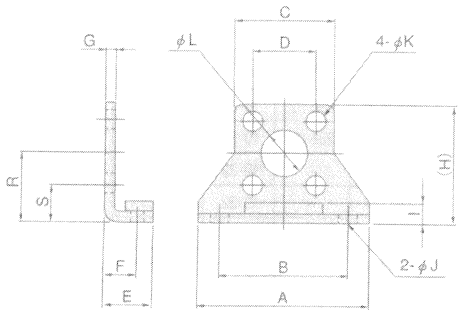
HJDA 25 – **1**

(order 2 per unit)

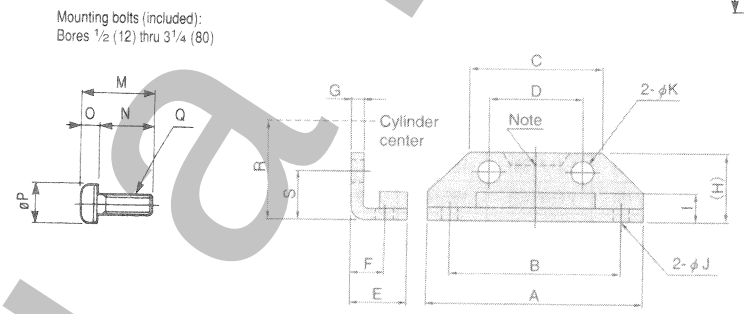
1: Foot mount (shipped loose)

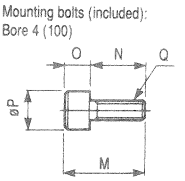
DIMENSIONAL INFORMATION

Bores 1/2 (12) through 5/8 (16)



Bores 3/4 (20) through 4 (100)



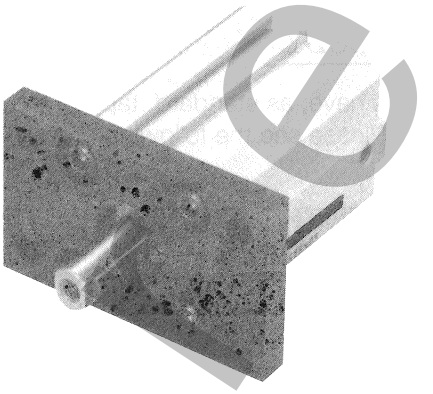


Bore Nominal in. (mm)	Dimension - inch (mm)									
	A	B	C	D	E	F	G	H	I	J
1/2 (12)	1.732 (44)	1.339 (34)	.984 (25)	.640 (16.25)	.492 (12.5)	.315 (8)	.079 (2)	1.161 (29.5)	.177 (4.5)	.177 (4.5)
5/8 (16)	1.890 (48)	1.496 (38)	1.142 (29)	.780 (19.8)	.512 (13)	.315 (8)	.079 (2)	1.319 (33.5)	.177 (4.5)	.177 (4.5)
3/4 (20)	2.126 (54)	1.732 (44)	1.339 (34)	.945 (24)	.591 (15)	.362 (9.2)	.126 (3.2)	.650 (16.5)	.276 (7)	.177 (4.5)
1 (25)	2.520 (64)	2.047 (52)	1.575 (40)	1.102 (28)	.650 (16.5)	.421 (10.7)	.126 (3.2)	.689 (17.5)	.236 (6)	.217 (5.5)
1 1/4 (32)	2.677 (68)	2.205 (56)	1.732 (44)	1.339 (34)	.669 (17)	.441 (11.2)	.126 (3.2)	.748 (19)	.315 (8)	.217 (5.5)
1 1/2 (40)	3.071 (78)	2.520 (64)	2.047 (52)	1.575 (40)	.717 (18.2)	.441 (11.2)	.126 (3.2)	.748 (19)	.276 (7)	.276 (7)
2 (50)	3.780 (96)	3.071 (78)	2.441 (62)	1.890 (48)	.894 (22.7)	.579 (14.7)	.126 (3.2)	.866 (22)	.315 (8)	.354 (9)
2 1/2 (63)	4.252 (108)	3.543 (90)	2.953 (75)	2.362 (60)	.992 (25.2)	.638 (16.2)	.126 (3.2)	.945 (24)	.335 (8.5)	.354 (9)
3 1/4 (80)	5.276 (134)	4.409 (112)	3.701 (94)	2.913 (74)	1.201 (30.5)	.768 (19.5)	.177 (4.5)	1.299 (33)	.472 (12)	.433 (11)
4 (100)	6.299 (160)	5.276 (134)	4.488 (114)	3.543 (90)	1.398 (35.5)	.906 (23)	.236 (6)	1.575 (40)	.551 (14)	.591 (15)

Bore Nominal in. (mm)	Dimension - inch (mm)									Weight oz. (gf)
	K	L	M	N	O	P	Q	R	S	
1/2 (12)	.217 (5.5)	.433 (11)	.596 (15.1)	.500 (12.7)	.096 (2.4)	.354 (9)	10-32	.669 (17)	8.8	1.76 (50)
5/8 (16)	.217 (5.5)	.433 (11)	.596 (15.1)	.500 (12.7)	.096 (2.4)	.354 (9)	10-32	.748 (19)	9.1	2.19 (62)
3/4 (20)	.217 (5.5)	-	.596 (15.1)	.500 (12.7)	.096 (2.4)	.354 (9)	10-32	.945 (24)	12.0	2.96 (84)
1 (25)	.283 (7.2)	-	.752 (19.1)	.625 (15.9)	.127 (3.2)	.428 (10.9)	1/4-20	1.024 (26)	12.0	3.69 (104)
1 1/4 (32)	.283 (7.2)	-	.752 (19.1)	.625 (15.9)	.127 (3.2)	.428 (10.9)	1/4-20	1.181 (30)	13.0	4.44 (126)
1 1/2 (40)	.354 (9)	-	1.034 (26.3)	.875 (22.2)	.159 (4)	.537 (13.6)	5/16-18	1.299 (33)	13.0	5.64 (160)
2 (50)	.413 (10.5)	-	1.067 (27.1)	.875 (22.2)	.192 (4.9)	.646 (16.4)	3/8-16	1.535 (39)	15.0	7.76 (220)
2 1/2 (63)	.413 (10.5)	-	1.067 (27.1)	.875 (22.2)	.192 (4.9)	.646 (16.4)	3/8-16	1.811 (46)	16.0	10.58 (300)
3 1/4 (80)	.591(15)	-	1.255 (31.9)	1.00 (25.4)	.255 (6.5)	.863 (21.9)	1/2-13	2.323 (59)	22.0	22.71 (644)
4 (100)	.531 (13.5)	-	1.622 (41.2)	1.25 (31.8)	.372 (9.4)	.556 (14.1)	1/2-13	2.795 (71)	26.0	41.34 (1172)

FLANGE MOUNT

FOR DOUBLE AND SINGLE ACTING TYPES



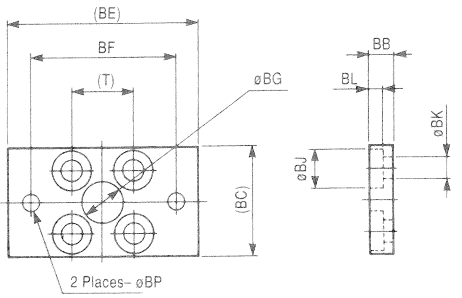
HOW TO ORDER

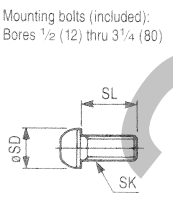
HJDA 25 – **3**

3: Flange mount (shipped loose)

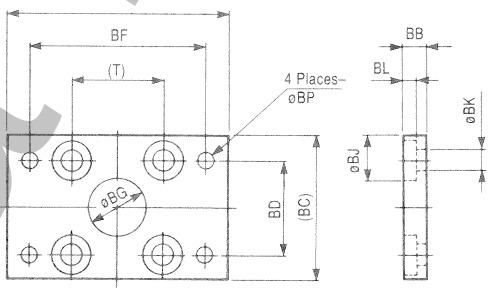
DIMENSIONAL INFORMATION

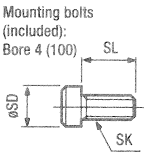
Bores 1/2 (12) & 5/8 (16)





Bores 3/4 (20) thru 4 (100)





Bore Nominal in. (mm)	Dimension – inch (mm)							
	T	BB	BC	BD	BE	BF	BG	BJ
1/2 (12)	.640 (16.26)	.236 (6)	1.102 (28)	–	1.969 (50)	1.496 (38)	.433 (11)	.394 (10)
5/8 (16)	.780 (19.8)	.236 (6)	1.260 (32)	–	2.126 (54)	1.654 (42)	.433 (11)	.394 (10)
3/4 (20)	.945 (24)	.236 (6)	1.417 (36)	.945 (24)	2.283 (58)	1.811 (46)	.591 (15)	.394 (10)
1 (25)	1.102 (28)	.315 (8)	1.654 (42)	1.102 (28)	2.677 (68)	2.126 (54)	.669 (17)	.492 (12.5)
1 1/4 (32)	1.339 (34)	.315 (8)	1.890 (48)	1.339 (34)	2.835 (72)	2.283 (58)	.866 (22)	.492 (12.5)
1 1/2 (40)	1.575 (40)	.315 (8)	2.283 (58)	1.575 (40)	3.307 (84)	2.677 (68)	1.102 (28)	.591 (15)
2 (50)	1.890 (48)	.315 (8)	2.598 (66)	1.575 (40)	4.016 (102)	3.228 (82)	1.496 (38)	.709 (18.0)
2 1/2 (63)	2.362 (60)	.315 (8)	3.071 (78)	1.969 (50)	4.567 (116)	3.780 (96)	1.575 (40)	.709 (18.0)
3 1/4 (80)	2.913 (74)	.472 (12)	3.937 (100)	2.756 (70)	5.591 (142)	4.646 (118)	1.772 (45)	.925 (23.5)
4 (100)	3.543 (60)	.787 (20)	4.567 (116)	3.150 (80)	6.693 (170)	5.591 (142)	2.165 (55)	.906 (23)

Bore Nominal in. (mm)	Dimension – inch (mm)						Weight oz. (gf)
	BK	BL	BP	SK	SL	SD	
1/2 (12)	.217 (5.5)	.142 (3.6)	.177 (4.5)	10-32	.500 (12.7)	.354 (9)	1.94 (55)
5/8 (16)	.217 (5.5)	.142 (3.6)	.177 (4.5)	10-32	.500 (12.7)	.354 (9)	2.50 (71)
3/4 (20)	.217 (5.5)	.142 (3.6)	.177 (4.5)	10-32	.500 (12.7)	.354 (9)	3.56 (101)
1 (25)	.283 (7.2)	.169 (4.3)	.217 (5.5)	1/4-20	.625 (15.9)	.428 (10.9)	5.64 (160)
1 1/4 (32)	.283 (7.2)	.169 (4.3)	.217 (5.5)	1/4-20	.625 (15.9)	.428 (10.9)	6.56 (186)
1 1/2 (40)	.354 (9)	.209 (5.3)	.260 (6.6)	5/16-18	.875 (22.2)	.537 (13.6)	11.82 (335)
2 (50)	.413 (10.5)	.209 (5.3)	.354 (9)	3/8-16	.875 (22.2)	.646 (16.4)	15.77 (447)
2 1/2 (63)	.413 (10.5)	.209 (5.3)	.354 (9)	3/8-16	.875 (22.2)	.646 (16.4)	20.85 (591)
3 1/4 (80)	.591 (15)	.287 (7.3)	.433 (11)	1/2-13	1.00 (25.4)	.863 (21.9)	49.87 (1414)
4 (100)	.531 (13.5)	.598 (15.2)	.591 (15)	1/2-13	1.25 (31.8)	.556 (14.1)	91.91 (2606)

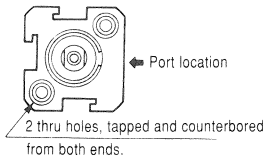
HANDLING TIPS AND POINTS TO BE CONSIDERED

MOUNTING BODY

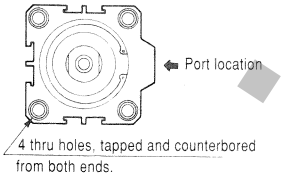
Block cylinders have, as standard, tapped thru holes for user convenience. Please see the following drawings.

DOUBLE ACTING AND SINGLE ACTING – PUSH OR PULL TYPES

1/2 (12) and 5/8 (16) bores

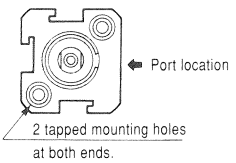


3/4 (20) thru 4 (100) bores

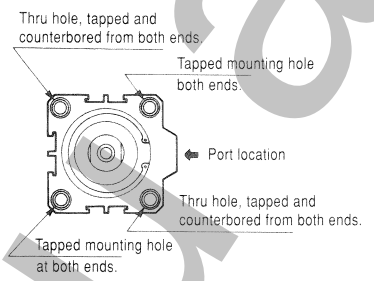


TANDEM CYLINDER, DOUBLE AND SINGLE ACTING TYPES

1/2 (12) and 5/8 (16) bores

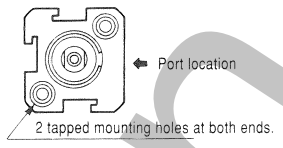


3/4 (20) thru 4 (100) bores

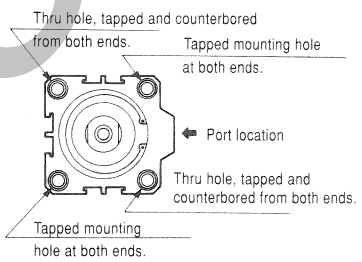


DUAL CYLINDER, DOUBLE AND SINGLE ACTING – PUSH AND PULL TYPES

1/2 (12) and 5/8 (16) bores



3/4 (20) thru 4 (100) bores



NOTE 1: For non-rotating type (HJDAL) bore sizes 3/4 (20) thru 1 1/4 (32), 2 tapped and counterbored holes available on rod end only. Rear head will be the same as Tandem type, 3/4 (20) thru 4 (100) bore info above. (See page 48 for more information.)

CAUTIONS:
1) Do not use in applications that will put horizontal loads on piston rod (side-loading).
2) Make sure to use washers (provided) when mounting via the body thru holes.
3) Avoid direct shock on the cylinder. Use shock absorbers, avoid impacting piston to front head, etc.

NON-STANDARD STROKES

Manufacturing methods:

The overall length the cylinder specified with a non-standard stroke may vary from catalog standards. In most cases, the following methods will be used.

Nominal bore in. (mm)	Manufacturing method
1/2 (12) thru 2 (50)	Collar packed
2 1/2 (63) thru 4 (100)	Tube cutting

Collar packed: Distance collar is added to non-standard strokes.
Tube cutting: By cutting cylinder tubes.

NOTE 1: Consult factory on tube cutting method for 1/2 (12) thru 2 (50) bores, and collar packed method for 2 1/2 (63) thru 4 (100) bores.

NOTE 2: Delivery times will be affected, consult factory.

Dimensions:

1) Collar packed: Use the next longer standard stroke.

2) Tube cutting: Calculate in same manner as standard stroke.

PIPING

Remove any foreign material such as metal chips, etc. from fittings and tubing (blow with compressed air, using appropriate safety procedures) before installing them in cylinders. Extraneous debris can potentially interfere with cylinder performance and cause leakage and/or premature failure.

ATMOSPHERE

1. When operating in ambient conditions in which excessive oil, water, dust, etc., are present, install appropriate protective devices.

2. Do not use Humphrey Block Cylinders in environments containing organic solvents, phosphoric acids, ester-type machine oil, sulfuric acid gas, and other acids.

LUBRICATION

No lubrication is required, however, if lubrication is used it must be compatible with Buna N elastomers and it must be of sufficient viscosity to assure adequate lubrication. Thin or low viscosity oils (spindle oil, machine oil, etc.) do not provide a good residual film of lubrication. See specifications.

MEDIA

1. Humphrey Block Cylinders are designed for use with compressed air at the pressure indicated in the specifications. Consult factory when using any other media.

2. Compressed air should be clean and uncontaminated. When in doubt, install an air filter with filtering capacity of 40 microns. Periodically remove and clean or replace filter element.

CAUTION

Compressed air is powerful and may be dangerous. Before attempting to remove a component from an air line or system, *always* disconnect the supply air and thoroughly exhaust the line or system. *Never* attempt to construct, operate, or service anything using compressed air unless you have been properly trained to do so. Failure to heed this warning could result in SERIOUS, EVEN FATAL, PERSONAL INJURY.