

**PS 075 020 - S1 - N1 - F1 - M02 - C165 - E00 - B00 - Lxxx.xxx**

**Precision Screw**

**Screw Diameter**

**075** - 0.750 inch

**20M** - 20 mm

**Screw Lead**

**020** - 0.200 inch

**05M** - 5 mm

**20M** - 20 mm

**Support Configurations** (see pages 73-74)

**S1** - Simple - Simple

**S4** - Rigid - Simple

**S2** - Fixed (LT) - Simple

**S5** - Rigid - Rigid

**S3** - Fixed (HT) - Simple

**S9** - other

**Nut Type** (see pages 74-76)

**N1** - NPL ball nut (RFT)

**N9** - other

**N2** - NPL ball nut (LFT)

**N3** - PL ball nut (RFT)

**N4** - PL ball nut (LFT)

**Nut Flange Type** (see page 76)

**F0** - none

**F2** - Vertical bracket (E)

**F4** - L bracket (E)

**F1** - Round flange

**F3** - Vertical bracket (M)

**F5** - L bracket (M)

**F9** - other

**Motor Mount** (see pages 77, 96-97)

**M00** - none

**M06** - NEMA 23 (RH) wrap

**M01** - Hand crank

**M07** - NEMA 23 (LH) wrap

**M02** - NEMA 23 mount (E)

**M08** - NEMA 34 (RH) wrap

**M03** - NEMA 23 mount (M)

**M09** - NEMA 34 (LH) wrap

**M04** - NEMA 34 mount (E)

**M05** - NEMA 34 mount (M)

**M99** - other

**Coupling Type** (see pages 94-95)

**C000** - none

**C056 to C063** - C125

**C201 to C211** - H163

**C999** - other

**C084 to C090** - C150

**C445 to C454** - G126

**C165 to C174** - H131

**C481 to C491** - G158

**Rotary Encoder** (see page 98)

**E00** - none

**E20** - 500 lines/rev

**E99** - other

**E21** - 1000 lines/rev

**E22** - 1270 lines/rev

**Power-off Brake** (see page 99)

**B00** - none

**B20** - 24 VDC

**B99** - other

**B21** - 90 VDC

**Thread Length** (see page 74)

**Lxxx.xxx** - screw thread length (inches)

Note: See page 14 for a complete description of the above part number system.



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(E) - English Interface  
 (LFT) - Left Facing Thread  
 (LH) - Left Hand  
 (LT) - Low Thrust  
 (HT) - High Thrust

(M) - Metric Interface  
 (NPL) - Non Preloaded  
 (PL) - Preloaded  
 (RFT) - Right Facing Thread  
 (RH) - Right Hand

## Screw & Nut Specifications

Model Number	Nut Type	Diameter	Lead	Root Diameter	Ball Diameter	Number of Circuits	Static Load	Dynamic Load <sup>(1)</sup>
		inches (mm)	inches (mm)	inches (mm)	inches (mm)		lbs (kgf)	lbs (kgf)
<b>PS075020</b> 0.750 inch dia. 0.200 inch lead	<i>Non-preloaded Ball (N1/N2)</i>	0.750 (19,05)	0.200 (5,08)	0.635 (16,13)	0.125 (3,17)	1	3,360 (1524)	964 (437)
	<i>Preloaded Ball (N3/N4)</i>						3,025 (1372)	867 (393)
<b>PS20M05M</b> 20 mm dia. 5 mm lead	<i>Non-preloaded Ball (N1/N2)</i>	0.787 (20,00)	0.196 (5,00)	0.665 (16,89)	0.125 (3,17)	1	3,990 (1809)	1,070 (485)
	<i>Preloaded Ball (N3/N4)</i>						3,590 (1628)	960 (435)
<b>PS20M20M</b> 20 mm dia. 20 mm lead	<i>Non-preloaded Ball (N1/N2)</i>	0.787 (20,00)	0.787 (20,00)	0.672 (17,07)	0.125 (3,17)	2	3,505 (1589)	1,293 (586)
	<i>Preloaded Ball (N3/N4)</i>						3,150 (1428)	1,160 (526)

## Other Specifications

<b>Maximum Acceleration Rate</b>	Ball nut: 772 inches/sec <sup>2</sup> (19,6 m/sec <sup>2</sup> )
<b>Maximum Speed</b>	Ball nut: 3000 rpm
<b>Screw Material</b>	Right Hand Thread, Case Hardened Rc 58 Steel Precision Rolled Ball Screw
<b>Screw Extensions</b>	Woodruff Keyways on Support Housings - 404 Drive End; 303 Opposite End
<b>Screw Maximum Length<sup>(2)</sup></b>	118.11 inches (3000 mm)
<b>Screw Weight</b>	1.35 lbs/ft (20,1 g/cm)
<b>Support Housings</b>	Steel with Black Oxide Finish, 45° Chamfer x .02 inch (0,50) all Straight Edges
<b>Support Housing Features</b>	Base or Face Mount with Integral Seals
<b>Nut Flanges</b>	Steel with Black Oxide Finish
<b>Nut Flange Features</b>	English or Metric Load Mounting Interface

### Footnotes:

- (1) Load based upon 1 million inches (25 Km) of travel life. See page 75 for further travel life ratings.  
 (2) Maximum stock length (not the maximum thread length with bearing housings). See page 74 for maximum thread lengths for each configuration.

## Screw Specifications

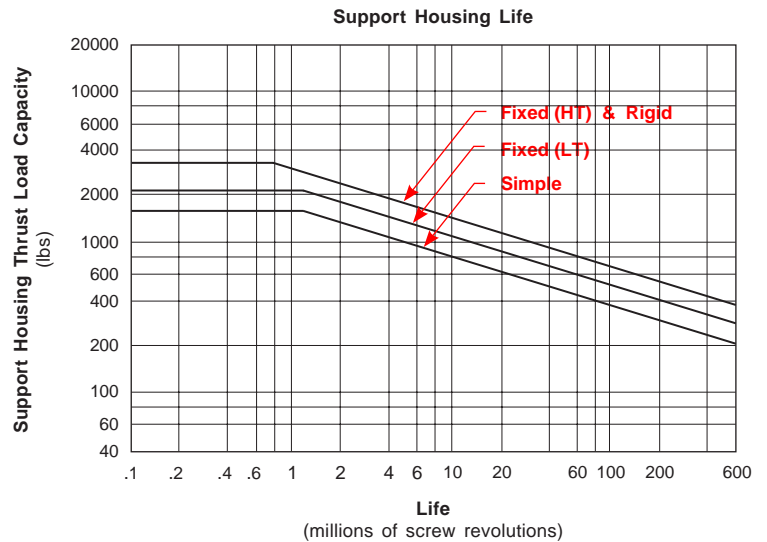
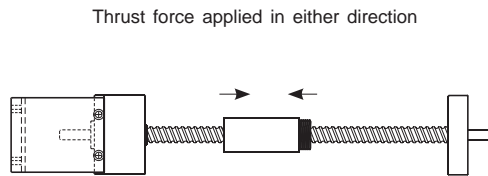
Model Number	Nut Type	Screw Efficiency %	Lead Error inch/ft (mm/300 mm)	Backlash inches (mm)	Unidirectional Repeatability inches (mm)	Bidirectional Repeatability inches (mm)
<b>PS075020</b> 0.750 inch dia. 0.200 inch lead & <b>PS20M05M</b> 20 mm dia. 5 mm lead & <b>PS20M20M</b> 20 mm dia. 20 mm lead	<i>Non-preloaded</i> Ball (N1/N2)	90	< 0.002 (0,050)	< 0.003 (0,076)	+/- 0.0002 (0,0050)	+ 0.0002 to - 0.0032 (0,0050) to (0,0813)
	<i>Preloaded</i> Ball (N3/N4)	90	< 0.002 (0,050)	0	+/- 0.0002 (0,0050)	+ 0.0002 to - 0.0002 (0,0050) to (0,0050)

## Assembly Specifications

Model Number	Nut Type	Breakaway Torque oz-in (N-m)				
		Simple-Simple	Fixed(LT)-Simple	Fixed(HT)-Simple	Rigid-Simple	Rigid-Rigid
<b>PS075020</b> 0.750 inch dia. 0.200 inch lead	<i>Non-preloaded</i> Ball (N1/N2)	< 10 (0,07)	< 15 (0,11)	< 25 (0,18)	< 25 (0,18)	< 45 (0,32)
	<i>Preloaded</i> Ball (N3/N4)	< 20 (0,14)	< 25 (0,18)	< 35 (0,25)	< 35 (0,25)	< 55 (0,39)
<b>PS20M05M</b> 20 mm dia. 5 mm lead	<i>Non-preloaded</i> Ball (N1/N2)	< 10 (0,07)	< 15 (0,11)	< 25 (0,18)	< 25 (0,18)	< 45 (0,32)
	<i>Preloaded</i> Ball (N3/N4)	< 20 (0,14)	< 25 (0,18)	< 35 (0,25)	< 35 (0,25)	< 55 (0,39)
<b>PS20M20M</b> 20 mm dia. 20 mm lead	<i>Non-preloaded</i> Ball (N1/N2)	< 20 (0,14)	< 25 (0,18)	< 40 (0,28)	< 40 (0,28)	< 55 (0,39)
	<i>Preloaded</i> Ball (N3/N4)	< 35 (0,25)	< 40 (0,28)	< 55 (0,39)	< 55 (0,39)	< 70 (0,49)

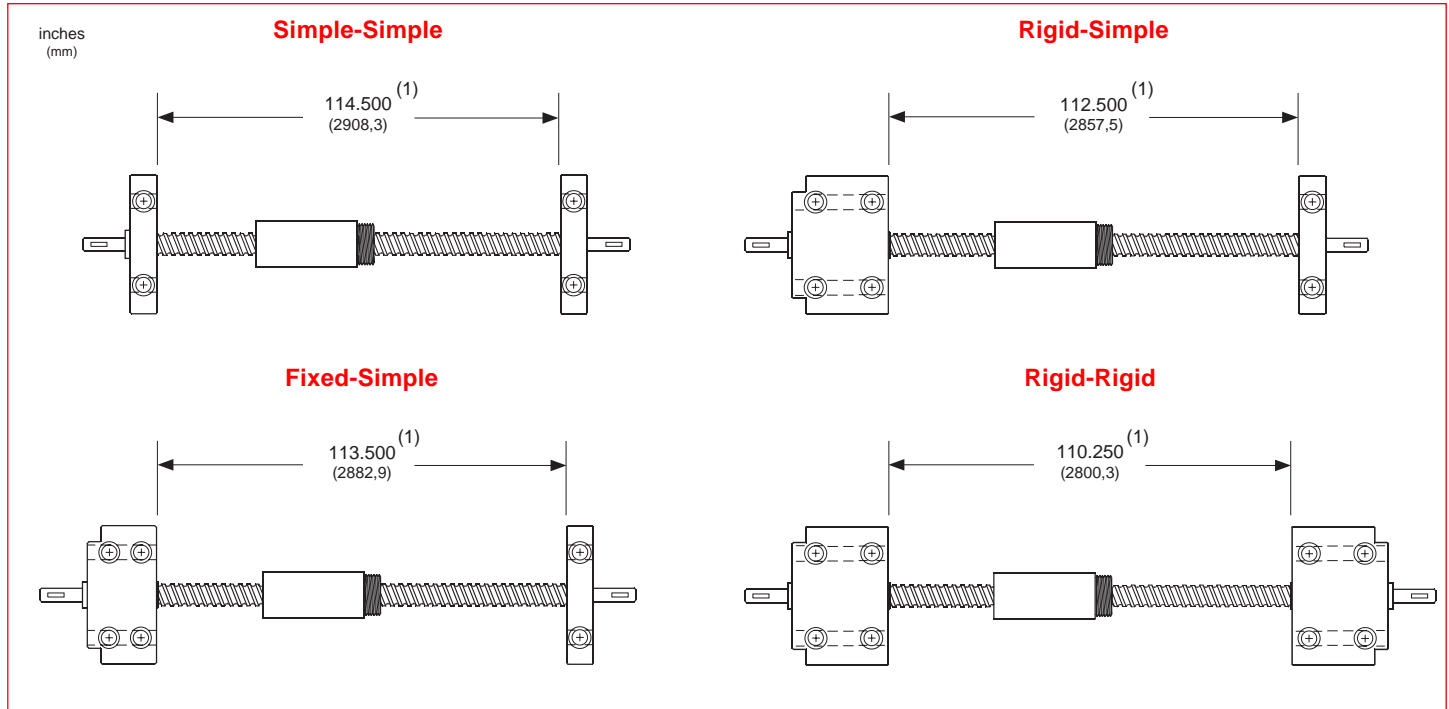
## Support Housing Specifications

Support Housing Life millions of screw revolutions	Support Housing Thrust Load Capacity - (Axial)			
	Simple	Fixed (LT)	Fixed (HT)	Rigid
<b>Static</b>	1,675 (760)	2,110 (957)	3,350 (1520)	3,350 (1520)
<b>1</b>	1,675 (760)	2,110 (957)	3,035 (1377)	3,035 (1377)
<b>2</b>	1,365 (619)	1,720 (780)	2,275 (1032)	2,275 (1032)
<b>10</b>	795 (361)	1,050 (476)	1,375 (624)	1,375 (624)
<b>50</b>	465 (211)	585 (265)	820 (372)	820 (372)
<b>100</b>	370 (168)	465 (211)	650 (295)	650 (295)
<b>500</b>	215 (98)	270 (122)	390 (177)	390 (177)

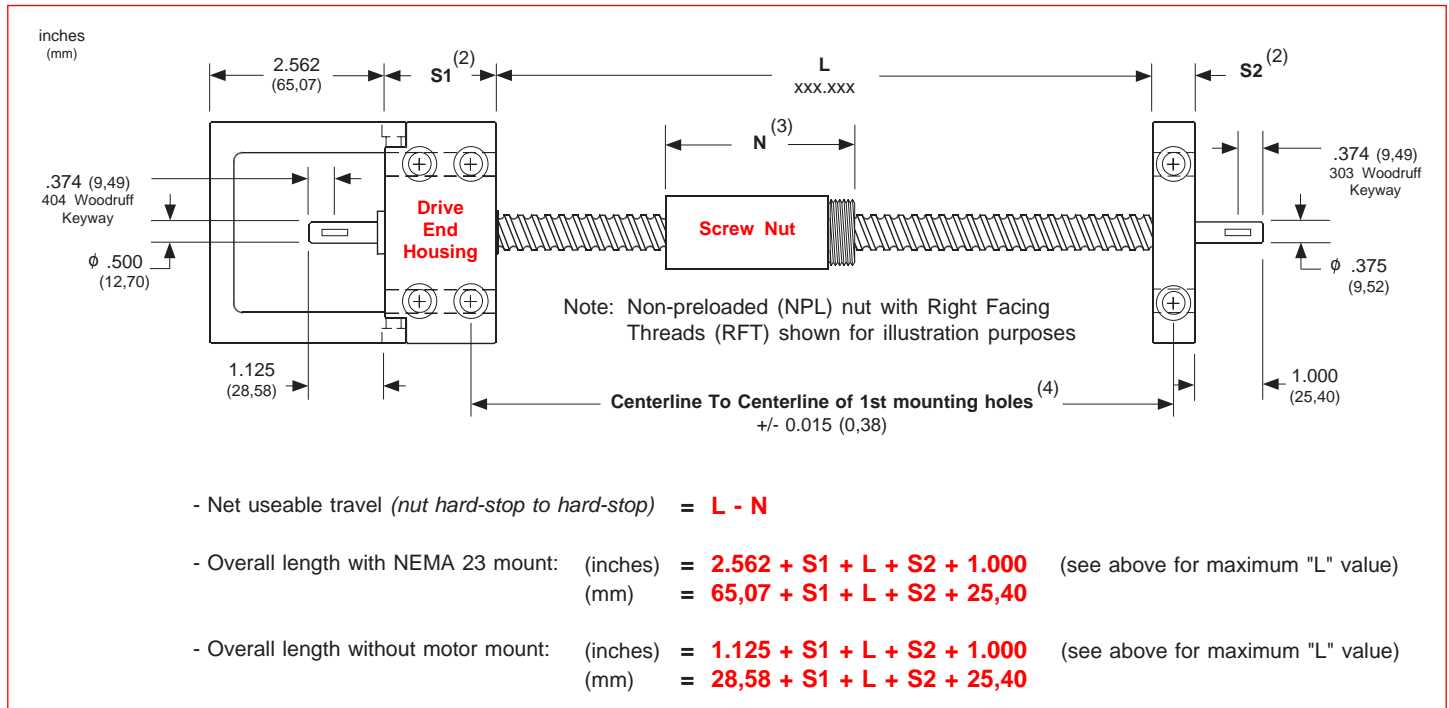


Note: Multiply screw revolutions by the screw lead in order to convert to inches (or mm) traveled by the nut.

## Available Configurations



## Overall Length Diagram

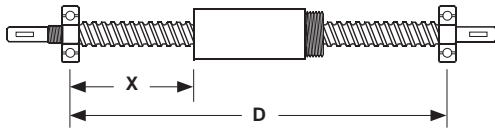


### Footnotes:

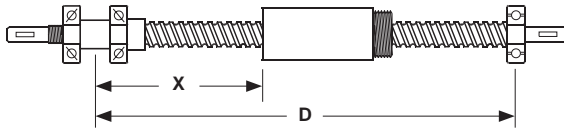
- (1) Maximum available standard screw thread length for the bearing support housing configuration shown.
- (2) Fixed-simple support configuration shown for reference. See page 77 for length values for simple, fixed, and rigid housings.
- (3) See page 76 for available nut styles. Refer to A1 & A2 values for the nut length.
- (4) Tolerance shown is for base mounted support housings. Tolerance also applies to face mounted support housings.

## Performance Charts

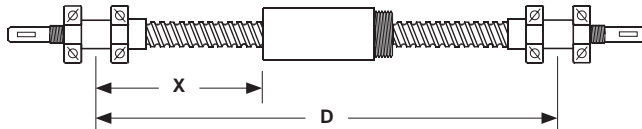
### Simple-Simple



### Rigid-Simple

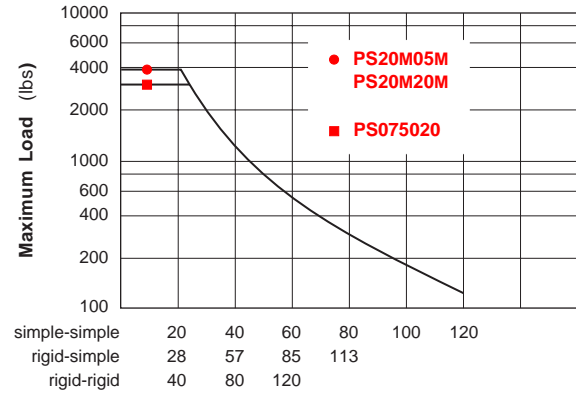


### Rigid-Rigid



### Maximum Compression Load <sup>(1)</sup>

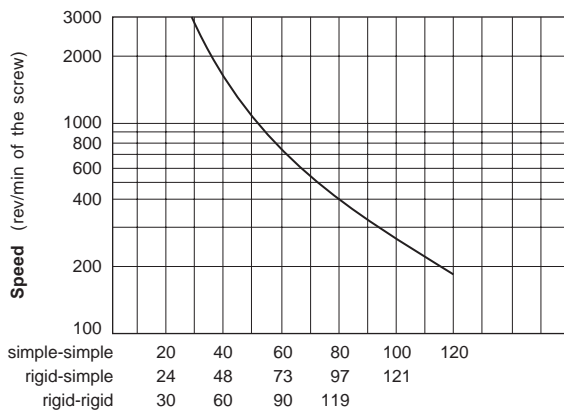
X inches (mm)	simple-simple		rigid-simple		rigid-rigid	
	lbs	(kgf)	lbs	(kgf)	lbs	(kgf)
20 (508)	3360	(1524)	3360	(1524)	3360	(1524)
60 (1524)	505	(229)	1010	(458)	2020	(916)
90 (2286)	225	(102)	450	(204)	900	(408)



Maximum "X" distance between bearing support and Load (inches)

### Maximum Speed <sup>(1)</sup>

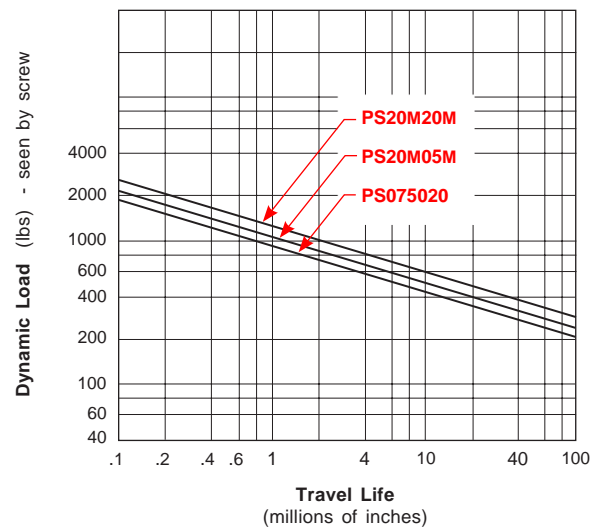
D inches (mm)	simple-simple		rigid-simple		rigid-rigid	
	rpm	rpm	rpm	rpm	rpm	rpm
29 (737)	3000	3000	3000	3000	3000	3000
60 (1524)	730	730	1070	1070	1625	1625
90 (2286)	325	325	475	475	720	720
120 (3048)	180	180	260	260	400	400



Maximum "D" distance between bearing supports (inches)

### Screw Travel Life <sup>(2)</sup>

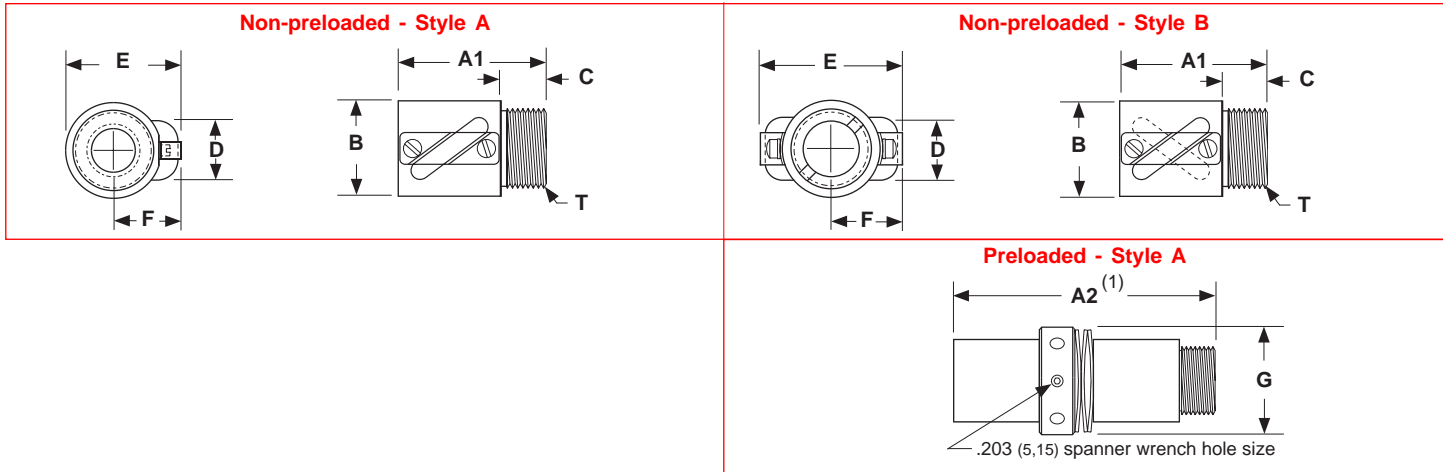
Life millions of inches (km)	075020		20M05M		20M20M	
	lbs	(kgf)	lbs	(kgf)	lbs	(kgf)
1 (25)	964	(437)	1070	(485)	1293	(386)
2 (50)	767	(347)	850	(385)	1029	(466)
50 (1270)	265	(120)	294	(133)	355	(161)
100 (2540)	210	(95)	234	(106)	283	(128)



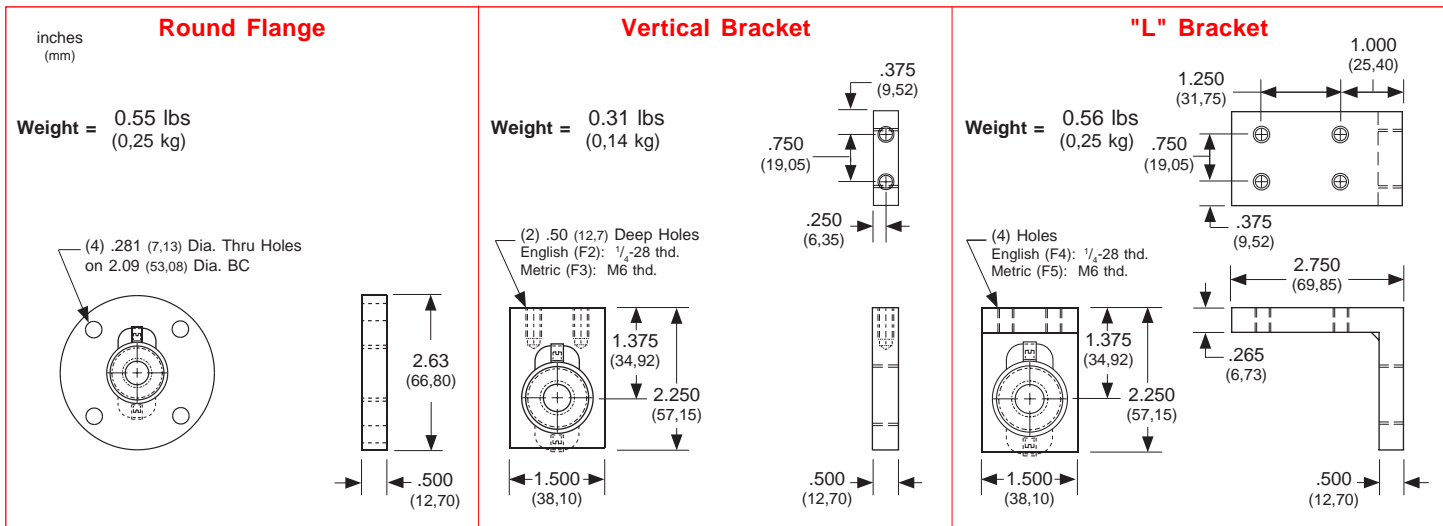
### Footnotes:

- (1) Refer to the simple-simple support lengths for fixed-simple configurations. A fixed housing performs like a simple housing for critical speed and compression load specifications. Maximum speeds may not be reached using a Turcite nut due to system friction.
- (2) Multiply life value from chart (or graph) by 0.90 to obtain the life for a preloaded ball nut.

## Nut Dimensions



## Nut Flange Dimensions



Model Number	Nut Style	Nut Dimensions inches (mm)									Nut Weight <sup>(3)</sup> lbs (kg)
		A1	A2 <sup>(1)</sup>	B	C	D	E	F	T - "V" Threads <sup>(2)</sup>	G	
PS075020	A	1.780 (45,21)	3.850 (97,79)	1.378 (35,00)	0.500 (12,70)	1.063 (27,00)	1.674 (42,52)	0.985 (25,02)	1.173 - 18 UNS-2A (29,79 - 18 UNS-2A)	1.670 (42,42)	0.68 (0,31)
PS20M05M	A	1.780 (45,21)	3.850 (97,79)	1.378 (35,00)	0.500 (12,70)	1.063 (27,00)	1.674 (42,52)	0.985 (25,02)	1.173 - 18 UNS-2A (29,79 - 18 UNS-2A)	1.670 (42,42)	0.68 (0,31)
PS20M20M	B	2.370 (60,20)	5.050 (128,27)	1.418 (36,02)	0.500 (12,70)	1.103 (28,02)	2.126 (54,00)	1.063 (27,00)	1 1/4 - 16 UN-2A (31,75 - 16 UN-2A)	1.670 (42,42)	0.90 (0,41)

### Footnotes:

- (1) This is the length for a preloaded nut. Preloaded nut consists of two (2) non-preloaded nuts with a locking spanner nut, and belville springs.
- (2) All flange threads are internal (Type 2B) to match the external nut threads.
- (3) Weight of the non-preloaded nut. Multiply value by 2.1 to obtain the weight for the preloaded nut assembly.

## Support Housing Dimensions

<p>inches (mm)</p> <p>.625 (15,87)</p> <p>2.000 (50,80)</p> <p>2.500 (63,50)</p> <p>1.750 (44,45)</p> <p>1.250 (31,75)</p> <p>.375 (9,52)</p> <p>1.625 (41,27)</p> <p>3.250 (82,55)</p> <p>(4) .343 (8,71) Dia.Thru Holes</p> <p>(4) 8-32 x .37 (9,39) Deep on 1.750 (44,45) BC</p>	<p><b>Simple</b></p> <p>Weight = 1.1 lbs (0,50 kg)</p>	<p>.313 (7,95)</p> <p>.625 (15,87)</p> <p>.313 (7,95)</p> <p>.625 (15,87)</p> <p>(2) .343 (8,71) Dia. Thru Holes, .504 (12,8) Dia. C' Bored x .57 (14,47) Deep</p> <p>Drive End</p> <p>non-Drive End</p>
<p>.625 (15,87)</p> <p>2.000 (50,80)</p> <p>2.500 (63,50)</p> <p>1.750 (44,45)</p> <p>1.250 (31,75)</p> <p>.375 (9,52)</p> <p>1.625 (41,27)</p> <p>3.250 (82,55)</p> <p>.250 (6,35)</p> <p>(4) .343 (8,71) Dia.Thru Holes</p> <p>(4) 8-32 x .37 (9,39) Deep on 1.750 (44,45) BC</p>	<p><b>Fixed</b></p> <p>Weight = 2.7 lbs (1,22 kg)</p>	<p>.750 (19,05)</p> <p>.500 (12,70)</p> <p>1.125 (28,57)</p> <p>.688 (17,47)</p> <p>.125 (3,17)</p> <p>1.750 (44,45)</p> <p>(4) .343 (8,71) Dia. Thru Holes, .504 (12,8) Dia. C' Bored x .57 (14,47) Deep</p> <p>(2) 10-32 x .43 (10,92) Deep, both sides</p>
<p>.625 (15,87)</p> <p>2.000 (50,80)</p> <p>2.500 (63,50)</p> <p>1.750 (44,45)</p> <p>1.250 (31,75)</p> <p>.375 (9,52)</p> <p>1.625 (41,27)</p> <p>3.250 (82,55)</p> <p>.250 (6,35)</p> <p>(4) .343 (8,71) Dia.Thru Holes</p> <p>(4) 8-32 x .37 (9,39) Deep on 1.750 (44,45) BC</p>	<p><b>Rigid</b></p> <p>Weight = 4.0 lbs (1,81 kg)</p>	<p>1.750 (44,45)</p> <p>.500 (12,70)</p> <p>1.125 (28,57)</p> <p>.688 (17,47)</p> <p>.125 (3,17)</p> <p>2.750 (69,85)</p> <p>(4) .343 (8,71) Dia. Thru Holes, .504 (12,8) Dia. C' Bored x .57 (14,47) Deep</p> <p>(2) 10-32 x .43 (10,92) Deep, both sides</p>
<p><b>NEMA 23 Motor Mount</b></p> <p>Weight = 0.9 lbs (0,41 kg)</p> <p>(4) Holes on 2.625 (66,67) BC Dia. English (M02): #10-24 thd. Metric (M03): M5 thd.</p> <p>1.502 (38,15) Pilot Dia. TYP</p> <p>2.340 (59,44)</p> <p>2.562 (65,07)</p> <p>.313 (7,95)</p> <p>1.437 (36,50)</p> <p>2.250 (57,15)</p> <p>1.125 (28,57)</p> <p>(2) .221 (5,61) Dia.Thru Holes, .344 (8,73) Dia. C' Bored x .125 (3,17) Deep, both sides</p>	<p><b>NEMA 34 Motor Mount</b></p> <p>Weight = 1.4 lbs (0,64 kg)</p> <p>(4) Holes on 3.875 (98,42) BC Dia. English (M04): #10-24 thd. Metric (M05): M5 thd.</p> <p>2.877 (73,07) Pilot Dia. TYP</p> <p>.063 (1,60)</p> <p>2.340 (59,44)</p> <p>.500 (12,70)</p> <p>2.562 (65,07)</p> <p>.313 (7,95)</p> <p>1.937 (49,20)</p> <p>3.375 (85,72)</p> <p>1.688 (42,88)</p> <p>.438 (11,13)</p> <p>(2) .221 (5,61) Dia.Thru Holes, .344 (8,73) Dia. C' Bored x .125 (3,17) Deep, both sides</p>	