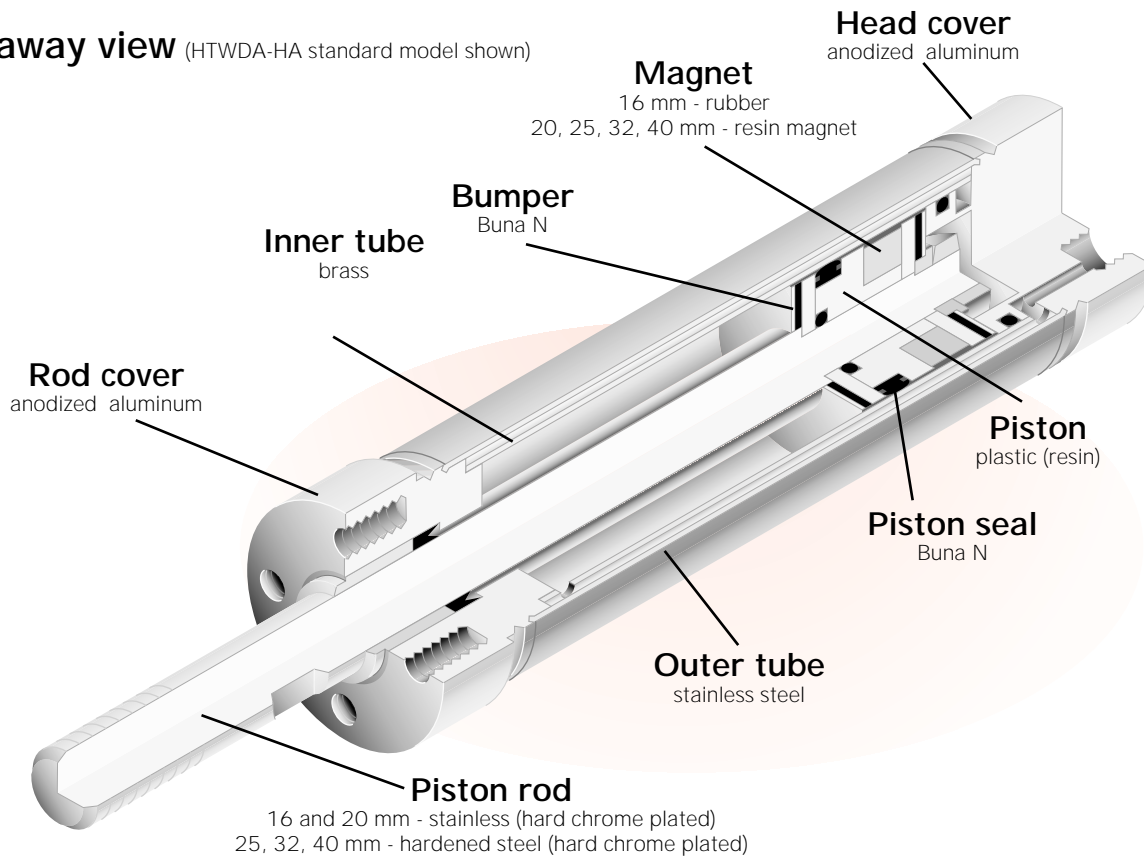


Twinport Cutaway and specifications

Cutaway view (HTWDA-HA standard model shown)



See terms and definitions page for more information.

Double acting, head end specifications



Double acting, head

Media		Air				
Temperature °C (°F)		0° to 60° (32° to 140°)				
Lubrication		None required. If used, must be compatible with seal materials.				
Bore mm (in)		16 (.630)	20 (.787)	25 (.984)	32 (1.260)	40 (1.575)
Piston area mm ² (in ²) "A"	Push	2.01 (.31)	3.14 (.49)	4.9 (.76)	8.04 (1.25)	12.5 (1.95)
	Pull	1.72 (.27)	2.64 (.41)	4.12 (.64)	6.9 (1.07)	10.55 (1.64)
Pressure "P" kgf/cm ² (psi)		1 to 7 (15 to 100)				
Piston force "F" kgf (lbf)		F = [A X P]				

Recommended load to be no more than 70% of piston force "F" for normal operation and no more than 50% for high speed cycle rates.

Speed range 2 to 20 in/s (50 to 500 mm/s)

Twinport Weight charts

	1/2" Stroke		1" Stroke		2" Stroke		3" Stroke		4" Stroke		6" Stroke		8" Stroke		10" Stroke		12" Stroke	
	gm	oz	gm	oz	gm	oz	gm	oz	gm	oz	gm	oz	gm	oz	gm	oz	gm	oz
16 (.670)	69.46	2.45	79.39	2.8	99.23	3.5	119.1	4.2	138.9	4.9	-	-	-	-	-	-	-	-
20 (.787)	126.2	4.45	141.8	5	173	6.1	204.1	7.2	235.3	8.3	297.7	10.5	-	-	-	-	-	-
25 (.984)	184.3	6.5	204.1	7.2	243.8	8.6	283.5	10	323.2	11.4	402.6	14.2	482	17	-	-	-	-
32 (1.260)	304.8	10.75	334.6	11.8	394.1	13.9	453.6	16	513.2	18.1	632.3	22.3	751.3	26.5	-	-	-	-
40 (1.575)	527.4	18.6	569.9	20.1	654.9	23.1	740	26.1	825.1	29.1	995.2	35.1	1165	41.1	1335.4	47.1	1505.5	53.1

Double acting, head end (HTDWA-HA)

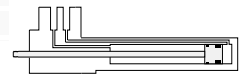
- Call Humphrey for stroke availability.



	1/2" Stroke		1" Stroke		2" Stroke		3" Stroke		4" Stroke		6" Stroke		8" Stroke		10" Stroke		12" Stroke	
	gm	oz	gm	oz	gm	oz	gm	oz	gm	oz	gm	oz	gm	oz	gm	oz	gm	oz
16 (.670)	86.48	3.05	96.4	3.4	116.2	4.1	136.1	4.8	155.9	5.5	-	-	-	-	-	-	-	-
20 (.787)	146	5.15	161.6	5.7	192.8	6.8	224	7.9	255.2	9	317.6	11.2	-	-	-	-	-	-
25 (.984)	229.7	8.1	249.5	8.8	289.2	10.2	328.9	11.6	368.6	13	448	15.8	527.4	18.6	-	-	-	-
32 (1.260)	395.5	13.95	425.3	15	484.8	17.1	544.4	19.2	603.9	21.3	723	25.5	842.1	29.7	-	-	-	-
40 (1.575)	691.8	24.4	734.3	25.9	819.4	28.9	904.5	31.9	989.5	34.9	1160	40.9	1330	46.9	1499.9	52.9	1670	58.9

Double acting, rod end (HTDWA-RA)

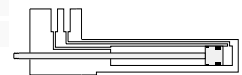
- Call Humphrey for stroke availability.



	1/2" Stroke		1" Stroke		2" Stroke		3" Stroke		4" Stroke		6" Stroke		8" Stroke		10" Stroke		12" Stroke	
	gm	oz	gm	oz	gm	oz	gm	oz	gm	oz	gm	oz	gm	oz	gm	oz	gm	oz
16 (.670)	100.7	3.55	110.6	3.9	130.4	4.6	150.3	5.3	170.1	6	-	-	-	-	-	-	-	-
20 (.787)	171.5	6.05	187.1	6.6	218.3	7.7	249.5	8.8	280.7	9.9	343.1	12.1	-	-	-	-	-	-
25 (.984)	263.7	9.3	283.5	10	323.2	11.4	362.9	12.8	402.6	14.2	482	17	561.4	19.8	-	-	-	-
32 (1.260)	574.1	20.25	603.9	21.3	663.5	23.4	723	25.5	782.5	27.6	901.6	31.8	1021	36	-	-	-	-
40 (1.575)	816.6	28.8	859.1	30.3	944.1	33.3	1029	36.3	1114	39.3	1284	45.3	1454	51.3	1624.6	57.3	1794.7	63.3

Double acting, block, rod end (HTWDA-RB)

- Call Humphrey for stroke availability.



Notes

Twinport Double acting, head side (HTWDA-HA)

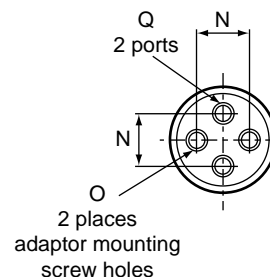
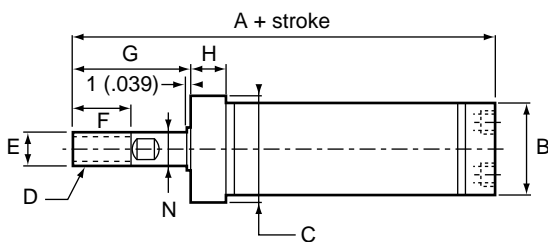
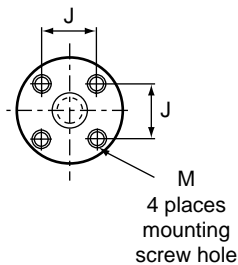
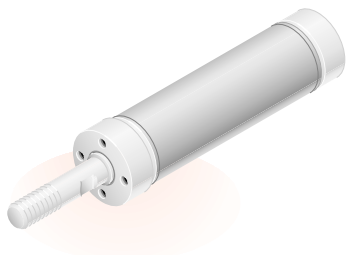


Accessories (see pages 9-13)

- Flange mount
- Foot mount, rod side, single foot only
- Pipe adapter
- Rod end, Y
- Rod end, I

Sensor switches (see Sensor section page 16)

- ZC553
- CS4M



Bore mm (in)	A	B	C	D	E	F	G
16 (.630)	77 (3.031)	19.0 (.748)	22 (.866)	10-32 UNF	6 (.236)	15 (.591)	26 (1.024)
20 (.787)	89 (3.504)	23.6 (.929)	28 (1.102)	5/16-18 UNC	8 (.315)	15 (.591)	31 (1.220)
25 (.984)	96 (3.780)	28.8 (1.134)	32 (1.260)	3/8-16 UNC	10 (.394)	18 (.709)	34 (1.339)
32 (1.260)	107 (4.213)	36.4 (1.433)	40 (1.575)	3/8-16 UNC	12 (.472)	23 (.906)	39 (1.535)
40 (1.575)	117 (4.606)	44.6 (1.756)	50 (1.969)	1/2-13 UNC	16 (.630)	23 (.906)	40 (1.575)

Bore mm (in)	H	J	M	N	O	Q
16 (.630)	8 (.315)	12 (.472)	4-40 UNC x 5.5 (.217)	8 (.315)	4-40 UNC x 6 (.236)	11 (.433)
20 (.787)	10 (.394)	14 (.551)	8-32 UNC x 7.5 (.295)	10 (.394)	8-32 UNC x 6 (.236)	13 (.512)
25 (.984)	10 (.394)	16 (.630)	10-32 UNF x 7.5 (.295)	12 (.472)	8-32 UNC x 6 (.236)	15 (.591)
32 (1.260)	10 (.394)	20 (.787)	10-32 UNF x 7.5 (.295)	15 (.591)	10-32 UNF x 7 (.276)	20 (.787)
40 (1.575)	12 (.472)	26 (1.024)	1/4 20 UNC x 9.5 (.374)	20 (.787)	10-32 UNF x 7 (.276)	26 (1.024)

General note

- 16 mm bore is 5/8 inch nominal bore
- 20 mm bore is 3/4 inch nominal bore
- 25 mm bore is 1 inch nominal bore
- 32 mm bore is 1 1/4 inch nominal bore
- 40 mm bore is 1 1/2 inch nominal bore

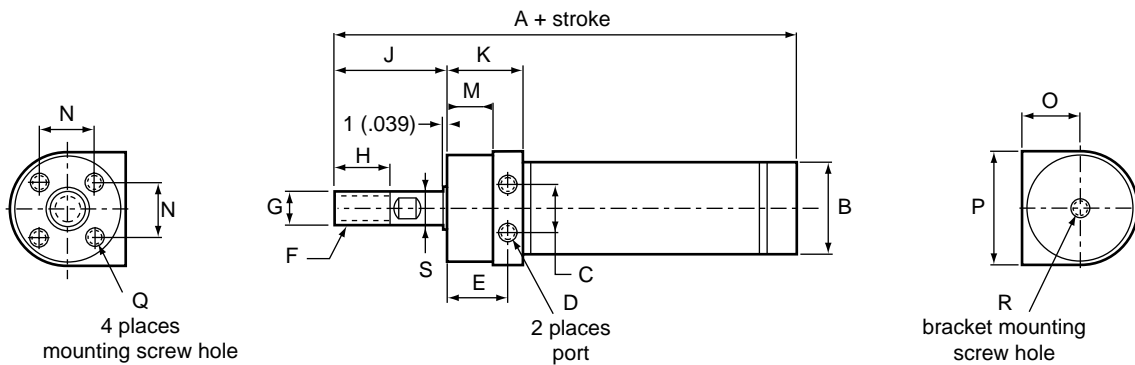
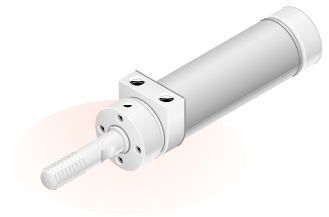
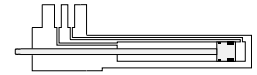
Twinport Double acting, rod side (HTWDA-RA)

Accessories (see pages 9-13)

- Flange mount
- Foot mount, rod side, single foot
- Foot mount, head side, double foot
- Rod end, Y
- Rod end, I

Sensor switches (see Sensor section page 16)

- ZG553
- CS4M



Bore mm (in)	A	B	C	D	E	F	G	H	J
16 (.630)	87 (3.425)	19.0 (.748)	11 (.433)	10-32 UNF	14 (.551)	10-32 UNF	6 (.236)	15 (.591)	26 (1.024)
20 (.787)	99 (3.898)	23.6 (.929)	13 (.512)	10-32 UNF	16 (.630)	5/16-18 UNC	8 (.315)	15 (.591)	31 (1.220)
25 (.984)	111 (4.370)	28.8 (1.134)	15 (.591)	1/8 NPT	18 (.709)	3/8-16 UNC	10 (.394)	18 (.709)	34 (1.339)
32 (1.260)	127 (5.000)	36.4 (1.433)	20 (.787)	1/8 NPT	23 (.906)	3/8-16 UNC	12 (.472)	23 (.906)	39 (1.535)
40 (1.575)	142 (5.591)	44.6 (1.756)	26 (1.024)	1/8 NPT	30 (1.181)	1/2-13 UNC	16 (.630)	23 (.906)	40 (1.575)

Bore mm (in)	K	M	N	O	P	Q	R	S
16 (.630)	18 (.709)	10 (.394)	12 (.472)	11.5 (.453)	23 (.906)	4-40 UNC x 6 (.236)	4-40 UNC x 6 (.236)	8 (.315)
20 (.787)	20 (.787)	12 (.472)	14 (.551)	14.5 (.571)	29 (1.142)	8-32 UNC x 6 (.236)	8-32 UNC x 6 (.236)	10 (.394)
25 (.984)	25 (.984)	11 (.433)	16 (.630)	16.5 (.650)	33 (1.299)	10-32 UNF x 7 (.276)	10-32 UNF x 7 (.276)	12 (.472)
32 (1.260)	30 (1.181)	16 (.630)	20 (.787)	20.5 (.807)	41 (1.614)	10-32 UNF x 7 (.276)	10-32 UNF x 7 (.276)	15 (.591)
40 (1.575)	37 (1.457)	23 (.906)	26 (1.024)	25.5 (1.004)	51 (2.008)	1/4-20 UNC x 9 (.354)	1/4-20 UNC x 9 (.354)	20 (.787)

General note

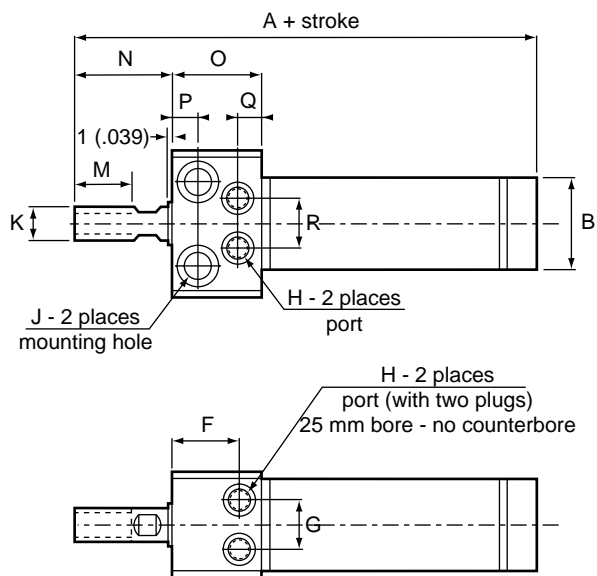
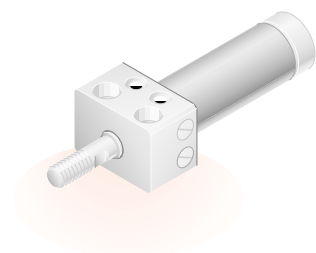
16 mm bore is 5/8 inch nominal bore
 20 mm bore is 3/4 inch nominal bore
 25 mm bore is 1 inch nominal bore
 32 mm bore is 1 1/4 inch nominal bore
 40 mm bore is 1 1/2 inch nominal bore

Twinport Double acting, rod side (HTWDA-RB)



Accessories (see pages 9-13)
Rod end, Y
Rod end, I

Sensor switches (see Sensor section page 16)
ZG553 CS4M

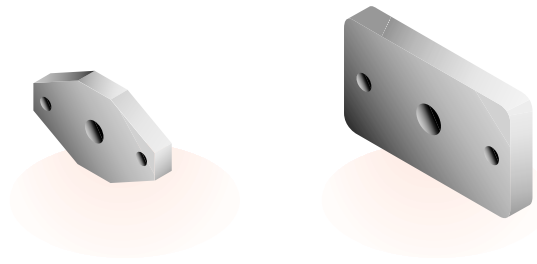


Bore mm (in)	A	B	C	D	E	F	G	H		
								port x c'bore x depth		
16 (.630)	87 (3.425)	19.0 (.748)	16 (.630)	24 (.945)	12 (.472)	15 (.591)	11 (.433)	10-32 UNF x 8.4 (.331) x 1.8 (.071)		
20 (.787)	99 (3.898)	23.6 (.929)	22 (.866)	28 (1.102)	14 (.551)	18 (0.709)	13 (.512)	10-32 UNF x 8.4 (.331) x 1.8 (.071)		
25 (.984)	111 (4.370)	28.8 (1.134)	26 (1.024)	30 (1.181)	15 (.591)	22 (.866)	15 (.591)	1/8 NPT x 13.4 (.528) x 1.8 (.071)		
32 (1.260)	127 (5.000)	36.4 (1.433)	34 (1.339)	38 (1.496)	19 (.748)	28 (1.102)	20 (.787)	1/8 NPT x 13.4 (.528) x 1.8 (.071)		
40 (1.575)	142 (5.591)	44.6 (1.756)	46 (1.811)	46 (1.811)	23 (.906)	36 (1.417)	26 (1.024)	1/8 NPT x 13.4 (.528) x 1.8 (.071)		
Bore mm (in)	J	K	M	N	O	P	Q	R	S	
	thru hole x c'bore x depth									
16 (.630)	4.5 (.177) x 8 (.315) x 4.5 (.177)		1/4-20 UNC	15 (.591)	23 (.906)	21 (.827)	5 (.197)	6 (.236)	11 (.433)	30 (1.181)
20 (.787)	6.6 (.260) x 11 (.433) x 6.5 (.256)		5/16-18 UNC	15 (.591)	27 (1.063)	24 (.945)	7 (.276)	6 (.236)	13 (.512)	38 (1.496)
25 (.984)	6.6 (.260) x 11 (.433) x 6.5 (.256)		3/8-16 UNC	18 (.709)	29 (1.142)	30 (1.181)	9 (.354)	8 (.315)	15 (.591)	42 (1.654)
32 (1.260)	9 (.354) x 14 (.551) x 8.6 (.339)		3/8-16 UNC	23 (.906)	33 (1.299)	36 (1.417)	12 (.472)	8 (.315)	20 (.787)	54 (2.126)
40 (1.575)	11 (.433) x 17.5 (.689) x 10.8 (.425)		1/2-13 UNC	23 (.906)	33 (1.299)	44 (1.732)	15 (.591)	8 (.315)	26 (1.024)	68 (2.677)

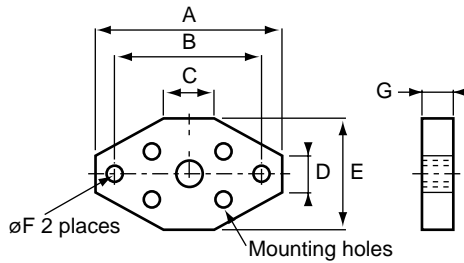
General note
16 mm bore is 5/8 inch nominal bore
20 mm bore is 3/4 inch nominal bore
25 mm bore is 1 inch nominal bore
32 mm bore is 1 1/4 inch nominal bore
40 mm bore is 1 1/2 inch nominal bore

Flange mount

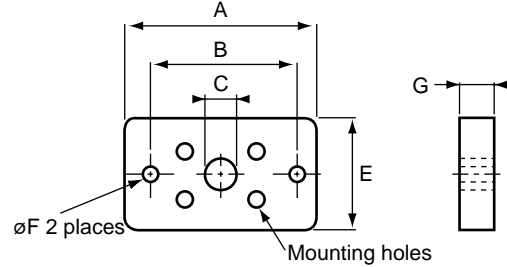
Both flange mount sizes allow cylinders to be mounted perpendicular to a surface.



16 mm (5/8 nom. dia.)



32 mm (1 1/4 nom. dia.) and 40 mm (1 nom. dia.)



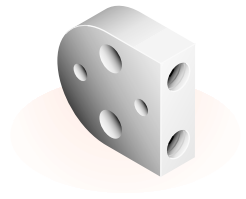
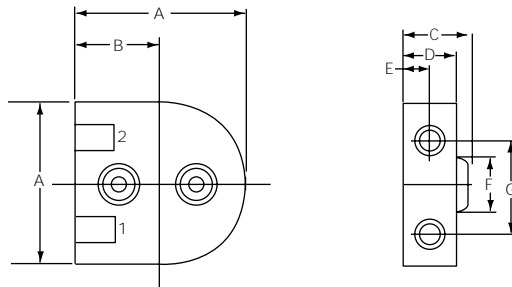
Bore mm (in)	A	B	C	D	E	F	G
16 (.630)	40 (1.575)	32 (1.260)	12 (.472)	8 (.315)	22 (.866)	4.5 (.177)	7 (.276)
20 (.787)	50 (1.969)	40 (1.575)	14 (.551)	10 (.394)	28 (1.102)	5.5 (.217)	8 (.315)
25 (.984)	56 (2.205)	44 (1.732)	16 (.630)	12 (.472)	32 (1.260)	6.5 (.256)	9 (.354)
32 (1.260)	66 (2.598)	54 (2.126)	20 (.787)	-	40 (1.575)	6.5 (.256)	9 (.354)
40 (1.575)	84 (3.307)	68 (2.677)	26 (1.024)	-	50 (1.969)	9 (.354)	10 (.394)

General note

16 mm bore is 5/8 inch nominal bore
 20 mm bore is 3/4 inch nominal bore
 25 mm bore is 1 inch nominal bore
 32 mm bore is 1 1/4 inch nominal bore
 40 mm bore is 1 1/2 inch nominal bore

Pipe adaptor

Pipe adaptors mount to the head end of the cylinder, allowing the cylinder to mount to a pipe.

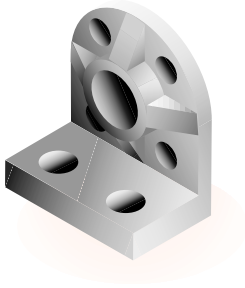


Bore mm (in)	A	B	C	D	E	F	G
16 (.630)	20 (.787)	10 (.394)	9 (.354)	8 (.315)	4 (.157)	5.5 (.217)	11 (.433)
20 (.787)	24.6 (.969)	12.3 (.484)	10 (.394)	8 (.315)	4 (.157)	7 (.276)	13 (.512)
25 (.984)	29.8 (1.173)	14.9 (.587)	19 (.748)	16 (.630)	8 (.315)	7 (.276)	13 (.512)
32 (1.260)	41 (1.614)	20.5 (.807)	19 (.748)	16 (.630)	8 (.315)	8.5 (.335)	20 (.787)
40 (1.575)	51 (2.008)	25.5 (1.004)	19 (.748)	16 (.630)	8 (.315)	8.5 (.335)	26 (1.024)

General note

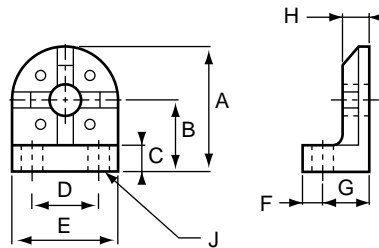
16 mm bore is 5/8 inch nominal bore
 20 mm bore is 3/4 inch nominal bore
 25 mm bore is 1 inch nominal bore
 32 mm bore is 1 1/4 inch nominal bore
 40 mm bore is 1 1/2 inch nominal bore

Twinport Accessories



Foot mount, rod side

Allows the cylinder's rod side to be mounted to a flat surface.



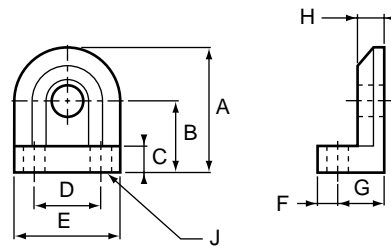
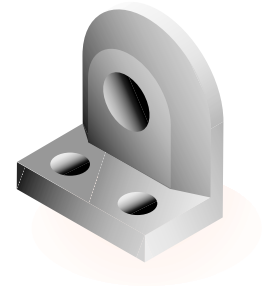
Bore mm (in)	A	B	C	D	E	F	G	H	J
16 (.630)	27 (1.063)	32 (1.260)	6 (.236)	8 (.315)	22 (.866)	4 (.157)	10 (.394)	7 (.276)	4.5 (.177)
20 (.787)	33 (1.299)	40 (1.575)	7 (.276)	10 (.394)	28 (1.102)	5 (.197)	12 (.472)	8 (.315)	5.5 (.217)
25 (.984)	37 (1.457)	44 (1.732)	8 (.315)	12 (.472)	32 (1.260)	6 (.236)	14 (.551)	9 (.354)	7.1 (.280)
32 (1.260)	45 (1.772)	54 (2.126)	8 (.315)	-	40 (1.575)	6 (.236)	14 (.551)	9 (.354)	7.1 (.280)
40 (1.575)	55 (2.165)	68 (2.677)	9 (.354)	-	50 (1.969)	8 (.315)	18 (.709)	10 (.394)	9 (.354)

General note

16 mm bore is 5/8 inch nominal bore
 20 mm bore is 3/4 inch nominal bore
 25 mm bore is 1 inch nominal bore
 32 mm bore is 1 1/4 inch nominal bore
 40 mm bore is 1 1/2 inch nominal bore

Foot mount, head side

Allows the cylinder's head side to be mounted to a flat surface.

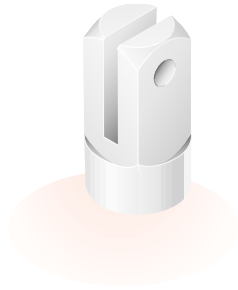


Bore mm (in)	A	B	C	D	E	F	G	H	J
16 (.630)	27.5 (1.083)	16 (.630)	6 (.236)	14 (.551)	22 (.866)	4 (.157)	10 (.394)	7 (.276)	4.5 (.177)
20 (.787)	33.5 (1.319)	19 (.748)	7 (.276)	18 (.709)	28 (1.102)	5 (.197)	12 (.472)	8 (.315)	5.5 (.217)
25 (.984)	37.5 (1.476)	21 (.827)	8 (.315)	20 (.787)	32 (1.260)	6 (.236)	14 (.551)	9 (.354)	6.5 (.256)
32 (1.260)	45.5 (1.791)	25 (.984)	8 (.315)	28 (1.102)	40 (1.575)	6 (.236)	14 (.551)	9 (.354)	6.5 (.256)
40 (1.575)	55.5 (2.185)	30 (1.181)	9 (.354)	34 (1.339)	50 (1.969)	8 (.315)	18 (.709)	10 (.394)	9 (.354)

General note

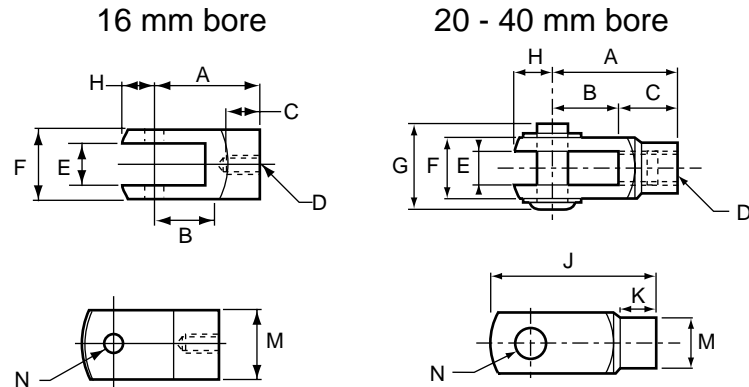
16 mm bore is 5/8 inch nominal bore
 20 mm bore is 3/4 inch nominal bore
 25 mm bore is 1 inch nominal bore
 32 mm bore is 1 1/4 inch nominal bore
 40 mm bore is 1 1/2 inch nominal bore

Twinport Accessories



Rod end, Y

Allows easy connection between cylinder rod and load.



Bore mm (in)	A	B	C	D	E	F	G	H	J	K	M	N
16 (.630)	21 (.827)	10 (.394)	11 (.433)	1/4-20 UNC	6.5 (.256)	12 (.472)	-	7 (.276)	28 (1.102)	8 (.315)	12 (.472)	5.1 (.201)
20 (.787)	30 (1.181)	15 (.591)	15 (.591)	5/16 - 18 UNC	8 (.315)	16 (.630)	21 (.827)	10 (.394)	40 (1.575)	10 (.394)	14 (.551)	8 (.315)
25 (.984)	40 (1.575)	20 (.787)	20 (.787)	3/8 - 16 UNC	10 (.394)	19 (.748)	25 (.984)	12 (.472)	52 (2.047)	12 (.472)	16 (.630)	10 (.394)
32 (1.260)	40 (1.575)	20 (.787)	20 (.787)	3/8 - 16 UNC	10 (.394)	19 (.748)	25 (.984)	12 (.472)	52 (2.047)	12 (.472)	16 (.630)	10 (.394)
40 (1.575)	45 (1.772)	20 (.787)	25 (.984)	1/2 - 13 UNC	14 (.551)	24 (.945)	30 (1.181)	12 (.472)	57 (2.244)	15 (.591)	22 (.866)	10 (.394)

General note

16 mm bore is 5/8 inch nominal bore
 20 mm bore is 3/4 inch nominal bore
 25 mm bore is 1 inch nominal bore
 32 mm bore is 1 1/4 inch nominal bore
 40 mm bore is 1 1/2 inch nominal bore

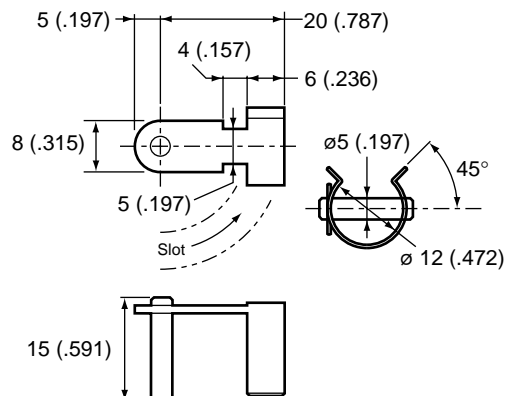
Tolerances

Note E	Note F
+0.1 +(.004)	+0.1 +(0)
-0.3 -(0.012)	-0.3 -(0.011)



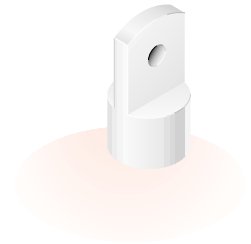
Y clevis rod end mounting pin

For use when mounting cylinders to metal plates and similar thin-walled objects. Manufactured for durability and strength.

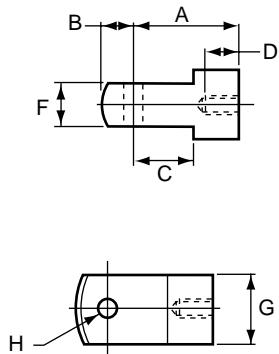


Rod end, I

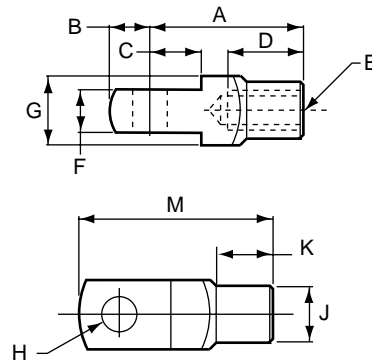
Allows easy connection between cylinder rod and load.



16 mm bore



20 - 40 mm bore



Bore mm (in)	A	B	C	D	E	F	G	H	K	M
16 (.630)	25 (.984)	7 (.275)	14 (.551)	8 (.315)	1/4-20 UNC	6.4 (.251)	-	5.1 (.201)	-	-
20 (.787)	30 (1.181)	10 (.3940)	11 (.433)	15 (.590)	5/16-18 UNC	8 (.315)	16 (.630)	8 (.315)	10 (.394)	40 (1.574)
25 (.984)	40 (1.575)	12 (.472)	13 (.511)	20 (.787)	3/8-16 UNC	10 (.394)	19 (.748)	10 (.394)	12 (.472)	52 (2.047)
32 (1.260)	40 (1.575)	12 (.472)	13 (.511)	20 (.787)	3/8-16 UNC	10 (.394)	19 (.748)	10 (.394)	12 (.472)	52 (2.047)
40 (1.575)	45 (1.772)	12 (.472)	13 (.511)	20 (.787)	1/2-13 UNC	14 (.551)	24 (.944)	10 (.394)	15 (.591)	57 (2.244)

Tolerances	
Note E	Note F
+1 +(.004)	+1 +(0)
-.3 -(.012)	-.3 -(.011)

General note
20 mm bore is 3/4 inch nominal bore
25 mm bore is 1 inch nominal bore
32 mm bore is 1 1/4 inch nominal bore
40 mm bore is 1 1/2 inch nominal bore

Twinport How to Order

Cylinder

Model	Bore	Stroke	Mounting type
HTWDA		x	-
HTWDA Twinport	16 16 mm (.630 inch) (5/8 inch nominal diameter) 20 20 mm (.787 inch) (3/4 inch nominal diameter) 25 25 mm (.984 inch) (1 inch nominal diameter) 32 32 mm (1.260 inch) (1 1/4 inch nominal diameter) 40 40 mm (1.575 inch) (1 1/2 inch nominal diameter)	Maximum stroke 4 inch 6 inch 8 inch 8 inch 12 inch	HA Head side Nose, single foot, flange RA Rod side Nose, single foot, double foot, flange RB Rod side, block type side mount

Example: HTWDA16x4-HA

Accessories

Model	Size
RN	
Rod nut Bag of one	4 10-32 UNF 8 5/16-18 UNC 10 3/8-16 UNC 12 1/2-13 UNC

Example: RN-4

Mount	Model	Bore
	HTWDA	
1A Single foot 1B Double foot 3A Flange L Pipe adaptor Y Clevis type I Clevis type		16 16 mm (.630 inch) (5/8 inch nominal diameter) 20 20 mm (.787 inch) (3/4 inch nominal diameter) 25 25 mm (.984 inch) (1 inch nominal diameter) 32 32 mm (1.260 inch) (1 1/4 inch nominal diameter) 40 40 mm (1.575 inch) (1 1/2 inch nominal diameter)

Example: 1A-HTWDA16

Sensor

See Sensor section at back of catalog for order information.