kerk

Motion Products, Inc.

LEAD SCREW ASSEMBLIES
SLIDES & ACTUATORS
SPLINES & LINEAR GUIDES

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KERK MOTION PRODUCTS ORDERING CATALOG

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Note: This catalog is current as of February, 2005. Please check www.kerkmotion.com for the latest updates.

OVERVIEW

Company Overview

KERK MOTION PRODUCTS, INC.

Kerk was established in 1976 and has grown to be one of the world's largest exclusive manufacturers of non-ball lead screws.

Our internationally patented, anti-backlash designs and materials provide high accuracy, unsurpassed repeatability, and long life in a full range of motion control applications.

We design, engineer, and produce all products in our own facilities. Since 1976 we have developed, patented, and improved upon our motion control products.

Our production facilities include our own injection molding and moldmaking, CNC machine tools, and a quality control department utilizing real-time SPC. We can produce the highest quality products to your specifications or to our standard designs.

A highly experienced design and applications staff can aid you in selecting appropriate Kerk products. Sales assistance is available from local representatives, international sales offices and from our home office.

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Motion Products, Inc.

Kerk ScrewRail® linear actuators and anti-backlash lead screw assemblies

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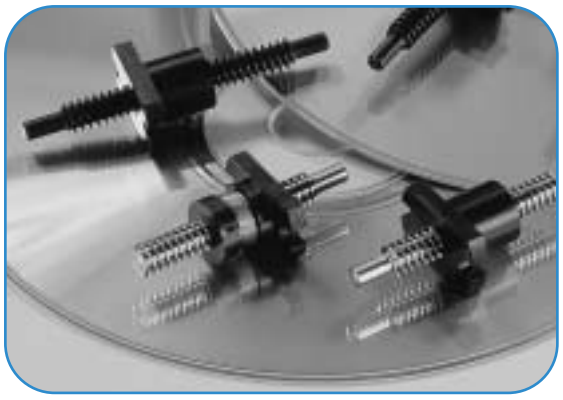
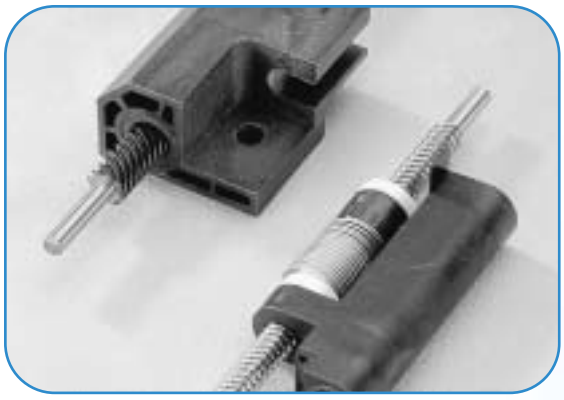
A small sampling of Kerk's vast array of linear motion control products



Mini Series lead screw assemblies



Custom lead screw assemblies

Product Overview

PRODUCTS

Kerk's products have been designed specifically for motion control applications. They are not compromised adaptations of general purpose screws or nuts. The screw thread form is designed for maximum life, quiet operation, and compatibility with Kerk's anti-backlash nut designs.

KERK LEAD SCREWS are available in standard diameters from 1/8" (3.2mm) to 15/16" (23mm), with standard leads from .012" to almost 4" (0.30mm to 92mm) including hard metric and left hand threads. Custom sizes and leads can be special ordered. Most stock screws are manufactured from 303 stainless steel and are produced with Kerk's exclusive precision rolling process. Other materials are available on special order.

Positional bi-directional repeatability (with Kerk anti-backlash nut) is within 50 micro-inches (1.25 micron) and standard lead accuracy is better than 0.0006 in./in. (mm/mm). Lead accuracies are available to .0001 in./in. (mm/mm) with individual screw mapping optional (laser-interferometer verification). Kerk's total in-house manufacturing and quality control assure uniform and consistent products.

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KERK NUTS are available in 6 standard anti-backlash designs (ZBX, ZBA, KHD, NTB, VHD and NTG), general purpose "B" Series plus the Mini Series. (See Product Comparison Chart for size availability). Custom nut configurations and mountings are also readily available. Kerk's internationally patented anti-backlash designs provide assemblies which are wear compensating with low frictional drag and exceptional positional repeatability. Operation to more than 300 million inches of travel can be achieved. Kerk provides nuts in a wide range of wear resistant, self-lubricating thermoplastic materials.

KERK RGS™ – RAPID GUIDE SCREW – LINEAR SLIDES are innovative screw-driven slides that offers exceptional linear speed, accurate positioning, and long life in a compact, value-priced assembly. The Kerk RGS is not limited by critical screw speed and delivers high RPM and linear speeds, even over long spans. The RGS design is also available as a non-driven linear guide and with extra carriages.

KERK SCREWRAIL® LINEAR ACTUATORS are a unique patented technology for linear motion, combining both drive and support/guidance functions into a single, compact, coaxial component. The ScrewRail Actuator's unique design eliminates the need for any external rail-to-screw alignment, producing substantial savings on space as well as cost over typical two-rail systems. The Kerk ScrewRail Actuator also delivers three-dimensional motion from a single unit, allowing it to simultaneously lift and rotate when mounted vertically. And like all Kerk products, it delivers high performance and long life at a very reasonable cost.

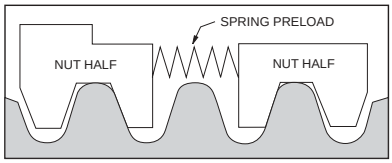
KERK SPLINE SHAFTS, available in aluminum or steel, treated with Kerkote TFE coating, are designed for light and moderate load applications. Kerk Spline Shafts are the perfect choice where low cost, low friction and long life are primary considerations.

KERK LINEAR RAILS are designed to provide low cost, low friction, long life support and guidance for a variety of motion control devices. Available in burnished or Kerkote TFE coated stainless steel, Kerk linear rails are perfectly suited for many applications.

KERK'S PROPRIETARY KERKOTE TFE COATING for screws, rails, splines, RGS Rapid Guide Screws and ScrewRail Actuators is a special formulation that will increase lubricity and will typically extend the normal nut and bushing life by more than 300%. Applied at Kerk's facilities, Kerkote® TFE coating eliminates the need for external lubrication.

Anti-Backlash Technology

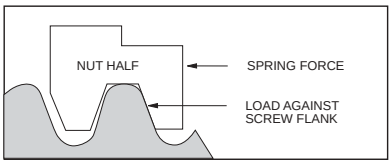
AXIAL TAKE-UP MECHANISM



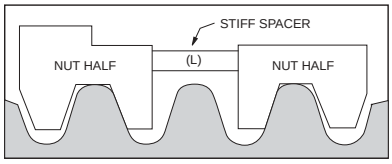
The standard method for taking up backlash is to bias two nut halves axially using some type of compliant spring. (Wavy washer, compression spring, rubber washer, etc.)

The unit is very stiff in the direction in which the nut half is loaded against the flank of the screw thread. However, in the direction away from the screw thread, the nut is only as axially stiff as the amount of preload which the spring exerts.

For example, if the maximum axial load to which the system is subjected is 50 lbs., the amount of spring preload must be equal to, or greater than, 50 lbs. in order to maintain intimate screw/nut contact. The problems arising from preloading in this manner are increased torque and nut wear.



Obviously, the higher the load at the screw/nut interface, the higher the required torque to drive the nut on the screw and the more susceptible the unit is to nut wear.

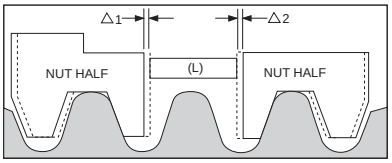


An alternate method replaces the spring with a stiff spacer sized to fit exactly between the two nut halves.

There is no excessive preload force at the interface and the unit is capable of carrying high axial loads in either direction with no backlash.

This is fine initially. However, as use time increases, wear begins on the nut threads causing a gap to develop between the spacer (L) and the nut halves.

This gap ($\Delta 1 + \Delta 2$) is now the amount of backlash which has developed in the unit. This backlash can be removed by replacing the stiff spacer with a new spacer equal to ($L + \Delta 1 + \Delta 2$). This process, although effective, would be extremely costly and difficult to implement on a continuous basis.



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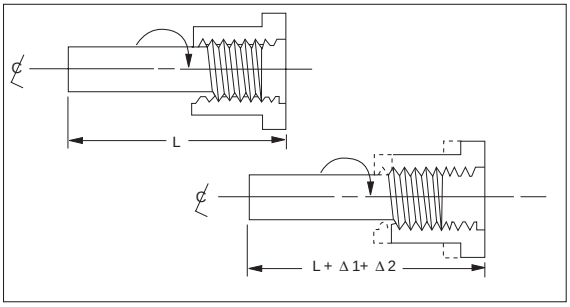
Anti-Backlash Technology (continued)

THE KERK SOLUTION

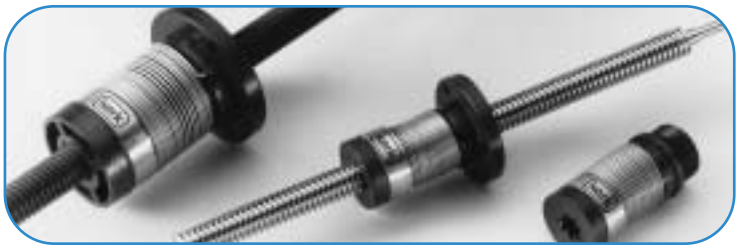
What is needed, then, is a stiff spacer which will continually expand to accommodate the wear which occurs during use.

This is done by creating a spacer threaded at one end with a complimentary nut torsionally biased to advance when a gap develops.

The thread at the end of the spacer is a fine helix such that an axial load will not backdrive the nut once spacer growth has occurred.



The preload on the unit is only the amount necessary to turn the spacer nut on the spacer rod and is independent of the external system loadings. We thus have a self-wear compensating unit which has extremely low frictional drag torque yet high axial stiffness.



Kerkote® TFE Coating

LUBRICATION

The purpose of Kerkote TFE coating is to supply a more even distribution of lubricant than is normally found when using standard self-lubricating plastics on steel. The wear life, coefficient of friction and resulting torque to drive a lead screw assembly are highly governed by the ability of the engineered plastic to supply sufficient lubrication to the nut/screw interface. The inability of the internal lubricating agents in some plastics to consistently migrate to the surface may result in erratic drag torques and unpredictable wear.

Kerkote TFE coating the entire screw surface results in an extremely even lubrication distribution. Test results indicate system torque requirements to be consistently low with little or no change in required frictional driving torque, even with changes in motor R.P.M.

Kerk has developed a custom composition Kerkote TFE specifically for our lead screw and nut materials. It is applied in Kerk's facilities using an automated process. The uniform coating provides extended nut life and smooth operation with little additional cost.

HANDLING

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. Although care is taken to ensure that chips and voids do not occur in the coating, small voids have been shown to have no effect on system performance. The lubricant, although solid, has some "spreading" ability as in fluid lubricants. When machining for bearing ends, soft fixturing is recommended.

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.

Materials

KERKITE® COMPOSITE POLYMERS

In addition to Kerk's standard self-lubricating acetal nut material, Kerk Motion Products offers 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.

Kerkite Composite Polymers are available options for most Kerk Lead Screw Nuts and are standard materials for Linear Rail and Spline Shaft Bushings, RGS™ Carriages and ScrewRail® Bushings and End Supports. 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. Kerk's testing has confirmed that these materials offer superior performance and extended life.

A cornerstone of the Kerk advantage is design flexibility. Kerkite Composite Polymers, along with Kerk's injection molding and mold making capabilities, offer huge design advantages and cost savings compared with non-moldable materials. Kerkite high performance polymers outperform other plastics and outlast metal bushings and bearings. When combined with Kerkote® TFE coating, Kerkite Composite Polymers have been shown to provide hundreds of millions of inches of travel while continuing to maintain precise, accurate motion and positioning.

Materials (continued)

303 STAINLESS STEEL

Kerk Motion Products starts with premium grade 303 stainless steel for our lead screws and linear rails. Kerk has identified the material properties most critical for producing the highest quality rolled lead screws in the world and controls these to levels unmatched in the industry. And because of Kerk's leadership position, we are able to utilize this exceptional quality steel without having to charge premium prices.

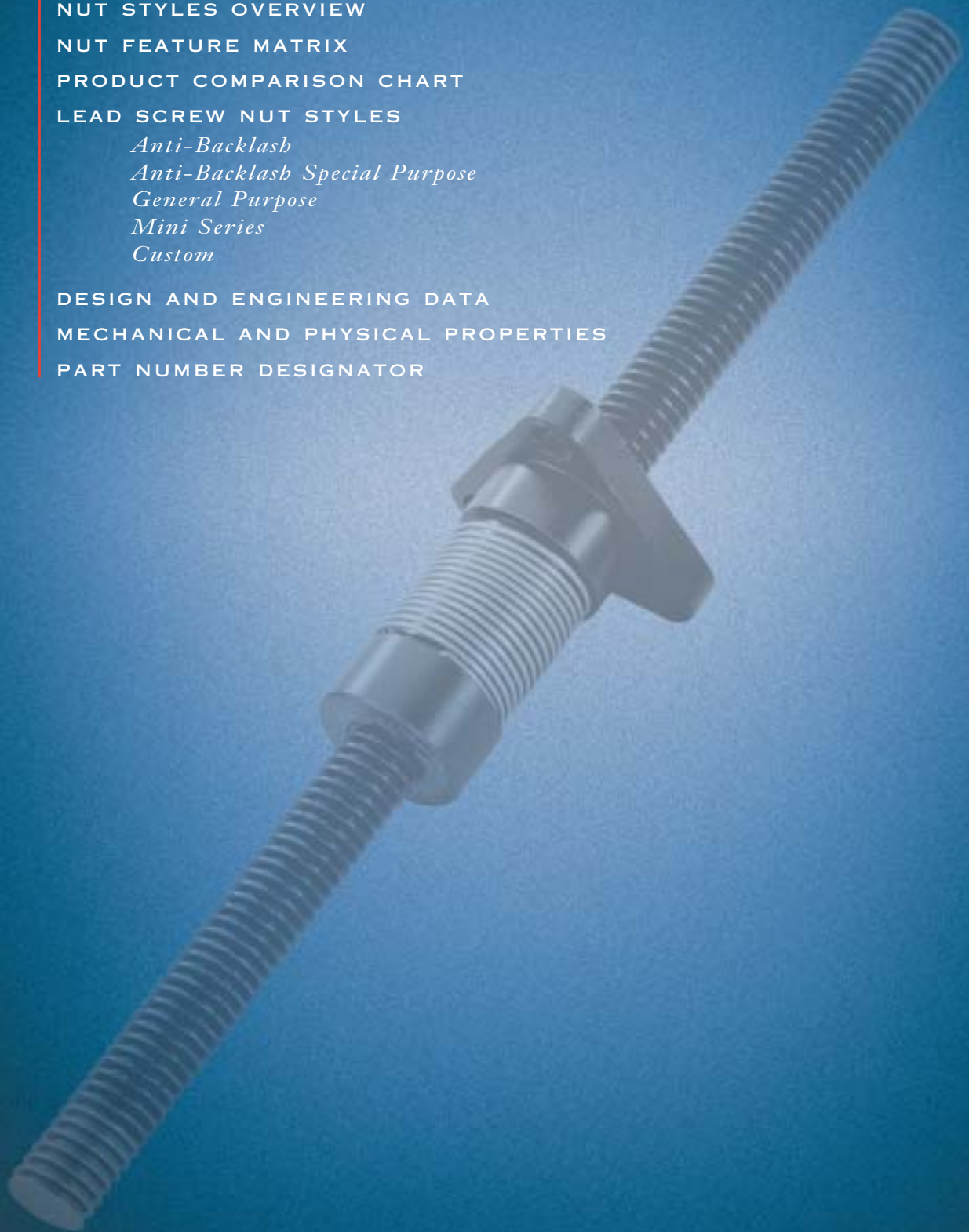
Customers have found that Kerk lead screws have the highest thread uniformity available. Kerk stainless steel lead screws and guide rails are corrosion resistant, non-magnetic and compatible with many demanding processes. The ideal starting point for a maintenance-free product, this premium quality stainless steel is being used in numerous applications including medical applications, clean rooms, food and human contact, salt spray, cryogenics and vacuum.

SPECIAL MATERIALS

In addition to Kerk's standard material; 303 stainless steel, self-lubricating acetal and Kerkite high performance composite polymers, we often work with a vast array of custom materials. Kerk has rolled screws in many other materials, including 316 stainless, 400 series stainless, precipitate hardening steels, carbon steel, aluminum and titanium. Kerk nuts have been produced in many alternative plastics including PEEK, polyester, Torlon®, Vespel®, PVDF, UHMW, Ertalyte® and customer-supplied specialty materials. We have also provided metal nuts made from bronze, brass and stainless steel.

With so much flexibility in our manufacturing process, if the material can be molded, machined, ground or rolled, Kerk can likely process it using state of the art machine tools, injection molding and mold making, grinding and thread rolling equipment. Kerk excels at supplying the best overall solution to meet our customers' requirements. Contact Kerk to find out how you can benefit from these choices.

LEAD SCREW ASSEMBLIES



Product Overview

LEAD SCREW ASSEMBLIES

Kerk's Lead Screw Assemblies are available in a broad range of screw sizes and nut styles, custom designed for your application. They are wear-compensating, maintenance-free and require no lubrication. Providing maximum accuracy, high repeatability, smooth, quiet operation and low cost, Kerk Lead Screw Assemblies are your best choice for high performance linear motion control.

Kerk Lead Screw Assemblies

LEAD SCREWS

KERK LEAD SCREWS are available in standard diameters from 1/8" (3.2mm) to 15/16" (23mm), with standard leads from .012" to almost 4" (0.30mm to 92mm) including metric and left hand threads. Custom sizes and leads can be special ordered. Most stock screws are manufactured from 303 stainless steel and are produced with Kerk's exclusive precision rolling process. Other materials are available on special order.

Positional bi-directional repeatability (with Kerk anti-backlash nut) is within 50 micro-inches (1.25 micron) and standard lead accuracy is better than 0.0006 in./in. (mm/mm). Lead accuracies are available to .0001 in./in. (mm/mm) with individual screw mapping optional (laser-interferometer verification). Kerk's total in-house manufacturing and quality control assure uniform and consistent products.

SCREW SIZE LIST (INCHES)

Nominal Screw Diameter	Inch Lead	Left Hand Avail	Kerk Part #	Root in.	Outside Dia.	Efficiency %	Compatible Nut Styles
1/8" 2000 SERIES	0.012		2.2012	0.123	.137	26	NTB NTG B
	0.024		2.1024	0.093	.129	44	
	0.024		2.2024	0.105	.140	43	
	0.033	✔	2.5033	0.116	.156	45	
	0.048		2.1048	0.093	.129	61	
	0.048		2.2048	0.081	.140	62	
	0.050	✔	2.5050	0.096	.156	59	
	0.075		2.1075	0.093	.129	70	
	0.094		2.6094	0.128	.164	67	
	0.096	✔	2.1096	0.093	.129	75	
	0.096		2.2096	0.081	.140	75	
	0.125		2.7125	0.130	.168	74	
	0.250		2.5250	0.130	.156	83	
	0.375		2.5375	0.130	.156	85	
	0.394		3.5MM10	0.102	.138	86	
	0.500		2.5500	0.130	.156	86	
3/16" 3000 SERIES	0.020		3.0M00.5	0.163	.187	30	NTB NTG B
	0.024		3.5024	0.181	.217	31	
	0.031		3.3031	0.160	.204	39	
	0.048		3.5048	0.156	.216	50	
	0.050		3.2050	0.135	.200	52	
	0.096		3.5096	0.156	.216	66	
	0.1875		3.0188	0.167	.1875	78	
	0.192		3.5192	0.156	.216	78	
	0.250		3.3250	0.140	.204	81	
	0.375		3.0375	0.161	.188	84	
	0.427		3.0M10.85	0.162	.188	85	
1/4" 4000 SERIES	0.025		4002	0.214	.250	30	ZBX ZBA NTB NTG B
	0.0357		4003	0.200	.246	35	
	0.039		4M01	0.190	.250	40	
	0.039		7MM01	0.220	.269	33	
	0.050	✔	4005	0.191	.251	46	
	0.059		4M01.5	0.172	.249	52	
	0.0625		4006	0.170	.250	52	
	0.079		4M02	0.170	.250	59	
	0.100		4010	0.190	.250	62	
	0.118		4M03	0.175	.250	68	
	0.200		4020	0.170	.250	65	
	0.250	✔	4025	0.168	.250	79	
	0.333		4033	0.170	.250	82	
	0.394		4M10	0.170	.250	78	
	0.400		4040	0.170	.250	84	
	0.500	✔	4050	0.169	.250	85	
	0.750		4075	0.170	.250	86	
	1.000		4100	0.170	.250	84	
5/16" 5000 SERIES	0.057		8MM01.44	0.243	.315	43	ZBX ZBA KHD NTB NTG B
	0.0741		5007	0.211	.312	51	
	0.111		5011	.232	.312	60	
	0.167		5016	0.211	.312	69	
	0.250		5025	0.234	.312	76	
	0.500		5050	0.232	.312	83	
	0.800		5080	0.243	.306	86	

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SCREW SIZE LIST (INCHES)

Nominal Screw Diameter	Inch Lead	Left Hand Avail	Kerk Part #	Root in.	Outside Dia.	Efficiency %	Compatible Nut Styles
3/8" 6000 SERIES	0.025		6002	0.337	.375	21	ZBX, ZBA, KHD, NTB, NTG, B
	0.039		10MM01	0.350	.394	28	
	0.050		6005	0.301	.375	36	
	0.055		6M01.4	0.303	.375	38	
	0.059	✔	10MM01.5	0.313	.389	38	
	0.0625		6006	0.295	.375	41	
	0.068		6007	0.295	.388	42	
	0.079		6M02	0.264	.375	47	
	0.083		6008	0.293	.375	48	
	0.100	✔	6010	0.266	.375	53	
	0.125		6012	0.295	.375	59	
	0.157		6M04	0.274	.375	65	
	0.167		6016	0.261	.371	61	
	0.197		6M05	0.266	.375	69	
	0.200		6020	0.266	.375	69	
	0.250		6025	0.268	.375	70	
	0.300		6030	0.255	.375	76	
	0.333		6033	0.245	.375	78	
	0.363	✔	6036	0.260	.375	79	
	0.375		6037	0.265	.375	79	
	0.400		6040	0.293	.375	79	
	0.472		6M12	0.287	.388	82	
	0.500	✔	6050	0.265	.388	81	
	0.667		6066	0.273	.375	83	
	0.750		6075	0.273	.388	84	
	0.984		6M25	0.262	.375	84	
	1.000		6100	0.254	.383	84	
	1.200	✔	6120	0.254	.383	84	
	1.500		6150	0.264	.375	83	
7/16" 7000 SERIES	0.050		7005	0.362	.437	30	ZBX, ZBA, NTB, B
	0.0625	✔	7006	0.358	.436	38	
	0.079		7M02	0.371	.472	42	
	0.111		7011	0.327	.437	52	
	0.118		7M03	0.363	.438	52	
	0.125		7012	0.357	.438	54	
	0.197		7M05	0.315	.438	65	
	0.236		7M06	0.313	.433	70	
	0.250		7025	0.325	.442	70	
	0.307		7030	0.343	.445	73	
	0.325		7032	0.342	.444	74	
	0.394		7M10	0.316	.438	77	
	0.394		7039	0.331	.446	78	
	0.463		7046	0.343	.444	79	
	0.472		7M12	0.318	.438	80	
	0.500		7050	0.327	.452	80	
	0.615		7061	0.376	.475	82	
	0.639		7M16.224	0.324	.438	83	
1/2" 8000 SERIES	0.050		8005	0.433	.495	29	ZBX, ZBA, NTB, VHD, B
	0.079		12MM02	0.355	.473	41	
	0.098		8M02.5	0.383	.500	46	
	0.100	✔	8010	0.364	.490	46	

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SCREW SIZE LIST (INCHES)

Nominal Screw Diameter	Inch Lead	Left Hand Avail	Kerk Part #	Root in.	Outside Dia.	Efficiency %	Compatible Nut Styles
1/2" 8000 SERIES CONTINUED	0.125		8012	0.374	.500	51	ZBX ZBA NTB VHD B
	0.157		8M04	0.384	.500	58	
	0.160		8016	0.388	.500	67	
	0.197		8M05	0.365	.500	62	
	0.200	✔	8020	0.366	.492	63	
	0.250		8025	0.382	.500	67	
	0.333	✔	8033	0.362	.497	73	
	0.394		8M10	0.362	.497	76	
	0.400		8040	0.364	.497	76	
	0.500		8050	0.352	.488	79	
	0.630		8M16	0.374	.500	80	
	0.750		8075	0.399	.525	83	
	0.800		8080	0.370	.500	83	
	0.984		8M25	0.369	.500	84	
	1.000	✔	8100	0.372	.490	84	
	1.500		8150	0.374	.490	85	
5/8" 10000 SERIES	0.100		10010	0.498	.615	40	ZBX ZBA NTB VHD B
	0.125	✔	10012	0.470	.625	45	
	0.200		10020	0.495	.625	53	
	0.250		10025	0.469	.625	63	
	0.315		10M08	0.493	.627	68	
	0.410	✔	10041	0.481	.625	72	
	0.500		10050	0.478	.625	76	
	0.630		10M16	0.491	.625	78	
	1.000		10100	0.481	.625	83	
	1.500		10150	0.499	.625	86	
	2.000		10200	0.499	.625	86	
3/4" 12000 SERIES	0.063		12006	0.671	.750	25	ZBA NTB VHD B
	0.098		12M02.5	0.626	.742	35	
	0.100	✔	12010	0.624	.746	35	
	0.167		12016	0.645	.727	47	
	0.197		12M05	0.624	.745	51	
	0.200		12020	0.632	.741	52	
	0.250		12025	0.639	.731	57	
	0.276		12M07	0.624	.750	59	
	0.333		12033	0.624	.750	64	
	0.394		12M10	0.619	.745	68	
	0.500		12050	0.623	.744	73	
	0.551		12M14	0.624	.750	73	
	0.591		12M15	0.623	.749	74	
	0.709		20MM18	0.650	.780	77	
	0.748		12M19	0.547	.672	80	
	0.787		20MM20	0.648	.780	78	
	0.800		12080	0.618	.750	79	
	0.945		12M24	0.633	.734	80	
	1.000	✔	12100	0.619	.743	81	
	1.500	✔	12150	0.590	.712	84	
	1.969		12M50	0.620	.751	84	
	2.000	✔	12200	0.611	.742	84	
	2.400	✔	12240	0.620	.750	84	
	3.622		12M92	0.634	.750	87	

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SCREW SIZE LIST (INCHES)

Nominal Screw Diameter	Inch Lead	Left Hand Avail	Kerk Part #	Root in.	Outside Dia.	Efficiency %	Compatible Nut Styles
7/8" 14000 SERIES	0.200	✔	14020	0.742	.870	48	ZBA NTB VHD B
	0.236		14M06	0.773	.848	52	
	0.250		14025	0.749	.875	53	
	0.394		14M10	0.741	.875	65	
	0.500		14050	0.744	.862	69	
	0.630		14M16	0.741	.875	73	
	0.667		14066	0.745	.871	74	
	0.787		14M20	0.741	.875	78	
	0.945		14M24	0.741	.875	79	
	1.000		14100	0.742	.871	80	
15/16" 15000 SERIES	0.050	✔	15005	0.874	.938	17	ZBA NTB B
	2.000		15200	0.815	.927	85	
	3.000	✔	15300	0.803	.939	86	

SCREW SIZE LIST (METRIC)

Nominal Screw Diameter	Metric Lead mm	Left Hand Avail	Kerk Part #	Root mm	Outside Dia.	Efficiency %	Compatible Nut Styles
3mm 2000 SERIES	0.30		2.2012	3.12	3.48	26	NTB NTG B
	0.61		2.1024	2.36	3.28	44	
	0.61		2.2024	2.79	3.56	43	
	0.85	✔	2.5033	2.95	3.96	45	
	1.22		2.1048	2.36	3.28	61	
	1.22		2.2048	2.03	3.56	62	
	1.27	✔	2.5050	2.44	3.96	59	
	1.91		2.1075	2.36	3.28	70	
	2.39		2.6094	3.25	4.17	67	
	2.44	✔	2.1096	2.36	3.28	75	
	2.44		2.2096	2.03	3.56	75	
	3.18		2.7125	3.30	4.27	74	
	6.35		2.5250	3.30	3.96	83	
	9.53		2.5375	3.30	3.96	73	
	12.70		2.5500	3.30	3.96	86	
3.5mm 2000 SERIES	10.00		3.5MM10	2.59	3.51	86	
5mm 3000 SERIES	0.50		3.0M00.5	4.14	4.75	30	NTB NTG B
	0.61		3.5024	4.60	5.51	31	
	0.80		3.3031	4.06	5.18	39	
	1.22		3.5048	3.96	5.49	50	
	1.27		3.2050	3.43	5.08	52	
	2.44		3.5096	3.96	5.49	66	
	4.76		3.0188	4.24	4.76	78	
	4.88		3.5192	3.96	5.49	78	
	6.35		3.3250	3.56	5.18	81	
	9.53		3.0375	4.09	4.78	84	
	10.85		3.0M10.85	4.11	4.78	85	
6mm 4000 SERIES	0.64		4002	5.44	6.35	30	ZBX ZBA NTB NTG B
	0.91		4003	5.08	6.25	35	
	1.00		4M01	4.83	6.35	40	
	1.27	✔	4005	4.85	6.38	46	
	1.50		4M01.5	4.37	6.32	52	
	1.59		4006	4.32	6.35	52	
	2.00		4M02	4.32	6.35	59	
	2.54		4010	4.83	6.35	62	
	3.00		4M03	4.45	6.35	68	
	5.08		4020	4.32	6.35	65	
	6.35	✔	4025	4.27	6.35	79	
	8.47		4033	4.32	6.35	82	
	10.00		4M10	4.32	6.35	78	
	10.16		4040	4.32	6.35	84	
	12.70	✔	4050	4.29	6.35	85	
	19.05		4075	4.32	6.35	86	
	25.40	✔	4100	4.32	6.35	84	
7mm 4000 SERIES	1.00		7MM01	5.59	6.83	33	
8mm 5000 SERIES	1.44		8MM01.44	6.17	8.00	43	ZBX ZBA KHD NTB NTG B
	1.88		5007	5.36	7.92	51	
	2.82		5011	5.89	7.92	60	
	4.23		5016	5.36	7.92	69	
	6.35		5025	5.94	7.92	76	
	12.70		5050	5.89	7.92	83	
	20.32		5080	6.17	7.77	86	

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SCREW SIZE LIST (METRIC)

Nominal Screw Diameter	Metric Lead mm	Left Hand Avail	Kerk Part #	Root mm	Outside Dia.	Efficiency %	Compatible Nut Styles
10mm 6000 SERIES	1.00		10MM01	8.89	10.01	28	ZBX ZBA KHD NTB NTG B
	0.64		6002	8.56	9.53	21	
	1.06		6004*	8.00	9.53	29	
	1.27		6005	7.65	9.53	36	
	1.50	✔	10MM01.5	7.95	9.88	38	
	1.59		6006	7.49	9.53	41	
	1.72		6007	7.49	9.86	42	
	2.00		6M02	6.71	9.53	47	
	2.12		6008	7.44	9.53	48	
	2.54	✔	6010	6.76	9.53	53	
	3.18		6012	7.49	9.53	59	
	4.00		6M04	6.96	9.53	73	
	4.23		6016	6.63	9.42	69	
	5.00		6M05	6.76	9.53	69	
	5.08		6020	6.76	9.53	69	
	6.35		6025	6.81	9.53	70	
	7.62		6030	6.48	9.53	76	
	8.47		6033	6.22	9.53	78	
	9.22	✔	6036	6.60	9.53	79	
	9.53		6037	6.73	9.53	79	
	10.16		6040	7.44	9.53	79	
	12.00		6M12	7.29	9.86	82	
	12.70	✔	6050	6.73	9.86	81	
	16.93		6066	6.93	9.53	84	
	19.05		6075	6.93	9.86	84	
	25.00		6M25	6.65	9.53	84	
	25.40		6100	6.45	9.73	84	
	30.48	✔	6120	6.45	9.73	84	
	38.10		6150	6.71	9.53	83	
11mm 7000 SERIES	1.27		7005	9.19	11.10	30	ZBX ZBA NTB B
	1.59	✔	7006	9.09	11.07	38	
	2.00		7M02	9.42	11.99	42	
	2.82		7011	8.31	11.10	52	
	3.00		7M03	9.22	11.13	52	
	3.18		7012	9.07	11.13	54	
	5.00		7M05	8.00	11.13	65	
	6.00		7M06	7.95	11.00	70	
	6.35		7025	8.26	11.23	70	
	7.81		7030	8.71	11.30	73	
	8.26		7032	8.69	11.28	74	
	10.00		7M10	8.03	11.13	77	
	10.01		7039	8.41	11.13	78	
	11.76		7046	8.71	11.28	79	
	12.00		7M12	8.08	11.13	80	
	12.70		7050	8.31	11.48	80	
	15.61		7061	9.55	12.07	82	
	16.22		7M16.224	8.23	11.13	83	
12mm 8000 SERIES	2.00		12MM02	9.02	12.01	41	ZBX, ZBA NTB, VHD B

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SCREW SIZE LIST (METRIC)

Nominal Screw Diameter	Metric Lead mm	Left Hand Avail	Kerk Part #	Root mm	Outside Dia.	Efficiency %	Compatible Nut Styles
13mm 8000 SERIES	1.27		8005	11.00	12.57	29	ZBX ZBA NTB VHD B
	2.50		8M02.5	9.73	12.70	46	
	2.54	✔	8010	9.25	12.45	46	
	3.18		8012	9.50	12.70	51	
	4.00		8M04	9.73	12.70	58	
	4.06		8016	9.86	12.70	67	
	5.00		8M05	9.27	12.70	62	
	5.08	✔	8020	9.30	12.50	63	
	6.35		8025	9.70	12.70	67	
	8.47	✔	8033	9.19	12.62	73	
	10.00		8M10	9.19	12.62	76	
	10.16		8040	9.25	12.62	76	
	12.70		8050	8.94	12.40	79	
	16.00		8M16	9.50	12.70	80	
	19.05		8075	10.13	13.34	83	
	20.32		8080	9.40	12.70	83	
	25.00		8M25	9.37	12.70	84	
	25.40	✔	8100	9.45	12.45	84	
	38.10		8150	9.50	12.45	88	
16mm 10000 SERIES	2.54		10010	12.65	15.62	40	ZBX ZBA NTB VHD B
	3.18	✔	10012	11.94	15.88	45	
	5.08		10020	12.57	15.88	53	
	6.35		10025	11.91	15.88	63	
	8.00		10M08	12.52	15.93	68	
	10.40	✔	10041	12.22	15.88	72	
	12.70		10050	12.14	15.88	76	
	16.00		10M16	12.47	15.88	78	
	25.40		10100	12.22	15.88	83	
	38.10		10150	12.67	15.88	86	
	50.80		10200	12.67	15.88	86	
19mm 12000 SERIES	1.59		12006	17.04	19.05	25	ZBA NTB VHD B
	2.50		12M02.5	15.90	18.85	35	
	2.54	✔	12010	15.85	18.95	35	
	4.23		12016	16.38	18.47	47	
	5.00		12M05	15.85	18.92	51	
	5.08		12020	16.05	18.82	52	
	6.35		12025	16.23	18.57	57	
	7.00		12M07	15.85	19.05	59	
	8.46		12033	15.85	19.05	64	
	10.00		12M10	15.72	18.92	68	
	12.70		12050	15.82	18.90	73	
	14.00		12M14	15.85	19.05	73	
	15.00		12M15	15.82	19.02	74	
	19.00		12M19	13.89	17.07	80	
	20.32		12080	15.70	19.05	79	
	24.00		12M24	16.08	18.64	80	
	25.40	✔	12100	15.72	18.87	81	
	38.10	✔	12150	14.99	18.08	84	
	50.00		12M50	15.75	19.08	84	
	50.80	✔	12200	15.52	18.85	84	
	60.96	✔	12240	15.75	19.05	84	
	92.00	✔	12M92	16.10	19.05	87	

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SCREW SIZE LIST (METRIC)

Nominal Screw Diameter	Metric Lead mm	Left Hand Avail	Kerk Part #	Root mm	Outside Dia.	Efficiency %	Compatible Nut Styles
20mm 12000 SERIES	18.00		20MM18	16.51	19.81	77	ZBA, NTB VHD, B
	20.00		20MM20	16.46	19.81	78	
22mm 14000 SERIES	5.08		14020	18.85	22.10	48	ZBA NTB VHD B
	6.00		14M06	19.63	21.54	52	
	6.35		14025	19.02	22.23	53	
	10.00		14M10	18.82	22.23	65	
	12.70		14050	18.90	21.89	69	
	16.00		14M16	18.82	22.23	73	
	16.94		14066	18.92	22.12	74	
	20.00		14M20	18.82	22.23	78	
	24.00		14M24	18.82	22.23	79	
	25.40		14100	18.85	22.12	80	
24mm 15000 SERIES	1.27		15005	22.20	23.83	17	ZBA NTB B
	50.80		15200	20.70	23.55	85	
	76.20		15300	20.40	23.85	86	

Nut Styles

Anti-Backlash – Self Compensating, Zero Backlash

ZBX Series – Light Loads
Patented self-lubricating polyacetal nut; precise positional accuracy and repeatability at a low cost.

KHD Series – Moderate Loads, Low Drag Torque
For moderate load applications; delivers increased load capacity and greater axial stiffness with low drag torque.

NTB Series – Full Range, Flexible Design
Self-compensating nut assembly maintains axial stiffness throughout its life with minimum system drag torque. Easily modified for custom applications.

VHD Series – Heavy Loads, High Axial Stiffness
Delivers maximum load carrying capability, with highest axial and radial stiffness.

Anti-Backlash – Special Purpose

ZBA Series – Adjustable Drag Torque/Ultra Smooth Travel
Unique patented self-lubricating polyacetal nut can be adjusted for torque ranges.

NTG Series – Adjustable Drag Torque/Compact Size
Compact anti-backlash assembly allows drag torque to be pre-set according to system requirements.

General Purpose

B Series – For applications that do not require anti-backlash or wear compensation; long life at minimal cost.

Mini Lead Screws

MINI Series – Revolutionary miniature designs for applications previously off limits to lead screw technology. Available in NTB and NTG anti-backlash and B style general purpose configurations.

Custom Nuts

Custom – Kerk can work with you to design custom nuts in a variety of materials specifically for your application.

NUT FEATURE MATRIX

Kerk has a wide variety of standard nut designs which offer many features to choose from. Once an application's most important requirements are understood, it becomes a matter of choosing the nut which best meets those requirements. Occassionally, more than one nut might do the job, but in the vast majority of situations, one nut design will stand above the rest. The matrix below may help to narrow down the choices before more specific data are studied in Kerk's catalog.

All of Kerk's nuts can be modified to some degree to help them better meet specific requirements. Kerk is also very willing to discuss custom nut designs where requirements and volumes justify.

GOOD ♦ BETTER ♦♦ BEST ♦♦♦

NUT FEATURE — NUT STYLE:	ZBX	ZBA	KHD	NTB	NTG	VHD	B
Compactness	♦♦	♦♦	♦♦	♦♦	♦♦♦	♦	♦♦♦
Dynamic Load Capability	♦	♦♦	♦♦	♦♦	♦♦	♦♦♦	♦♦♦
Minimal Drag Torque	♦♦	♦♦	♦♦♦	♦♦	♦♦	♦♦♦	N/A
Vibration Damping (horizontal)	♦♦♦	♦♦♦	♦♦	♦	♦♦	♦♦	N/A
Vibration Damping (vertical)	♦♦♦	♦♦♦	♦	♦	♦	♦	N/A
Smoothness of Operation (printing, scanning)	♦♦	♦♦♦	♦♦	♦♦	♦♦♦	♦♦	♦
Backlash/Wear Compensation Capability	♦♦	♦	♦♦♦	♦♦♦	♦	♦♦♦	N/A
Ease of User Adjustment of Drag Torque/Backlash	N/A	♦♦♦	♦♦	♦	♦♦♦	♦♦	N/A
Stiffness (less axial bi-directional compliance)	♦♦	♦♦	♦♦♦	♦♦	♦♦	♦♦♦	N/A
Ability to Add Modifications	♦♦	♦	♦	♦♦♦	♦	♦	♦♦♦
Ability to Manufacture with Custom Material	♦♦	♦♦	♦	♦♦♦	♦♦	♦	♦♦♦
Ability to Work with Finer Leads	♦♦♦	♦♦♦	♦♦♦	♦♦	♦♦♦	♦♦♦	♦♦♦
Ability to Work with Long Leads (<.2" & >1")	♦♦♦	♦♦♦	♦♦♦	♦♦♦	♦	♦♦♦	♦♦♦

PRODUCT COMPARISON CHART

Nominal Screw Diameter	Property	ZBX series	ZBA series	KHD series	NTB series	VHD series	NTG series	B series
1/8" (3 mm)	Dynamic Load				5 lbs. (2.3 kg)		5 lbs. (2.3 kg)	25 lbs (11 kg)
	Static Frictional Drag Torque				.5 oz.-in. (.004 NM)		.5 oz.-in. (.004 NM)	Free Wheeling
3/16" (5 mm)	Dynamic Load				5 lbs. (2.3 kg)		5 lbs. (2.3 kg)	25 lbs. (11 kg)
	Static Frictional Drag Torque				.5 oz.-in. (.004 NM)		.5 oz.-in. (.004 NM)	Free Wheeling
1/4" (6 mm)	Dynamic Load	5 lbs. (2.3 kg)	5 lbs. (2.3 kg)		10 lbs. (4.6 kg)		10 lbs. (4.6 kg)	50 lbs. (20 kg)
	Static Frictional Drag Torque	.5-3 oz.-in. (.004-.02 NM)	.5-2 oz.-in. (.004-.01 NM)		.5-2 oz.-in. (.004-.01 NM)		.5-2 oz.-in. (.004-.01 NM)	Free Wheeling
5/16" (8 mm)	Dynamic Load	10 lbs. (5 kg)	10 lbs. (5 kg)	20 lbs. (10 kg)	20 lbs. (10 kg)		20 lbs. (10 kg)	75 lbs. (35 kg)
	Static Frictional Drag Torque	1-5 oz.-in. (.01-.03 NM)	1-3 oz.-in. (.01-.02 NM)	1-3 oz.-in. (.01-.02 NM)	1-3 oz.-in. (.01-.02 NM)		1-3 oz.-in. (.01-.02 NM)	Free Wheeling
3/8" (10 mm)	Dynamic Load	10 lbs. (5 kg)	10 lbs. (5 kg)	20 lbs. (10 kg)	20 lbs. (10 kg)		20 lbs. (10 kg)	75 lbs. (35 kg)
	Static Frictional Drag Torque	1-5 oz.-in. (.01-.03 NM)	1-3 oz.-in. (.01-.02 NM)	1-3 oz.-in. (.01-.02 NM)	1-3 oz.-in. (.01-.02 NM)		1-3 oz.-in. (.01-.02 NM)	Free Wheeling
7/16" (11 mm)	Dynamic Load	15 lbs. (7 kg)	15 lbs. (7 kg)		30 lbs. (13 kg)			90 lbs. (40 kg)
	Static Frictional Drag Torque	2-6 oz.-in. (.015-.04 NM)	2-5 oz.-in. (.015-.03 NM)		1-3 oz.-in. (.01-.02 NM)			Free Wheeling
1/2" (13 mm)	Dynamic Load	25 lbs. (11 kg)	25 lbs. (11 kg)		100 lbs. (45 kg)	150 lbs. (68 kg)		150 lbs. (68 kg)
	Static Frictional Drag Torque	3-7 oz.-in. (.02-.05 NM)	2-5 oz.-in. (.015-.03 NM)		2-6 oz.-in. (.015-.04 NM)	2-6 oz.-in. (.015-.04 NM)		Free Wheeling
5/8" (16 mm)	Dynamic Load	35 lbs. (16 kg)	35 lbs. (16 kg)		125 lbs. (56 kg)	250 lbs. (113 kg)		225 lbs. (100 kg)
	Static Frictional Drag Torque	4-8 oz.-in. (.028-.055 NM)	3-7 oz.-in. (.02-.05 NM)		2-6 oz.-in. (.01-.04 NM)	2-6 oz.-in. (.01-.04 NM)		Free Wheeling
3/4" (19 mm)	Dynamic Load		55 lbs. (25 kg)		150 lbs. (68 kg)	350 lbs. (159 kg)		350 lbs. (160 kg)
	Static Frictional Drag Torque		5-9 oz.-in. (.03-.004 NM)		3-7 oz.-in. (.02-.05 NM)	3-7 oz.-in. (.02-.05 NM)		Free Wheeling
7/8" (22 mm)	Dynamic Load		55 lbs. (25 kg)		200 lbs. (90 kg)	350 lbs. (159 kg)		500 lbs. (227 kg)
	Static Frictional Drag Torque		5-9 oz.-in. (.03-.004 NM)		4-8 oz.-in. (.03-.06 NM)	3-7 oz.-in. (.02-.05 NM)		Free Wheeling
15/16" (24 mm)	Dynamic Load		55 lbs. (25 kg)		200 lbs. (90 kg)			500 lbs. (227 kg)
	Static Frictional Drag Torque		5-9 oz.-in. (.03-.004 NM)		4-8 oz.-in. (.03-.06 NM)			Free Wheeling

Light Loads

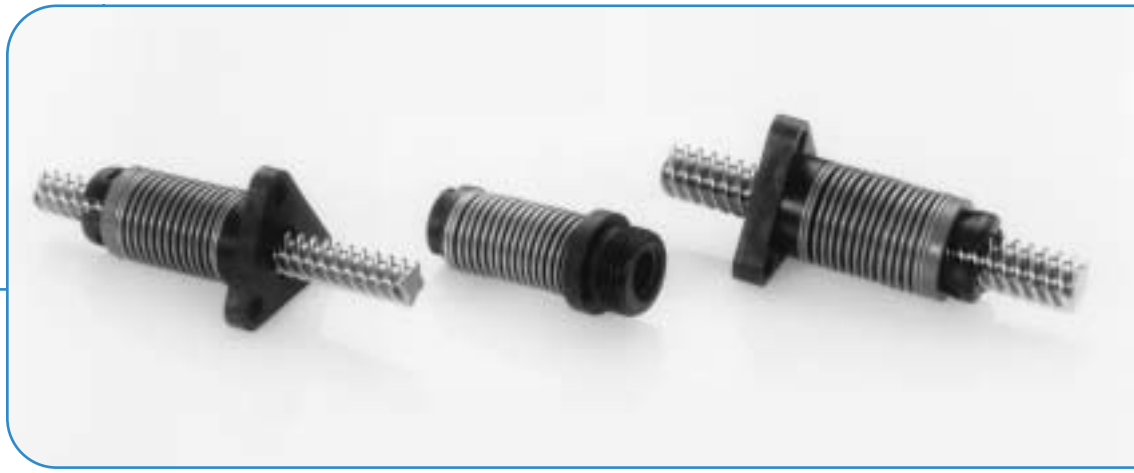
ZBX SERIES

The patented Kerk ZBX Series anti-backlash assembly offers an effective linear actuator for design operations requiring precise positional accuracy and repeatability, with minimum cost.

The standard ZBX unit utilizes a patented self-lubricating polyacetal nut radially preloaded on a 303 stainless steel screw.

The ZBX assembly, through its unique transfer of loads, offers exceptional torque consistency and repeatability when traversing in either direction. The inherent damping qualities of the ZBX design make it ideally suited for vertical applications requiring noise or vibration control.

End machining to customer specifications and Kerkote® TFE screw coating are optional, as are designs for special operating configurations or environments.



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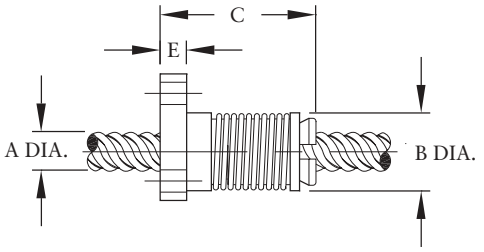
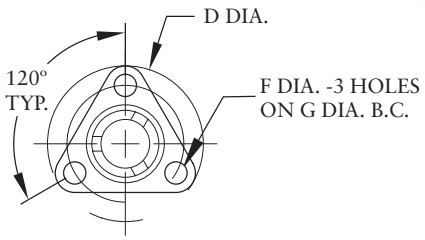
ZBXF SERIES - FLANGE MOUNT

Series	Screw Ø	Nut Ø	Nut Length	Flange Ø	Flange Thickness	Mounting Hole Ø	Bolt Circle Ø	Dynamic Load	Drag Torque
	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	F in. (mm)	G in. (mm)	lbs. (kg)	oz.-in. (NM)
ZBXF4000	1/4 (6)	.50 (12.7)	1.0 (26)	1.0 (25.4)	.18 (4.6)	.140 (3.6)	.750 (19.1)	5 (2.3)	.5-3 (.004-.02)
ZBXF5000	5/16 (8)	.70 (17.8)	1.9 (48)	1.5 (38.1)	.18 (4.6)	.200 (5.1)	1.125 (28.6)	10 (5)	1-5 (.01-.03)
ZBXF6000	3/8 (10)	.70 (17.8)	1.9 (48)	1.5 (38.1)	.18 (4.6)	.200 (5.1)	1.125 (28.6)	10 (5)	1-5 (.01-.03)
ZBXF7000	7/16 (11)	.80 (20.3)	1.9 (48)	1.5 (38.1)	.18 (4.6)	.200 (5.1)	1.125 (28.6)	15 (7)	2-6 (.015-.04)
ZBXF8000	1/2 (13)	.89 (22.6)	2.0 (51)	1.62 (41.2)	.26 (6.6)	.200 (5.1)	1.250 (31.8)	25 (11)	3-7 (.02-.05)
ZBXF10000	5/8 (16)	1.06 (26.92)	2.0 (51)	1.75 (44.5)	.26 (6.6)	.200 (5.1)	1.375 (34.9)	35 (16)	4-8 (.028-.055)

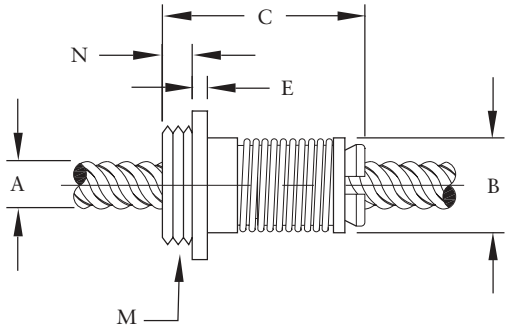


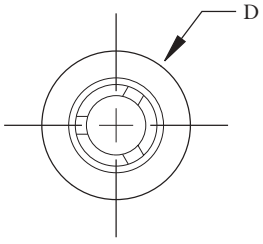


ZBXY SERIES - THREAD MOUNT

Series	Screw Ø	Nut Ø	Nut Length	Flange Ø	Flange Thickness	Thread	Thread Length	Dynamic Load	Drag Torque
	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	M* in. (mm)	N in. (mm)	lbs. (kg)	oz.-in. (NM)
ZBXY4000	1/4 (6)	.50 (12.7)	1.3 (33)	.80 (20.3)	.22 (5.6)	5/8 - 18	.16 (4.1)	5 (2.3)	.5-3 (.004-.02)
ZBXY5000	5/16 (8)	.70 (17.8)	2.2 (56)	1.00 (25.4)	.17 (4.3)	5/8 - 18	.38 (9.7)	10 (5)	1-5 (.01-.03)
ZBXY6000	3/8 (10)	.70 (17.8)	2.2 (56)	1.00 (25.4)	.17 (4.3)	5/8 - 18	.38 (9.7)	10 (5)	1-5 (.01-.03)
ZBXY7000	7/16 (11)	.80 (20.3)	2.3 (59)	1.00 (25.4)	.12 (3.1)	15/16 - 16	.38 (9.7)	15 (7)	2-6 (.015-.04)
ZBXY8000	1/2 (13)	.89 (22.6)	2.3 (59)	1.02 (25.9)	.12 (3.1)	15/16 - 16	.38 (9.7)	25 (11)	3-7 (.02-.05)
ZBXY10000	5/8 (16)	1.06 (26.9)	2.4 (61)	1.06 (26.9)	.15 (3.8)	15/16 - 16	.50 (12.7)	35 (16)	4-8 (.028-.055)

*metric available as required





Moderate Loads, Low Drag Torque

KHD SERIES

The Kerk KHD Series anti-backlash assembly makes use of Kerk's patented AXIAL TAKE-UP MECHANISM (see Kerk Technology section) to provide backlash compensation. The unique split nut with torsional take-up provides increased load capacity and axial stiffness over comparably sized ZBX units.

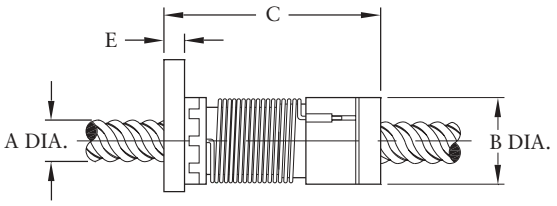
Although the KHD offers high axial stiffness, frictional drag torque (1-3 oz.-in.) is very low. The anti-backlash mechanism in the KHD unit eliminates the need for load compensating preload forces.

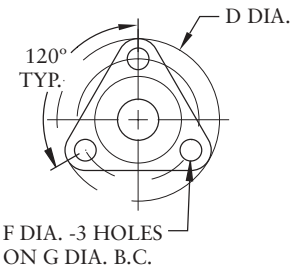
The assembly consists of a 303 stainless steel screw mated with a self-lubricating polyacetal nut. End machining to customer specifications and Kerkote® TFE screw coating are optional.

continued >

KHDF SERIES - FLANGE MOUNT

Series	Screw Ø	Nut Ø	Nut Length	Flange Ø	Flange Thickness	Mounting Hole Ø	Bolt Circle Ø	Dynamic Load	Drag Torque
	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	F in. (mm)	G in. (mm)	lbs. (kg)	oz.-in. (NM)
KHDF5000	5/16 (8)	.80 (20.3)	2.0 (51)	1.50 (38.1)	.19 (4.8)	.200 (5.08)	1.125 (28.58)	20 (10)	1-3 (.007-.020)
KHDF6000	3/8 (10)	.80 (20.3)	2.0 (51)	1.50 (38.1)	.19 (4.8)	.200 (5.08)	1.125 (28.58)	20 (10)	1-3 (.007-.020)

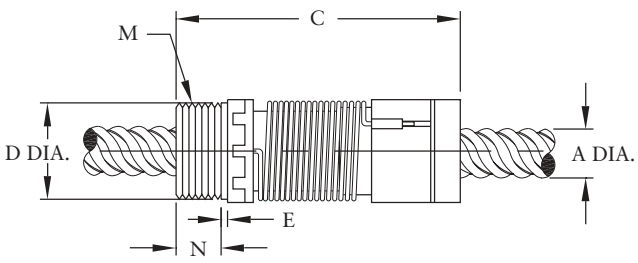


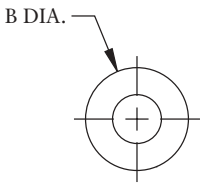


KHDY SERIES - THREAD MOUNT

Series	Screw Ø	Nut Ø	Nut Length	Flange Ø	Flange Thickness	Thread	Thread Length	Dynamic Load	Drag Torque
	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	M* in. (mm)	N in. (mm)	lbs. (kg)	oz.-in. (NM)
KHDY5000	5/16 (8)	.80 (20.3)	2.2 (55.9)	.75 (19.1)	.05 (1.27)	3/4-20	.35 (8.9)	20 (10)	1-3 (.007-.020)
KHDY6000	3/8 (10)	.80 (20.3)	2.2 (55.9)	.75 (19.1)	.05 (1.27)	3/4-20	.35 (8.9)	20 (10)	1-3 (.007-.020)

*metric available as required





Full Range, Flexible Design

NTB SERIES

The Kerk NTB Series anti-backlash assembly is designed for higher load applications than the ZBX or KHD series units. Using Kerk's patented take up mechanism, it maintains axial stiffness throughout its life while system torque is held to a minimum. The need to highly pre-load the nut to compensate for load has been eliminated with the Kerk NTB Series assembly.

The nut is manufactured with a self-lubricating polyacetal designed to run efficiently on Kerk's precision rolled shafting. Screws are 303 stainless and are available with Kerk's proprietary long - life Kerkote® TFE coating. The NTB's simple, compact design can be easily modified for custom applications.

The NTB assembly provides low drag torque, high system stiffness, smooth operation, and long life throughout its load and speed range.

NTBF SERIES - FLANGE MOUNT

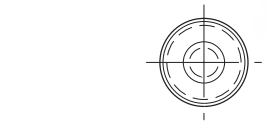
Series	Screw Ø	Nut Ø	Nut Length	Flange Ø	Flange Thickness	Mount Hole Ø	Bolt Circle Ø	Hub Width	Hub Ø	Dynamic Load	Drag Torque
TRIANGULAR FLANGE	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	F in. (mm)	G in. (mm)	H in. (mm)	J in. (mm)	lbs. (kg)	oz.-in. (NM)
NTBF4000	1/4 (6)	.52 (13.2)	1.1 (28)	1.00 (25.4)	.16 (4.0)	.143 (3.63)	.750 (19.1)	.08 (2.0)	.500 (12.7)	10 (4.5)	.05-2 (.004-.01)
NTBF5000	5/16 (8)	.80 (20.3)	1.8 (45)	1.50 (38.1)	.20 (5.1)	.200 (5.08)	1.125 (28.6)	.10 (2.6)	.750 (19.1)	20 (9.1)	1-3 (.01-.02)
NTBF6000	3/8 (10)	.80 (20.3)	1.8 (45)	1.50 (38.1)	.20 (5.1)	.200 (5.08)	1.125 (28.6)	.10 (2.6)	.750 (19.1)	20 (9.1)	1-3 (.01-.02)
NTBF7000	7/16 (11)	.90 (22.9)	1.8 (46)	1.62 (41.2)	.23 (5.7)	.200 (5.08)	1.250 (31.8)	.10 (2.6)	.875 (22.2)	30 (13.6)	1-3 (.01-.02)
ROUND FLANGE											
NTBF8000	1/2 (13)	1.06 (26.9)	2.1 (54)	1.75 (44.5)	.25 (6.4)	.220 (5.59)	1.406 (35.71)	.12 (3.0)	1.00 (25.4)	100 (45.5)	2-6 (.015-.04)
NTBF10000	5/8 (16)	1.38 (34.9)	2.3 (59)	2.13 (54.1)	.28 (7.0)	.220 (5.59)	1.750 (44.45)	.10 (2.5)	1.25 (5.1)	125 (56.8)	2-6 (.015-.04)
NTBF12000	3/4 (19)	1.56 (39.6)	2.7 (67)	2.38 (60.5)	.31 (7.9)	.220 (5.59)	2.000 (50.80)	.10 (2.5)	1.50 (38.1)	150 (68.2)	3-7 (.02-.05)
NTBF14000	7/8 (22)	1.75 (44.5)	2.8 (70)	2.63 (66.8)	.38 (9.5)	.220 (5.59)	2.250 (57.15)	.12 (3.0)	1.75 (44.5)	200 (90.9)	4-8 (.03-.06)
NTBF15000	15/16 (24)	1.75 (44.5)	2.8 (70)	2.63 (66.8)	.38 (9.5)	.220 (5.59)	2.250 (57.15)	.12 (3.0)	1.75 (44.5)	200 (90.9)	4-8 (.03-.06)

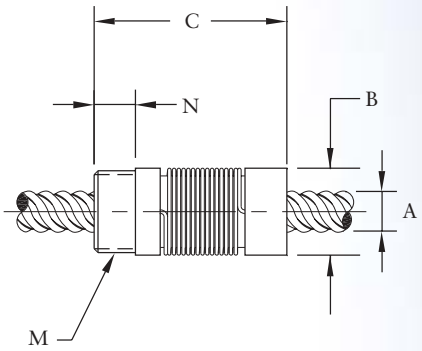
NTBF 2000/3000 MINI Series – see Mini NTB Series Section

continued >

NTBY SERIES - THREAD MOUNT

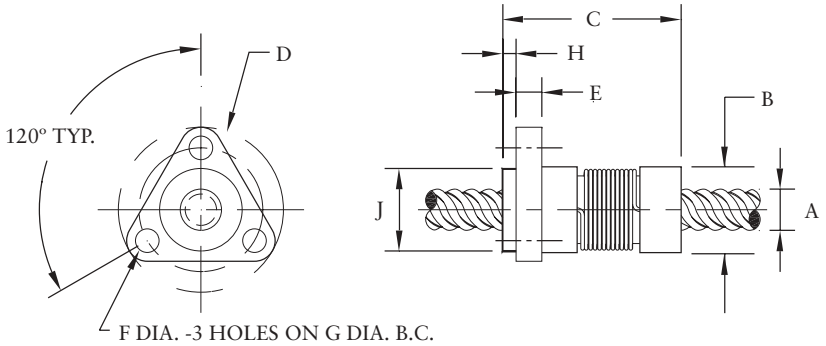
Series	Screw Ø	Nut Ø	Nut Length	Thread	Thread Length	Dynamic Load	Drag Torque
THREAD MOUNT 1/4" - 7/16"	A in. (mm)	B in. (mm)	C in. (mm)	M* in. (mm)	N in. (mm)	lbs. (kg)	oz.-in. (NM)
NTBY4000	1/4 (6)	.52 (13.2)	1.1 (28)	7/16-20	.25 (6.4)	10 (4.5)	.05-2 (.004-.01)
NTBY5000	5/16 (8)	.80 (20.3)	1.8 (45)	3/4-20	.38 (9.5)	20 (9.1)	1-3 (.01-.02)
NTBY6000	3/8 (10)	.80 (20.3)	1.8 (45)	3/4-20	.38 (9.5)	20 (9.1)	1-3 (.01-.02)
NTBY7000	7/16 (11)	.90 (22.9)	1.8 (46)	13/16-16	.38 (9.5)	30 (13.6)	1-3 (.01-.02)
1/2" - 15/16"							
NTBY8000	1/2 (13)	1.06 (26.9)	2.1 (54)	15/16-16	.38 (9.5)	100 (45.5)	2-6 (.015-.04)
NTBY10000	5/8 (16)	1.38 (34.9)	2.3 (59)	1 1/8-16	.38 (9.5)	125 (56.8)	2-6 (.015-.04)
NTBY12000	3/4 (19)	1.56 (39.6)	2.7 (67)	1 3/8-16	.50 (12.7)	150 (68.2)	3-7 (.02-.05)
NTBY14000	7/8 (22)	1.75 (44.5)	2.8 (70)	1 9/16-16	.50 (12.7)	200 (90.9)	4-8 (.03-.06)
NTBY15000	15/16 (24)	1.75 (44.5)	2.8 (70)	1 9/16-16	.50 (12.7)	200 (90.9)	4-8 (.03-.06)

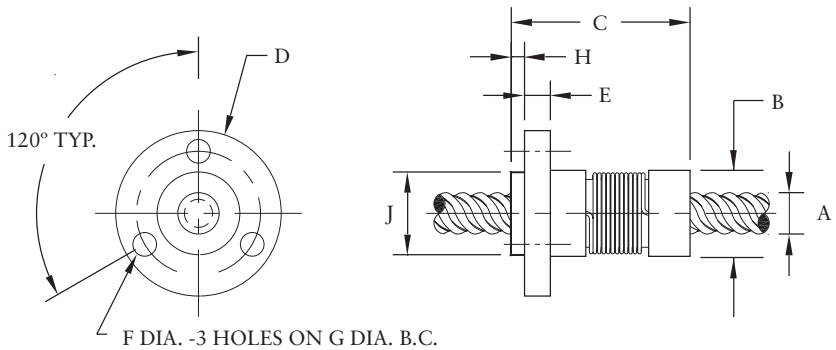




*metric available as required

NTBY 2000/3000 MINI Series – see Mini NTB Series Section





Heavy Loads, High Axial Stiffness

VHD SERIES

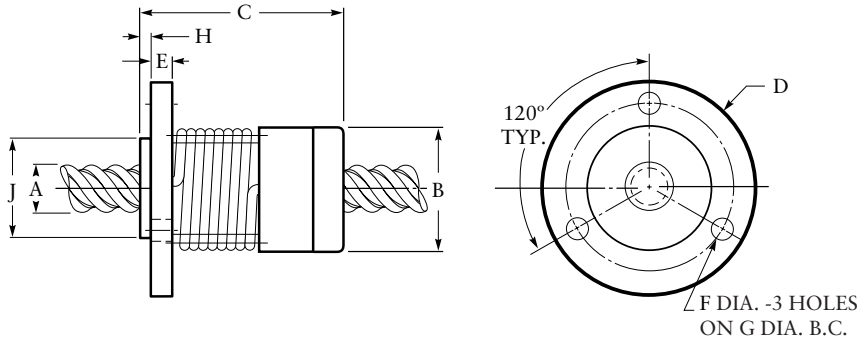
The KERK VHD Series anti-backlash assembly provides the maximum load carrying capability and the highest axial and radial stiffness of any Kerk nut assembly. Designed for smooth, quiet operation and long life, the VHD assembly provides low drag torque by making use of the patented Kerk AXIAL TAKE-UP MECHANISM (see Kerk Technology section). Drag and wear associated with high pre-load forces are eliminated with the VHD Series. Screws are 303 stainless steel with Kerk's custom Kerkote® TFE extended life coating optional.

Assemblies are available cut-to-length or with screws machined to your requirements.

continued >

VHDF SERIES - FLANGE MOUNT

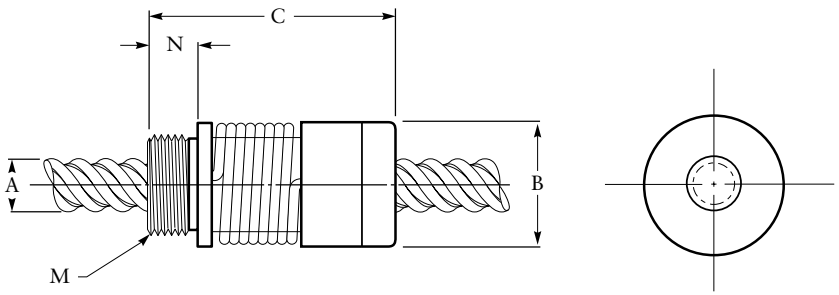
Series	Screw Ø	Nut Ø	Nut Length	Flange Ø	Flange Thickness	Mounting Hole Ø	Bolt Circle Ø	Hub Length	Hub Ø	Dynamic Load	Drag Torque
	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	F in. (mm)	G in. (mm)	H in. (mm)	J in. (mm)	lbs. (kg)	oz.-in. (NM)
VHDF 8000	1/2 (13)	1.12 (28.5)	2.3 (59)	1.75 (44.5)	.23 (5.9)	.22 (5.60)	1.406 (35.71)	.12 (3.1)	.93 (23.62)	150 (68)	2-6 (.01-.02)
VHDF 10000	5/8 (16)	1.38 (35.1)	2.6 (66)	2.12 (53.9)	.30 (7.6)	.22 (5.60)	1.750 (44.45)	N/A	N/A	250 (113)	2-6 (.01-.02)
VHDF 12000	3/4 (19)	1.62 (41.2)	2.8 (71)	2.38 (60.5)	.31 (7.9)	.22 (5.60)	2.000 (50.80)	N/A	N/A	350 (159)	3-7 (.02-.05)
VHDF 14000	7/8 (22)	1.62 (41.2)	2.8 (71)	2.38 (60.5)	.31 (7.9)	.22 (5.60)	2.000 (50.80)	N/A	N/A	350 (159)	3-7 (.02-.05)



VHDY SERIES - THREAD MOUNT

Series	Screw Ø	Nut Ø	Nut Length	Thread	Thread Length	Dynamic Load	Drag Torque
	A in. (mm)	B in. (mm)	C in. (mm)	M* in. (mm)	N in. (mm)	lbs. (kg)	oz.-in. (NM)
VHDY 8000	1/2 (13)	1.12 (28.5)	2.5 (64)	15/16-16	.50 (12.7)	150 (68)	2-6 (.01-.04)
VHDY 10000	5/8 (16)	1.38 (35.1)	2.8 (72)	1 1/4-16	.50 (12.7)	250 (113)	2-6 (.01-.04)
VHDY 12000	3/4 (19)	1.62 (41.2)	3.12 (79)	1 3/8-16	.50 (12.7)	350 (159)	3-7 (.02-.05)
VHDY 14000	7/8 (22)	1.62 (41.2)	3.12 (79)	1 3/8-16	.50 (12.7)	350 (159)	3-7 (.02-.05)

*metric available as required



Adjustable Drag Torque/Ultra Smooth Travel

ZBA SERIES

The patented ZBA Series offers a cost effective anti-backlash assembly for applications requiring precise positional accuracy and repeatability. The ZBA has been developed specifically for those applications that require very smooth and consistent motion such as printing, scanning, and coordinate measurement systems.

An added benefit of the ZBA design is the ability to manually adjust the drag torque setting to match the specific requirements of the application. This drag torque can also be set at the factory to meet individual customer specifications. The inherent damping qualities of the ZBA design make it ideally suited for applications requiring noise or vibration control.

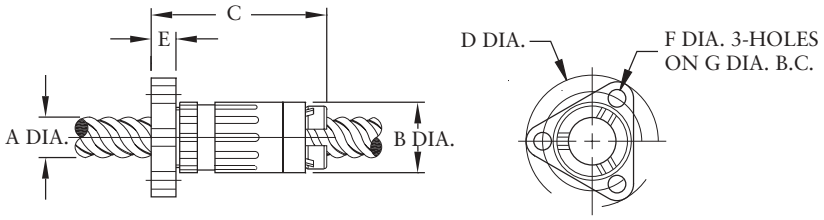
The standard ZBA unit utilizes a self-lubricating polyacetal nut radially preloaded on a 303 stainless steel screw. End machining to customer specifications and Kerkote® TFE screw coating are optional.

Round flanges are available as custom orders.

continued >

ZBAF SERIES - FLANGE MOUNT

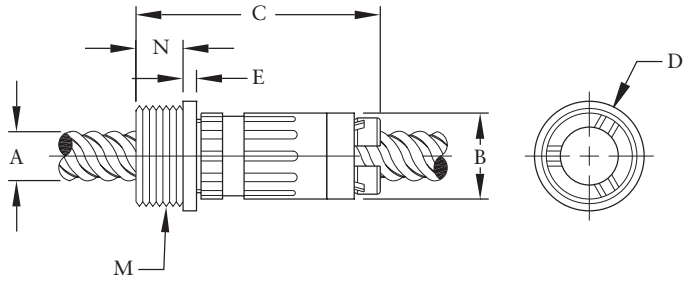
Series	Screw Ø	Nut Ø	Nut Length	Flange Ø	Flange Thickness	Mounting Hole Ø	Bolt Circle Ø	Dynamic Load	Drag Torque
	A	B	C	D	E	F	G		
		in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	lbs. (kg)	oz.-in. (NM)
ZBAF4000	1/4 (6)	.53 (13.5)	1.0 (26)	1.00 (25.4)	.18 (4.6)	.140 (3.6)	.750 (19.05)	5 (2.3)	.5-2 (.004-.01)
ZBAF5000	5/16 (8)	.74 (18.8)	1.9 (48)	1.50 (38.1)	.18 (4.6)	.200 (5.1)	1.125 (28.58)	10 (5)	1-3 (.01-.02)
ZBAF6000	3/8 (9)	.74 (18.8)	1.9 (48)	1.50 (38.1)	.18 (4.6)	.200 (5.1)	1.125 (28.58)	10 (5)	1-3 (.01-.02)
ZBAF7000	7/16 (11)	.80 (20.3)	1.9 (48)	1.50 (38.1)	.18 (4.6)	.200 (5.1)	1.125 (28.58)	15 (7)	2-5 (.015-.03)
ZBAF8000	1/2 (13)	.89 (22.6)	2.0 (51)	1.62 (41.2)	.26 (6.6)	.200 (5.1)	1.250 (31.75)	25 (11)	2-5 (.015-.03)
ZBAF10000	5/8 (16)	1.06 (26.9)	2.0 (51)	1.75 (44.5)	.26 (6.6)	.200 (5.1)	1.375 (34.93)	35 (16)	3-7 (.02-.05)
ZBAF12000	3/4 (19)	1.70 (43.2)	2.88 (73.2)	2.63 (66.8)	.38 (9.6)	.218 (5.5)	2.25 (57.2)	55 (25)	5-9 (.03-.064)
ZBAF14000	7/8 (22)	1.70 (43.2)	2.88 (73.2)	2.63 (66.8)	.38 (9.6)	.218 (5.5)	2.25 (57.2)	55 (25)	5-9 (.03-.064)
ZBAF15000	15/16 (24)	1.70 (43.2)	2.88 (73.2)	2.63 (66.8)	.38 (9.6)	.218 (5.5)	2.25 (57.2)	55 (25)	5-9 (.03-.064)



ZBAY SERIES - THREAD MOUNT

Series	Screw Ø	Nut Ø	Nut Length	Flange Ø	Flange Thickness	Thread	Mounting Thread Length	Dynamic Load	Drag Torque
	A	B	C	D	E	M*	N		
	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	lbs. (kg)	oz.-in. (NM)
ZBAY4000	1/4 (6)	.53 (13.5)	1.3 (33)	.80 (20.3)	.12 (3.1)	5/8-18	.16 (4.1)	5 (2.3)	.5-2 (.004-.01)
ZBAY5000	5/16 (8)	.74 (18.8)	2.2 (56)	1.00 (25.4)	.15 (3.8)	5/8-18	.38 (9.7)	10 (5)	1-3 (.01-.02)
ZBAY6000	3/8 (10)	.74 (18.8)	2.2 (56)	1.00 (25.4)	.15 (3.8)	5/8-18	.38 (9.7)	10 (5)	1-3 (.01-.02)
ZBAY7000	7/16 (11)	.80 (20.3)	2.3 (59)	1.00 (25.4)	.10 (2.5)	15/16-16	.38 (9.7)	15 (7)	2-5 (.015-.03)
ZBAY8000	1/2 (13)	.89 (22.6)	2.3 (59)	1.02 (25.9)	.10 (2.5)	15/16-16	.38 (9.7)	25 (11)	2-5 (.015-.03)
ZBAY10000	5/8 (16)	1.06 (26.9)	2.4 (61)	1.06 (26.9)	.12 (3.1)	15/16-16	.50 (12.7)	35 (16)	3-7 (.02-.05)

*metric available as required



Adjustable Drag Torque/Compact Size

NTG SERIES

The patented 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.

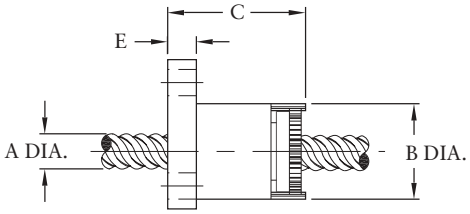
The standard NTG unit utilizes a self-lubricating polyacetal nut on a precision rolled 303 stainless steel screw. End machining to customer specifications and Kerkote® TFE screw coating are optional.

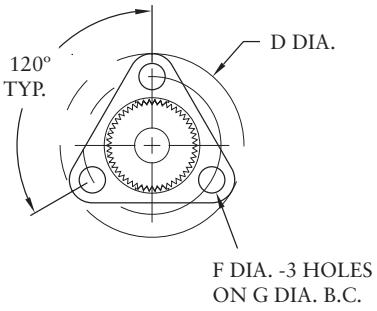
continued >

NTGF SERIES - FLANGE MOUNT

Series	Screw Ø	Nut Ø	Nut Length	Flange Ø	Flange Thickness	Mounting Hole Ø	Bolt Circle Ø	Dynamic Load	Drag Torque
	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	F in. (mm)	G in. (mm)	lbs. (kg)	oz.-in. (NM)
NTGF4000	1/4 (6)	.52 (13.2)	.8 (19)	1.00 (25.4)	.16 (4.0)	.143 (3.63)	.750 (19.1)	10 (4.5)	.05-2 (.004-.01)
NTGF5000	5/16 (8)	.80 (20.3)	1.0 (26)	1.50 (38.1)	.20 (5.1)	.197 (5.00)	1.125 (28.6)	20 (9.1)	1-3 (.01-.02)
NTGF6000	3/8 (10)	.80 (20.3)	1.0 (26)	1.50 (38.1)	.20 (5.1)	.197 (5.00)	1.125 (28.6)	20 (9.1)	1-3 (.01-.02)

NTGF 2000/3000 MINI Series – see Mini NTG Series section



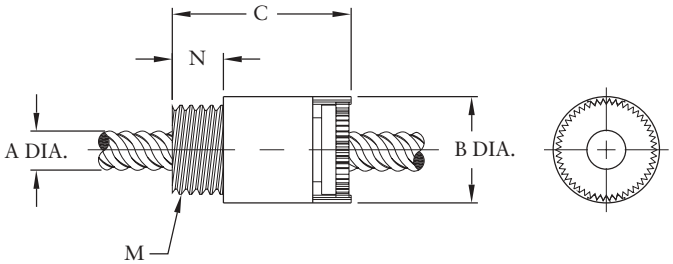


NTGY SERIES -FLANGE MOUNT

Series	Screw Ø	Nut Ø	Nut Length	Thread	Thread Length	Dynamic Load	Drag Torque
	A in. (mm)	B in. (mm)	C in. (mm)	M* in. (mm)	N in. (mm)	lbs. (kg)	oz.-in. (NM)
NTGY4000	1/4 (6)	.520 (13.2)	.9 (22)	7/16 - 20	.250 (6.35)	10 (4.5)	.05-2 (.004-.01)
NTGY5000	5/16 (8)	.800 (20.3)	1.2 (30)	3/4 - 20	.375 (9.53)	20 (9.1)	1-3 (.01-.02)
NTGY6000	3/8 (10)	.800 (20.3)	1.2 (30)	3/4 - 20	.375 (9.53)	20 (9.1)	1-3 (.01-.02)

NTGY 2000/3000 MINI Series – see Mini NTG Series section

*metric available as required



B SERIES

The Kerk B Series general purpose assembly is for applications not requiring anti-backlash and wear compensation. It provides effective power transmission at minimum cost, and features long life, self-lubricating polyacetal nuts.

Note: All B Series nuts are freewheeling.

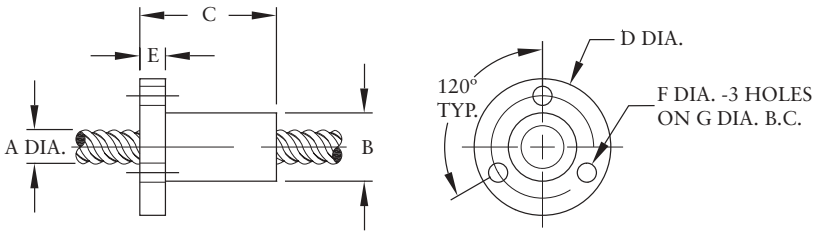
The secure mounting and convenience of a circular flange is standard on the "B" nuts with triangular flange and thread mounting as an option. Many custom configurations are available.

Screws are 303 stainless steel with Kerk's extended life custom Kerkote® TFE coating optional. Assemblies can be supplied cut-to-length or with ends machined to customer requirements.

BF SERIES - FLANGE MOUNT (ROUND)

Series	Screw Ø	Nut Ø	Nut Length	Flange Ø	Flange Thickness	Mounting Hole Ø	Bolt Circle Ø	Dynamic Load
	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	F in. (mm)	G in. (mm)	lbs. (kg)
BF4000	1/4 (6)	.50 (12.7)	1.0 (26)	1.00 (25.4)	.19 (4.8)	.140 (3.56)	.750 (19.05)	50 (20)
BF5000	5/16 (8)	.63 (15.9)	1.0 (26)	1.13 (28.6)	.19 (4.8)	.140 (3.56)	.875 (22.23)	75 (35)
BF6000	3/8 (10)	.63 (15.9)	1.0 (26)	1.13 (28.6)	.19 (4.8)	.140 (3.56)	.875 (22.23)	75 (35)
BF7000	7/16 (11)	.75 (19.1)	1.5 (38)	1.50 (38.1)	.19 (4.8)	.203 (5.16)	1.125 (28.58)	90 (40)
BF8000	1/2 (13)	.75 (19.1)	1.5 (38)	1.50 (38.1)	.19 (4.8)	.203 (5.16)	1.125 (28.58)	150 (68)
BF10000	5/8 (16)	.88 (22.2)	1.5 (38)	1.50 (38.1)	.19 (4.8)	.203 (5.16)	1.188 (30.18)	225 (100)
BF12000	3/4 (19)	1.13 (28.6)	2.0 (51)	1.75 (44.5)	.25 (6.4)	.203 (5.16)	1.438 (36.53)	350 (160)
BF14000	7/8 (22)	1.50 (38.1)	2.0 (51)	2.25 (57.2)	.25 (6.4)	.203 (5.16)	1.875 (47.63)	500 (227)
BF15000	15/16 (24)	1.50 (38.1)	2.0 (51)	2.25 (57.2)	.25 (6.4)	.203 (5.16)	1.875 (47.63)	500 (227)

BF 2000/3000 MINI Series – see Mini B Series section



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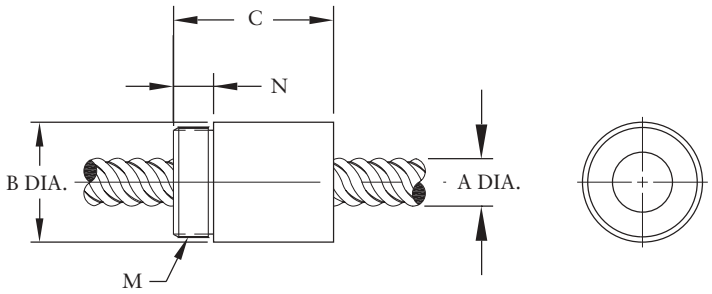
BY SERIES - THREAD MOUNT

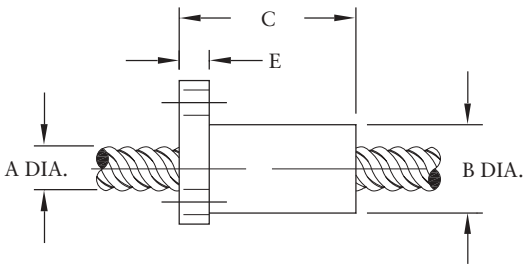
Series	Screw Ø A in. (mm)	Nut Ø B in. (mm)	Nut Length C in. (mm)	Thread M* in. (mm)	Thread Length N in. (mm)	Dynamic Load lbs. (kg)
BY4000	1/4 (6)	.63 (15.9)	1.0 (26)	9/16-18	.187 (4.75)	50 (20)
BY5000	5/16 (8)	.75 (19.1)	1.0 (26)	5/8-18	.250 (6.35)	75 (35)
BY6000	3/8 (10)	.75 (19.1)	1.0 (26)	5/8-18	.250 (6.35)	75 (35)
BY7000	7/16 (11)	1.00 (25.4)	1.5 (38)	15/16-16	.375 (9.53)	90 (40)
BY8000	1/2 (13)	1.00 (25.4)	1.5 (38)	15/16-16	.375 (9.53)	150 (68)
BY10000	5/8 (16)	1.00 (25.4)	1.5 (38)	15/16-16	.375 (9.53)	225 (100)
BY12000	3/4 (19)	1.50 (38.1)	2.0 (51)	1 3/8-16	.500 (12.70)	350 (160)
BY14000	7/8 (22)	1.50 (38.1)	2.0 (51)	1 3/8-16	.500 (12.70)	500 (227)
BY15000	15/16 (24)	1.50 (38.1)	2.0 (51)	1 3/8-16	.500 (12.70)	500 (227)

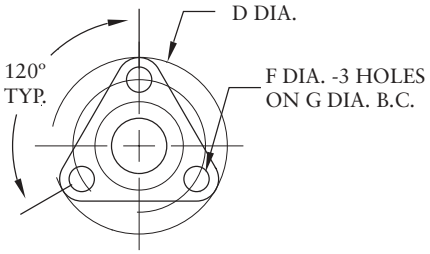
BY 2000/3000 MINI Series – see Mini B Series section *metric available as required



BZ SERIES - FLANGE MOUNT (TRIANGULAR)

Series	Screw Ø A in. (mm)	Nut Ø B in. (mm)	Nut Length C in. (mm)	Flange Ø D in. (mm)	Flange Thickness E in. (mm)	Mounting Hole Ø F in. (mm)	Bolt Circle Ø G in. (mm)	Dynamic Load lbs. (kg)
BZ4000	1/4 (6)	.50 (12.7)	1.0 (26)	1.00 (25.4)	.17 (4.3)	.143 (3.63)	.750 (19.05)	50 (20)
BZ5000	5/16 (8)	.66 (16.6)	1.9 (47)	1.50 (38.1)	.17 (4.3)	.197 (5.00)	1.125 (28.58)	75 (35)
BZ6000	3/8 (10)	.66 (16.6)	1.9 (47)	1.50 (38.1)	.17 (4.3)	.197 (5.00)	1.125 (28.58)	75 (35)
BZ7000	7/16 (11)	.75 (19.1)	1.9 (47)	1.50 (38.1)	.17 (4.3)	.197 (5.00)	1.125 (28.58)	90 (40)
BZ8000	1/2 (13)	.75 (19.1)	1.9 (47)	1.50 (38.1)	.17 (4.3)	.197 (5.00)	1.125 (28.58)	150 (68)



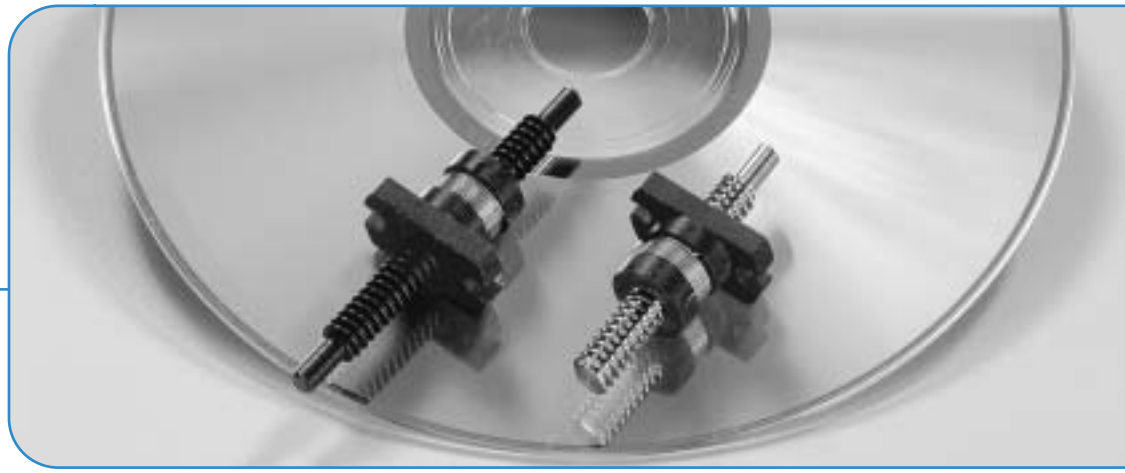


MINI SERIES

The Mini Series brings Kerk quality, precision and value to products that were previously off limits to lead screw technology. To meet a wide range of applications, the Mini Series includes anti-backlash and standard assemblies.

- Using Kerk's patented take-up mechanism, the self-compensating NTB maintains axial stiffness throughout its life while system torque is held to a minimum.
- The NTG allows drag torque to be pre-set according to system requirements.
- The Mini B Series is for applications not requiring anti-backlash and wear compensation.

All Mini Series assemblies include 303 stainless steel lead screws, available with Kerk's proprietary, long-life Kerkote® TFE coating. All the nuts are maintenance free, manufactured with self-lubricating polyacetal, and designed to run smoothly and efficiently on Kerk's precision rolled screws. Perfect for demanding applications, the Mini NTB and NTG nuts provide zero backlash with drag torque of less than 1 oz.-in. (some sizes as low as 0.1 oz.-in.)! Kerk's Mini Series has what it takes for affordable, precision motion control, sized to fit and built to last.



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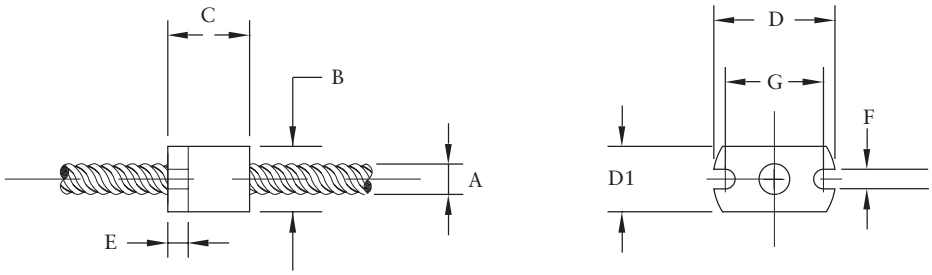
MINI SERIES - FLANGE MOUNT

Series	Screw Ø	Nut Ø	Nut Length	Flange Height	Flange Width	Flange Thickness	Slot Width	Bolt Circle Ø	Dynamic Load	Drag Torque
	A in. (mm)	B in. (mm)	C in. (mm)	D1 in. (mm)	D in. (mm)	E in. (mm)	F in. (mm)	G in. (mm)	lbs. (kg)	oz.-in. (NM)
BF2000	1/8 (3)	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)	25 (11)	free wheeling
BF3000	3/16 (5)	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)	25 (11)	free wheeling
NTBF2000	1/8 (3)	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)	.5 (0.004)
NTBF3000	3/16 (5)	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)	.5 (0.004)
NTGF2000	1/8 (3)	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)	.5 (0.004)
NTGF3000	3/16 (5)	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)	.5 (0.004)

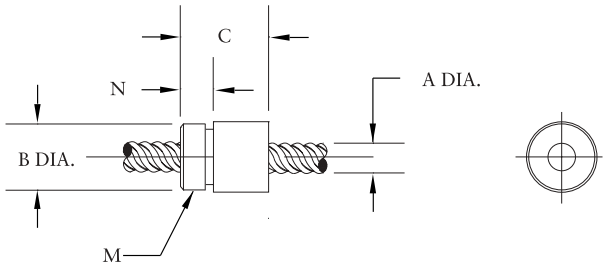
For 1/4 in. diameter screws and larger, please refer to the individual sections for each nut type.



MINI SERIES - THREAD MOUNT

Series	Screw Ø	Nut Ø	Nut Length	Thread	Thread Length	Dynamic Load	Drag Torque
	A in. (mm)	B in. (mm)	C in. (mm)	M* in.	N in. (mm)	lbs. (kg)	oz.-in. (NM)
BY2000	1/8 (3)	0.40 (10.2)	0.50 (13)	3/8-24	0.187 (4.75)	25 (11)	free wheeling
BY3000	3/16 (5)	0.40 (10.2)	0.50 (13)	3/8-24	0.187 (4.75)	25 (11)	free wheeling
NTGY2000	1/8 (3)	0.40 (10.2)	0.50 (13)	3/8-24	0.160 (4.06)	5 (2.3)	0.5 (.004)
NTGY3000	3/16 (5)	0.40 (10.2)	0.50 (13)	3/8-24	0.160 (4.06)	5 (2.3)	0.5 (.004)
NTBY2000	1/8 (3)	0.40 (10.2)	0.50 (13)	3/8-24	0.125 (3.18)	5 (2.3)	0.5 (.004)
NTBY3000	3/16 (5)	0.40 (10.2)	0.50 (13)	3/8-24	0.125 (3.18)	5 (2.3)	0.5 (.004)

*metric available as required



KERK® CUSTOM NUTS

In addition to Kerk's standard nut types, modified and complete custom configurations are a large portion of Kerk's production. Modifications may be simple changes such as different mounting hole patterns or mounting threads, small dimensional changes or special materials. Kerk can provide tremendous value by producing a multi-function nut. Using custom molds and specialty machining, nuts can also include guide bushings, carriages, timing pulleys, gears, syringe components, sensor mounts and flags, encoder features, clamps and many other complimentary elements. In addition, custom designed nuts can offer quick release mounts, partial thread engagement, half nut construction or special shapes and geometries. Special materials are offered to extend the performance of our assemblies. Materials can be chosen for extreme temperature, chemical compatibility, autoclaving, agency approvals, special loadings and many other specific requirements.

Custom nut designs can include multi-functionality, eliminating additional components to simplify product manufacturing. This can deliver both cost- and space-saving benefits.

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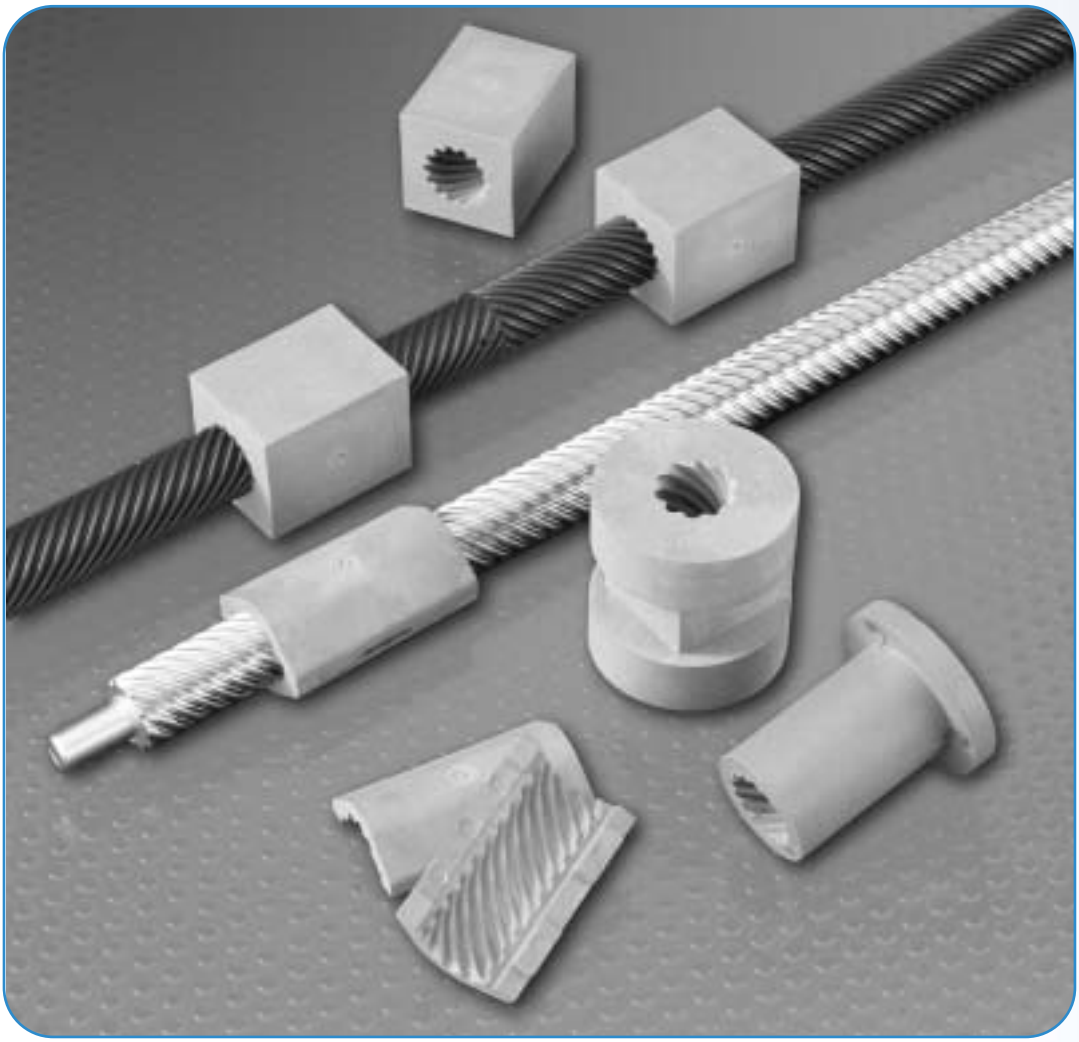
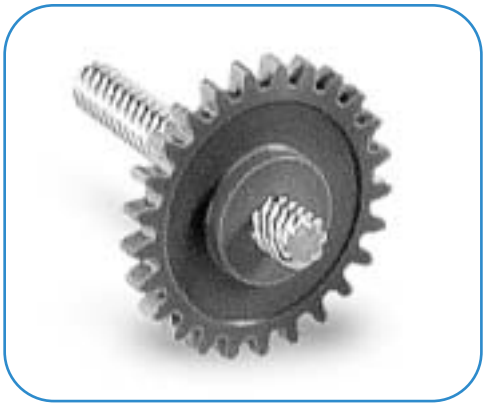
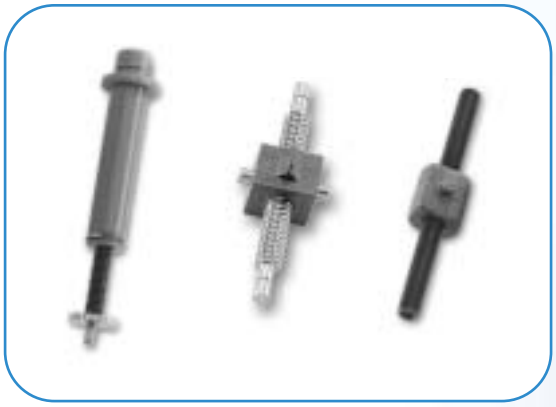






Custom geometries and custom materials can be combined for a wide variety of product application requirements.

Design and Engineering Data

DATA

Screw Accuracy

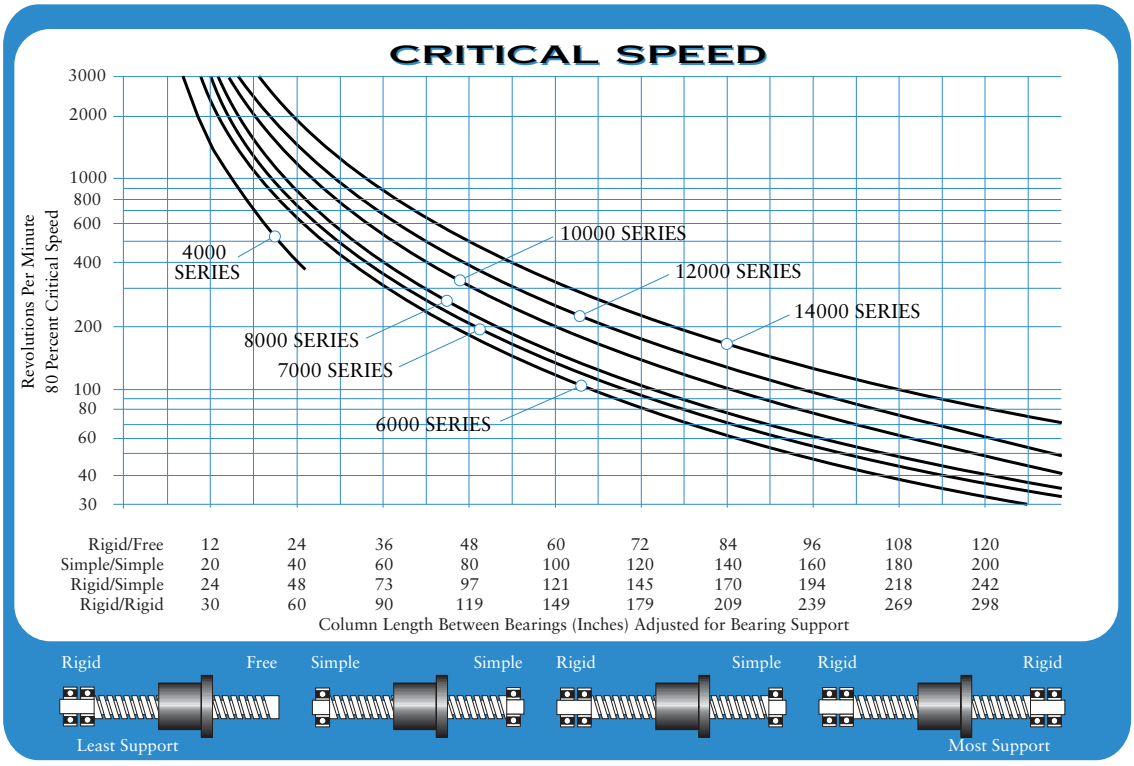
Kerk uses a unique precision rolling process for screw manufacturing. Standard lead accuracy for Kerk screws is .0006 in./in. (mm/mm). Lead accuracies are available up to .0001 in./in. (mm/mm). Kerk can provide laser-interferometer generated mapping for our screws. Assemblies have an extremely high bi-directional repeatability of 50 micro-inches (1.25 micron).

End Machining

Kerk can custom machine screws to your specifications or provide cut-to-length screws for your own machining.

Critical Speed

This is the rotational speed at which a screw may experience vibration or other dynamic problems. See CRITICAL SPEED CHART to determine if application parameters result in speed approaching critical. To minimize critical speed problems: use a longer lead, choose a larger diameter or increase bearing mount support.



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Design and Engineering Data (continued)

Lengths

Lengths can be specified up to 12 ft. (4M) from stock, (depending on diameter and lead). Cut to length screws are offered in 6" increments (6", 12, 18,....) +1.0"/-0".

Lead

Advancement per revolution. All screws are listed by lead, not pitch.
Lead = Pitch x Number of Starts

Pitch

Crest-to-crest distance or one divided by threads per inch. (On a multiple start thread, the pitch equals the lead divided by the number of starts.)

Traverse Speed

The nut materials we use provide long wear-life over a wide variety of conditions. However, very high loads and/or speeds will accelerate nut wear. Special materials may be required for these situations. We offer the following guidelines for continuous duty linear traversing speeds for optimum life:

Lead	*Traverse Speed*
1/10" - 1/2"	4 in./sec.
1/2" - 1"	10 in./sec.
1" - 2 1/2"	30 in./sec.
1 - 12mm	100mm/sec.
12 - 25mm	250mm/sec.
25 - 60mm	760mm/sec.

Maximum Load

Although Kerk Anti-Backlash Assemblies are capable of withstanding relatively high loads without catastrophic failure, these units have been designed to operate under the loading shown in the size charts.

Efficiency

Efficiency is the relationship of work input to work output. It should not be confused with mechanical advantage. Listed efficiencies are theoretical values based on Kerkote® TFE coated screws.

continued >

Design and Engineering Data (continued)

Torque

The required motor torque to drive a lead screw assembly is the sum of three components: the inertial torque, drag torque, and torque to move load. It must be noted that this is the torque necessary to drive the lead screw assembly alone. Additional torque associated with driving frictional bearings and motor shafts, moving components, and drag due to general assembly misalignment must also be considered.

Inertial Torque:

$T_j = I \alpha$ Where I = screw inertia

α = angular acceleration

Drag Torque

Kerk Anti-Backlash Assemblies are typically supplied with drag torque of 1 to 7 oz.-in. The magnitude of the drag torque is dependent on the standard factory settings or settings specified by the customer. Generally, the higher the preset force, the better the Anti-Backlash characteristics.

Torque-To-Move Load:

$$T_L = \frac{\text{LOAD x LEAD}}{2\,\pi \text{ x EFFICIENCY}}$$

Back Driving

Sometimes referred to as reversibility, back driving is the ability of a screw to be turned by a thrust load applied to the nut. Generally, back driving will not occur when the screw lead is less than 1/3 the diameter for uncoated screws or 1/4 the diameter for Kerkote® TFE coated screws. For higher leads where back driving is likely, the torque required for holding a load is:

$$T_b = \frac{\text{Load x Lead x Efficiency}}{2\pi}$$

Screw Straightness

Screw straightness is measured as Total Indicator Runout(TIR). The standard Kerk straightness for lead screws is .003"/ft. Kerk can provide tighter specifications on customer request.

All screws are hand straightened before shipping.

MECHANICAL PROPERTIES

SCREW INERTIA

Series	Screw Size in. (mm)	Screw Inertia (oz.-in. sec.²/in.)
4000	1/4" (6)	.3 x 10^{-5}
5000	5/16" (8)	1.5 x 10^{-4}
6000	3/8" (10)	1.5 x 10^{-5}
7000	7/16" (11)	3.5 x 10^{-5}
8000	1/2" (13)	5.2 x 10^{-5}
10000	5/8" (16)	14.2 x 10^{-5}
12000	3/4" (19)	30.5 x 10^{-5}
14000	7/8" (22)	58.0 x 10^{-5}
15000	15/16" (24)	73.0 x 10^{-5}

ANTI-BACKLASH LIFE

Series	without Kerkote® TFE coating in. (cm)	with Kerkote® TFE coating in. (cm)
ZBA	5 to 10 million (12 to 25 million)	15 to 40 million (38 to 100) million
ZBX	40 to 60 million (100 to 150 million)	150 to 200 million (380 to 500) million
KHD	80 to 100 million (200 to 250 million)	180 to 230 million (450 to 580) million
NTB	100 to 125 million (250 to 315 million)	200 to 250 million (500 to 635) million
VHD	200 to 225 million (500 to 570 million)	300 to 350 million (760 to 880) million
B	N/A, Typical backlash .003 to .010 (.076 to .25)	N/A, Typical backlash .003 to .010 (.076 to .25)
NTG	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. NTB style does not include mini series sizes. Life will vary with loading, operating environment, and duty cycle. The longer screw leads generally provide longer life.

PHYSICAL PROPERTIES

LEAD SCREW

Material	Surface Finish
303 Stainless Steel (options available)	Better than 16 Micro Inch

NUTS

Material	Tensile Strength	Coefficient of Expansion
Polyacetal with Lubricating Additive	9,700 psi	6.0 x 10^{-5} in./in./°F

ASSEMBLY

Standard Operating Temp. Range	Coefficient of Friction Nut to Screw
32 - 200°F * (0 - 93°C) *	Static = .08 .08† Dynamic = .15 .09†

* Very high or low temperatures may cause significant changes in the nut fit or drag torque. Please call Kerk for optional temperature range materials.

† with Kerkote® TFE Coating

DIMENSIONAL TOLERANCES

Inch		Metric	
.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

Lead Screw Part Number Designator

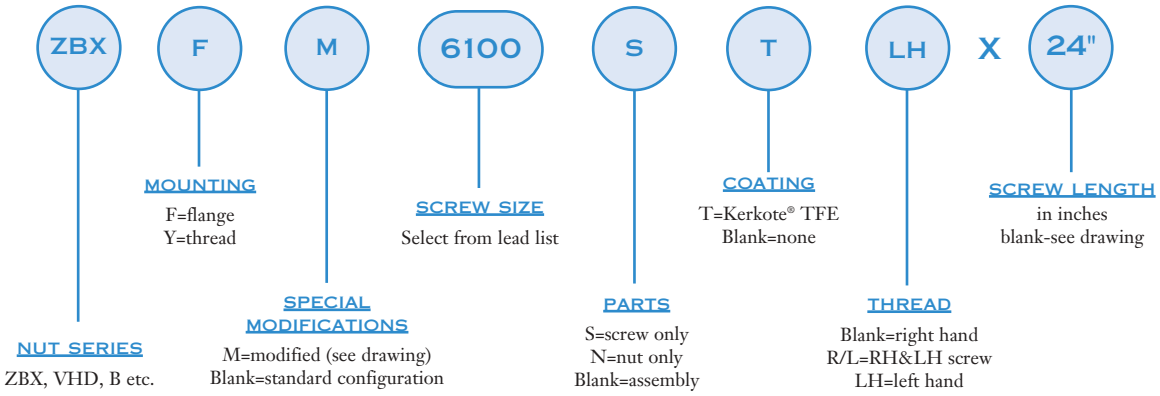
HOW TO ORDER

For lead screws with special machining or features.

Kerk will price and machine to your drawings and tolerances.
Order by your drawing or part number plus Kerk part number.

For standard configuration lead screws.

Order by Kerk part number:



Examples

ZBX Y 7050T x 24 = Assembly: ZBX Nut, Thread mount, 7/16" Dia., .50" Lead, Kerkote® TFE Coated, 24" long
KHD F 6100N = Nut only: KHD, Flange mount, 3/8" Dia., 1.00" Lead
BF 10020S x 12 = Screw only: B Series, 5/8" Dia., .200" Lead, 12" long
VHD F 8010 x 36 = Assembly: VHD Flange mount nut, 1/2" Dia., .100" Lead, 36" long

Other options to be specified:

High lead accuracy .0003, .0002 or .0001 in./in. (mm/mm)
Left Hand (L/H) threads
Modified or custom nuts
Special mounting for nuts

Special environments (temperature, clean room, contaminents, etc.)

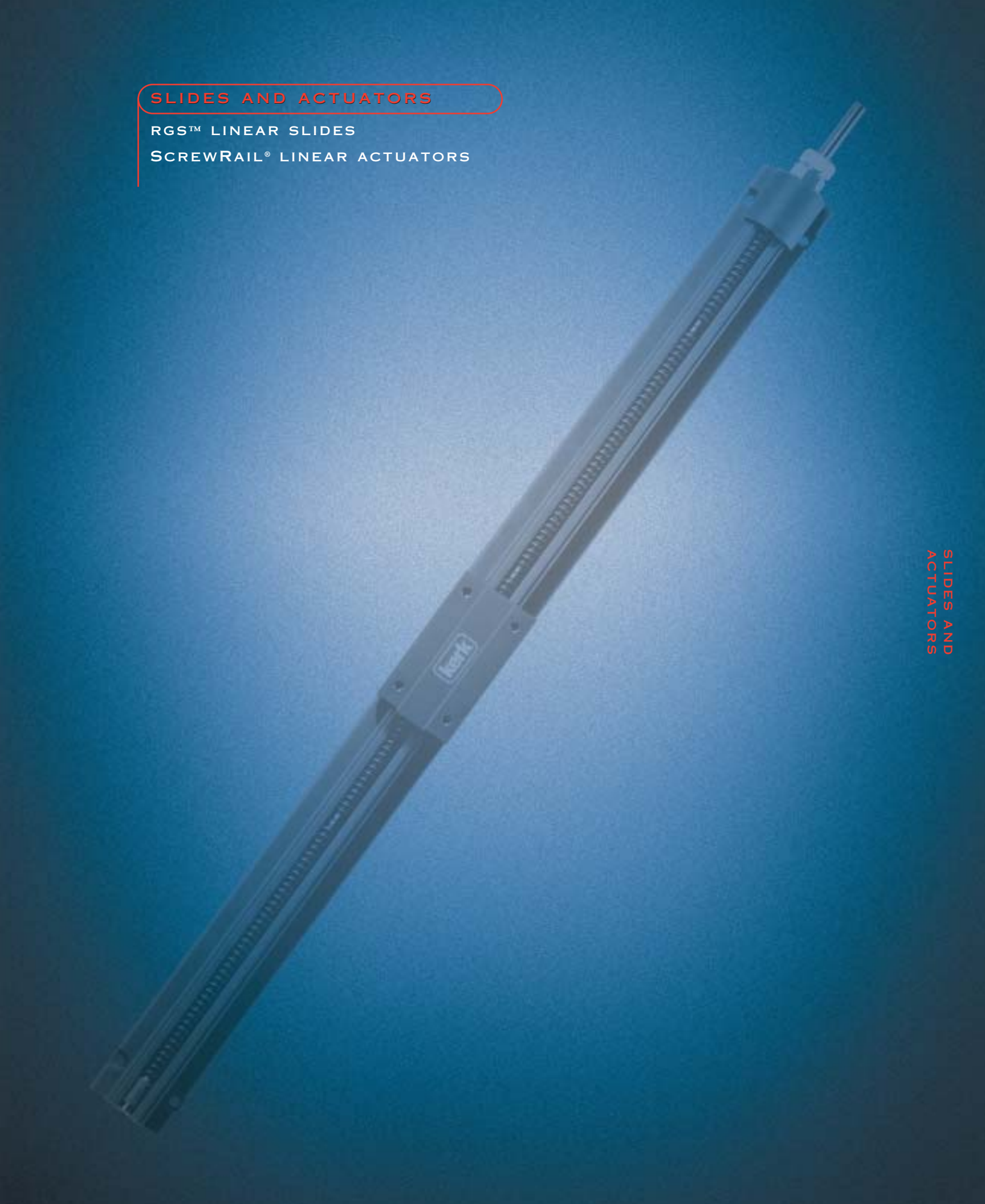
For applications assistance or order entry, call your local Kerk representative or Kerk direct at 603-465-7227, Fax 603-465-3598.

Complete Application Data Sheet and fax directly to Kerk.

SLIDES AND ACTUATORS

RGS™ LINEAR SLIDES

SCREWRAIL® LINEAR ACTUATORS



Product Overview

RGS™ LINEAR SLIDES

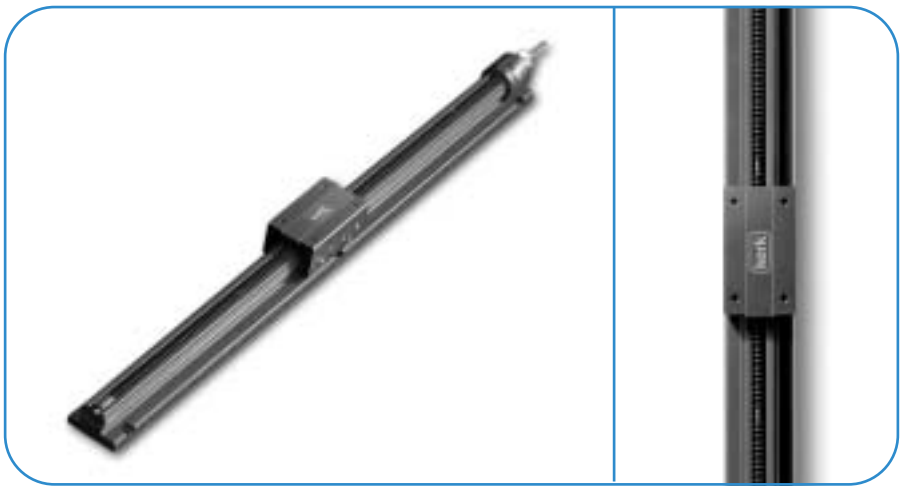
The Kerk RGS – Rapid Guide Screw – is a screw-driven slide that offers exceptional linear speed, accurate positioning, and long life in a compact, value-priced assembly. The length and speed of the Kerk RGS is not limited by critical screw speed, allowing high RPM and linear speeds, even over long spans.

Standard leads include .100", .200", .500" and 1.00" (2.54, 5.08, 12.7 and 25.4 mm) travel per revolution. Many optional leads, both inch and metric based, offer everything from high efficiency to non-backdriving leads for vertical applications, eliminating the need for brakes. With Kerk's wide range of available leads, speeds of more than 60 inches per second (1.5 meters per second) are possible, rivaling belts and cables while offering superior positioning accuracy, repeatability and axial stiffness.

The Kerk RGS slide includes a precision aluminum guide and carriage and is driven by a precision rolled stainless steel lead screw. The moving surfaces include Kerkite® high performance polymers running on Kerkote® TFE coating.

The Kerk RGS has a unique, compact profile that provides exceptional torsional stiffness and stability for its size and weight. The integral mounting base allows support over the entire length if desired. Lengths up to 8 feet (2.4 meters) can readily be built, and longer lengths are possible on a special order basis.

The Kerk RGS comes standard with a wear-compensating, anti-backlash driven carriage. Additional driven or passive carriages can be added, along with application specific customization. Linear guides, without the drive screw, are also available.

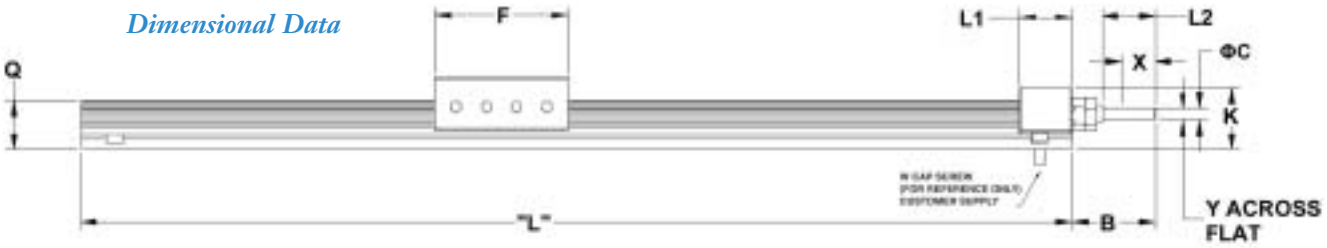


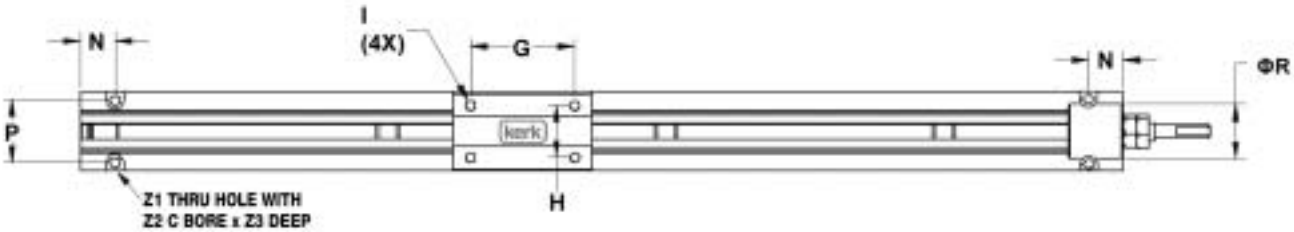
RGS SERIES

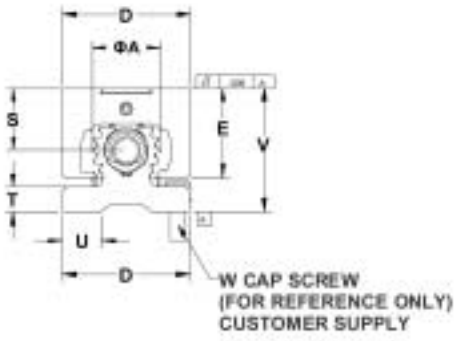
RGS6000	A	B	C	D	E	F	G	H	I	K	L1	L2	N
	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)		in. (mm)	in. (mm)	in. (mm)	in. (mm)
	.600 (15.240)	1.25 (31.8)	.1875 (4.762)	1.125 (28.6)	.79 (20.1)	2.0 (51)	1.500 (38.1)	.750 (19.1)	6-32 UNC	.9 (23)	.80 (20.3)	.80 (20.3)	.500 (12.7)
	P	Q	R	S	T	U	V	W	X	Y	Z1	Z2	Z3
	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)		in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)
	.900 (22.9)	.74 (18.8)	.78 (19.8)	.55 (14.0)	.22 (5.6)	.35 (8.9)	1.10 (27.9)	6-32 SHCS	.50 (12.7)	.170 (4.3)	.14 (3.6)	.25 (6.4)	.13 (3.3)

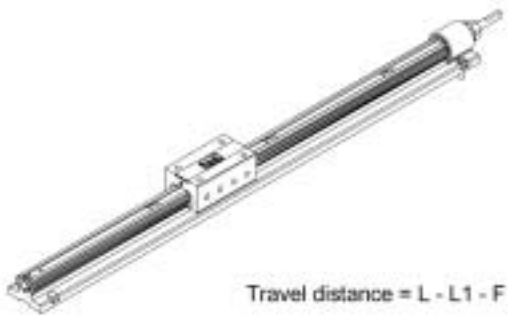
RGS10000	A	B	C	D	E	F	G	H	I	K	L1	L2	N
	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)		in. (mm)	in. (mm)	in. (mm)	in. (mm)
	1.000 (25.400)	1.75 (44.5)	.3125 (7.938)	2.000 (50.8)	1.32 (33.5)	3.3 (83)	2.250 (57.2)	1.250 (31.8)	1/4-20 UNC	1.6 (41)	1.30 (33.0)	1.30 (33.0)	.750 (19.1)
	P	Q	R	S	T	U	V	W	X	Y	Z1	Z2	Z3
	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)		in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)
	1.500 (38.1)	1.25 (31.8)	1.30 (33.0)	.92 (23.4)	.375 (9.5)	.64 (16.3)	1.83 (46.5)	1/4-20 SHCS	.88 (22.4)	.280 (7.1)	.26 (6.6)	.50 (12.7)	.22 (5.6)

Dimensional Data







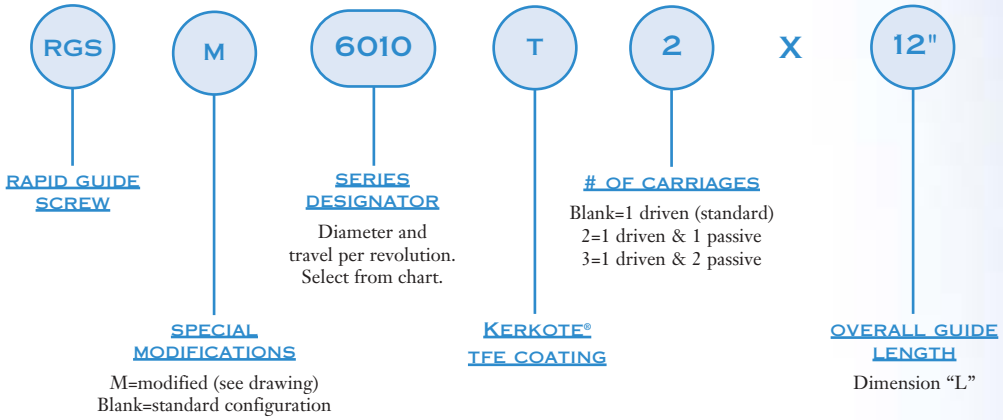


Part Number	Nom. Rail Diameter	Nom. Screw Diameter	Inch Lead	Typical Drag Torque*	Life @ 1/4 Design Load	Torque to Move Load	Design Load	Screw Inertia
	in. (mm)	in. (mm)	in. (mm)	oz. in. (Nm)	in. (cm)	oz. in./lb. (NM/kg)	lbs. (kg)	oz. in. sec^2/in. Kgm^2/m
RGS6010	0.6 (15.2)	3/8" (9.5)	.100 (2.54)	4.0 (.03)	100,000,000 (254,000,000)	1.0 (.016)	35 (16)	1.5×10^{-5} 6.5×10^{-6}
RGS6020	0.6 (15.2)	3/8" (9.5)	.200 (5.08)	5.0 (.04)	100,000,000 (254,000,000)	1.5 (.023)	35 (16)	1.5×10^{-5} 6.5×10^{-6}
RGS6050	0.6 (15.2)	3/8" (9.5)	.500 (12.70)	6.0 (.04)	100,000,000 (254,000,000)	2.5 (.039)	35 (16)	1.5×10^{-5} 6.5×10^{-6}
RGS6100	0.6 (15.2)	3/8" (9.5)	1.000 (25.40)	7.0 (.05)	100,000,000 (254,000,000)	4.5 (.070)	35 (16)	1.5×10^{-5} 6.5×10^{-6}
RGS10010	1.0 (25.4)	5/8" (15.9)	.100 (2.54)	5.0 (.04)	100,000,000 (254,000,000)	1.3 (.020)	100 (46)	14.2×10^{-5} 4.8×10^{-4}
RGS10020	1.0 (25.4)	5/8" (15.9)	.200 (5.08)	6.5 (.05)	100,000,000 (254,000,000)	2.0 (.031)	100 (46)	14.2×10^{-5} 4.8×10^{-4}
RGS10050	1.0 (25.4)	5/8" (15.9)	.500 (12.70)	7.0 (.05)	100,000,000 (254,000,000)	3.0 (.047)	100 (46)	14.2×10^{-5} 4.8×10^{-4}
RGS10100	1.0 (25.4)	5/8" (15.9)	1.000 (25.40)	8.5 (.06)	100,000,000 (254,000,000)	6.5 (.101)	100 (46)	14.2×10^{-5} 4.8×10^{-4}

**RGS™ assemblies with lengths over 3 feet and/or leads higher than .5" will likely have higher drag torque than listed values.*

RGS Series Part Number Designator

HOW TO ORDER



Examples

RGS6010T x 12" = 3/8" diameter x .100" lead with Kerkote® TFE coating, 1 driven carriage, 12" OAL

RGS10020T2 x 18" = 5/8" diameter x .200" lead with Kerkote® TFE coating, 1 driven carriage & 1 passive carriage, 18" OAL

Other options which can be specified would include an "M" in the part number (i.e., RGSM6010T x 12"):
– special carriage, rail, screw or mounting configurations (drawing required)
– higher accuracy lead screw, Left Hand (LH) or Left/Right (R/L) threads

For applications assistance or order entry, call your local Kerk representative or Kerk direct at 603-465-7227, Fax 603-465-3598.

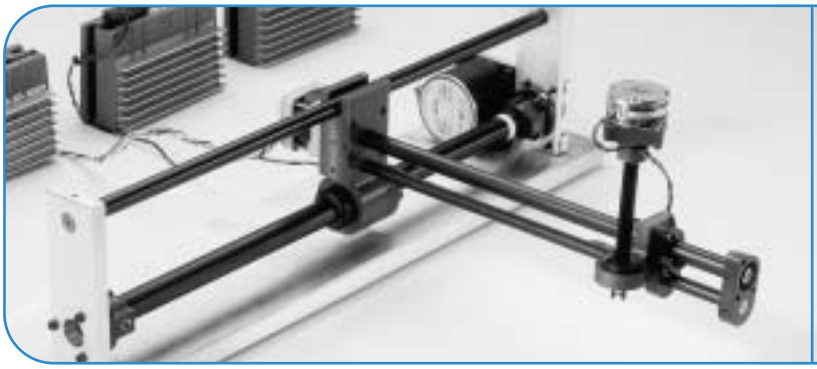
Product Overview

SCREWRAIL® LINEAR ACTUATORS

Linear motion has traditionally required separate components to handle both drive and support/guidance. The patented Kerk ScrewRail combines both functions in a single, coaxial component. By eliminating the need for external rail-to-screw alignment, the ScrewRail simplifies the design, manufacture and assembly of motion systems. The ScrewRail's coaxial design saves as much as 80% of the space used by a two-rail system and is generally less expensive than the equivalent components purchased separately. The savings can be substantial due to lower component costs and reduced labor.

An added benefit is the ability to get three-dimensional motion from a single ScrewRail. When mounted vertically, the ScrewRail can be used to simultaneously lift and rotate (Z-theta motion). With one motor driving the screw and a second rotating the rail, a compact, self-supporting pick and place mechanism can be created.

The ScrewRail consists of a precision rolled lead screw, supported by sealed bearings and contained within a concentric steel guide rail, driving an integrated nut/bushing. Because all the alignment requirements are achieved within the ScrewRail, support and positioning of the ScrewRail is much less critical than with traditional slide assemblies. Kerkote® TFE coating and self-lubricating nut/bushing materials ensure long life without maintenance.



Three-Axis ScrewRail System

Z-Theta ScrewRail Assembly

Standard ScrewRail® Nut Bushing

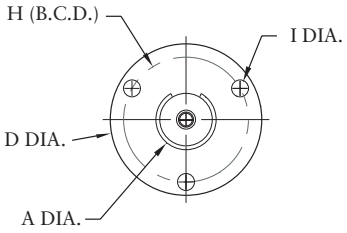
SRA SERIES

SRA – A standard nut for general applications where anti-backlash compensation is not required. The SRA is recommended anywhere low drag and minimal free play is required.

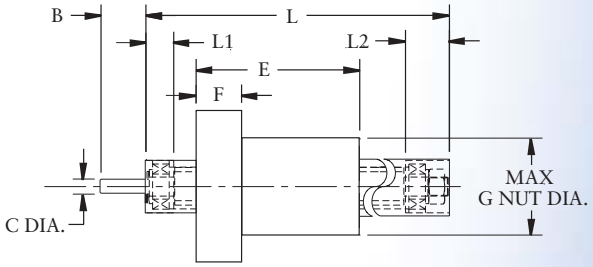
Note: Right-hand/Left-hand ScrewRail® assemblies are also available.

SRA SERIES

Series	Ø A	B	Ø C	Ø D	E	F	Ø G	H(B.C.D.)	I	L1	L2
	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm) MAX	in. (mm)	in. (mm)	in. (mm)	in. (mm)
3000 series	.366/.367 (9.3/9.33)	.38 (9.65)	.1245/.1250 (3.16/3.18)	.98 (24.9)	1.0 (25.4)	.28 (7.2)	.56 (14)	.75 (19.05)	.094 (2.39)	.37 (6.86)	.38 (9.66)
4000 series	.491/.492 (12.47/12.5)	0.62 (15.75)	.1870/.1875 (4.75/4.76)	1.25 (31.8)	1.4 (36)	.38 (9.5)	.75 (19)	1.03 (26.2)	0.140 (3.56)	0.26 (6.6)	0.36 (9.1)
6000 series	.741/.742 (18.82/18.85)	0.75 (19.05)	.2490/.2495 (6.33/6.34)	1.75 (44.5)	2.0 (51)	.50 (12.7)	1.12 (28)	1.48 (37.6)	0.173 (4.39)	0.38 (9.7)	0.70 (17.8)
8000 series	.991/.992 (25.17/25.2)	0.75 (19.05)	.2490/.2495 (6.33/6.34)	2.23 (56.7)	2.5 (64)	.63 (15.9)	1.49 (38)	1.92 (48.8)	0.200 (5.08)	0.48 (12.2)	0.77 (19.6)



NOTE: TOTAL TRAVEL = L - (L1 + L2 + E)



Anti-Backlash ScrewRail® Nut Bushing

SRZ SERIES

SRZ – A nut with Kerk's patented axial take-up mechanism providing continuous self-adjusting anti-backlash compensation.

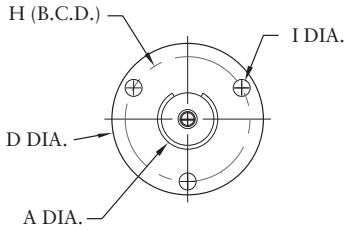
Note: Right-hand/Left-hand ScrewRail® assemblies are also available.

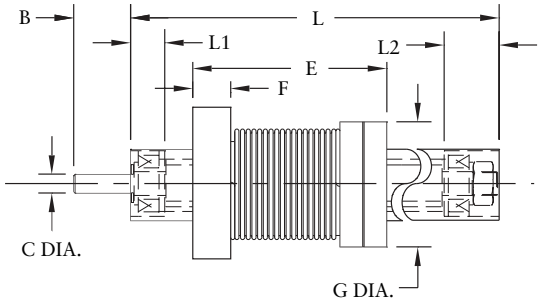
SRZ SERIES

SRZ Flange Option	Ø A	B	Ø C	Ø D	E	F	Ø G	H (B.C.D.)	I (Brass Inserts)	L1	L2
	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)
3000 series	.366/.367 (9.3/9.32)	.38 (9.56)	.1245/.1250 (3.16/3.18)	.98 (24.9)	1.1 (27.94)	.28 (7.2)	.75 (19.1)	.75 (19.05)	#2-56 *	.37 (6.86)	.38 (9.66)
4000 series	.491/.492 (12.47/12.5)	0.62 (15.75)	.1870/.1875 (4.75/4.76)	1.31 (33.3)	1.4 (36)	.38 (9.5)	0.97 (24.7)	1.03 (26.2)	#6-32 *	0.26 (6.6)	0.36 (9.1)
6000 series	.741/.742 (18.82/18.85)	0.75 (19.05)	.2490/.2495 (6.33/6.34)	1.81 (46.0)	2.0 (51)	.50 (12.7)	1.38 (35.1)	1.48 (37.6)	#10-32 *	0.38 (9.7)	0.70 (17.8)
8000 series	.991/.992 (25.17/25.2)	0.75 (19.05)	.2490/.2495 (6.33/6.34)	2.30 (58.4)	2.5 (64)	.63 (15.9)	1.72 (43.7)	1.92 (48.8)	#10-32 *	0.48 (12.2)	0.77 (19.6)

*metric available as required

NOTE: TOTAL TRAVEL = L - (L1 + L2 + E)





ScrewRail® Linear Actuator End Supports

END SUPPORTS

As an additional option for all Kerk ScrewRails, standard End Supports offer the convenience of simple and compact mounting for the ScrewRail. The End Supports are designed to slide over the outside diameter of each end of the rail and "key" off the slot in the ScrewRail.

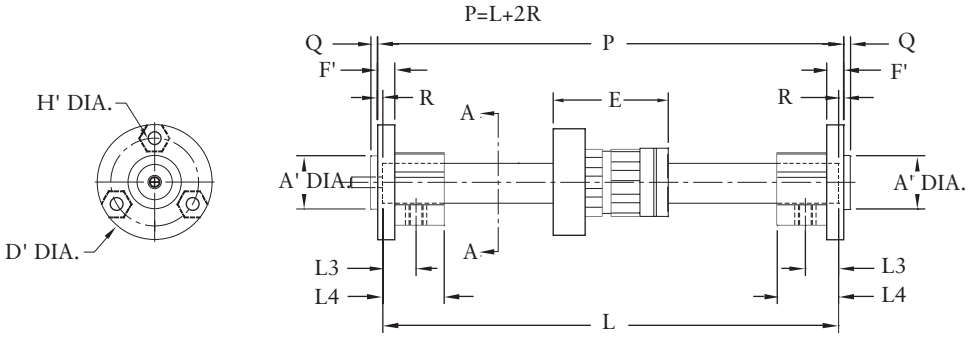
The Kerkite® composite polymer End Supports come standard with three hex nuts that are captured in the flange for easy assembly. The End Supports are also supplied with a brass threaded insert and a set screw to fasten to the outside diameter of the rail.

With the End Supports, the Kerk ScrewRail can be easily mounted to your assembly. However, if the End Supports are not utilized it is recommended to center the clamping force on each end at the L3 dimension as shown in the drawing below.

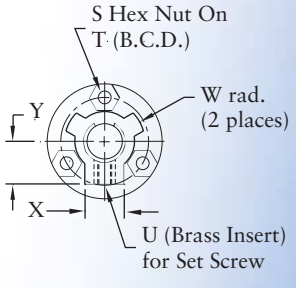
END SUPPORT STYLES

End	ScrewRail Support	Ø A' Number	Ø D'	F'	Ø H'	L3	L4	Q	R	S	T (Hex Nut)	U	Ø W (Brass Insert)	X	Y
		in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)
4000 series	SR4000ES	.624/.626 (15.85/15.90)	1.35 (34.3)	0.200 (5.08)	0.150 (3.81)	0.390 (9.91)	0.720 (18.29)	0.080 (2.03)	0.060 (1.52)	#6-32 *	1.03 (26.2)	#8-32	0.47 (12.0)	0.460 (11.68)	0.500 (12.70)
6000 series	SR6000ES	.749/.751 (19.03/19.08)	1.60 (40.6)	0.250 (6.35)	0.173 (4.39)	0.603 (15.32)	0.900 (22.86)	0.100 (2.54)	0.100 (2.54)	#8-32 *	1.31 (33.3)	#10-32	0.60 (15.3)	0.594 (15.09)	0.645 (16.38)
8000 series	SR8000ES	.999/1.001 (25.38/25.43)	2.20 (55.9)	0.375 (9.53)	0.200 (5.08)	0.920 (23.37)	1.200 (30.48)	0.125 (3.18)	0.175 (4.45)	#10-32 *	1.82 (46.2)	#10-32	0.82 (20.9)	0.800 (20.32)	0.820 (20.83)

*metric available as required



Dimensions E and L are referenced in the ScrewRail Dimensions section
Note: Total Travel=L-(E+2(L4))



View A-A

SRA SERIES

SCREWRAIL® ACTUATOR ASSEMBLIES

Kerk Part #	Nominal Rail Diameter	Nominal Screw Diameter	Inch Lead **	Max. Drag Torque	Life at 1/4 Design Load x 10^6 (Non Anti-Backlash)	Torque to move load	Design Load	Screw Inertia per unit length	Equiv. Diameter*
				oz.-in. (NM)	in. (cm)	oz.-in./lbs. (NM/kg)	lbs. (kg)	oz.-in. sec.^{2}/in. Kgm^2/m	in. (mm)
SRA3005	3/16"	3/8"	.050	1.5 (0.014)	100 to 150 (250 to 380)	0.5 (0.007)	10 (5)	.1 x 10^{-5} (0.4 x 10^{-6})	.30 (7.6)
SRA3010			.100	2.0 (0.018)		1.0 (0.016)			
SRA3025			.250	2.5 (0.020)		1.25 (0.019)			
SRA3037			.375	3.0 (0.025)		2.0 (0.030)			
SRA4005	1/2"	1/4"	0.050	2.0 (0.015)	150 to 200 (380 to 500)	0.5 (0.007)	25 (10)	.3 x 10^{-5} (1.3 x 10^{-6})	.39 (9.9)
SRA4025			0.250	3.0 (0.020)		1.5 (0.023)			
SRA4050			0.500	4.0 (0.030)		2.5 (0.039)			
SRA4100			1.000	5.0 (0.040)		4.5 (0.070)			
SRA6010	3/4"	3/8"	0.100	3.0 (0.020)	180 to 280 (450 to 710)	1.0 (0.016)	50 (20)	1.5 x 10^{-5} (6.5 x 10^{-6})	.60 (15.2)
SRA6020			0.200	4.0 (0.030)		1.5 (0.023)			
SRA6050			0.500	5.0 (0.040)		2.5 (0.039)			
SRA6100			1.000	6.0 (0.045)		4.5 (0.070)			
SRA8010	1"	1/2"	0.100	4.0 (0.030)	280 to 320 (710 to 810)	1.0 (0.016)	100 (45)	5.2 x 10^{-5} (20 x 10^{-6})	.81 (20.5)
SRA8020			0.200	5.0 (0.040)		1.5 (0.023)			
SRA8050			0.500	6.0 (0.045)		2.5 (0.039)			
SRA8100			1.000	8.0 (0.060)		4.5 (0.070)			

* ScrewRail® stiffness may be modeled using Classical Beam Deflection Theory with equivalent solid stainless steel beam of diameter given.
** Other leads available as custom orders.

SRZ SERIES

ScrewRail® ACTUATOR ASSEMBLIES

Kerk Part #	Nominal Rail Diameter	Nominal Screw Diameter	Inch Lead **	Max. Drag Torque	Life at 1/4 Design Load x 10^6 (Non Anti-Backlash)	Torque to move load	Design Load	Screw Inertia per unit length	Equiv. Diameter*
				oz.-in. (NM)	in. (cm)	oz.-in./lbs. (NM/kg)	lbs. (kg)	oz.-in. sec.^{2}/in. Kgm^2/m	in. (mm)
SRZ3005	3/8"	3/16"	.050	2.0 (0.014)	50 to 80 (130 to 200)	.5 (0.007)	10 (5)	.1 x 10^{-5} (0.4 x 10^{-6})	.30 (7.6)
SRZ3010			.100	2.5 (0.018)		1.0 (0.016)			
SRZ3025			.250	3.0 (0.020)		1.25 (0.019)			
SRZ3037			.375	3.5 (0.025)		2.0 (0.030)			
SRZ4005	1/2"	1/4"	0.050	3.0 (0.020)	75 to 100 (190 to 250)	0.5 (0.007)	25 (10)	.3 x 10^{-5} (1.3 x 10^{-6})	0.39 (9.9)
SRZ4025			0.250	4.0 (0.030)		1.5 (0.023)			
SRZ4050			0.500	5.0 (0.040)		2.5 (0.039)			
SRZ4100			1.000	6.0 (0.045)		4.5 (0.070)			
SRZ6010	3/4"	3/8"	0.100	6.0 (0.045)	90 to 140 (230 to 350)	1.0 (0.016)	50 (20)	1.5 x 10^{-5} (6.5 x 10^{-6})	0.60 (15.2)
SRZ6020			0.200	6.5 (0.047)		1.5 (0.023)			
SRZ6050			0.500	7.0 (0.050)		2.5 (0.039)			
SRZ6100			1.000	7.5 (0.053)		4.5 (0.070)			
SRZ8010	1"	1/2"	0.100	8.0 (0.057)	120 to 160 (350 to 410)	1.0 (0.016)	100 (45)	5.2 x 10^{-5} (20 x 10^{-6})	0.81 (20.5)
SRZ8020			0.200	8.5 (0.060)		1.5 (0.023)			
SRZ8050			0.500	9.0 (0.064)		2.5 (0.039)			
SRZ8100			1.000	9.5 (0.067)		4.5 (0.070)			

* ScrewRail® stiffness may be modeled using Classical Beam Deflection Theory with equivalent solid stainless steel beam of diameter given.
** Other leads available as custom orders.

ScrewRail® Part Number Designator

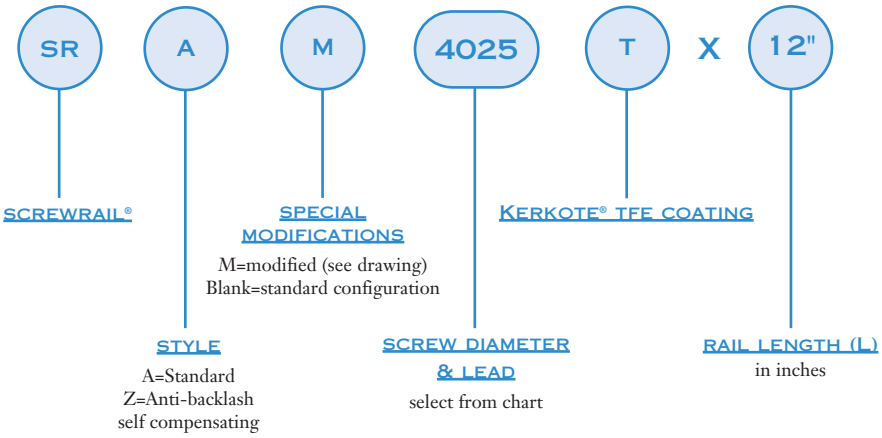
HOW TO ORDER

For ScrewRails® with special journals, or nut, rail or screw modifications

Kerk will price and machine to your drawings and tolerances.
Order by your drawing or part number plus Kerk part number.

For standard configuration ScrewRails®

Order by Kerk part number:



Examples

SRA4025T X 12 = ScrewRail® with a standard nut, 3 through-hole flange and 1/4 inch diameter screw (1/2 inch diameter rail) with .250 inch lead and a rail length of 12 inches.

Other options to be specified

Special nut, rail or screw modifications (Drawings required)
High lead accuracy - .0003, .0002, .0001 in./in. (mm/mm)
Left Hand (LH) or Right Hand/Left Hand (R/L) threads

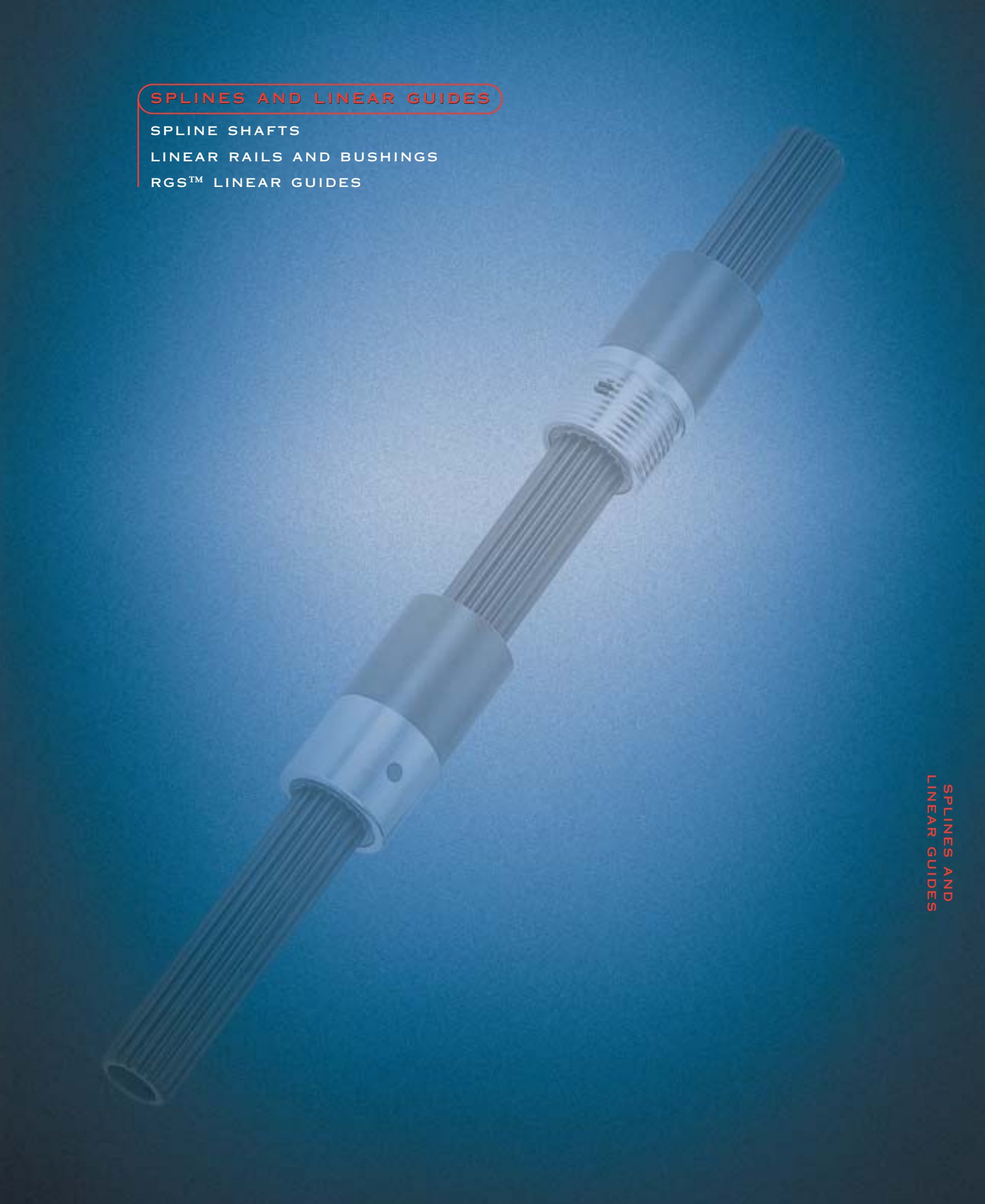
For applications assistance or order entry, call your local Kerk representative or Kerk direct at 603-465-7227, Fax 603-465-3598.

SPLINES AND LINEAR GUIDES

SPLINE SHAFTS

LINEAR RAILS AND BUSHINGS

RGS™ LINEAR GUIDES



Product Overview

SPLINE SHAFTS

AVAILABLE IN ALUMINUM AND STEEL

The Kerk Spline Shaft (SS) series spline shaft system has been designed for light to moderate load applications, where low cost, low friction, and long life are primary design considerations.

Kerk Spline Shafts provide anti-rotation for one axis motion or a drive mechanism with rotation for two axes of motion. They are excellent alternatives for applications where hex shafts, square shafts and high-cost ball splines are typically used.

The assembly consists of a light weight, aluminum or corrosion resistant steel, spline shaft treated with Kerk's proprietary low friction Kerkote® TFE coating, mated with a Kerkite® composite polymer bushing. The bushing is supplied with an integral brass collar to facilitate various mounting configurations without nut distortion.

Standard shaft straightness is .003" (.08mm/30cm) per foot. Typical radial and torsional clearance between shaft and bushing for a basic assembly (SSB) is .002" to .003"(.05-.08mm). An anti-backlash assembly (SSZ) is available for applications requiring minimum torsional play.

As with other Kerk assemblies, special bushing configurations and end machining configurations are available upon request.

Spline Shaft Part Number Designator

HOW TO ORDER

SS	B	P	4	H	T	1	X	12
SPLINE SHAFT	STYLE B=Basic Z=Anti-backlash	MOUNT P=Plain Dia. Y=Thread M=Modified	SHAFT DIAMETER Select from Chart	H=Steel Blank=Aluminum - solid * = Aluminum - tube	KERKOTE® TFE COATING	# OF BUSHINGS		SHAFT LENGTH

Examples

SSBPM4T1 X 12 = 1/4 inch diameter Spline Shaft, with Kerkote® TFE coating, one basic bushing, modified (customer drawing required), 12 inch shaft length

SSZY6T1 X 18 = 3/8 inch diameter Spline Shaft with Kerkote® TFE coating, one anti-backlash thread mount bushing, 18 inch shaft length

SPLINE SHAFT (SS) SERIES

Part No.	Shaft	Root Diameter	Tube I.D.	Bushing Outside	Bushing Length	Thread	Thread Length	Equivalent Diameter**	
	A in. ± .002 (mm ± 0.05)	 in. ± .002 (mm ± 0.05)	 in. ± .002 (mm ± 0.05)	B in. ± .001 (mm ± 0.025)	C in. ± .010 (mm ± 0.25)	M	N in. ± .005 (mm ± 0.13)	 in. (mm)	
SS4	0.250 (6.35)	.202 (5.13)	NA	0.500 (12.70)	0.75 (19.1)	7/16-20	0.250 (6.35)	.226 (5.74)	
SS6	0.375 (9.53)	.306 (7.77)	NA	0.625 (15.88)	1.00 (25.4)	9/16-20	0.375 (9.53)	.226 (5.74)	
SS8	0.500 (12.70)	.419 (10.64)	NA	0.813 (20.65)	1.50 (38.1)	3/4-20	0.500 (12.70)	.458 (11.63)	
SS12	0.750 (19.05)	.630 (16.00)	NA	1.125 (28.58)	2.25 (57.2)	1-16	0.750 (19.05)	.690 (17.53)	
SS6 tube*	0.375 (9.53)	.306 (5.13)	.230 (5.84)	0.625 (15.88)	1.00 (25.4)	9/16-20	0.375 (9.53)	Do = .340 (8.64)	Di = .230 (5.84)
SS8 tube*	0.500 (12.70)	.419 (10.64)	.340 (8.64)	0.813 (20.65)	1.50 (38.1)	3/4-20	0.500 (12.70)	Do = .458 (11.63)	Di = .340 (8.64)
SS12 tube*	0.750 (19.05)	.630 (16.00)	.480 (12.19)	1.125 (28.58)	2.25 (57.2)	1-16	0.750 (19.05)	Do = .690 (17.53)	Di = .480 (12.19)

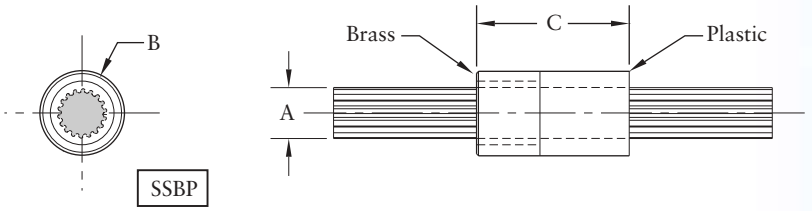
Maximum twist:
3°/ft. about Spline Shaft axis.

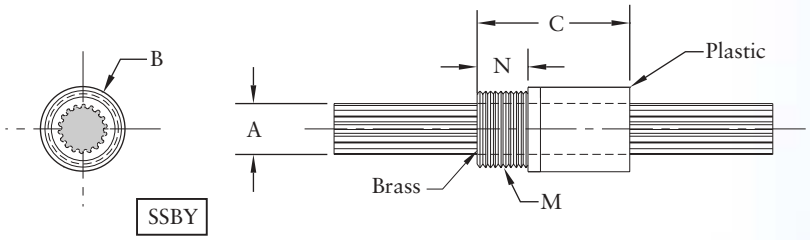
Torsional clearance (SSB): 3°
Bushing to shaft.

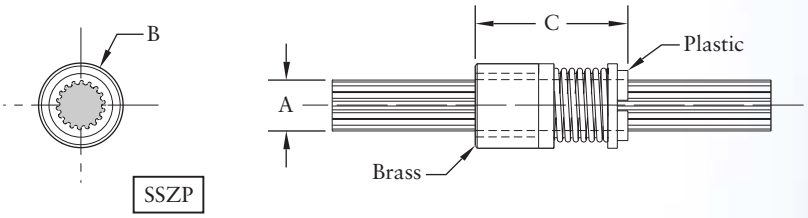
Drag force (SSZ): 6 oz.

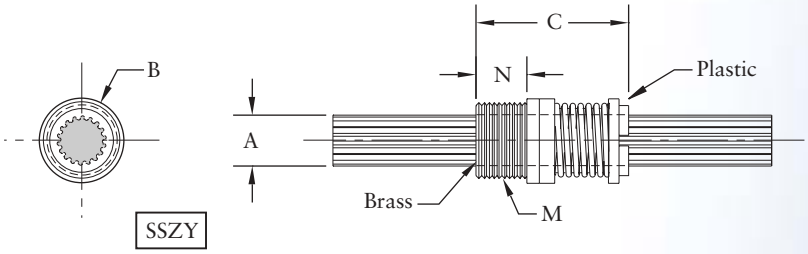
*Tube configuration
available in aluminum only

**Spline Shaft stiffness may
be modeled as a round rod
or tube with diameters given.









Product Overview and Specifications

LINEAR RAILS AND BUSHINGS

The Kerk LR Series linear rail system has been designed for light load applications where low cost, minimum frictional drag and long wear life are primary design considerations.

The assembly consists of a centerless ground and burnished stainless steel shaft mated with a Kerkite® composite polymer bushing. The material combinations have been selected so that thermal fluctuations have minimal effect on system performance. Additional lubricity and extended life can be obtained by using Kerk's low friction Kerkote® TFE coating on support shafts available in both stainless and alloy steel.

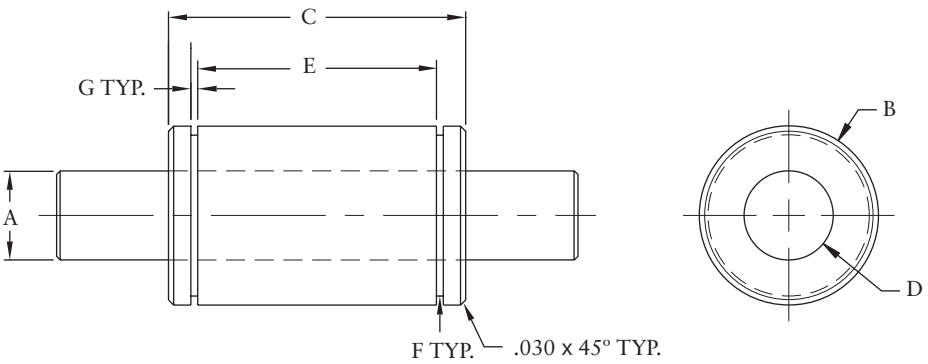
Standard shaft straightness is .002"(0.05mm) per foot and typical radial clearance between shaft and bushing is .0005" (.013mm) on non-coated assemblies and .001" (.025mm) on Kerkote TFE coated assemblies.

Bushings are manufactured with standard retaining ring grooves.

LR STANDARD MOUNTING DIMENSIONS

	Standard Part Lengths	Rail Ø	Rail Ø w/TFE	Bushing Outside Ø	Bushing Length	Bushing Inside Ø	Snap Ring Groove Loc.	Snap Ring Groove Ø	Snap Ring Groove Width	Rail Chamfer	Radial Load
P/N	*	A	A	B	C	D	E	F	G	H	
	in. ± .010	in. ± .0006 (mm 0.015)	in. ±. 0006 (mm 0.015)	in. ± .0005 (mm 0.013)	in. ± .010 (mm 0.25)	in. ± .0005 (mm 0.013)	+.010 in. -.000 (mm 0.25)	in. ± .004 (mm 0.100)	in. ± .0003 (mm 0.008)	in. (mm)	lbs. (kg)
LR4	6/8 10/12	.2475 (6.29)	.2472 (6.29)	.5000 (12.70)	.765 (19.43)	.2485 (6.31)	.535 (13.59)	.450 (11.43)	.040 (1.02)	.020 (.51)	5 (2.3)
LR6	6/12 15/18	.3715 (9.44)	.3712 (9.45)	.7500 (19.05)	1.275 (32.39)	.3725 (9.46)	.995 (25.27)	.676 (17.17)	.046 (1.17)	.020 (.51)	10 (4.5)
LR8	12/15 18/24	.4965 (12.61)	.4962 (12.60)	1.0000 (25.40)	1.660 (42.16)	.4975 (12.64)	1.330 (33.78)	.900 (22.86)	.046 (1.17)	.020 (.51)	15 (6.8)
LR12	18/24 36	.7415 (18.83)	.7412 (18.83)	1.2500 (31.75)	2.036 (51.72)	.7425 (18.86)	1.620 (41.15)	1.125 (28.60)	.058 (1.47)	.030 (.76)	25 (11.4)

*custom lengths available upon request



Linear Rail Part Number Designator

HOW TO ORDER

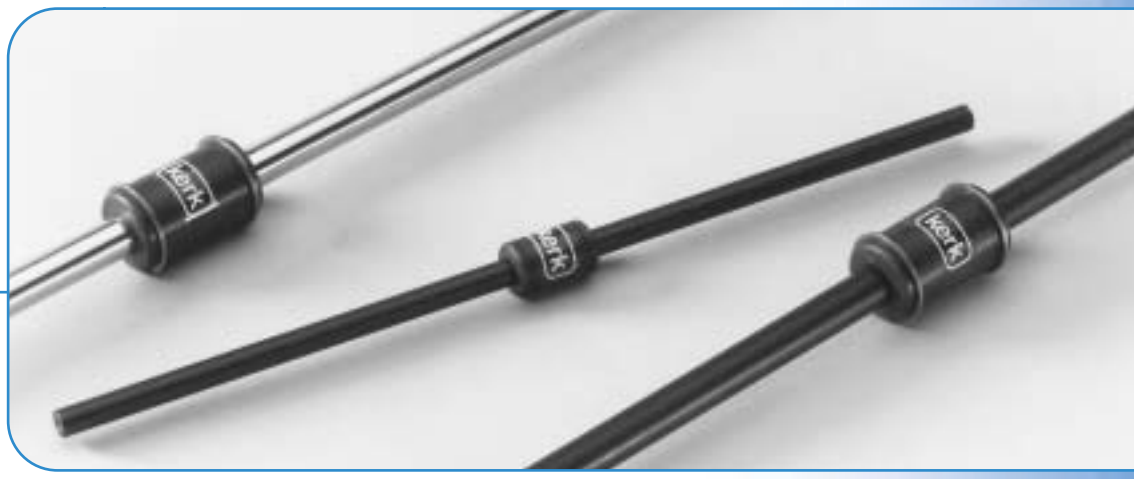
For rails with special machining or features

Kerk will price and machine to your drawings and tolerances.
Order by your drawing or part number plus Kerk part number.

For cut-to-length rails

Order by Kerk part number:

LR	4	T	1	M	X	12
LINEAR RAIL PRODUCT	DIAMETER 16ths XM=metric	COATING T=Kerkote® TFE B=burnished	# OF BUSHINGS	MODIFICATIONS M=modified (see drawing) Blank=Standard		LENGTH



Examples

LR4T1MX12 = Linear Rail, 1/4 inch diameter, with Kerkote® TFE coating, one bushing, modified (customer drawing required), 12 inch length

For applications assistance or order entry, call your local Kerk representative or Kerk direct at 603-465-7227, Fax 603-465-3598.

Product Overview

RGS™ LINEAR GUIDES

The Kerk® RGS Linear Guide provides a strong, stable platform for a variety of linear motion applications. The RGS Linear Guide is designed to easily mount to any flat surface, or bridge free spans, with a convenient, easy access carriage. The splined aluminum profile, with Kerkote® TFE coating combines low friction linear guidance with torsional stability. Available in two sizes, the RGS Linear Guide can be configured in lengths up to 8 feet without special tooling, with one or more carriages, in standard or custom configurations.

The Kerk RGS Linear Guide is constructed of high strength, extruded aluminum and Kerkite® composite polymer with Kerkote TFE on all critical surfaces. This proven combination of materials assures exceptionally long life without the need for adjustment, lubrication or maintenance. The simplicity of the RGS Linear Guide makes it both easy to use and a great value. Similar to other Kerk products, it can be easily modified to custom configurations to suit most applications.

The Kerk RGS Linear Guide is a perfect companion to the Kerk RGS Linear Slide. Both share the same rail and carriage geometry to simplify equipment design and reduce part counts. The RGS Linear Guide is equally suitable for use with Kerk Lead Screws or any other type of drive or actuator.

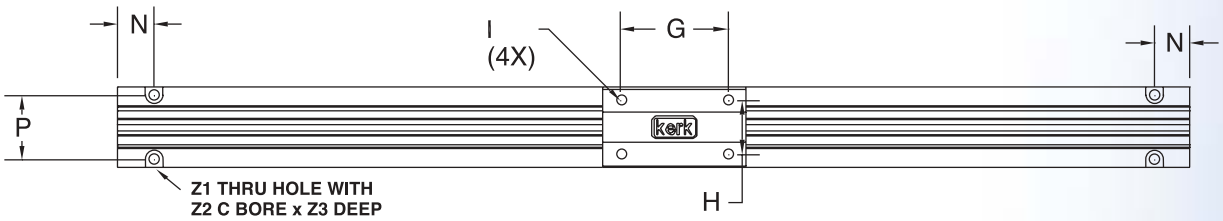
RGS™ LINEAR GUIDES

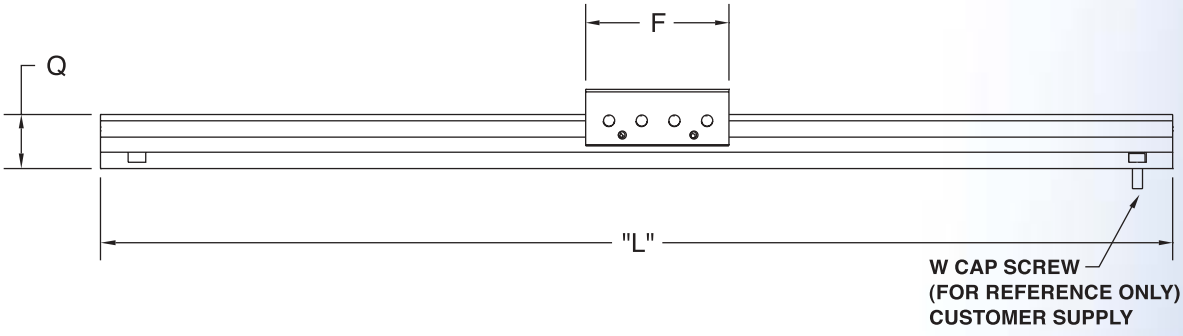
RGS6T	A	D	E	F	G	H	I	N	P	Q	S
	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)		in. (mm)	in. (mm)	in. (mm)	in. (mm)
	0.600 (15.240)	1.125 (28.6)	0.79 (20.1)	2.0 (51)	1.500 (38.1)	0.750 (19.1)	6-32 UNC	0.500 (12.7)	0.900 (22.9)	0.74 (18.8)	0.55 (14.0)

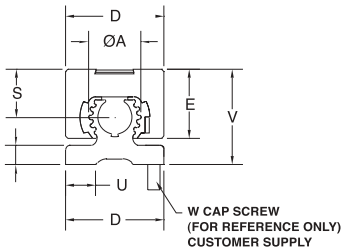
T	U	V	W	Z1	Z2	Z3
in. (mm)	in. (mm)	in. (mm)		in. (mm)	in. (mm)	in. (mm)
0.22 (5.6)	0.35 (8.9)	1.10 (27.9)	6-32 SHCS	.14 (3.6)	.25 (6.4)	.13 (3.3)

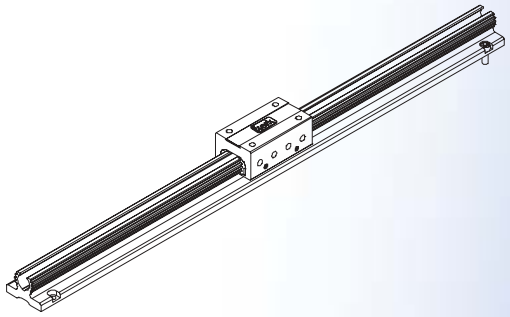
RGS10T	A	D	E	F	G	H	I	N	P	Q	S
	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)		in. (mm)	in. (mm)	in. (mm)	in. (mm)
	1.000 (25.400)	2.000 (50.8)	1.32 (33.5)	3.3 (83)	2.250 (57.2)	1.250 (31.8)	1/4-20 UNC	0.750 (19.1)	1.500 (38.1)	1.25 (31.8)	0.92 (23.4)

T	U	V	W	Z1	Z2	Z3
in. (mm)	in. (mm)	in. (mm)		in. (mm)	in. (mm)	in. (mm)
0.375 (9.5)	0.64 (16.3)	1.83 (46.5)	1/4-20 SHCS	.26 (6.6)	.50 (12.7)	.22 (5.6)



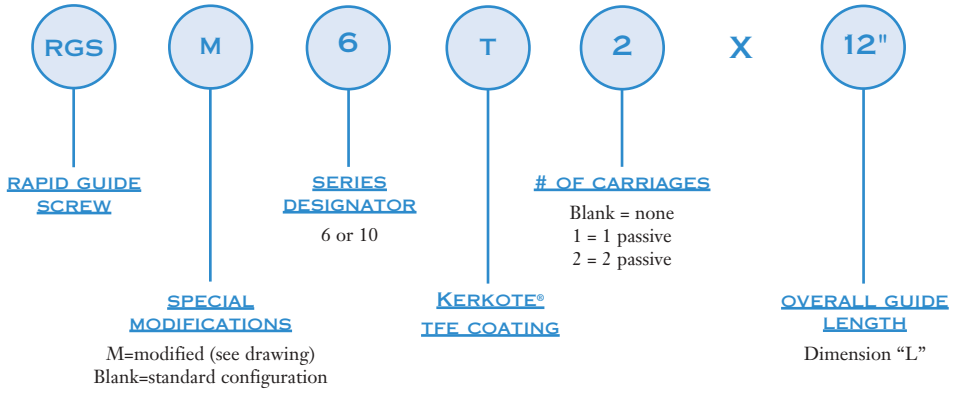






RGS Linear Guide Part Number Designator

HOW TO ORDER



Examples

RGS6T x 12" = 6 Series RGS with Kerkote® TFE coating, no carriage, 12" OAL

RGS10T2 x 18" = 10 Series RGS with Kerkote® TFE coating, 2 passive carriages, 18" OAL

Other options which can be specified would include an "M" in the part number (i.e., RGSM6T x 12"):
– special carriage, rail, or mounting configurations (drawing required)

For applications assistance or order entry, call your local Kerk representative or Kerk direct at 603-465-7227, Fax 603-465-3598.

CONTACT US

NORTH AMERICAN REPRESENTATIVES & DISTRIBUTORS

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continued >

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United Kingdom
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FX: 44-1484-601061
E-mail: sales@rpmechatronics.co.uk
www.rpmechatronics.co.uk

APPLICATION DATA SHEET

Contact Information

Customer: _____

Contact: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Email: _____

Fax: _____

Date: _____

Type of Application/Description: _____

_____

_____

Anti-backlash nut system required? ◯ Yes ◯ No

Screw mounted: ◯ Vertically ◯ Horizontally

Screw Data

Length: _____

Diameter _____ Lead (advance/rev.) _____

Standard lead accuracy (.0006 in./in.) _____ High lead accuracy = _____

End machining required? ◯ Yes (attach detail drawing) ◯ No

Kerkote® TFE coating? _____ Approximate RPM: _____

Screw driven? ◯ Yes ◯ No By? _____

Nut driven? ◯ Yes ◯ No By? _____

Nut Data

Model/series (if known) _____ Traverse speed: _____

Approximate dynamic loading Axially: _____ Radially: _____

Usage: ◯ Light duty ◯ Intermittent ◯ Continuous

Any special environmental conditions (temperature, dirt, abrasives, space limitations, etc.)? _____

_____

_____

General

New Requirement? ◯ Yes ◯ No Or presently using _____

Initial quantity _____ Annual Usage _____ # of years _____

Quotation required? ◯ Yes ◯ No Quantity(s) _____

Other/notes: _____

_____

_____