

Kerk® 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.



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®

SR	Z	06	K	R	A	00	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® B = Black Ice™ X = Special (ex: Black Ice with grease)	Thread R = Right hand L = Left hand B = Right hand/left assembly X = Custom	Drive/Mounting A = None B = No motor, in-line motor mount C = No motor, foldover mount M = Motorized S = Motor + PDE Drive (Moto Drive™) X = Custom	Motor Frame 00 = No motor 43 = Size 17 Stepper Motor XX = Custom	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 HaydonKerk 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, no motor, 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, no motor, 0.05-in (.127 mm) leadscrew diam., 7-in over all length with no added features.

For assistance or order entry, call the HaydonKerk 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	XXX
Prefix: SR = ScrewRail®	Size 04= 1/2-in 06= 3/4-in 08= 1-in	ES = End Support	Unique Identifier Number assigned by HaydonKerk Motion Solutions (for added features such as custom configurations, etc.)

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.

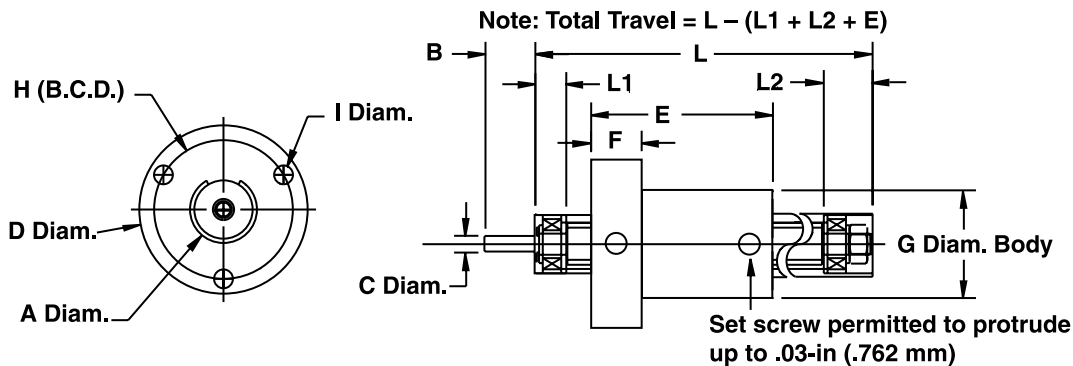
Note: Right-hand/Left-hand ScrewRail® assemblies are also available.



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)	1.1 (27.94)	.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)	1.31 (33.3)	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)	1.81 (46.0)	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 10	.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)	1.495 (38.0)	1.92 (48.8)	0.200 (5.08)	0.48 (12.2)	0.77 (19.6)

SCREWRAIL® GUIDE SCREW
LINEAR ACTUATORS





**Kerk® SRZ Series Anti-Backlash
ScrewRail® Linear Actuators**

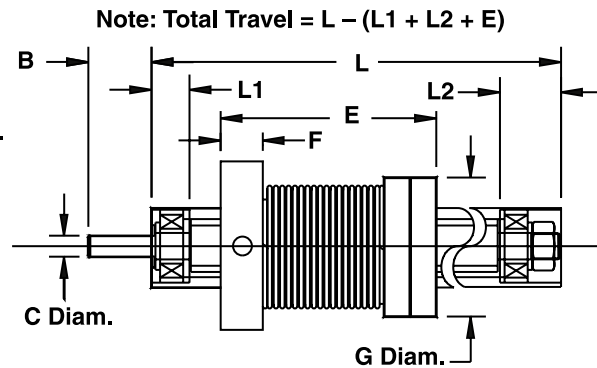
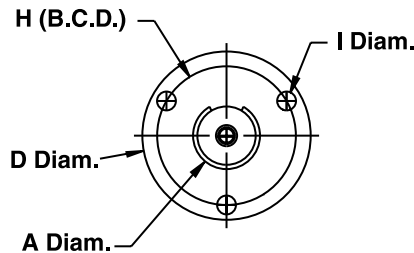
A nut designed and manufactured with our patented axial take-up mechanism providing continuous self-adjusting anti-backlash compensation.

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)
SRA 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)
SRA 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)
SRA 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)
SRA 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.

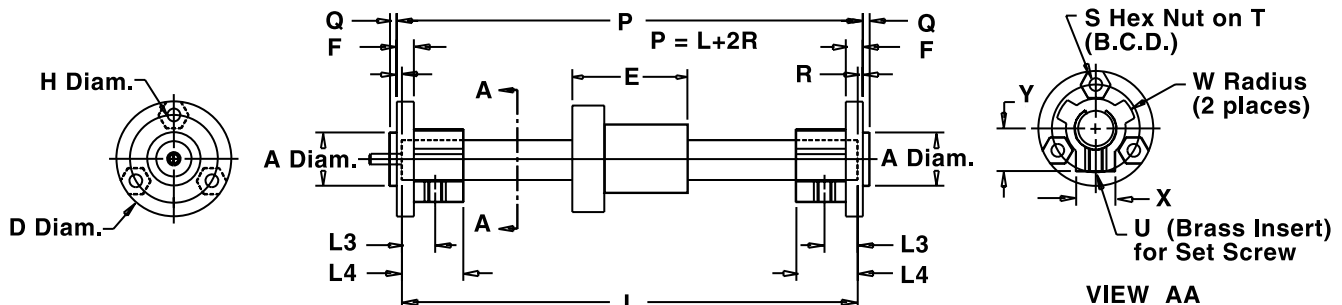
With the End Supports, the Kerk ScrewRail can be easily mounted to your assembly. However, if the End Supports are not utilized it is recommended to center the clamping force on each end at the L3 dimension as shown in the drawing below.

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 inch (mm) (Hex Nut)	U inch (mm) (Brass Insert)	W Diam. inch (mm) (Brass Insert)	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)	.0720 (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

SCREWRAIL® GUIDE SCREW
LINEAR ACTUATORS



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	Nominal Screw Diam. inch	Max. Drag Torque oz - in (NM)	Life @	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)
						1/4 Design Load x 10 ⁵ (Non Anti-Backlash) inch (cm)				
SRA 03	.050	0050	3/8	3/16	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	0100	3/8	3/16	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	0250	3/8	3/16	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	0375	3/8	3/16	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	0050	1/2	1/4	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	0250	1/2	1/4	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	0500	1/2	1/4	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	1000	1/2	1/4	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	0100	3/4	3/8	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	0200	3/4	3/8	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	0500	3/4	3/8	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	1000	3/4	3/8	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	0100	1	1/2	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	0200	1	1/2	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	0500	1	1/2	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	1000	1	1/2	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	Nominal Screw Diam. inch	Max. Drag Torque oz - in (NM)	Life @	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)
						1/4 Design Load x 10 ⁶ (Non Anti-Backlash) inch (cm)				
SRZ 03	.050	0050	3/8	3/16	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	0100	3/8	3/16	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	0250	3/8	3/16	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	0375	3/8	3/16	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	0050	1/2	1/4	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	0250	1/2	1/4	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	0500	1/2	1/4	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	1000	1/2	1/4	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	0100	3/4	3/8	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	0200	3/4	3/8	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	0500	3/4	3/8	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	1000	3/4	3/8	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	0100	1	1/2	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	0200	1	1/2	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	0500	1	1/2	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	1000	1	1/2	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)

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** Other leads available as custom orders.

SCREWRAIL® GUIDE SCREW LINEAR ACTUATORS