



**SS / SZ Series:  
Spline Shafts**



**GR Series: Linear Rails  
and Bushings**

**Kerk® SS / 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 HaydonKerk Motion Solutions™ 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.

**Identifying the part numbers when ordering Spline Shafts and Guide Rails**

<b>SS</b>	<b>A</b>	<b>F</b>	<b>04</b>	<b>1</b>	<b>K</b>	<b>08</b>	<b>XXXX</b>
<b>Prefix</b>	<b>Style</b>	<b>Mounting</b>	<b>Rail Diameter</b>	<b>Number of Bushings per Rail</b>	<b>Coating</b>	<b>Length in Inches (Rounded up)</b>	<b>Unique Identifier</b>
<b>SS</b> = Spline Shaft <b>SZ</b> = Anti-Backlash Spline Shaft <b>GR</b> = Guide Rail	<b>A</b> = Assembly only <b>B</b> = Bushing only <b>S</b> = Shaft only	<b>F</b> = Flanged <b>T</b> = Threaded <b>G</b> = Snap ring groove <b>P</b> = Plain (no features) <b>X</b> = Custom <b>S</b> = Shaft only	<b>02</b> = 1/8-in <b>04</b> = 1/4-in <b>06</b> = 3/8-in <b>08</b> = 1/2-in <b>12</b> = 3/4-in	<b>0</b> <b>1</b> <b>2</b> <b>3</b> <b>4</b> <b>5</b> (Use "0" for shaft only and use "1" if bushing only)	<b>S</b> = Uncoated <b>K</b> = Kerkote® <b>B</b> = Black Ice™ <b>X</b> = Special (ex: Black Ice with grease)	<b>06</b> = 6-in, <b>08</b> = 8-in <b>00</b> = Bushing only Example: <b>06</b> = 6-in, <b>08</b> = 8-in	Number assigned by HaydonKerk Motion Solutions (for added features such as custom configurations, etc.)

**EXAMPLES:**

**SZAT041K-12-XXXX** = Spline shaft with anti-backlash, shaft and threaded bushing assembly, 1/4-in shaft, 1 bushing per rail, Kerkote® coating, 12-in length, with no special features added.

**GRBPO41N-00-XXXX** = Guide rail, plain bushing only, 1/4-in shaft, with no special features added.

## SS Series Spline Shafts

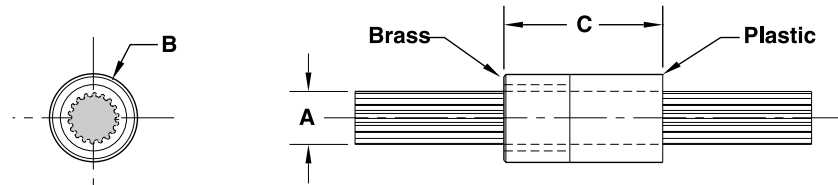
Rail Diameter Code	Shaft	Root Diameter	Tube I.D.	Bushing Outside	Bushing Length	Thread	Thread Length	Equivalent Diameter**	
	A in ± .002 (mm ± 0.05)	in ± .002 (mm ± 0.05)	in ± .002 (mm ± 0.05)	B in ± .001 (mm ± 0.025)	C in ± .01 (mm ± 0.25)	M	N in ± .002 (mm ± 0.05)	inch (mm)	
<b>SS/SZ</b>	<b>02</b>	.125 (3.18)	.095 (2.41)	NA	0.375 (9.53)	0.500 (12.70)	3/8-24	0.250 (6.35)	.110 (2.79)
	<b>04</b>	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)
	<b>06</b>	0.375 (9.53)	.306 (7.77)	NA	0.625 (15.88)	1.00 (25.4)	9/16-20	0.375 (9.53)	.341 (8.65)
	<b>08</b>	0.500 (12.70)	4.19 (10.64)	NA	0.813 (20.65)	1.50 (38.1)	3/4-20	0.500 (12.70)	.458 (11.63)
	<b>12</b>	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)

Maximum Twist:  
3°/ft about Spline Shaft axis

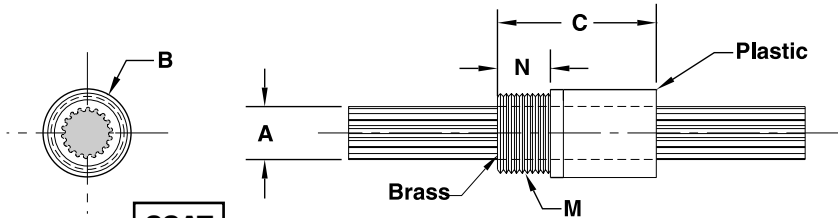
Torsional Clearance (SSA):  
3° Bushing to Shaft

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

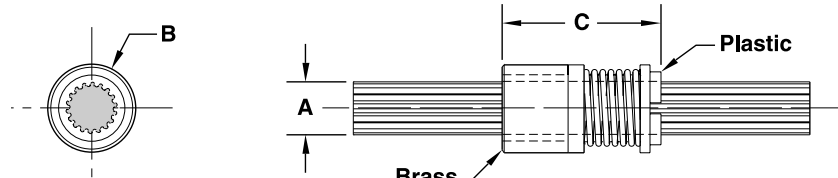
0.125-in rail size only  
available in SSAP and  
SSAT styles.



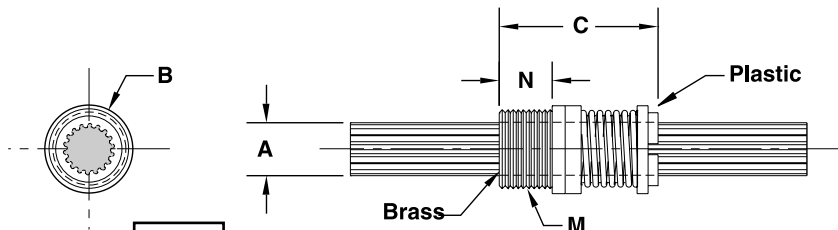
**SSAP**



**SSAT**



**SZAP**



**SZAT**

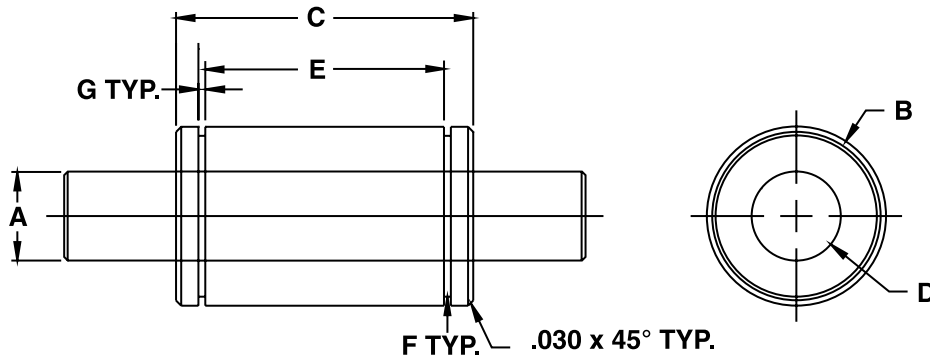
## Kerk® GR Series Linear Rails and Bushings

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 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.



Rail Diameter Code	Standard Part Lengths	Rail Diameter	Rail Diameter w/TFE	Bushing Outside Diam.	Bushing Length	Bushing Inside Diam.	Snap Ring Groove Location	Snap Ring Groove Diam.	Snap Ring Groove Width	Rail Chamfer	Radial Load	
	A	A	A	B	C	D	E	F	G	H	lbs (Kg)	
	in ± .010 (mm 0.25)	in ± .0006 (mm 0.015)	in ± .0006 (mm 0.015)	in ± .0006 (mm 0.015)	in ± .010 (mm 0.25)	in ± .0005 (mm 0.013)	in +.010 -.000 (mm 0.25)	in ± .004 (mm 0.100)	in ± .0003 (mm 0.008)	in (mm)	lbs (Kg)	
GR	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)