

## NTG Nut Series

Compact size, zero backlash, minimal drag torque. The adjustable NTG Series offers a cost effective anti-backlash assembly for applications requiring precise positional accuracy, repeatability, and smoothness. The NTG has been developed specifically for demanding applications that require zero backlash with minimal drag torque. With its compact size and no moving components, the NTG can also be easily incorporated into customer specified, custom molded parts.

An integral part of the NTG design is the ability to manually adjust the drag torque setting to match specific requirements of the application. This drag torque can also be set at the factory to meet individual customer specifications. This is especially effective with fine leads.

The standard NTG unit utilizes a self-lubricating polyacetal nut on a precision rolled 303 stainless steel screw. End machining to customer specifications and Kerkote® TFE screw coating are optional.

## NTG Mini Nut Series

The NTG Mini Series brings quality, precision and value to miniature lead-screw assemblies that require a small-scale anti-backlash function and control of drag torque.



NTG Series Nut Assembly



NTG Mini Series Nut Assembly

### Grease Compatibility

Coatings	Compatible
Kerkote® TFE Coating	YES
Black Ice® TFE Coating	YES
Grease	YES

### Anti-Backlash Life

Without Kerkote® TFE Coating inch / (cm)	With Kerkote® TFE Coating inch / (cm)
5 to 10 million (12 to 25 million)	15 to 40 million (38 to 100 million)

Anti-backlash life is defined as the nut's ability to compensate for wear while maintaining its zero backlash properties. Above life data is based on 25% of the dynamic load rating. Life will vary with loading, operating environment, and duty cycle. The longer screw leads generally provide longer life.

### Technical Data

Material	Polyacetal, Lubricant Additive
Tensile Strength	9,700 psi
Coefficient of Expansion	6.0 x 10 <sup>-5</sup> in/in/°F
Coefficient of Friction Polyacetal Nut to Screw	Static = .08 .08 ** Dynamic = .15 .09 **
Standard Operating Temperature Range	32 - 200° F* (0 - 93° C)*

\* Very high or low temperatures may cause significant changes in the nut fit or drag torque. Please call the HKP Engineering Team at 603 213 6290 for optional temperature range materials.

\*\* with Kerkote® TFE Coating.

### Identifying the NTG Series Nut Part Number Codes when Ordering

NTG	A	K	R	025	0050	XXXX
Prefix	Nut Mounting Style	Lubrication	Thread Direction	Diameter Code	Nominal Thread Lead Code	Unique Identifier
NTG	<b>A</b> = Flanged (Triangular) <b>T</b> = Threaded <b>X</b> = Custom Mini Series Only: <b>B</b> = Barrel <sup>m</sup> <b>R</b> = Rectangular <sup>m</sup>	<b>S</b> = Uncoated <b>K</b> = Kerkote® TFE Coating <b>N</b> = Nut only <b>B</b> = Black Ice® TFE Coating	<b>R</b> = Right hand <b>L</b> = Left hand (Not Available for Micro Series) (Refer to leadscrew charts for availability)	<b>012<sup>m</sup></b> = .125 in (3.2 mm) <b>013<sup>m</sup></b> = .133 in (3.3 mm) <b>014<sup>m</sup></b> = .141 in (3.6 mm) <b>016<sup>m</sup></b> = .156 in (4 mm) <b>018<sup>m</sup></b> = .188 in (5 mm) <b>021<sup>m</sup></b> = .219 in (5.6 mm) <b>025</b> = .250 in (6 mm) <b>031</b> = .313 in (8 mm) <b>037</b> = .375 in (10 mm) <sup>m</sup> NTG Mini Series	(Refer to LEAD CODE Specifications charts, pages 4 to 6)	Proprietary suffix assigned to a specific customer application. The identifier can apply to either a standard or custom part.

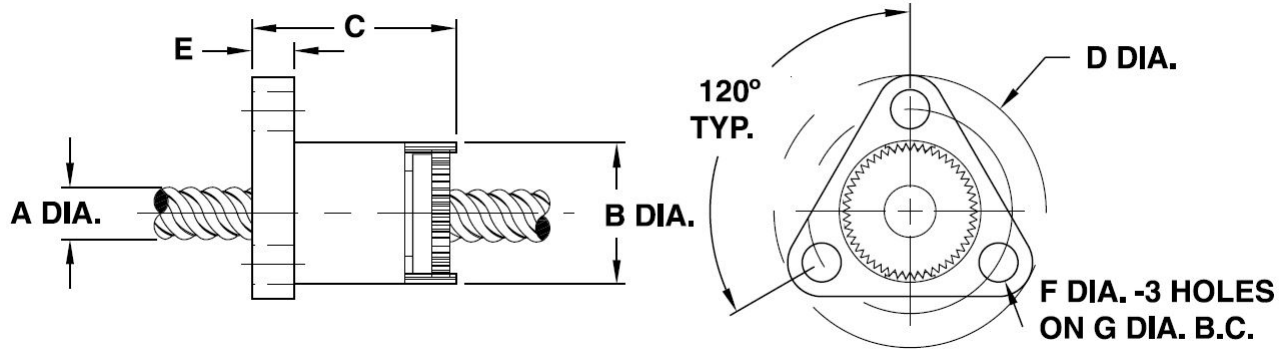
NOTE: Dashes must be included in Part Number (-) as shown above. For assistance call our Engineering Team at 603 213 6290.

■ Dimensional Drawings

NTG Flange Mount

NTGA Flange Mount	Screw Diam. A	Nut Diam. B	Nut Length C	Flange Diam. D	Flange Thickness E	Mounting Hole Diam. F	Bolt Circle Diam. G	Dynamic Load	Drag Torque
	inch (mm)	inch (mm)	inch (mm)	inch (mm)	inch (mm)	inch (mm)	inch (mm)	lbs (Kg)	oz-in (N-m)
	1/4 (6)	.52 (13.2)	.8 (20.3)	1.00 (25.4)	.16 (4.0)	.143 (3.63)	.750 (19.1)	10 (4.5)	.5-2 (.004-.014)
	5/16 (8)	.80 (20.3)	1.0 (25.4)	1.50 (38.1)	.20 (5.1)	.197 (5.00)	1.125 (28.6)	20 (9.1)	1-3 (.007-.02)
	3/8 (10)	.80 (20.3)	1.0 (25.4)	1.50 (38.1)	.20 (5.1)	.197 (5.00)	1.125 (28.6)	20 (9.1)	1-3 (.007-.02)

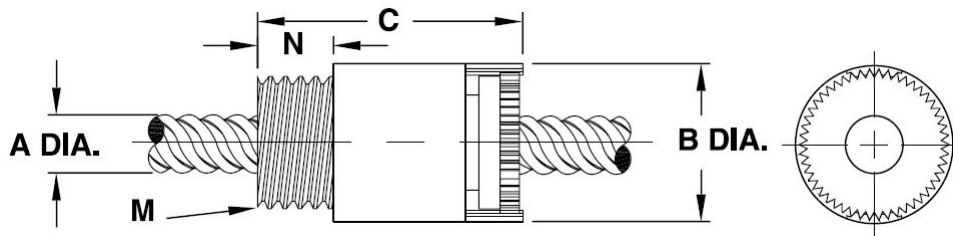
Metric numbers are for reference only.



NTG Thread Mount

NTGT Thread Mount	Screw Diam. A	Nut Diam. B	Nut Length C	Thread M*	Thread Length N	Dynamic Load**	Drag Torque
	inch (mm)	inch (mm)	inch (mm)	inch	inch (mm)	lbs (Kg)	oz-in (N-m)
	1/4 (6)	.520 (13.2)	.9 (22)	7/16 - 20	.250 (6.35)	10 (4.5)	.5-2 (.004-.014)
	5/16 (8)	.800 (20.3)	1.2 (30)	3/4 - 20	.375 (9.53)	20 (9.1)	1-3 (.007-.02)
	3/8 (10)	.800 (20.3)	1.2 (30)	3/4 - 20	.375 (9.53)	20 (9.1)	1-3 (.007-.02)

Metric numbers are for reference only.

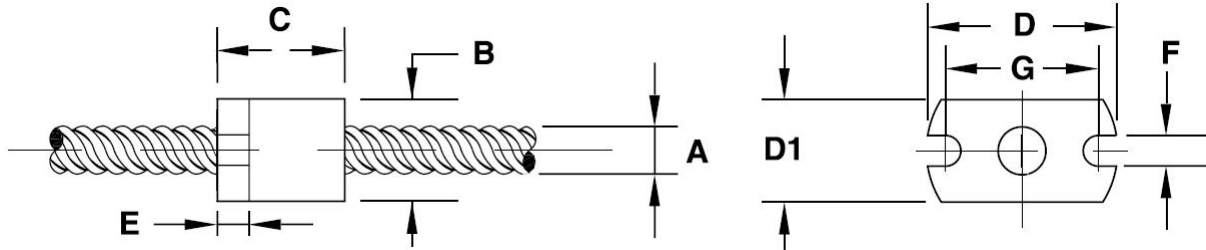


Dimensional Tolerances			
Inches		Metric (mm)	
.X	± .02	< L 4	± 0.1
.XX	± .010	4 < L ≤ 16	± 0.15
.XXX	± .005	16 < L ≤ 63	± 0.2
		63 < L ≤ 250	± 0.3

NTGR Mini Flange Mount

NTGR Mini Flange Mount	Screw Diam. A inch (mm)	Nut Diam. B inch (mm)	Nut Length C inch (mm)	Flang Height D1 inch (mm)	Flange Diam. D inch (mm)	Flange Thickness E inch (mm)	Mounting Hole Diam. F inch (mm)	Bolt Circle Diam. G inch (mm)	Dynamic Load lbs (Kg)	Drag Torque oz-in (N-m)
	1/8 inch through 7/32 inch (3 mm through 5.6 mm)	0.40 (10.2)	0.50 (13)	0.40 (10.2)	0.75 (19.1)	0.13 (3.2)	0.120 (3.05)	0.600 (15.24)	5 (2.3)	0.5 (.004)

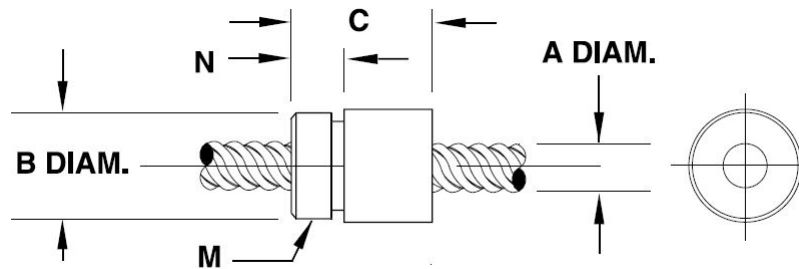
Metric numbers are for reference only.



NTGT Mini Thread Mount

NTGT Tread Mount	Screw Diam. A inch (mm)	Nut Diam. B inch (mm)	Nut Length C inch (mm)	Thread M* inch	Thread Length N inch (mm)	Dynamic Load** lbs (Kg)	Drag Torque oz-in (N-m)
	1/8 inch through 7/32 inch (3 mm through 5.6 mm)	0.40 (10.2)	0.50 (13)	3/8-24	0.160 (4.06)	5 (2.3)	0.5 (.004)

Metric numbers are for reference only.



## NTG Nut Series - Compact Adjustable Anti-Backlash

### ■ Lead Screw Compatibility: NTG Series

Diameter		Diameter Code	Lead		LEAD CODE	Left Hand Available	Outside Diameter (for reference)		Root Diameter (for reference)		Efficiency %*
inches	mm		inches	mm			inches	mm	inches	mm	
1/8	3.2	012	0.024	0.61	0024		0.129	3.28	0.093	2.36	44
			0.039	1.00	0039		0.129	3.28	0.094	2.39	57
			0.048	1.22	0048		0.129	3.28	0.093	2.36	61
			0.075	1.91	0075		0.129	3.28	0.093	2.36	70
			0.096	2.44	0096	•	0.129	3.28	0.093	2.36	75
			0.125	3.18	0125	LH Only	0.125	3.18	0.078	1.98	80
.132	3.3	013	0.020	0.50	0020		0.132	3.35	0.104	2.64	42
			0.039	1.00	0039		0.132	3.35	0.080	2.03	61
			0.079	2.00	0079		0.132	3.35	0.080	2.03	75
			0.157	4.00	0157		0.132	3.35	0.080	2.03	84
			0.315	8.00	0315		0.132	3.35	0.080	2.03	87
9/64	3.6	014	0.012	0.30	0012		0.140	3.56	0.123	3.12	26
			0.024	0.61	0024		0.140	3.56	0.105	2.67	43
			0.048	1.22	0048		0.140	3.56	0.081	2.06	62
			0.096	2.44	0096		0.140	3.56	0.081	2.06	75
			0.394	10.00	0394		0.140	3.56	0.102	2.59	86
5/32	4	016	0.033	0.84	0033	•	0.156	3.96	0.116	2.95	45
			0.050	1.27	0050	LH Only	0.156	3.96	0.096	2.44	59
			0.094	2.39	0094		0.164	4.17	0.128	3.25	67
			0.125	3.18	0125		0.168	4.27	0.130	3.30	74
			0.250	6.35	0250		0.156	3.96	0.130	3.30	83
			0.375	9.53	0375		0.156	3.96	0.130	3.30	85
3/16	4.75	018	0.020	0.50	0020		0.188	4.78	0.163	4.14	30
			0.025	0.64	0025		0.188	4.78	0.150	3.81	39
			0.039	1.00	0039		0.188	4.78	0.144	3.66	47
			0.050	1.27	0050		0.188	4.78	0.124	3.15	58
			0.100	2.54	0100		0.188	4.78	0.136	3.45	69
			0.1875	4.76	0188		0.188	4.78	0.167	4.24	78
			0.200	5.08	0200		0.188	4.78	0.124	3.15	82
			0.375	9.53	0375		0.188	4.78	0.161	4.09	84
			0.400	10.16	0400		0.188	4.78	0.124	3.15	84
			0.427	10.85	0427		0.188	4.78	0.162	4.11	85
7/32	5.6	021	0.024	0.61	0024		0.218	5.54	0.181	4.60	31
			0.03125	0.79	0031		0.204	5.18	0.160	4.06	39
			0.048	1.22	0048		0.216	5.49	0.156	3.96	50
			0.050	1.27	0050		0.200	5.08	0.135	3.43	52
			0.0625	1.59	0063		0.218	5.54	0.142	3.61	60
			0.096	2.44	0096	•	0.218	5.54	0.156	3.96	66
			0.192	4.88	0192		0.218	5.54	0.156	3.96	78
			0.250	6.35	0250		0.204	5.18	0.140	3.56	81
			0.384	9.75	0384		0.218	5.54	0.159	4.04	86

Shaded areas have been translated from their designed inch or mm dimension to an equivalent mm or inch dimension.

\* Listed efficiencies are theoretical values based on Kerkote® TFE coated lead-screw

\*\* Listed efficiencies for Micro screws are theoretical values based on non-coated lead-screws

■ Lead Screw Compatibility: NTG Series

Diameter		Diameter Code	Lead		LEAD CODE	Left Hand Available	Outside Diameter (for reference)		Root Diameter (for reference)		Efficiency %*
inches	mm		inches	mm			inches	mm	inches	mm	
1/4	6	025	0.024	0.61	0024		0.250	6.35	0.218	5.54	28
			0.025	0.64	0025		0.250	6.35	0.214	5.44	30
			0.03125	0.79	0031		0.250	6.35	0.208	5.28	34
			0.039	1.00	0039		0.250	6.35	0.190	4.83	40
			0.048	1.22	0048		0.250	6.35	0.190	4.83	45
			0.050	1.27	0050	•	0.250	6.35	0.191	4.85	46
			0.059	1.50	0059		0.250	6.35	0.172	4.37	52
			0.0625	1.59	0063		0.250	6.35	0.170	4.32	52
			0.079	2.00	0079		0.250	6.35	0.170	4.32	59
			0.096	2.44	0096		0.250	6.35	0.190	4.83	61
			0.100	2.54	0100		0.250	6.35	0.190	4.83	62
			0.118	3.00	0118		0.250	6.35	0.175	4.45	68
			0.125	3.18	0125		0.250	6.35	0.190	4.83	67
			0.197	5.00	0197		0.250	6.35	0.172	4.37	72
			0.200	5.08	0200		0.250	6.35	0.170	4.32	65
			0.250	6.35	0250	•	0.250	6.35	0.168	4.27	79
			0.3125	7.94	0313		0.250	6.35	0.184	4.67	81
			0.333	8.46	0333		0.250	6.35	0.170	4.32	82
			0.394	10.00	0394		0.250	6.35	0.170	4.32	78
			0.400	10.16	0400		0.250	6.35	0.170	4.32	84
0.500	12.70	0500	•	0.250	6.35	0.169	4.29	85			
0.750	19.05	0750		0.250	6.35	0.170	4.32	86			
1.000	25.40	1000	•	0.250	6.35	0.170	4.32	84			
5/16	8	031	0.039	1.00	0039		0.315	8.00	0.261	6.63	34
			0.057	1.44	0057		0.315	8.00	0.243	6.17	43
			0.0741	1.88	0074		0.312	7.92	0.211	5.36	51
			0.111	2.82	0111		0.312	7.92	0.232	5.89	60
			0.167	4.24	0167		0.312	7.92	0.211	5.36	69
			0.250	6.35	0250		0.312	7.92	0.234	5.94	76
			0.500	12.70	0500		0.312	7.92	0.232	5.89	83
			0.800	20.32	0800		0.306	7.77	0.243	6.17	86

Shaded areas have been translated from their designed inch or mm dimension to an equivalent mm or inch dimension.

\* Listed efficiencies are theoretical values based on Kerkote® TFE coated lead-screw

\*\* Listed efficiencies for Micro screws are theoretical values based on non-coated lead-screws

## NTG Nut Series - Compact Adjustable Anti-Backlash

### Lead Screw Compatibility: NTG Series

Diameter		Diameter Code	Lead		LEAD CODE	Left Hand Available	Outside Diameter (for reference)		Root Diameter (for reference)		Efficiency %*
inches	mm		inches	mm			inches	mm	inches	mm	
3/8	10	037	0.025	0.64	0025		0.375	9.53	0.337	8.56	21
			0.039	1.00	0039		0.394	10.01	0.350	8.89	28
			0.04167	1.06	0042		0.375	9.53	0.320	8.13	34
			0.050	1.27	0050	•	0.375	9.53	0.301	7.65	36
			0.055	1.40	0055		0.375	9.53	0.303	7.70	38
			0.059	1.50	0059	•	0.389	9.88	0.313	7.95	38
			0.0625	1.59	0063	•	0.388	9.86	0.295	7.49	41
			0.068	1.73	0068		0.388	9.86	0.295	7.49	42
			0.079	2.00	0079		0.375	9.53	0.264	6.71	47
			0.0833	2.12	0083		0.375	9.53	0.293	7.44	48
			0.100	2.54	0100	•	0.375	9.53	0.266	6.76	53
			0.125	3.18	0125	•	0.375	9.53	0.295	7.49	59
			0.157	4.00	0157		0.375	9.53	0.274	6.96	65
			0.1667	4.23	0167		0.371	9.42	0.261	6.63	61
			0.197	5.00	0197		0.375	9.53	0.266	6.76	69
			0.200	5.08	0200	•	0.375	9.53	0.266	6.76	69
			0.250	6.35	0250		0.375	9.53	0.268	6.81	70
			0.300	7.62	0300		0.375	9.53	0.255	6.48	76
			0.333	8.46	0333		0.375	9.53	0.245	6.22	78
			0.363	9.22	0363	•	0.375	9.53	0.260	6.60	79
			0.375	9.53	0375		0.375	9.53	0.265	6.73	79
			0.394	10.00	0394		0.375	9.53	0.260	6.60	79
			0.400	10.16	0400		0.375	9.53	0.293	7.44	79
			0.472	12.00	0472		0.388	9.86	0.287	7.29	82
			0.500	12.70	0500	•	0.388	9.86	0.265	6.73	81
			0.667	16.94	0667		0.375	9.53	0.273	6.93	83
			0.667	19.05	0750		0.388	9.86	0.273	6.93	84
			0.984	25.00	0984		0.375	9.53	0.262	6.65	84
1.000	25.40	1000		0.383	9.73	0.254	6.45	84			
1.200	30.48	1200	•	0.383	9.73	0.254	6.45	84			
1.250	31.75	1250		0.375	9.53	0.278	7.06	84			
1.500	38.10	1500		0.375	9.53	0.264	6.71	83			

Shaded areas have been translated from their designed inch or mm dimension to an equivalent mm or inch dimension.

\* Listed efficiencies are theoretical values based on Kerkote® TFE coated lead-screw

\*\* Listed efficiencies for Micro screws are theoretical values based on non-coated lead-screws

■ Material & Teflon TFE Coating Options

Materials		Teflon TFE Coatings	
<b>Kerkite® Composite Polymer Nuts</b>	<p>In addition to the Kerk® self-lubricating acetal nut material, we offer a variety of custom compounded Kerkite composite polymers. Kerkite polymers are a family of high performance materials that offer exceptional wear properties with the cost and design advantages afforded through injection molding. Kerkite polymers offer a variety of mechanical, thermal and electrical properties and are compatible with many chemicals and environmental conditions. Each member of the Kerkite family is compounded with lubricants, reinforcements and thermoplastic polymers formulated to provide optimum performance in its target conditions and applications.</p>	<b>Kerkote® TFE Coating</b>	<p>Soft coating that is a long-term, maintenance-free, dry lubricant, optimized for softer plastics like acetals and nylons, with or without mechanical reinforcement. Lubrication to the nut/screw interface occurs by the nut picking up Kerkote® TFE particles from the coating as well as from the migration of the internal lubricant within the plastic nut. The transfer of TFE to the nut continues throughout the operating life of the assembly as long as the nut periodically travels over areas with Kerkote® TFE coating. The lubricant, although solid, also has some “spreading” ability as in fluid lubricants. Kerkote® TFE coated screws provide the maximum level of self-lubrication and should not be additionally lubricated or used in environments where oils or other lubricant contamination is possible.</p>
<b>Special Materials</b>	<p>Kerk® has rolled screws in many materials, including 316 stainless, 400 series stainless, precipitate hardening materials, carbon steel, aluminum, and titanium. Kerk® nuts have been produced in many alternative plastics including PEEK, polyester, Torlon®, Vespel®, PVDF, UHMW, Ertalyte®, customer-supplied specialty materials, and metal nuts made from bronze, brass, and stainless steel. If the material can be molded, machined, ground, or rolled, we can likely process it.</p>	<b>Black Ice® TFE Coating</b>	<p>Hard coating that is long term, maintenance-free and is exceptionally durable in all types of environments, with virtually any type of polymer nut. Black Ice® TFE coating remains on the screw, offering a low friction surface upon which the nut travels. Rather than acting as a dry lubricant, Black Ice® TFE is an anti-friction coating whose surface properties displace the metal to which it is applied. Though it is not intended for use with metal or glass fiber reinforced nuts, Black Ice® TFE is bonded securely to the screw’s surface and can withstand abrasion from contamination, rigid polymer systems, fluid impingement and wash down applications. Black Ice® TFE can be used in more aggressive environment conditions, or anywhere reduced friction and a permanent coating is desired. Not intended to be used with additional lubricants.</p>

**Note:** There are certain applications where external lubrication may be desired. These include the use of nut materials such as glass reinforced plastic or metal. Greases, when used properly can provide unique capabilities and Haydon Kerk Motion Solutions does offer a selection of greases developed specifically for these applications. Please contact a sales engineer for assistance selecting the best lubricant for your requirements.