



SS and SZ Series Spline Shafts

The Kerk® Spline Shaft (SS/SZ) 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 stainless steel spline shaft treated with Haydon Kerk Motion Solutions, Inc. 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-in (.08mm/30cm) per foot. Typical radial and torsional clearance between shaft and bushing for a basic assembly (SSA) is .002-in to .003-in (.05-.08mm). An anti-backlash assembly (SZA) is available for applications requiring minimum torsional play. As with other Kerk assemblies, special bushing configurations and end machining configurations are available upon request. Aluminum or carbon steel spline shafts are also available upon request.



GR Series Linear Rails and Bushings

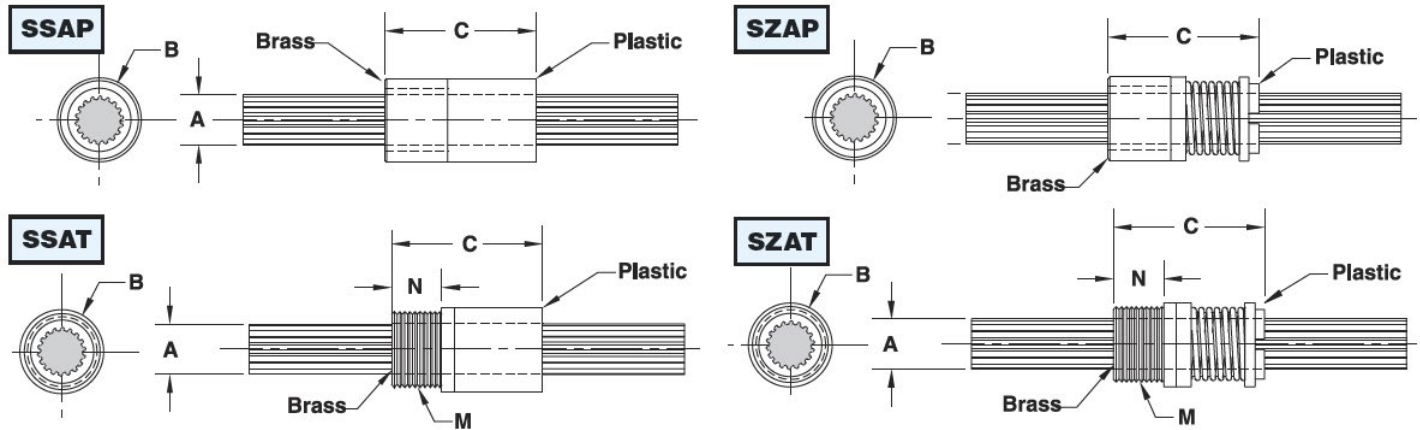
The GR Series linear rail system has been designed for light load applications where low cost, minimum frictional drag and long wear life are primary design considerations. The assembly consists of a centerless ground and burnished stainless steel shaft mated with a Kerkite® composite polymer bushing. 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 a low friction Kerkote® TFE coating on support shafts available in both stainless steel and alloy steel. Standard shaft straightness is .002-in (0.05mm) per foot and typical radial clearance between shaft and bushing is .0005-in (.013mm) on non-coated assemblies and .001-in (.025mm) on Kerkote TFE coated assemblies. Bushings are manufactured with standard retaining ring grooves.

■ Identifying the Spline Shafts and Guide Rails Part Number Codes when Ordering

SZ	A	P	04	1	K	08	XXX
Prefix	Nut Style	Mounting	Rail Diameter	Number of Bushings per Rail	Lubrication	Length in Inches (Rounded up)	Unique Identifier
SS = Spline Shaft	A = Assembly B = Bushing only	T = Threaded (for Spline Shafts only)	02 = 1/8-in 04 = 1/4-in 06 = 3/8-in	0 1 2	S = Uncoated K = Kerkote® B = Black Ice™	Example: 06 = 6-in 08 = 8-in	Proprietary suffix assigned to a specific customer application. The identifier can apply to either a standard or custom part.
SZ = Anti- Backlash Spline Shaft	S = Shaft only	G = Snap ring groove (for Guide Rails only)	08 = 1/2-in 12 = 3/4-in	3 4 5	N = Bushing only	00 = Bushing only	
GR = Guide Rail		P = Plain (no features) S = Shaft only X = Custom		Use "0" for Shaft only and "1" if Bushing only			

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

■ SRA Series Standard ScrewRail Linear Actuators



SS/SZ	Rail Diameter Code	Shaft A in ± .002 (mm ± 0.05)	Root Diameter in ± .002 (mm ± 0.05)	Tube I.D. in ± .002 (mm ± 0.05)	Bushing Diameter B in ± .002 (mm ± 0.05)	Bushing Length C in ± .002 (mm ± 0.05)	Thread M	Thread Length N in ± .002 (mm ± 0.05)	Equivalent Diameter** inch (mm)
	02	0.125 (3.18)	0.095 (2.41)	NA	0.375 (9.53)	0.500 (12.70)	3/8-24	0.250 (6.35)	0.110 (2.79)
04	0.250 (6.35)	0.202 (5.13)	NA	0.500 (12.70)	0.75 (19.1)	7/16-20	0.250 (6.35)	0.226 (5.74)	
06	0.375 (9.53)	0.306 (7.77)	NA	0.625 (15.88)	1.00 (25.4)	9/16-20	0.375 (9.53)	0.341 (8.65)	
08	0.500 (12.70)	0.419 (10.64)	NA	0.813 (20.65)	1.50 (38.1)	3/4-20	0.500 (12.70)	0.458 (11.63)	

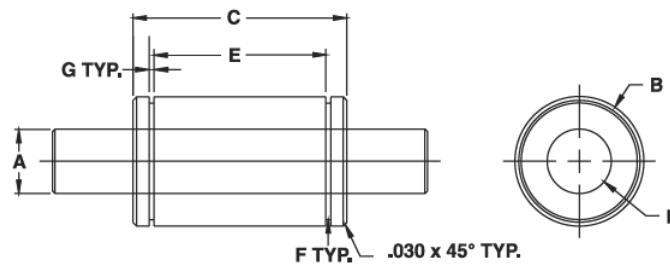
Maximum Twist: 3°/ft about Spline Shaft axis

Torsional Clearance (SSA): 3° Bushing to Shaft

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

0.125-in rail size only available in SSAP and SSAT styles.

■ GR Series Linear Rails and Bushings



GR	Rail Diameter Code	Standard Part Length in ± .010 (mm ± 0.25)	Rail Diameter A in ± .0006 (mm ± 0.015)	Rail Diameter w/TFE A in ± .0006 (mm ± 0.015)	Bushing Outside Diameter B in ± .0006 (mm ± 0.015)	Bushing Length C in ± .010 (mm ± 0.25)	Bushing Inside Diameter D in ± .0005 (mm ± 0.013)	Snap Ring Groove Location E in +.010 -.000 (mm +0.25 -0.00)	Snap Ring Groove Diam F in ± .004 (mm ± 0.100)	Snap Ring Groove Width G in ± .0003 (mm ± 0.008)	Rail Chamfer H in (mm)	Radial Load lbs (Kg)
	04	6/8 10/12	.2475 (6.287)	.2472 (6.279)	.5000 (12.700)	.765 (19.43)	.2485 (6.311)	.535 (13.59)	.450 (11.43)	.040 (1.02)	.020 (.51)	5 (2.3)
06	6/12 15/18	.3715 (9.436)	.3712 (9.428)	.7500 (19.050)	1.275 (32.39)	.3725 (9.462)	.995 (25.27)	.676 (17.17)	.046 (1.17)	.020 (.51)	10 (4.5)	
08	12/15 18/24	.4965 (12.611)	.4962 (12.603)	1.0000 (25.400)	1.660 (42.16)	.4975 (12.637)	1.330 (33.78)	.900 (22.86)	.046 (1.17)	.020 (.51)	15 (6.8)	
12	18/24 36	.7415 (18.834)	.7412 (18.826)	1.2500 (31.750)	2.036 (51.72)	.7425 (18.860)	1.620 (41.15)	1.125 (28.60)	.058 (1.47)	.030 (.76)	25 (11.4)	

■ Material & Teflon TFE Coating Options

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

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