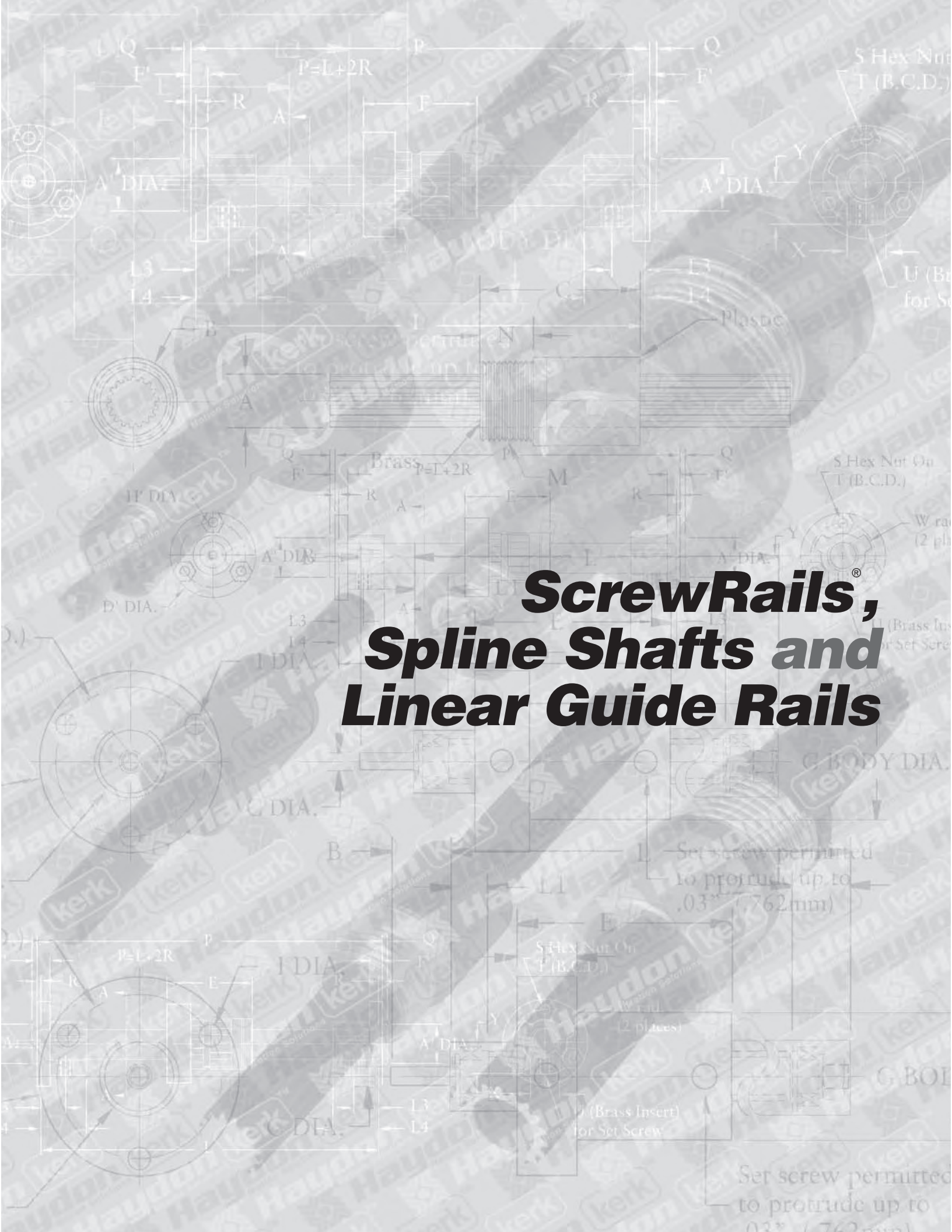


ScrewRails®, Spline Shafts and Linear Guide Rails

Haydon Kerk Motion Solutions, Inc. • www.HaydonKerk.com • Phone: 800.243.2715 • International: 203.756.7441

Kerk® ScrewRail® Linear Actuators

Linear motion has traditionally required separate components to handle both drive and support/guidance. The compact 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.

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.

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.

Z-Theta ScrewRail Assembly

Identifying the part number codes when ordering ScrewRail®

24 HOUR ON-LINE PROTOTYPE AVAILABILITY www.HaydonKerk.com

Immediate availability of a standard selection of parts.

SR	Z	06	K	R	–	A00	–	0100	–	08	–	XXX

Prefix:
SR = ScrewRail®

Nut Style
A = free-wheeling style nut
Z = Anti-Backlash Nut

Nominal Rail Diam.
03= 3/8-in
04= 1/2-in
06= 3/4-in
08= 1-in

(see SR specifications chart)

Coating
S = Uncoated
K = Kerkote®

Thread
R = Right hand
L = Left hand

Drive/ Mounting
A00 = Standard

Nominal Thread Lead Code (inches)
0000 = No screw

Code numbers in ScrewRail® Selector Chart

Stroke (in inches rounded up)
07 = 7-in
08 = 8-in
12 = 12-in

Unique Identifier
Number assigned by Haydon Kerk Motion Solutions *(for added features such as custom configurations, etc.)*

EXAMPLES:

SRZ06KR-A00-0100-08-xxx = ScrewRail® with anti-backlash nut, 3/4-in nominal rail diameter, leadscrew with Kerkote® TFE coating, right hand thread, standard mount, 0.1-in (2.54 mm) leadscrew diam., 8-in over all length with no added features.

SRA03SL-A00-0050-07-xxx = ScrewRail® with a conventional (without anti-backlash mechanism) nut, 3/8-in nominal rail diameter, uncoated leadscrew, left hand thread, standard mount, 0.05-in (.127 mm) leadscrew diam., 7-in stroke with no added features.

For assistance or order entry, call the Haydon Kerk Motion Solutions ScrewRail technical advisors at 603.465.7227. Other systems and styles may be available. Visit www.HaydonKerk.com for recent updates.

Identifying the part number codes when ordering ScrewRail® End Supports

SR	04	ES	–	Z00

Prefix:
SR = ScrewRail®

Size
04= 1/2-in
06= 3/4-in
08= 1-in

ES = End Support

Identifier = Standard

Kerk® SRA Series General Purpose ScrewRail® Linear Actuators

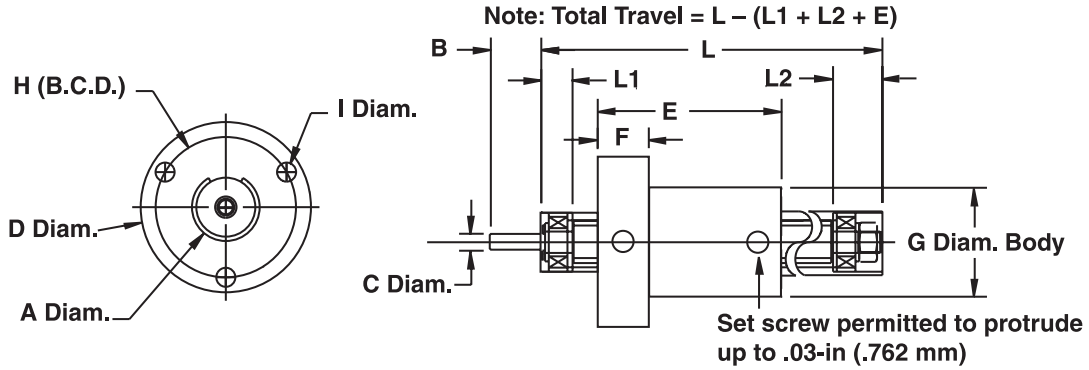
A standard nut for general applications where anti-backlash compensation is not required.

The SRA is recommended anywhere low drag and minimal free play is required.

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

ScrewRail®: SRA Series General Purpose

	A Diam. inch (mm)	B inch (mm)	C Diam. inch (mm)	D Diam. inch (mm)	E inch (mm)	F inch (mm)	G Diam. inch (mm)	H(B.C.D.) inch (mm)	I inch (mm)	L1 inch (mm)	L2 inch (mm)
SRA 03	.364/.367 (9.24/9.32)	.38 (9.56)	.1245/.1250 (3.16/3.18)	.98 (24.9)	1.0 (25.4)	.28 (7.2)	.562 (14.3)	.75 (19.1)	.094 (2.39)	.37 (9.4)	.38 (9.66)
SRA 04	.489/.492 (12.42/12.5)	0.62 (15.75)	.1870/.1875 (4.75/4.76)	1.25 (31.8)	1.4 (36)	.38 (9.5)	.750 (19.1)	1.03 (26.2)	0.140 (3.56)	0.26 (6.6)	0.36 (9.1)
SRA 06	.739/.742 (18.77/18.85)	0.75 (19.05)	.2490/.2495 (6.33/6.34)	1.75 (44.5)	2.0 (51)	.50 (12.7)	1.120 (28.4)	1.48 (37.6)	0.173 (4.39)	0.38 (9.7)	0.70 (17.8)
SRA 08	.989/.992 (25.12/25.2)	0.75 (19.05)	.2490/.2495 (6.33/6.34)	2.23 (56.6)	2.5 (64)	.63 (15.9)	1.495 (38.0)	1.92 (48.8)	0.200 (5.08)	0.48 (12.2)	0.77 (19.6)



Kerk® SRZ Series Anti-Backlash ScrewRail® Linear Actuators

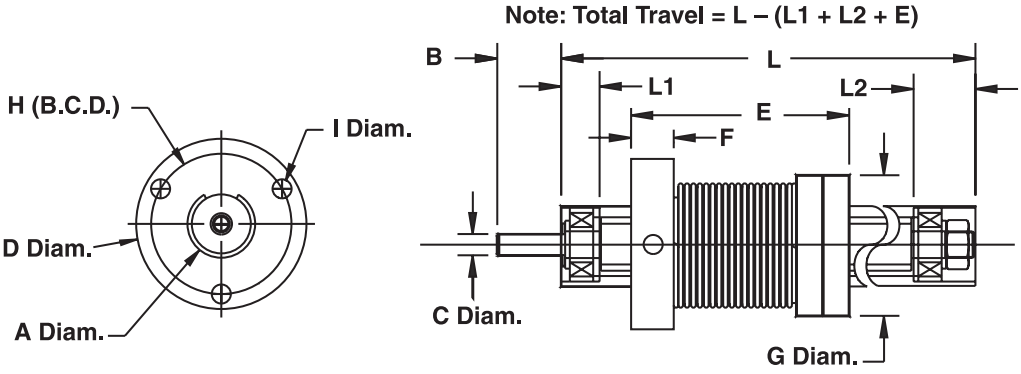
A nut designed and manufactured with our unique axial take-up mechanism providing continuous self-adjusting anti-backlash compensation.

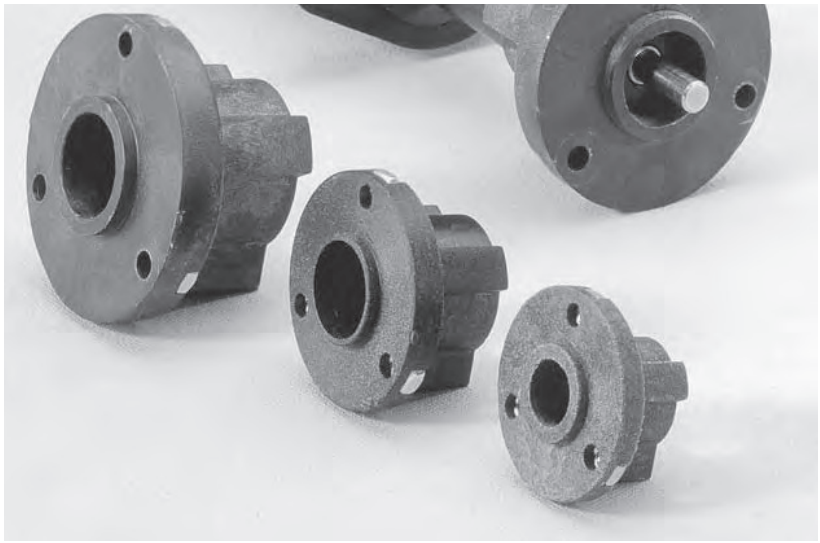
Note: Right-hand/Left-hand ScrewRail® assemblies are also available.

ScrewRail®: SRZ Series Anti-Backlash

	A Diam. inch (mm)	B inch (mm)	C Diam. inch (mm)	D Diam. inch (mm)	E inch (mm)	F inch (mm)	G Diam. inch (mm)	H(B.C.D.) inch (mm)	I (Brass Inserts) inch (mm)	L1 inch (mm)	L2 inch (mm)
SRZ 03	.364/.367 (9.24/9.32)	.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 (9.4)	.38 (9.66)
SRZ 04	.489/.492 (12.42/12.5)	0.62 (15.75)	.1870/.1875 (4.75/4.76)	1.31 (33.3)	1.4 (36)	.38 (9.5)	.097 (24.7)	1.03 (26.2)	#6-32 (*)	0.26 (6.6)	0.36 (9.1)
SRZ 06	.739/.742 (18.77/18.85)	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)
SRZ 08	.989/.992 (25.12/25.2)	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 requested





ScrewRail® Linear Actuators: End Supports

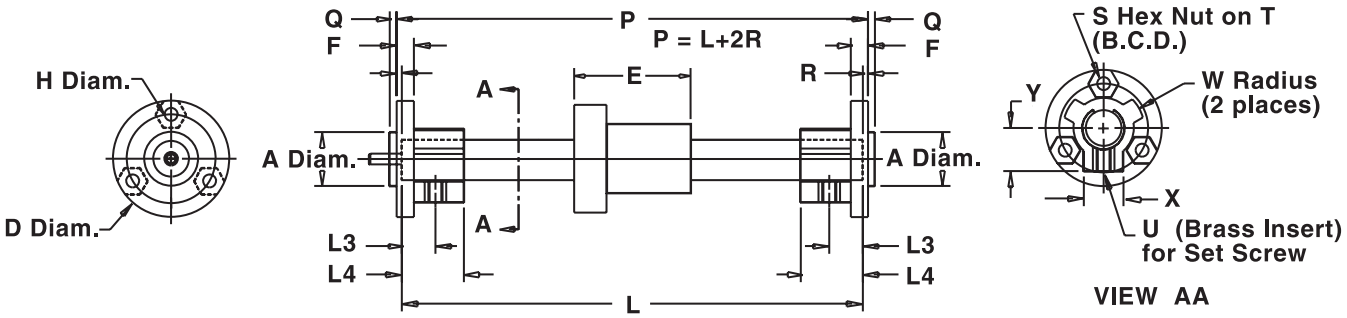
As an additional option for all Kerk® ScrewRails, standard End Supports offer the convenience of simple and compact mounting for the ScrewRail. The End Supports are designed to slide over the outside diameter of each end of the rail and "key" off the slot in the ScrewRail. The Kerkite® composite polymer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

ScrewRail®: End Support Styles

	A Diam. inch (mm)	D inch (mm)	F inch (mm)	H Diam. inch (mm)	L3 inch (mm)	L4 inch (mm)	Q inch (mm)	R inch (mm)	S inch (mm)	T (Hex Nut) inch (mm)	U inch (mm)	W Diam. (Brass Insert) inch (mm)	X inch (mm)	Y inch (mm)
SRA 04	.624/.626 (15.85/15.90)	1.35 (34.3)	0.200 (5.08)	0.150 (3.81)	0.390 (9.91)	.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)
SRA 06	.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)
SRA 08	.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 requested



Dimensions E and L are referenced in the ScrewRail Dimensions
Note: Total Travel = L – (E + 2 [L4])

SRA Series Selector Chart ScrewRail® Linear Actuators

ScrewRail	Inch Lead ** inch (mm)	Thread Lead Code	Nominal Rail Diam. inch (mm)	Nominal Screw Diam. inch (mm)	Max. Drag Torque oz - in (NM)	Life @ 1/4 Design Loadx10^6 (Non Anti-Backlash) inch (cm)	Torque-to-Move Lead oz-in/lb (NM/Kg)	Design Load lbs (Kg)	Screw Inertia per unit length oz-in sec^2/in (KgM^2/M)	Equivalent Diam.* inch (mm)
SRA 03	.050 (1.27)	0050	3/8 (10)	3/16 (5)	1.5 (0.014)	100 to 150 (250 to 380)	0.5 (0.007)	10 (50)	.1 x 10^{-5} (.4 x 10^{-6})	30 (7.6)
SRA 03	.100 (2.54)	0100	3/8 (10)	3/16 (5)	2.0 (0.018)	100 to 150 (250 to 380)	1.0 (0.016)	10 (50)	.1 x 10^{-5} (.4 x 10^{-6})	30 (7.6)
SRA 03	.250 (6.35)	0250	3/8 (10)	3/16 (5)	2.5 (0.020)	100 to 150 (250 to 380)	1.25 (0.019)	10 (50)	.1 x 10^{-5} (.4 x 10^{-6})	30 (7.6)
SRA 03	.375 (9.53)	0375	3/8 (10)	3/16 (5)	3.0 (0.025)	100 to 150 (250 to 380)	2.0 (0.030)	10 (50)	.1 x 10^{-5} (.4 x 10^{-6})	30 (7.6)
SRA 04	0.050 (1.27)	0050	1/2 (13)	1/4 (6)	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)
SRA 04	0.250 (6.35)	0250	1/2 (13)	1/4 (6)	3.0 (0.020)	150 to 200 (380 to 500)	1.5 (0.023)	25 (10)	.3 x 10^{-5} (1.3 x 10^{-6})	.39 (9.9)
SRA 04	0.500 (12.7)	0500	1/2 (13)	1/4 (6)	4.0 (0.030)	150 to 200 (380 to 500)	2.5 (0.039)	25 (10)	.3 x 10^{-5} (1.3 x 10^{-6})	.39 (9.9)
SRA 04	1.000 (25.40)	1000	1/2 (13)	1/4 (6)	5.0 (0.040)	150 to 200 (380 to 500)	4.5 (.0.70)	25 (10)	.3 x 10^{-5} (1.3 x 10^{-6})	.39 (9.9)
SRA 06	0.100 (2.54)	0100	3/4 (19)	3/8 (10)	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)
SRA 06	0.200 (5.08)	0200	3/4 (19)	3/8 (10)	4.0 (0.030)	180 to 280 (450 to 710)	1.5 (0.023)	50 (20)	1.5 x 10^{-5} (6.5 x 10^{-6})	.60 (15.2)
SRA 06	0.500 (12.70)	0500	3/4 (19)	3/8 (10)	5.0 (0.040)	180 to 280 (450 to 710)	2.5 (0.039)	50 (20)	1.5 x 10^{-5} (6.5 x 10^{-6})	.60 (15.2)
SRA 06	1.000 (25.4)	1000	3/4 (19)	3/8 (10)	6.0 (0.045)	180 to 280 (450 to 710)	4.5 (0.070)	50 (20)	1.5 x 10^{-5} (6.5 x 10^{-6})	.60 (15.2)
SRA 08	0.100 (2.54)	0100	1 (25)	1/2 (13)	4.0 (0.030)	280 to 320 (710 to 810)	1.0 (0.016)	100 (45)	5.2 x 10^{-5} (20.0 x 10^{-6})	.81 (20.5)
SRA 08	0.200 (5.08)	0200	1 (25)	1/2 (13)	5.0 (0.040)	280 to 320 (710 to 810)	1.5 (0.023)	100 (45)	5.2 x 10^{-5} (20.0 x 10^{-6})	.81 (20.5)
SRA 08	0.500 (12.70)	0500	1 (25)	1/2 (13)	6.0 (0.045)	280 to 320 (710 to 810)	2.5 (0.039)	100 (45)	5.2 x 10^{-5} (20.0 x 10^{-6})	.81 (20.5)
SRA 08	1.000 (25.40)	1000	1 (25)	1/2 (13)	8.0 (0.060)	280 to 320 (710 to 810)	4.5 (0.070)	100 (45)	5.2 x 10^{-5} (20.0 x 10^{-6})	.81 (20.5)

*ScrewRail® stiffness may be modeled using Classical Beam Deflection Theory with equivalent stainless steel beam of diameter given.

** Other leads available as custom orders.

SRZ Series Selector Chart ScrewRail® Linear Actuators

ScrewRail	Inch Lead ** inch (mm)	Thread Lead Code	Nominal Rail Diam. inch (mm)	Nominal Screw Diam. inch (mm)	Max. Drag Torque oz - in (NM)	Life @ 1/4 Design Loadx10^6 (Non Anti-Backlash) inch (cm)	Torque-to-Move Lead oz-in/lb (NM/Kg)	Design Load lbs (Kg)	Screw Inertia per unit length oz-in sec^2/in (KgM^2/M)	Equivalent Diam.* inch (mm)
SRZ 03	.050 (1.27)	0050	3/8 (10)	3/16 (5)	2.0 (0.014)	50 to 80 (130 to 200)	0.5 (0.007)	10 (50)	.1 x 10^{-5} (.4 x 10^{-6})	30 (7.6)
SRZ 03	.100 (2.54)	0100	3/8 (10)	3/16 (5)	2.5 (0.018)	50 to 80 (130 to 200)	1.0 (0.016)	10 (50)	.1 x 10^{-5} (.4 x 10^{-6})	30 (7.6)
SRZ 03	.250 (6.35)	0250	3/8 (10)	3/16 (5)	3.0 (0.020)	50 to 80 (130 to 200)	1.25 (0.019)	10 (50)	.1 x 10^{-5} (.4 x 10^{-6})	30 (7.6)
SRZ 03	.375 (9.53)	0375	3/8 (10)	3/16 (5)	3.5 (0.025)	50 to 80 (130 to 200)	2.0 (0.030)	10 (50)	.1 x 10^{-5} (.4 x 10^{-6})	30 (7.6)
SRZ 04	0.050 (1.27)	0050	1/2 (13)	1/4 (6)	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})	.39 (9.9)
SRZ 04	0.250 (6.35)	0250	1/2 (13)	1/4 (6)	4.0 (0.030)	75 to 100 (190 to 250)	1.5 (0.023)	25 (10)	.3 x 10^{-5} (1.3 x 10^{-6})	.39 (9.9)
SRZ 04	0.500 (12.7)	0500	1/2 (13)	1/4 (6)	5.0 (0.040)	75 to 100 (190 to 250)	2.5 (0.039)	25 (10)	.3 x 10^{-5} (1.3 x 10^{-6})	.39 (9.9)
SRZ 04	1.000 (25.40)	1000	1/2 (13)	1/4 (6)	6.0 (0.045)	75 to 100 (190 to 250)	4.5 (.0.70)	25 (10)	.3 x 10^{-5} (1.3 x 10^{-6})	.39 (9.9)
SRZ 06	0.100 (2.54)	0100	3/4 (19)	3/8 (10)	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})	.60 (15.2)
SRZ 06	0.200 (5.08)	0200	3/4 (19)	3/8 (10)	6.5 (0.047)	90 to 140 (230 to 350)	1.5 (0.023)	50 (20)	1.5 x 10^{-5} (6.5 x 10^{-6})	.60 (15.2)
SRZ 06	0.500 (12.70)	0500	3/4 (19)	3/8 (10)	7.0 (0.050)	90 to 140 (230 to 350)	2.5 (0.039)	50 (20)	1.5 x 10^{-5} (6.5 x 10^{-6})	.60 (15.2)
SRZ 06	1.000 (25.4)	1000	3/4 (19)	3/8 (10)	7.5 (0.053)	90 to 140 (230 to 350)	4.5 (0.070)	50 (20)	1.5 x 10^{-5} (6.5 x 10^{-6})	.60 (15.2)
SRZ 08	0.100 (2.54)	0100	1 (25)	1/2 (13)	8.0 (0.057)	120 to 160 (350 to 410)	1.0 (0.016)	100 (45)	5.2 x 10^{-5} (20.0 x 10^{-6})	.81 (20.5)
SRZ 08	0.200 (5.08)	0200	1 (25)	1/2 (13)	8.5 (0.060)	120 to 160 (350 to 410)	1.5 (0.023)	100 (45)	5.2 x 10^{-5} (20.0 x 10^{-6})	.81 (20.5)
SRZ 08	0.500 (12.70)	0500	1 (25)	1/2 (13)	9.0 (0.064)	120 to 160 (350 to 410)	2.5 (0.039)	100 (45)	5.2 x 10^{-5} (20.0 x 10^{-6})	.81 (20.5)
SRZ 08	1.000 (25.40)	1000	1 (25)	1/2 (13)	9.5 (0.067)	120 to 160 (350 to 410)	4.5 (0.070)	100 (45)	5.2 x 10^{-5} (20.0 x 10^{-6})	.81 (20.5)

*ScrewRail® stiffness may be modeled using Classical Beam Deflection Theory with equivalent stainless steel beam of diameter given.

** Other leads available as custom orders.

Haydon Kerk Motion Solutions, Inc. • www.HaydonKerk.com • Phone: 800.243.2715 • International: 203.756.7441

GR Series: Linear Guide 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 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.

Identifying the part numbers when ordering Spline Shafts and Guide Rails

SS	A	F	04	1	K	–	08	–	XXX
Prefix	***Style***	***Mounting***	***Rail Diameter***	***Number of Bushings per Rail***	***Coating***		***Length in Inches*** *(Rounded up)*		***Unique Identifier***
SS = Spline Shaft **SZ** = Anti-Backlash Spline Shaft **GR** = Guide Rail	**A** = Assembly **B** = Bushing only **S** = Shaft only	**F** = Flanged **T** = Threaded **G** = Snap ring groove **P** = Plain (no features) **S** = Shaft only	**02** = 1/8-in **04** = 1/4-in **06** = 3/8-in **08** = 1/2-in **12** = 3/4-in	**0** **1** **2** **3** **4** **5** (Use "0" for shaft only and use "1" if bushing only)	**S** = Uncoated **K** = Kerkote® **B** = Black Ice™ **N** = Bushing only		*Example:* **06** = 6-in, **08** = 8-in **00** = Bushing only		Number assigned by Haydon Kerk 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.

GRBP041N-00-XXXX = Guide rail, plain bushing only, 1/4-in shaft, with no special features added.

SS Series Spline Shafts

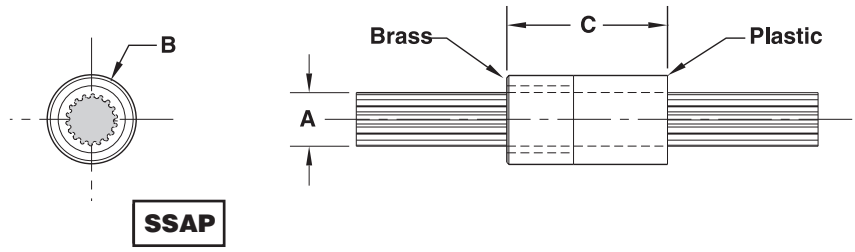
	Rail Diameter Code	Shaft A in ± .002 (mm ± 0.05)	Root Diameter in ± .002 (mm ± 0.05)	Tube I.D. in ± .002 (mm ± 0.05)	Bushing Outside B in ± .001 (mm ± 0.025)	Bushing Length C in ± .01 (mm ± 0.25)	Thread M	Thread Length N in ± .002 (mm ± 0.05)	Equivalent Diameter** inch (mm)
SS/SZ	02	.125 (3.18)	.095 (2.41)	NA	0.375 (9.53)	0.500 (12.70)	3/8-24	0.250 (6.35)	.110 (2.79)
	04	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)
	06	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)
	08	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)
	12	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)

MaximumTwist:
3°/ft about Spline Shaft axis

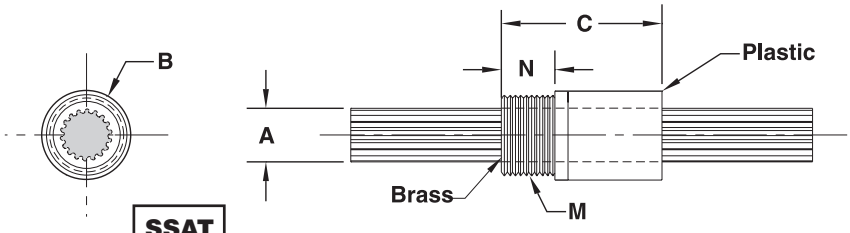
Torsional Clearance (SSA):
3° Bushing to Shaft

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



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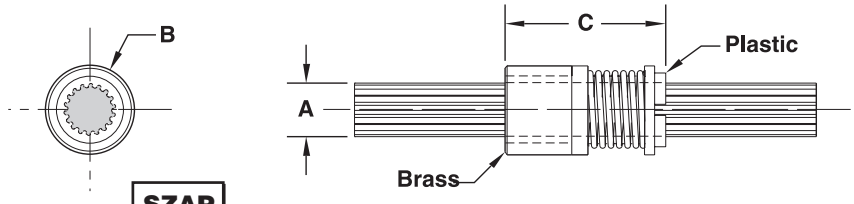

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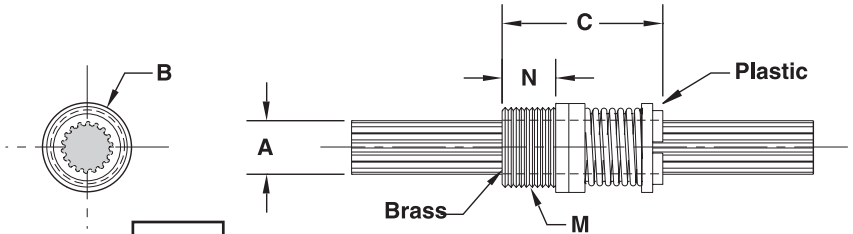


SZAT

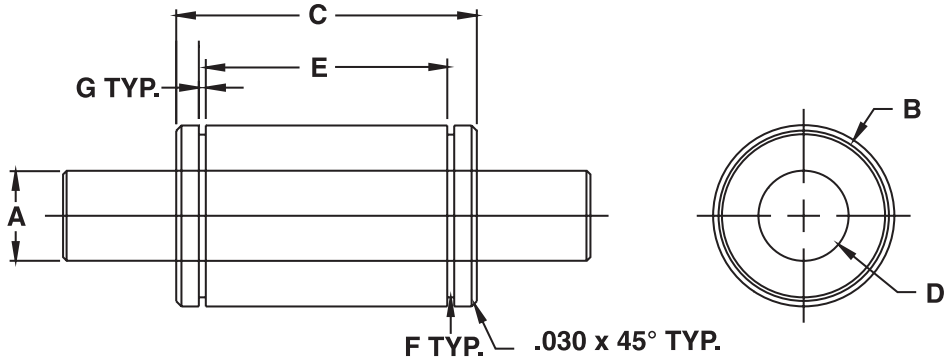
Kerk® GR Series Linear Rails and Bushings

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 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 Diam. B in ± .0006 (mm 0.015)	Bushing Length C in ± .010 (mm 0.25)	Bushing Inside Diam. D in ± .0005 (mm 0.013)	Snap Ring Groove Location E in +.010 −.000 (mm 0.25)	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)
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)