

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

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(E) - English Interface	(M) - Metric Interface
(LFT) - Left Facing Thread	(NPL) - Non Preloaded
(LH) - Left Hand	(PL) - Preloaded
(LT) - Low Thrust	(RFT) - Right Facing Thread
(HT) - High Thrust	(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>RS050020</b> 0.500 inch dia. 0.200 inch lead	<i>Non-preloaded Ball (N1/N2)</i>	0.500 (12,70)	0.200 (5,08)	0.405 (10,28)	0.125 (3,17)	2	9,400 (4263)	1,200 (544)
	<i>Preloaded Ball (N3/N4)</i>						9,280 (4209)	1,080 (489)
	<i>Non-preloaded Turcite (N5/N6)</i>				800 (362)	100 (45)		
	<i>Preloaded Turcite (N7/N8)</i>				800 (362)	90 (41)		
<b>RS050050</b> 0.500 inch dia. 0.500 inch lead	<i>Non-preloaded Ball (N1/N2)</i>	0.500 (12,70)	0.500 (12,70)	0.405 (10,28)	0.125 (3,17)	2	13,350 (6055)	2,200 (997)
	<i>Preloaded Ball (N3/N4)</i>						13,130 (5955)	1,980 (898)
	<i>Non-preloaded Turcite (N5/N6)</i>				800 (362)	100 (45)		
	<i>Preloaded Turcite (N7/N8)</i>				800 (362)	90 (41)		

## Other Specifications

<b>Maximum Acceleration Rate</b>	Ball nut: 772 inches/sec <sup>2</sup> (19.6 m/sec <sup>2</sup> ) Turcite nut: 193 inches/sec <sup>2</sup> (4.9 m/sec <sup>2</sup> )
<b>Maximum Speed</b>	Ball nut: 3000 rpm Turcite nut: 1500 rpm
<b>Screw Material</b>	Right Hand Thread, Case Hardened Rc 58 Steel Rolled Ball Screw
<b>Screw Extensions</b>	303 Woodruff Keyways on Extensions from Support Housings
<b>Screw Maximum Length<sup>(2)</sup></b>	72 inches (1828 mm)
<b>Screw Weight</b>	0.66 lbs/ft (9,82 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 27 for further travel life ratings.  
 (2) Maximum stock length (not the maximum thread length with bearing housings). See page 26 for maximum thread lengths for each configuration.

## Screw Specifications

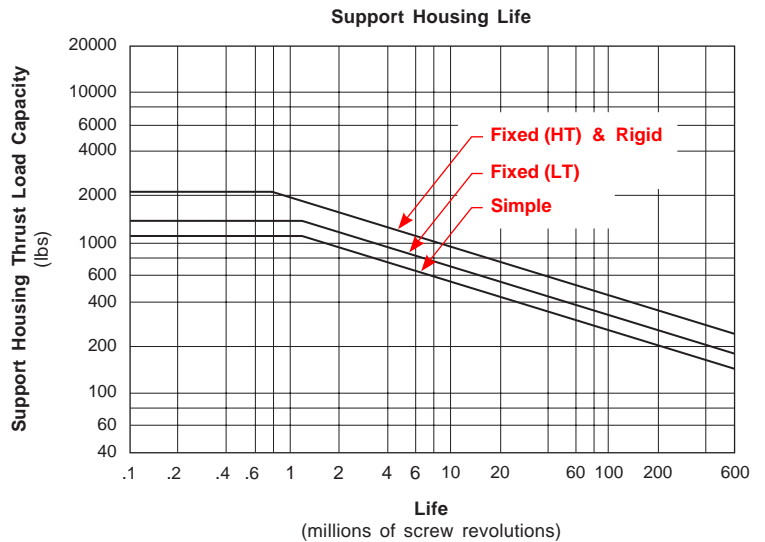
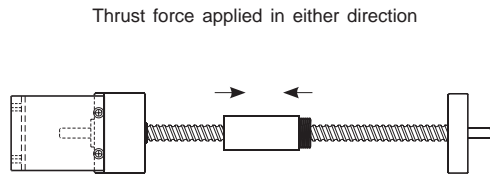
Model Number	Nut Type	Screw Efficiency %	Lead Error inch/ft (mm/300 mm)	Backlash inches (mm)	Unidirectional Repeatability inches (mm)	Bidirectional Repeatability inches (mm)
<b>RS050020</b> 0.500 inch dia. 0.200 inch lead & <b>RS050050</b> 0.500 inch dia. 0.500 inch lead	<i>Non-preloaded Ball (N1/N2)</i>	90	< 0.003 (0,075)	< 0.008 (0,203)	+/- 0.0002 (0,0050)	+ 0.0002 to - 0.0082 (0,0050) (0,2082)
	<i>Preloaded Ball (N3/N4)</i>					+ 0.0002 to - 0.0002 (0,0050) (0,0050)
	<i>Non-preloaded Turcite (N5/N6)</i>	60	< 0.003 (0,075)	< 0.008 (0,203)	+/- 0.0002 (0,0050)	+ 0.0002 to - 0.0082 (0,0050) (0,2082)
	<i>Preloaded Turcite (N7/N8)</i>					+ 0.0002 to - 0.0002 (0,0050) (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>RS050020</b> 0.500 inch dia. 0.200 inch lead	<i>Non-preloaded Ball (N1/N2)</i>	< 8 (0,06)	< 10 (0,07)	< 20 (0,14)	< 20 (0,14)	< 30 (0,21)
	<i>Preloaded Ball (N3/N4)</i>	< 15 (0,11)	< 20 (0,14)	< 30 (0,21)	< 30 (0,21)	< 40 (0,28)
	<i>Non-preloaded Turcite (N5/N6)</i>	< 10 (0,07)	< 15 (0,11)	< 30 (0,21)	< 30 (0,21)	< 40 (0,28)
	<i>Preloaded Turcite (N7/N8)</i>	< 25 (0,18)	< 30 (0,21)	< 45 (0,32)	< 45 (0,32)	< 55 (0,39)
<b>RS050050</b> 0.500 inch dia. 0.500 inch lead	<i>Non-preloaded Ball (N1/N2)</i>	< 10 (0,07)	< 15 (0,11)	< 25 (0,18)	< 25 (0,18)	< 35 (0,25)
	<i>Preloaded Ball (N3/N4)</i>	< 25 (0,18)	< 30 (0,21)	< 40 (0,28)	< 40 (0,28)	< 45 (0,32)
	<i>Non-preloaded Turcite (N5/N6)</i>	< 20 (0,14)	< 25 (0,18)	< 35 (0,25)	< 35 (0,25)	< 45 (0,32)
	<i>Preloaded Turcite (N7/N8)</i>	< 35 (0,25)	< 40 (0,28)	< 50 (0,35)	< 50 (0,35)	< 60 (0,42)

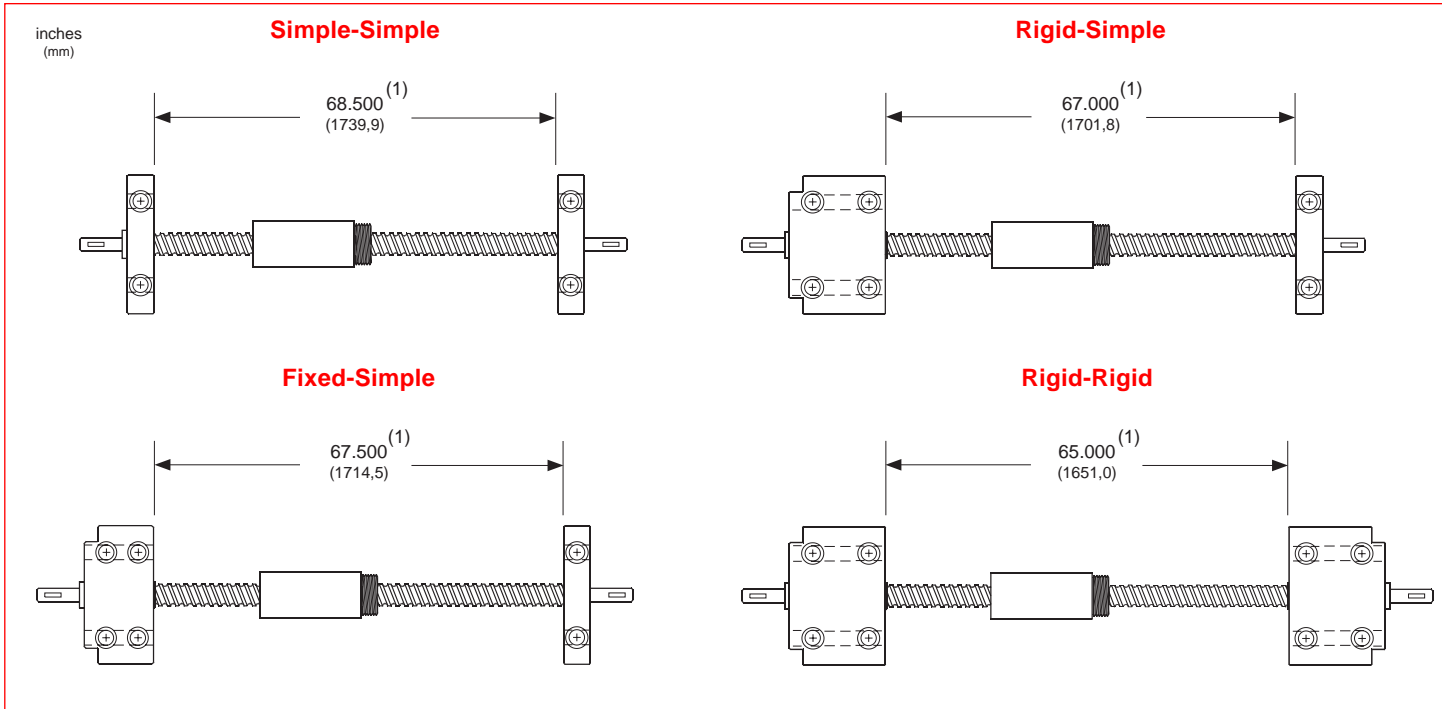
## Support Housing Specifications

Support Housing Life millions of screw revolutions	Support Housing Thrust Load Capacity - (Axial)			
	Simple	Fixed (LT)	Fixed (HT)	Rigid
<b>Static</b>	1,076 (488)	1,355 (615)	2,160 (980)	2,160 (980)
<b>1</b>	1,076 (488)	1,355 (615)	1,955 (887)	1,955 (887)
<b>2</b>	910 (413)	1,145 (519)	1,550 (703)	1,550 (703)
<b>10</b>	530 (240)	665 (302)	905 (410)	905 (410)
<b>50</b>	310 (141)	395 (179)	530 (240)	530 (240)
<b>100</b>	245 (111)	305 (138)	420 (190)	420 (190)
<b>500</b>	145 (66)	180 (82)	245 (111)	245 (111)

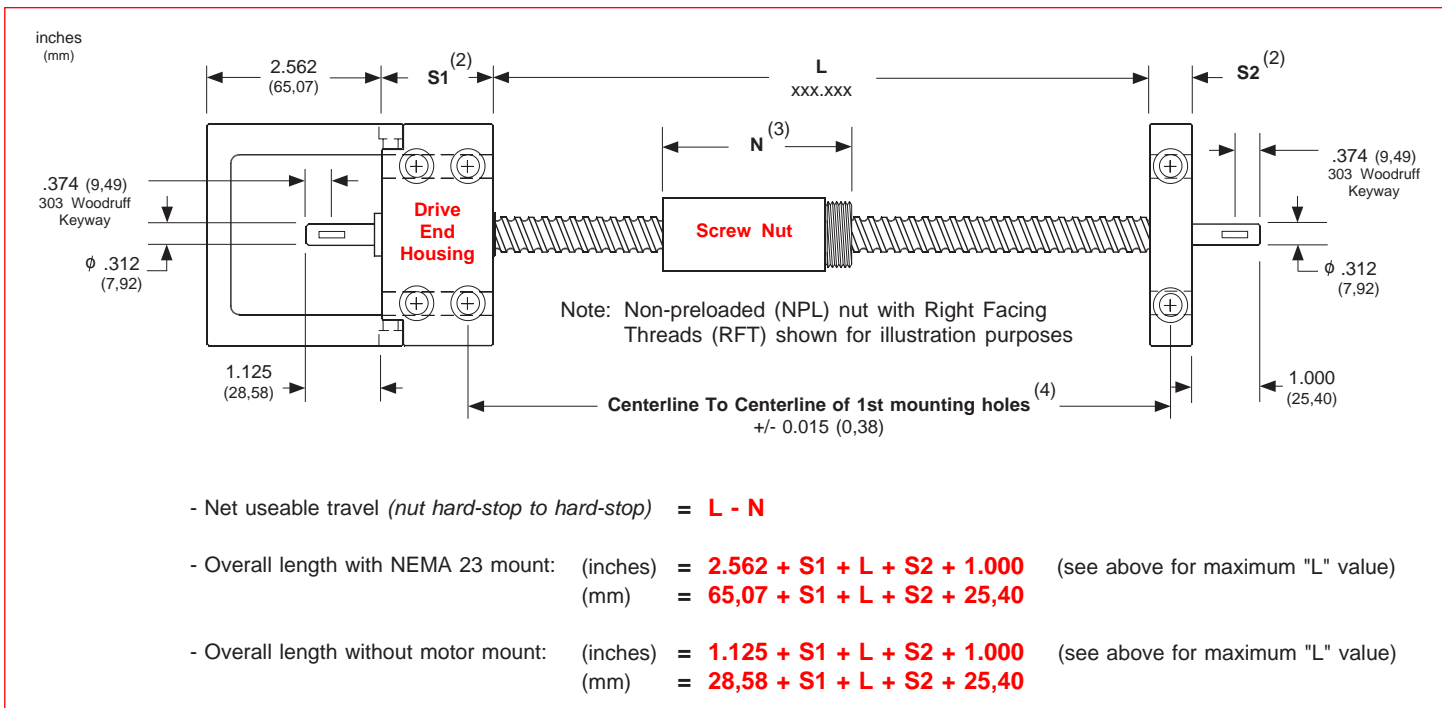


Note: Multiply screw revolutions by the screw lead in order to convert to inches (or mm) traveled by the nut.

## Available Configurations



## Overall Length Diagram

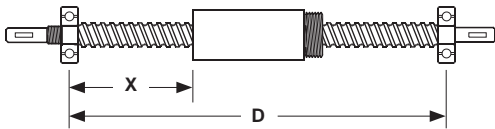


### Footnotes:

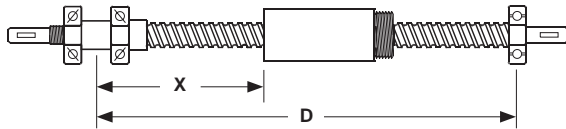
- (1) Maximum available standard screw thread length for the bearing support housing configuration shown.
- (2) Fixed-simple support configuration shown for reference. See page 29 for length values for simple, fixed, and rigid housings.
- (3) See page 28 for available nut styles. Refer to A1 & A2 values for the nut length. See page 96 for wiper kit lengths.
- (4) Tolerance shown is for base mounted support housings. Tolerance also applies to face mounted support housings.

## Performance Charts

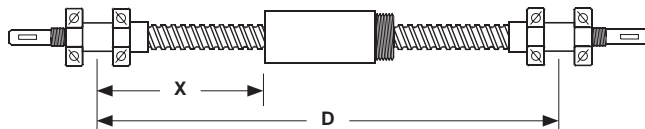
### Simple-Simple



### Rigid-Simple

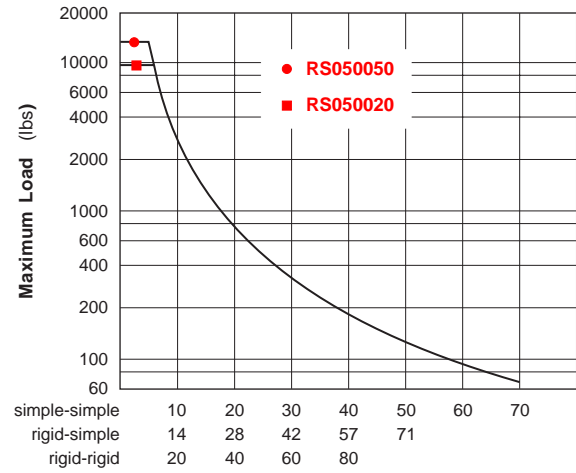


### Rigid-Rigid



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

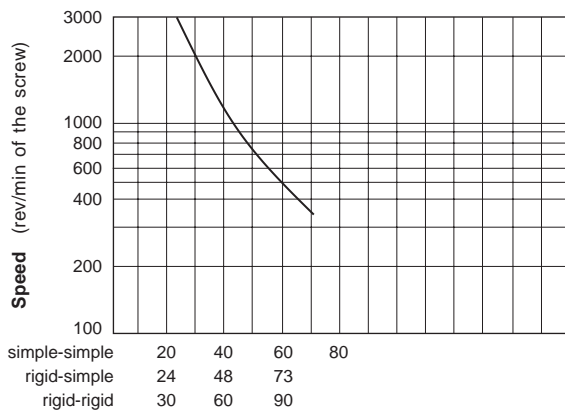
X inches (mm)	simple-simple		rigid-simple		rigid-rigid	
	lbs	(kgf)	lbs	(kgf)	lbs	(kgf)
20 (508)	756	(343)	1512	(686)	3024	(1372)
40 (1016)	189	(86)	378	(171)	756	(343)
60 (1524)	84	(38)	168	(76)	336	(152)



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

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

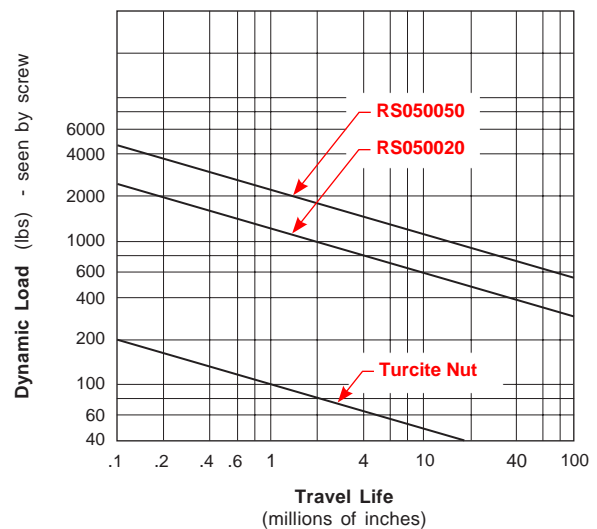
D inches (mm)	simple-simple	rigid-simple	rigid-rigid
	rpm	rpm	rpm
23 (584)	3000	3000	3000
40 (1016)	1075	1580	2395
60 (1524)	475	700	1060
70 (1778)	340	510	775



Maximum "D" distance between bearing supports (inches)

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

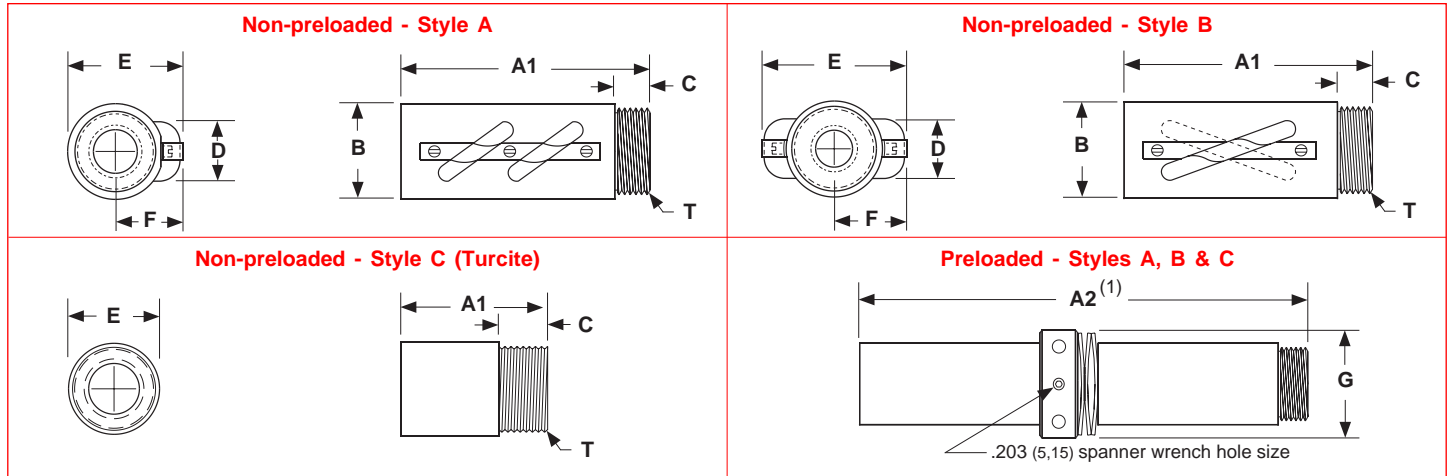
Life millions of inches (km)	050020		050050		Turcite Nut	
	lbs	(kgf)	lbs	(kgf)	lbs	(kgf)
1 (25)	1200	(544)	2200	(997)	100	(45)
2 (50)	970	(440)	1780	(807)	80	(36)
50 (1270)	350	(158)	640	(290)	29	(13)
100 (2540)	290	(131)	530	(240)	24	(11)



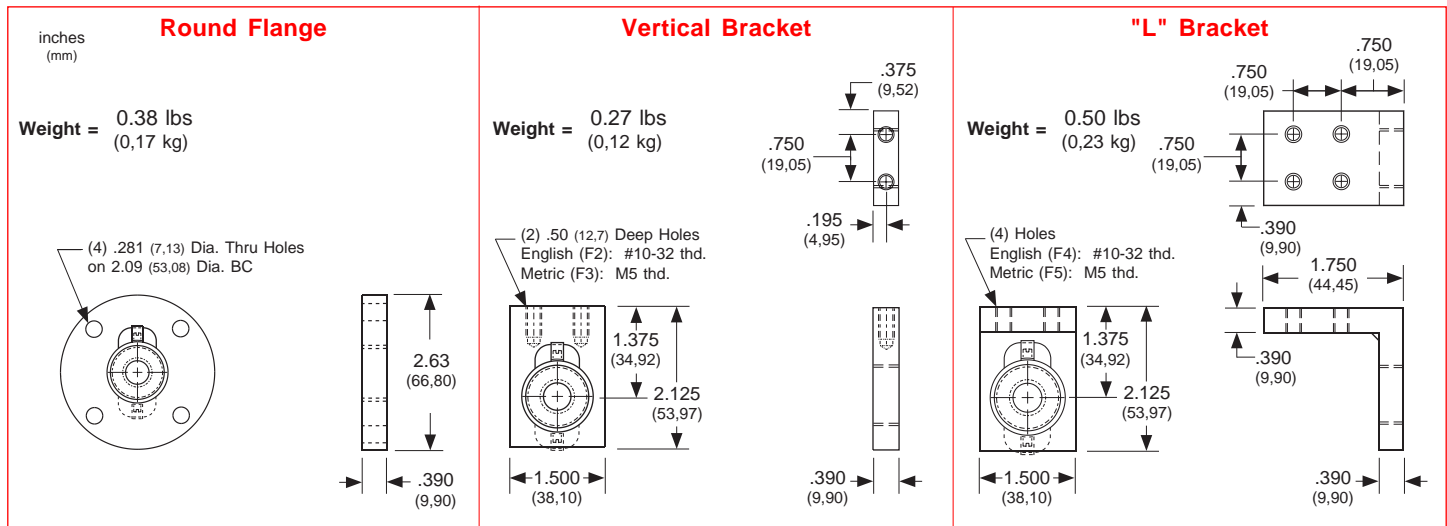
### Footnotes:

- (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									Nut Weight <sup>(3)</sup>
		inches (mm)									
		A1	A2 <sup>(1)</sup>	B	C	D	E	F	T - "V" Threads <sup>(2)</sup>	G	lbs (kg)
RS050020	A	2.760 (70,10)	6.050 (153,67)	1.067 (27,10)	0.390 (9,90)	0.665 (16,89)	1.339 (34,01)	0.850 (21,59)	15/16 - 16 UN-2A (23,81 - 16 UN-2A)	1.420 (36,07)	0.75 (0,34)
RS050050	B	2.760 (70,10)	6.050 (153,67)	1.070 (27,18)	0.390 (9,90)	0.667 (16,94)	1.630 (41,40)	0.860 (21,84)	15/16 - 16 UN-2A (23,81 - 16 UN-2A)	1.420 (36,07)	0.50 (0,22)
RS050020	C	1.020 (25,91)	2.550 (64,77)	n/a	0.390 (9,90)	n/a	1.000 (25,40)	n/a	15/16 - 16 UN-2A (23,81 - 16 UN-2A)	n/a	0.20 (0,09)
RS050050	C	1.020 (25,91)	2.550 (64,77)	n/a	0.390 (9,90)	n/a	1.000 (25,40)	n/a	15/16 - 16 UN-2A (23,81 - 16 UN-2A)	n/a	0.20 (0,09)

### 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>(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>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><b>Simple</b></p> <p>(2) .343 (8,71) Dia. Thru Holes, .504 (12,8) Dia. C' Bored x .57 (14,47) Deep</p> <p>.313 (7,95)</p> <p>.625 (15,87)</p> <p>.625 (15,87)</p> <p>.313 (7,95)</p> <p><b>Drive End</b>      <b>non-Drive End</b></p> <p><b>Weight = 1.1 lbs (0,50 kg)</b></p>
<p>.625 (15,87)</p> <p>2.000 (50,80)</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>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><b>Fixed</b></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>.750 (19,05)</p> <p>.375 (9,52)</p> <p>1.125 (28,57)</p> <p>.688 (17,47)</p> <p>.125 (3,17)</p> <p>1.625 (41,27)</p> <p><b>Weight = 2.6 lbs (1,18 kg)</b></p>
<p>.625 (15,87)</p> <p>2.000 (50,80)</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>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><b>Rigid</b></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>.750 (19,05)</p> <p>.375 (9,52)</p> <p>1.125 (28,57)</p> <p>.688 (17,47)</p> <p>.125 (3,17)</p> <p>2.250 (57,15)</p> <p><b>Weight = 3.8 lbs (1,72 kg)</b></p>
<p><b>NEMA 23 Motor Mount</b></p> <p><b>Weight = 0.9 lbs (0,41 kg)</b></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><b>Weight = 1.4 lbs (0,64 kg)</b></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>2.877 (73,07) Pilot Dia. TYP</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>