

RSA/RSM & GSA/GSM ELECTRIC ROD-STYLE ACTUATORS

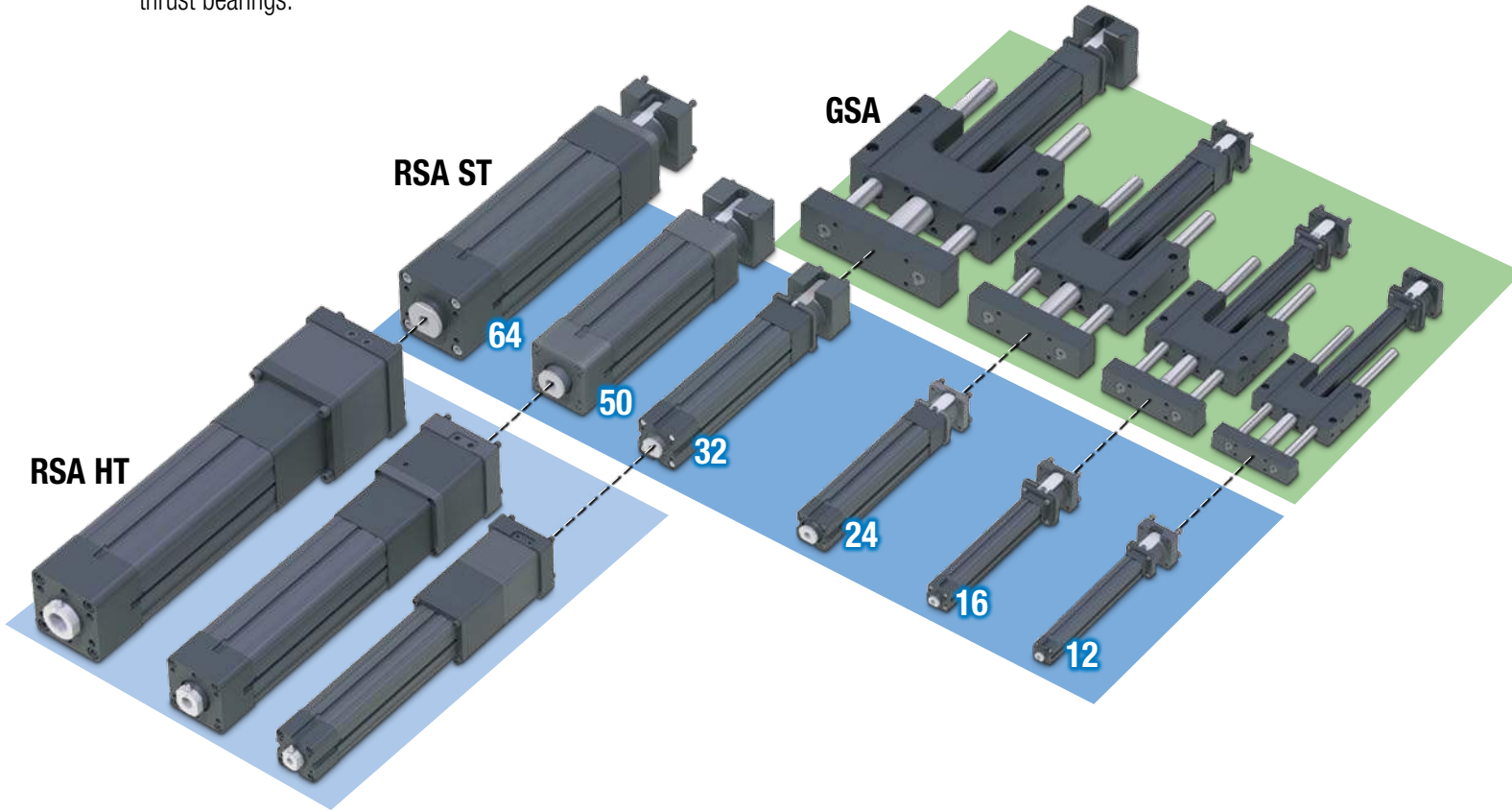
 **ENDURANCE TECHNOLOGY**™





RSA & GSA Electric Rod-Style Actuator

WHAT ARE THE RSA & THE GSA?

The RSA is a flexible electric screw driven rod-style actuator. The standard (ST) model comes in six sizes. The guided RSA (GSA) adds guidance and load support to the design and is available in the 4 smaller sizes. The high force (HT) model is available in the 3 larger sizes, it incorporates stronger torque transmission components (couplers, pulleys, belts) and higher thrust bearings.



TOLOMATIC'S ELECTRIC ROD-STYLE ACTUATORS

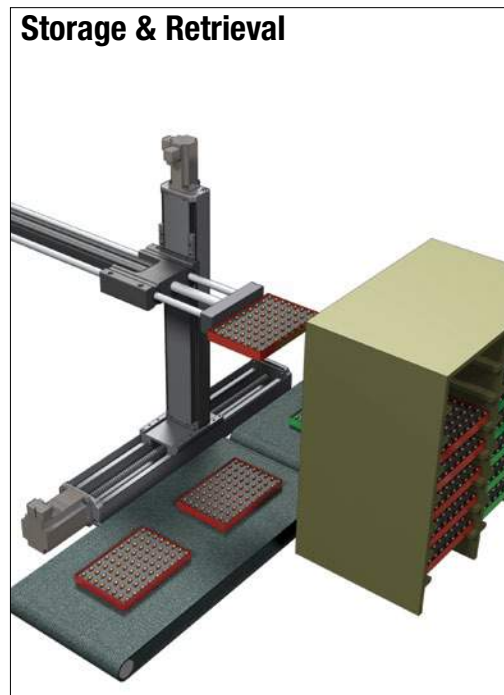
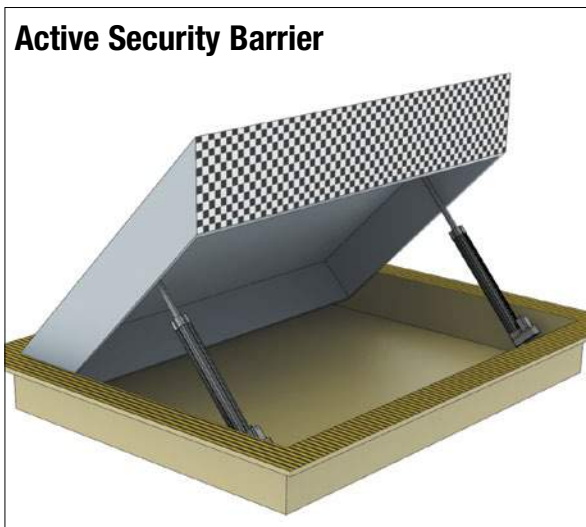
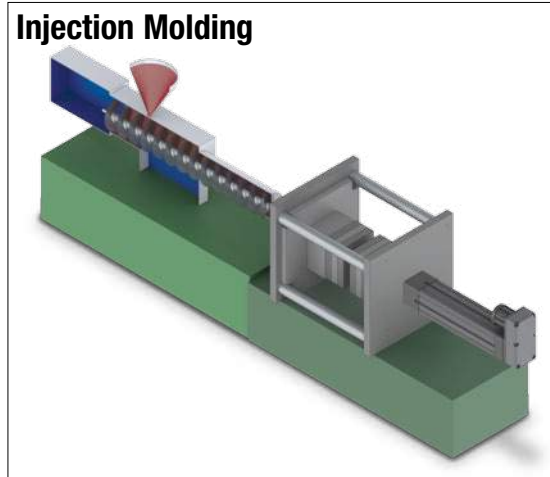
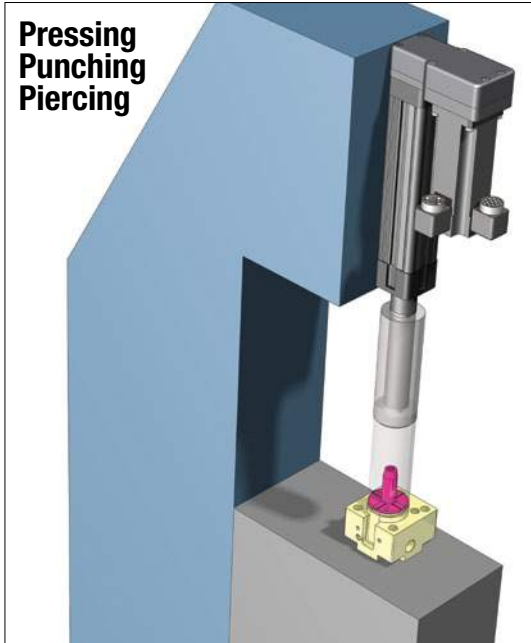
	ERD	ICR	RSA	GSA	IMA
					
	Rod-Style Actuator	Integrated Control Rod-Style Actuator	Rod-Style Actuator	Guided Rod-Style Actuator	Integrated Motor Rod-Style Actuator
Thrust up to:	4,500 lbf [20,017 N]	720 lbf [3,202.7 N]	13,039 lbf [58,001 N]	950 lbf [4,226 N]	6,875 lbf [30,594 N]
Speed up to:	58 in/sec [1473 mm/sec]	25 in/sec [635 mm/sec]	123 in/sec [3,124 mm/sec]	123 in/sec [3,124 mm/sec]	52.5 in/sec [1,334 mm/sec]
Stroke Length up to:	39.4 in [1000 mm]	24 in [609 mm]	60 in [1,524 mm]	36 in [914 mm]	18 in [457 mm]
Screw/Nut Type	Solid, Ball & Roller	Ball	Solid, Ball & Roller	Solid & Ball	Ball & Roller
Literature Number:	2190-4000	2100-4000	3600-4609	3600-4609	2700-4000

For complete information see www.tolomatic.com or literature number:

(Not all models deliver maximum values listed, i.e.: Maximum thrust may not be available with maximum speed)

RSA & GSA Electric Rod-Style Actuator

Applications



Other Applications:

- Animation
- Assembly machinery
- Automatic tool changers
- Automotive
- Clamping
- Converting
- Conveyors
- Cycle testing
- Fillers
- Formers
- Hydraulic replacement
- Laser positioning
- Machine tools
- Material handling
- Medical equipment
- Molding
- Motion simulators
- Open / close doors
- Packaging equipment
- Parts clamping
- Patient lifts
- Pick & place
- Pneumatic replacement
- Precision grinders
- Product test simulations
- Riveting / fastening / joining
- Robot manipulator arms
- Sawmill equipment
- Semiconductor
- Stage motion control
- Stamping
- Table positioning
- Tension control
- Test stands
- Tube bending
- Volumetric pumps
- Water jet control
- Wave generation
- Web guidance
- Welding
- Wire winding
- and many more

CONTENTS

What is RSA & GSA R/GSA_2
 Rod-Style Actuators R/GSA_2
 Applications R/GSA_3
 RSA ST Features R/GSA_4-5
 RSA HT Features R/GSA_6-7
 GSA Features R/GSA_8-9

SPECIFICATIONS

Critical Speed R/GSA_10-12
 PV Limits R/GSA_12-13
 Life Capacities R/GSA_14
 Buckling Load R/GSA_15
 RSA Screw/Nut R/GSA_17
 RSM Screw/Nut R/GSA_18
 GSA Screw/Nut R/GSA_19-20
 GSM Screw/Nut R/GSA_21-22
 Actuator R/GSA_23
 GSA Load & Defl R/GSA_24-27

DIMENSIONS

RSA Actuator R/GSA_28-29
 RSA & GSA R/GSA_30-31
 RSA Rod End Opt R/GSA_32-33
 RSA Mounting Opt R/GSA_34-37

SWITCHES R/GSA_38-39

Appl. Data Worksheet R/GSA_40
 Selection Guidelines R/GSA_41

ORDERING R/GSA_42-43

RSA-ST ROD-STYLE ACTUATOR

ENDURANCE TECHNOLOGYSM

Endurance Technology features are designed for maximum durability to provide extended service life.

The RSA rod screw actuator is ideal for medium to high thrust applications of guided loads. The compact design and cylinder style operation make this solution ideal for applications that were historically solved with pneumatic or hydraulic power. Many mounting options are available allowing the actuator to be installed in numerous applications. Built-to-order in stroke lengths up to 60 inches with your choice of screw technology.

• HIGH POSITIONAL ACCURACY •

SCREW ACCURACY	
Roller Nut	$\pm 0.0004"/ft.$ $\pm 0.0102mm/300mm$
Metric Ball Nut	$\pm 0.002"/ft.$ $\pm 0.051mm/300mm$

• MULTIPLE SCREW TECHNOLOGIES

YOU CAN CHOOSE:

- Solid nuts of bronze or engineered resins offer quiet performance at the lowest cost; anti-backlash available
- Ball nuts offer efficiency at a cost effective price; low-backlash available
- Roller nuts provide the highest thrust and life ratings available (HT option)



• SCREW SUPPORT BEARING •

- Engineered resin bearing provides continuous support of screw

• INTERNAL BUMPERS •

- Bumpers protect the screw and nut assembly from damage at both ends of stroke

• THRUST TUBE •

- Steel thrust tube supports extremely high force capabilities
- Salt bath nitride treatment provides excellent corrosion resistance, surface hardness and is very resistant to adherence of potential contaminants

• THREADED ROD END •

- Provides a common interface to multiple rod end options

• ROD WIPER •

- Prevents contaminants from entering the housing for extended life of the actuator

• NOSE BEARING •

- Support the thrust tube and nut assembly through entire stroke length
- Unique nose bearing material allows for smooth operation and support of the thrust

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YOUR MOTOR HERE

YOU CAN CHOOSE:

- Specify the device to be installed and actuator ships with proper mounting hardware
- Specify and ship your device to Tolomatic for factory installation
- Motor or gearbox supplied and installed by Tolomatic

MOTOR ORIENTATION

YOU CAN CHOOSE:

- Inline option directly couples the driving shaft and is typically a one-piece housing construction for optimum alignment and support of the motor
- Reverse-parallel option minimizes the overall length and offers a belt reduction drive with a 1:1 or 2:1 ratio

HIGH THRUST BEARING

- Unique high thrust bearing assembly design eliminates runout and isolates the linear forces for the drive shaft

BREATHER / PURGE PORTS

- Standard feature on RSA 32,50,64 size actuators
- As seen in this view, located on both the bottom and the opposite side of the actuator

Use as Breather Port:

allows air flow into the interior of the actuator. Prevents additional load on the motor caused by air buildup due to fast cycling of the RSA.

Use as **Purge Port:** positive pressure with air lines and filters insure contaminants (*which could potentially shorten the actuator life*) do not enter the interior of the actuator.

LIGHTWEIGHT ALUMINUM DESIGN

- Black anodized extrusion design is optimized for rigidity and strength
- External switch channels on all sides allow easy placement of position indicating switches

INTERNAL NUT BEARINGS

- Engineered resin guide bearings provide anti-rotation of the thrust rod
- Support the thrust tube and nut assembly through entire stroke length



OPTIONS

See page 7 for a complete list of RSA options including the HT-high torque option

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RSA-HT OPTION

ENDURANCE TECHNOLOGYSM

The HT option is a higher thrust option for the 32, 50 and 64 sizes of the RSA family. RSA actuators with roller nuts are always HT option actuators. Use Tolomatic's online sizing software to determine if the HT Option is right for your application

ACTUATOR



SIZING

REDESIGNED LMI & RP HOUSING

- Available on all inline and 64 size RP mounts. Specially designed to accommodate larger motors & gearboxes with higher torques and larger bolt circles (up to 6.5", 165mm)

DURABLE BELT MATERIAL

- High torque polyurethane timing belt with carbon tensile cords resists stretching



STANDARD FEATURES

See page 4 for a complete list of RSA standard features

ENHANCED HIGH THRUST BEARING

- RSA HT actuators come with high thrust angular contact ball bearing in matched pair assembly design eliminates runout and isolates the linear forces for the drive shaft

WHY CHOOSE THE HT OPTION?

- Higher strength components transfer torque from the gearhead/motor through the actuator
- Grease zerk allows convenient relubrication for extended screw service life
- Allows convenient addition of gearbox to RP (Reverse Parallel mount) actuator
- Accommodates mounting large motors with up to 165mm bolt circle pattern

YOUR MOTOR HERE (Standard Feature) YOU CAN CHOOSE:

- Specify the device to be installed (keyed shaft required) and actuator ships with proper mounting hardware
- Specify and ship your device to Tolomatic for factory installation
- Motor or gearbox supplied and installed by Tolomatic

IP67 OPTION

- Resist water ingress 1m deep for up to 30 min

HEAVY DUTY INTERNAL BUMPERS

- Bumpers protect the screw and nut assembly from damage at both ends of stroke

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OPTIONS (Available for all RSA actuators unless noted)

• METRIC OPTION

Provides metric tapped holes for mounting of load to rod end and of actuator to mating surfaces



• SWITCHES

Choose from: Reed, Solid State PNP or NPN, all available normally open or normally closed

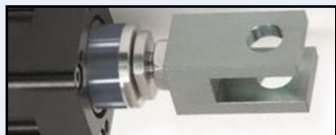
• IP67

Static: special gaskets for basic protection against water and dust ingress
32,50,64 sizes only: HT actuator (LMI and RP); ST actuator (RP motor mount only)

ROD END



• **MET: External Threads**
male threads



• **CLV: Clevis Rod End**
for pivoting mount



• **SRE: Spherical Rod End**
for pivoting mount



• **ALC: Alignment Coupler Rod End**
to compensate for mounting alignment



• **XR: Rod Extension**
to separate load from the actuator

MOUNTING



• **MP2: Mounting Plates**
for surface mounting



• **FFG: Front Flange**
for mounting near rod end



• **TRR: Trunnion Mount**
for pivoting mount

Below are for RP Motor mounting only



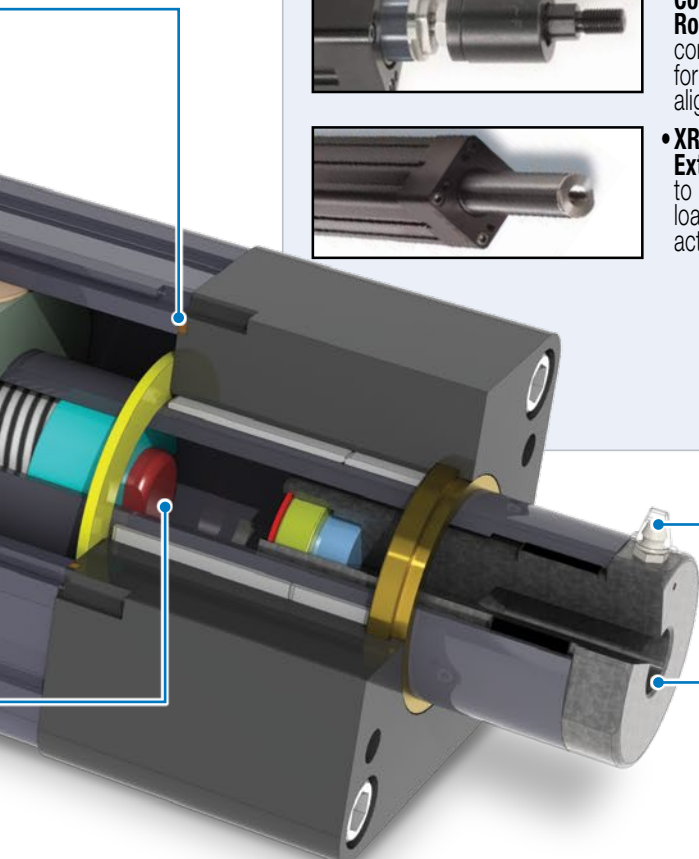
• **FM2: Foot Mount**
for surface or end mounting



• **BFG: Rear Flange**
for mounting opposite the rod end



• **PCD: Clevis**
• **PCS: Eye Mount**
for pivoting mount



GREASE ZERK

- This relubrication system provides extended screw service life
- Convenient lubrication without disassembly
- Standard with all HT option RSA actuators



THREADED ROD END

- Provides a common interface to multiple rod end options

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GSA GUIDED ROD-STYLE ACTUATOR



Endurance Technology features are designed for maximum durability to provide extended service life.

The GSA guided screw actuator is ideal for medium to high thrust applications. The self-contained guided rod design and cylinder slide style operation make this solution ideal for applications requiring guidance and support of the load. A robust, wide tooling plate allows easy mounting of the required end effectors for many applications. Built-to-order in stroke lengths up to 36 inches with your choice of screw technology.

• MULTIPLE SCREW TECHNOLOGIES •

YOU CAN CHOOSE:

- Solid nuts of bronze or engineered resins offer quiet performance at the lowest cost; anti-backlash available
- Ball nuts offer efficiency at a cost effective price; low-backlash available
- Roller nuts provide the highest thrust and life ratings available



• LIGHTWEIGHT ALUMINUM DESIGN •

- Black anodized bearing block provides solid structural support and multiple mounting options
- Black anodized tube extrusion design is optimized for rigidity and strength
- External switch channels on all sides allow easy placement of position indicating switches

• ROD WIPER •

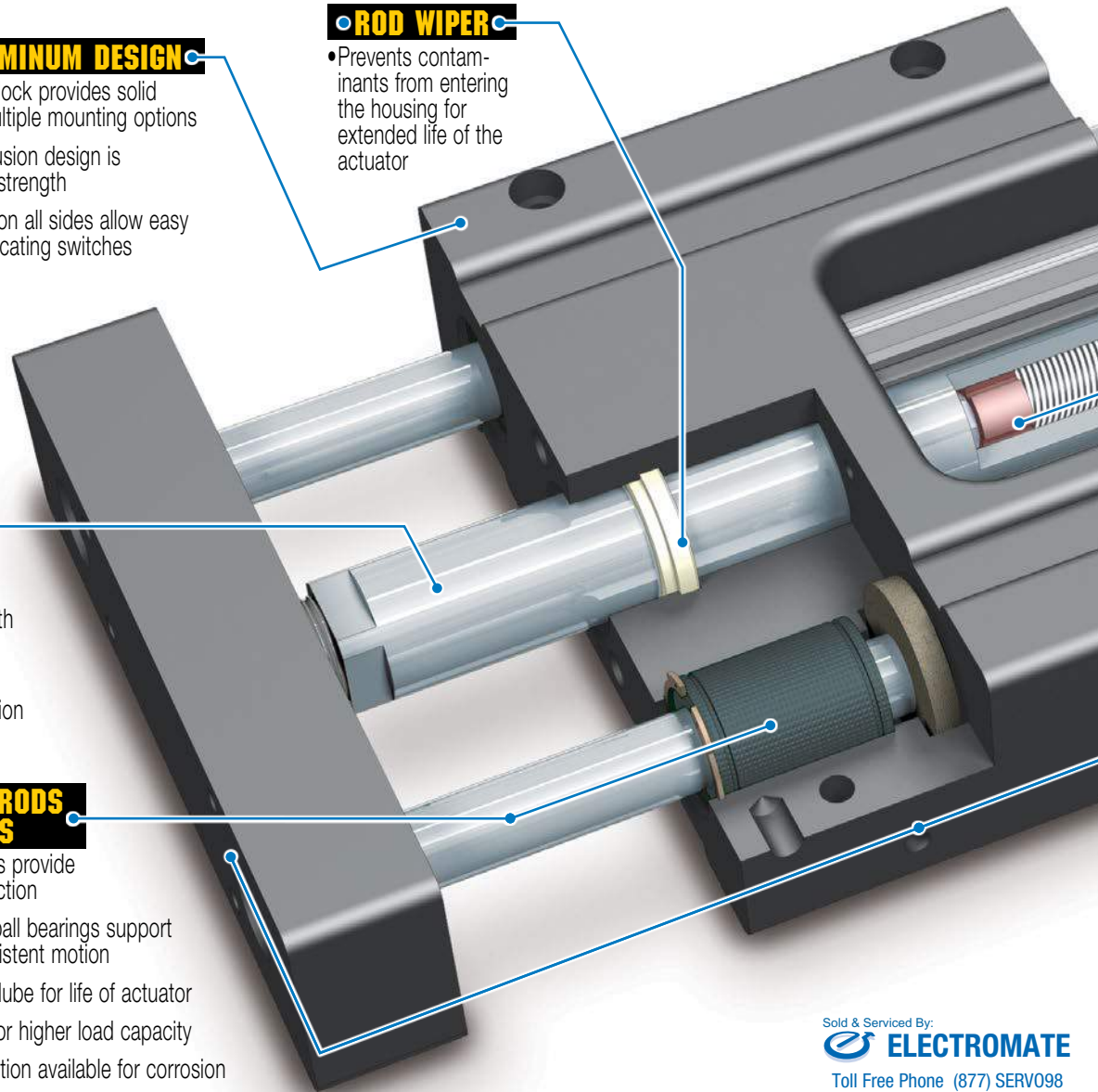
- Prevents contaminants from entering the housing for extended life of the actuator

• ANODIZED ALUMINUM THRUST TUBE •

- Lightweight design directly provides thrust with minimal additional inertia
- Corrosion resistant plating provides excellent protection from many chemicals

• INTEGRAL GUIDE RODS AND BEARINGS •

- Hardened steel guide rods provide high rigidity and low deflection
- Four composite or linear ball bearings support the load for smooth, consistent motion
- Lubrication wick supplies lube for life of actuator
- Oversized rods available for higher load capacity
- Stainless steel shafting option available for corrosion resistance



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YOUR MOTOR HERE

YOU CAN CHOOSE:

- Specify the device to be installed and actuator ships with proper mounting hardware
- Specify and ship your device to Tolomatic for factory installation
- Motor or gearbox supplied and installed by Tolomatic

MOTOR ORIENTATION

YOU CAN CHOOSE:

- Inline option directly couples the driving shafts and is typically a one-piece housing construction for optimum alignment and support of the motor
- Reverse-parallel option minimizes the overall length and offers a 1:1 or 2:1 belt ratio

SCREW SUPPORT BEARINGS

- Unique high thrust bearing assembly design eliminates runout and isolates the linear forces for the drive shaft
- Engineered resin bearing provides continuous support of screw

PRECISION MACHINED SURFACES

- Extruded bearing housing is precision machined on two surfaces for true and easily aligned linear motion
- Tooling plate is aligned and assembled to provide a precise mounting surface

OPTIONS



OVERSIZED GUIDE RODS

Available for increased load capacity or decreased deflection



STOP COLLARS

Provide a positive stop mechanism when required



CORROSION RESISTANCE

Includes 316 stainless steel guide rods and fasteners for better environmental protection



METRIC OPTION

Provides metric tapped holes for mounting of load to tooling plate and of actuator to mating surfaces

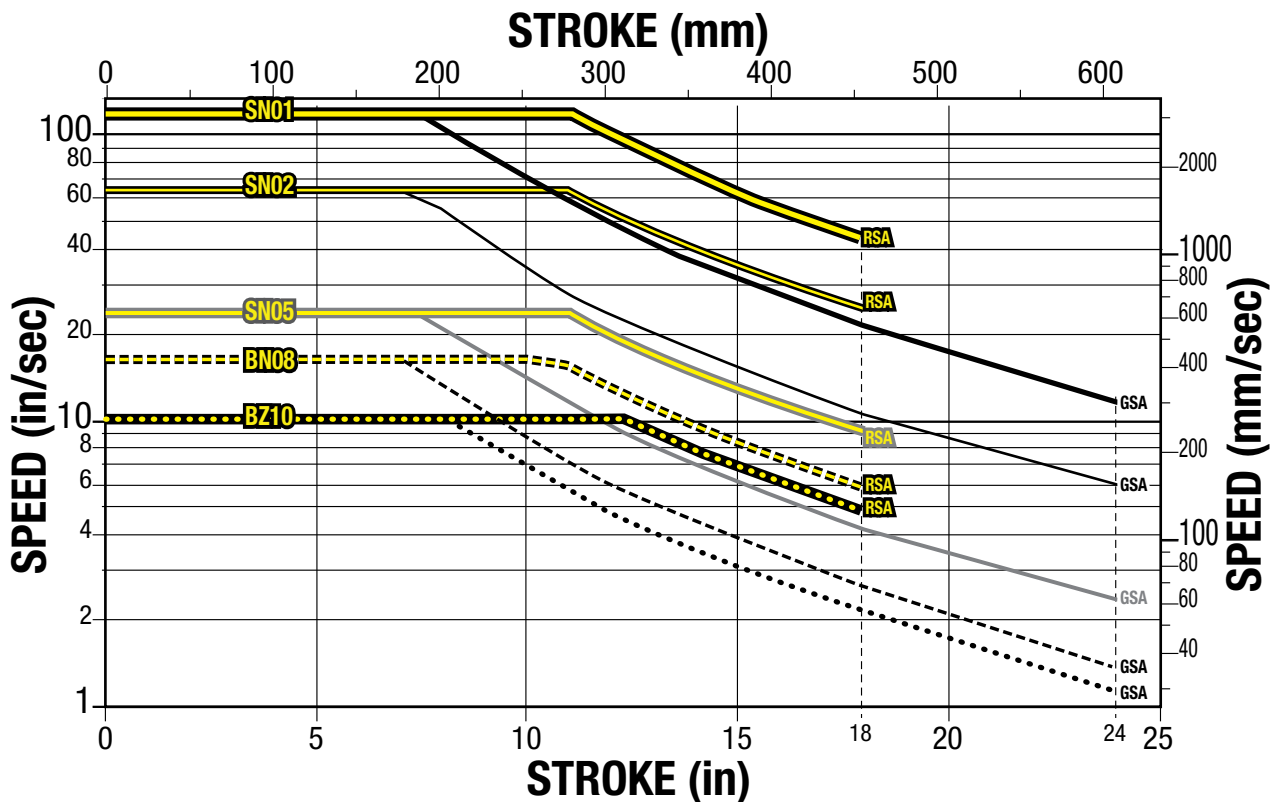
SWITCHES

Choose from: Reed, Solid State PNP or NPN, available normally open or normally closed

RSA & GSA Electric Rod-Style Actuator

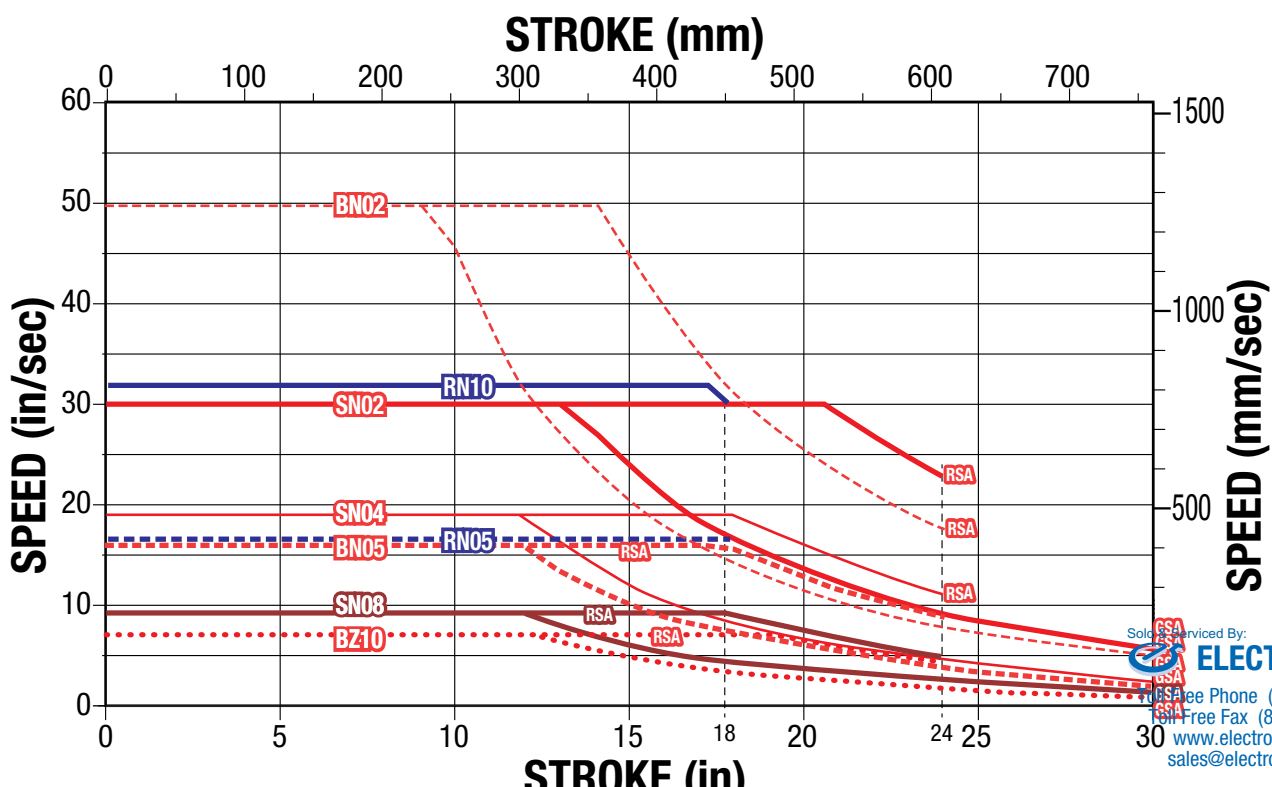
SIZE: 12,16: **CRITICAL SPEED CAPACITIES**

PERFORMANCE



SCREW CODE	DESCRIPTION
BN	Ball Nut
BNH	Ball Nut H-series
BNL	Low-Backlash Ball Nut
BNM	Ball Nut Metric
BZ	Bronze Nut
RN	Roller Nut
SN	Solid Nut

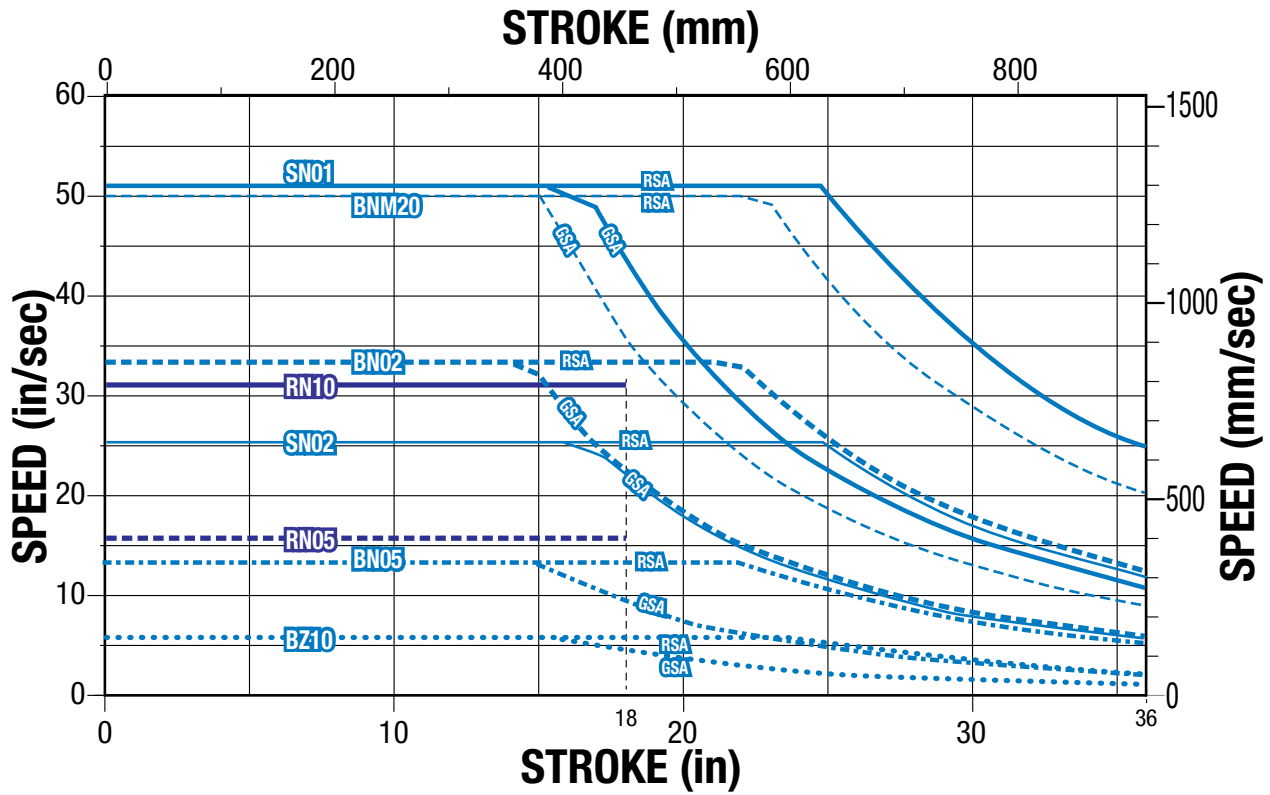
SIZE: 24: **CRITICAL SPEED CAPACITIES**



RSA & GSA Electric Rod-Style Actuator

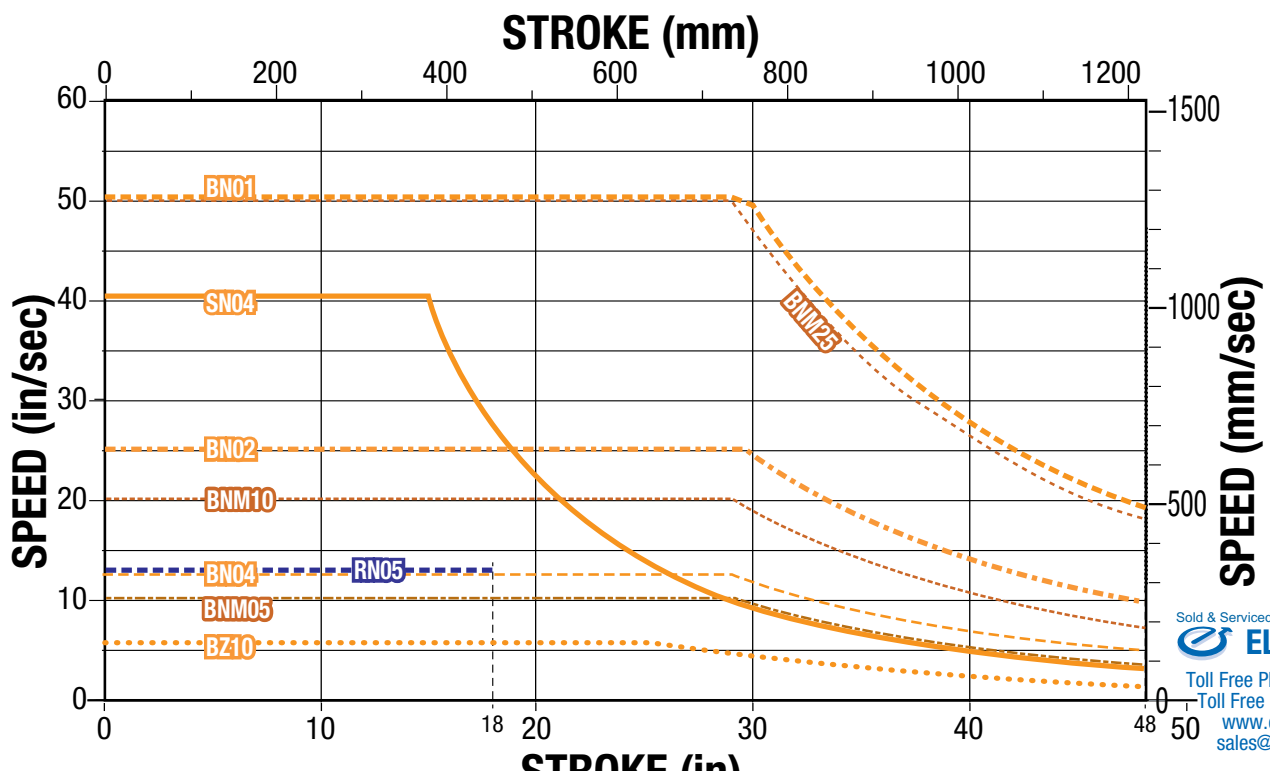
SIZE: 32: **CRITICAL SPEED CAPACITIES**

PERFORMANCE



SCREW CODE	DESCRIPTION
BN	Ball Nut
BNH	Ball Nut H-series
BNL	Low-Backlash Ball Nut
BNM	Ball Nut Metric
BZ	Bronze Nut
RN	Roller Nut
SN	Solid Nut

SIZE: 50: **CRITICAL SPEED CAPACITIES**

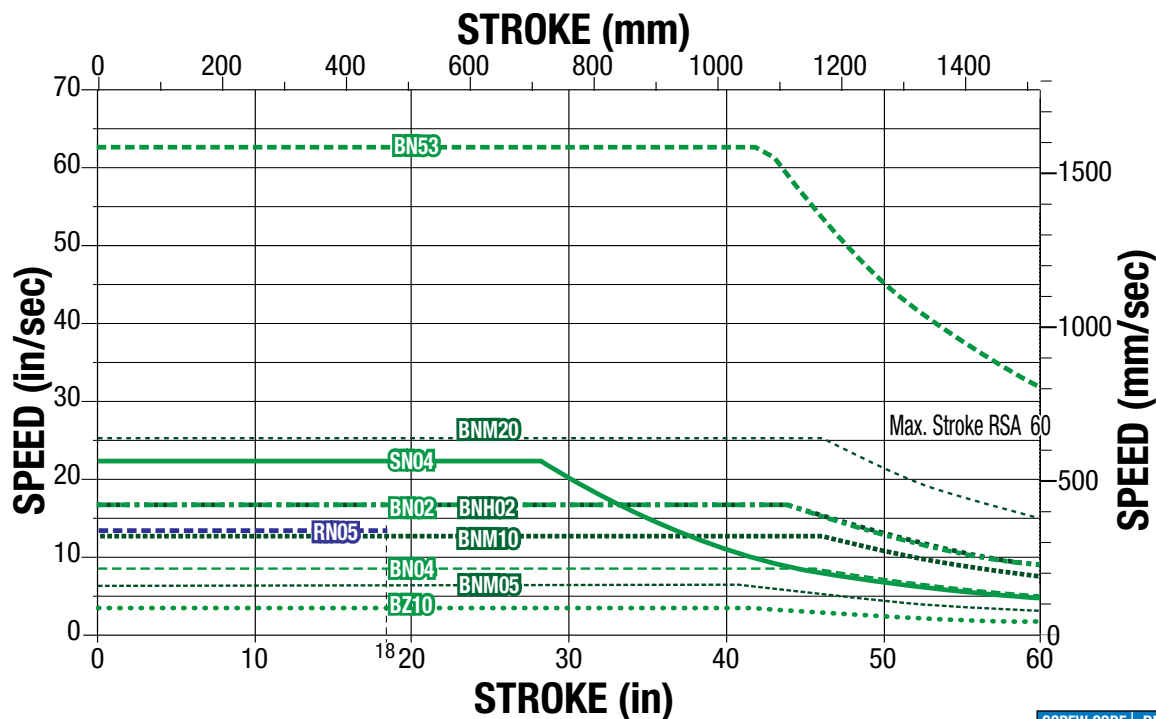


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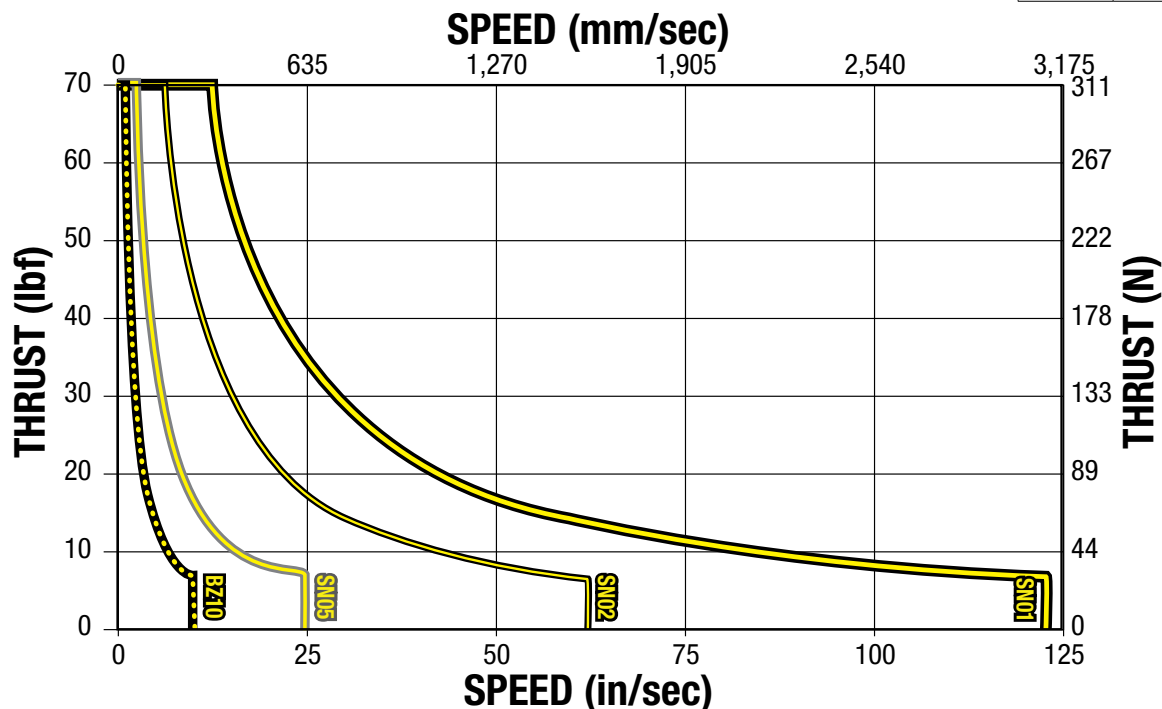
SIZE: **64: CRITICAL SPEED CAPACITIES**

PERFORMANCE



SCREW CODE	DESCRIPTION
BN	Ball Nut
BNH	Ball Nut H-series
BNL	Low-Backlash Ball Nut
BNM	Ball Nut Metric
BZ	Bronze Nut
RN	Roller Nut
SN	Solid Nut

SIZE: **12,16: PV LIMITS (Solid Nuts)**



PV LIMITS

PV LIMITS: Any material which carries a sliding load is limited by heat buildup. The factors that affect heat generation rate in an application are the pressure on the nut in pounds per square inch and the surface velocity in feet per minute. The product of these factors provides a measure of the severity of an application.

$$\left(\frac{\text{Thrust}}{\text{Area}} \right) \times \left(\frac{\text{Speed}}{12} \right) \leq 0.1$$

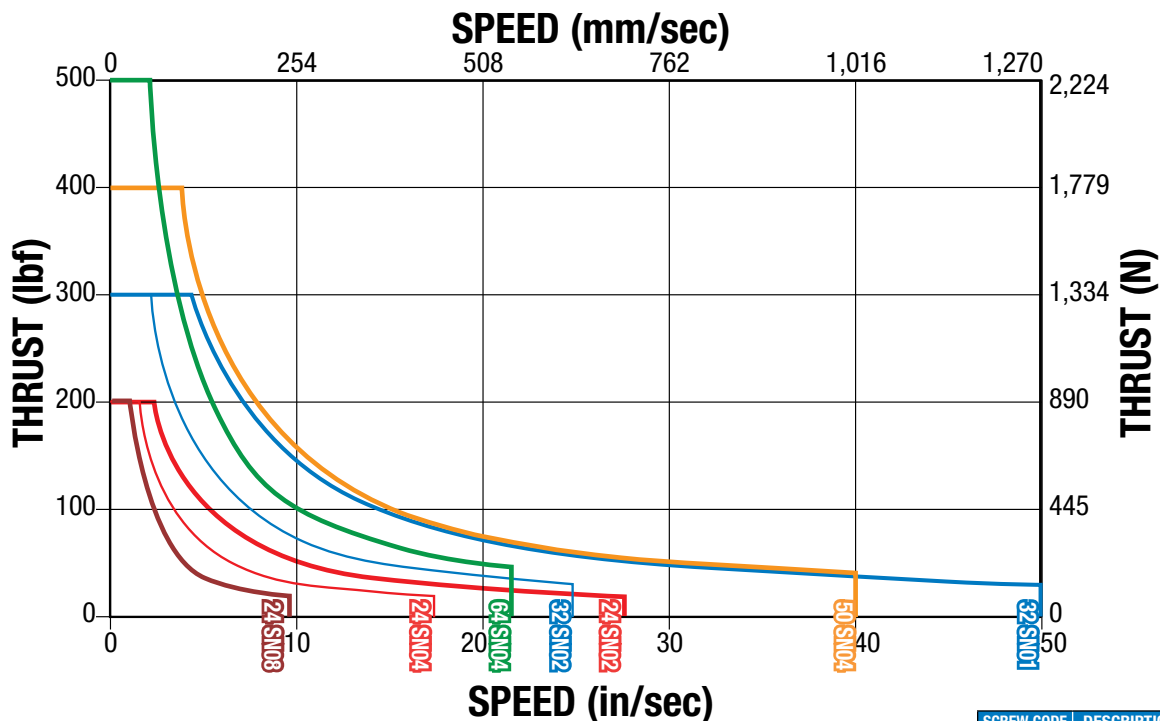
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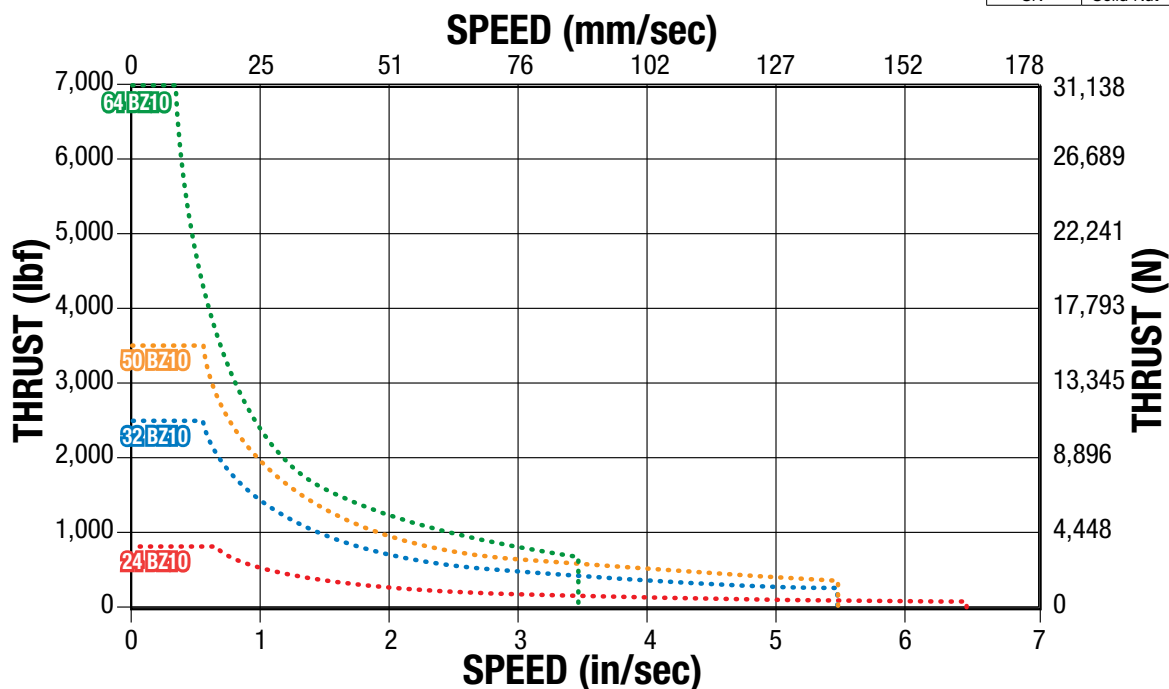
SIZE: 24,32,50,64 (SN): PV LIMITS (Solid Nuts)

PERFORMANCE



SCREW CODE	DESCRIPTION
BN	Ball Nut
BNH	Ball Nut H-series
BNL	Low-Backlash Ball Nut
BNM	Ball Nut Metric
BZ	Bronze Nut
RN	Roller Nut
SN	Solid Nut

SIZE: 24,32,50,64 (BZ): PV LIMITS (Bronze Nuts)



PV LIMITS

PV LIMITS: Any material which carries a sliding load is limited by heat buildup. The factors that affect heat generation rate in an application are the pressure on the nut in pounds per square inch and the surface velocity in feet per minute. The product of these factors provides a measure of the severity of an application.

$$\left(\frac{\text{P}}{\text{Thrust}} \right) \times \left(\frac{\text{V}}{\text{Speed}} \right) \leq 0.1$$

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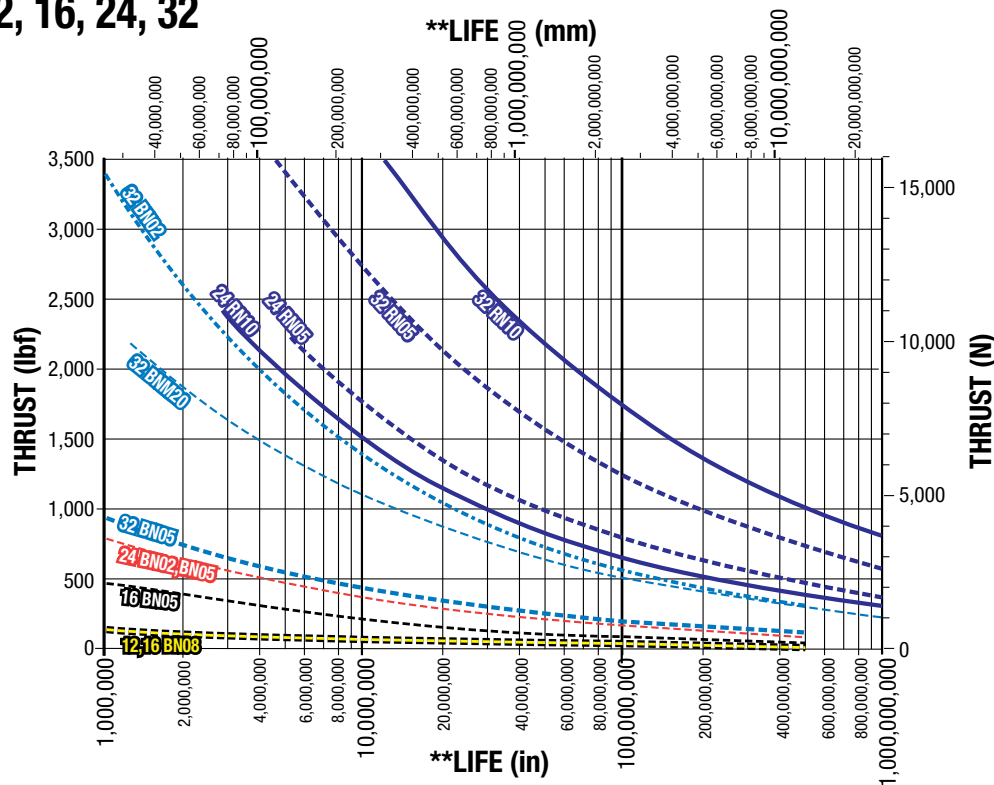
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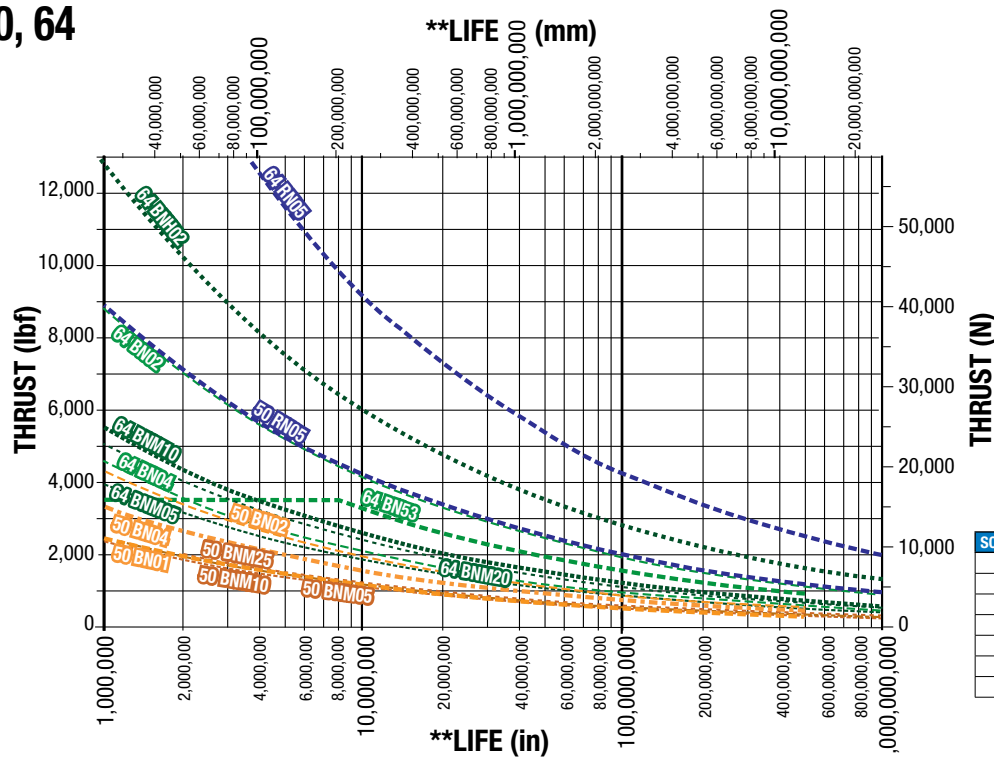
BALL & ROLLER SCREW LIFE GRAPHS

SIZE: 12, 16, 24, 32

PERFORMANCE



SIZE: 50, 64



SCREW CODE	DESCRIPTION
BN	Ball Nut
BNH	Ball Nut H-series
BNL	Low-Backlash Ball Nut
BNM	Ball Nut Metric
BZ	Bronze Nut
RN	Roller Nut
SN	Solid Nut



NOTE: The L_{10} expected life of a ball screw linear actuator is expressed as the linear travel distance that 90% of properly maintained ball screw manufactured are expected to meet or exceed. This is not a guarantee and this graph should be used for estimation purposes only.

The underlying formula that defines this value is:

$$L_{10} = \left(\frac{C}{P_e}\right)^3 \cdot l =$$

Travel life in millions of units (in or mm), where:

C = Dynamic load rating (lbf) or (N)

P_e = Equivalent load (lbf) or (N)

Use the "Equivalent Load" calculation below, when the load is not constant throughout the entire stroke. In cases where there is only minor variation in loading, use greatest load for life calculations.

$$P_e = \sqrt[3]{\frac{\% (P_1)^3 + \% (P_2)^3 + \% (P_3)^3 + \% (P_n)^3}{100}}$$

Where:

P_e = Equivalent load (lbs) or (N)

P_n = Each increment at different load (lbs) or (N)

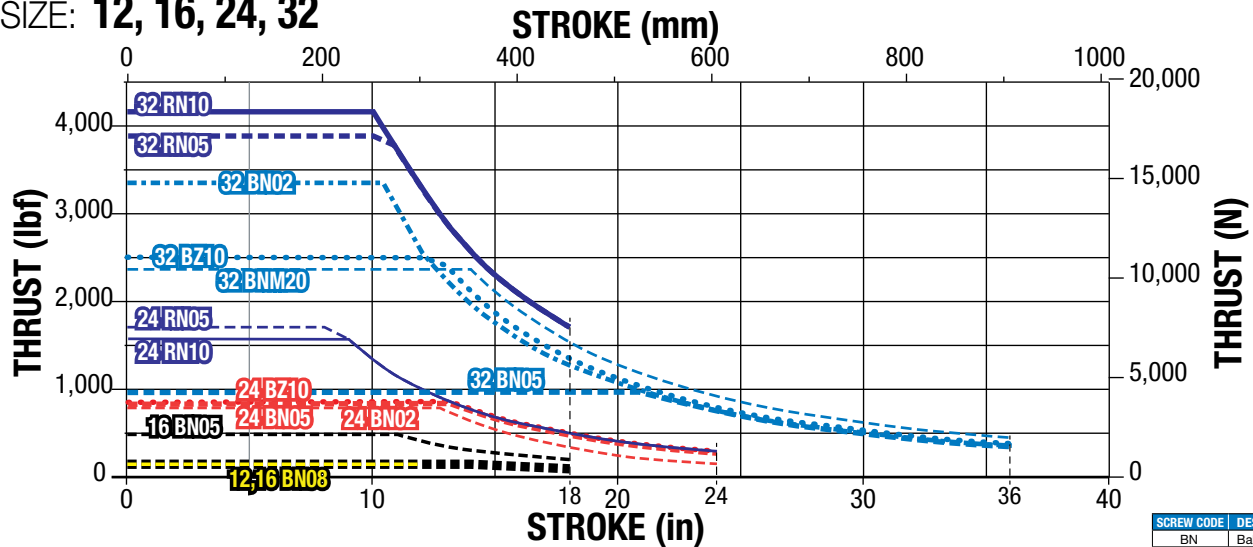
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SCREW BUCKLING LOAD

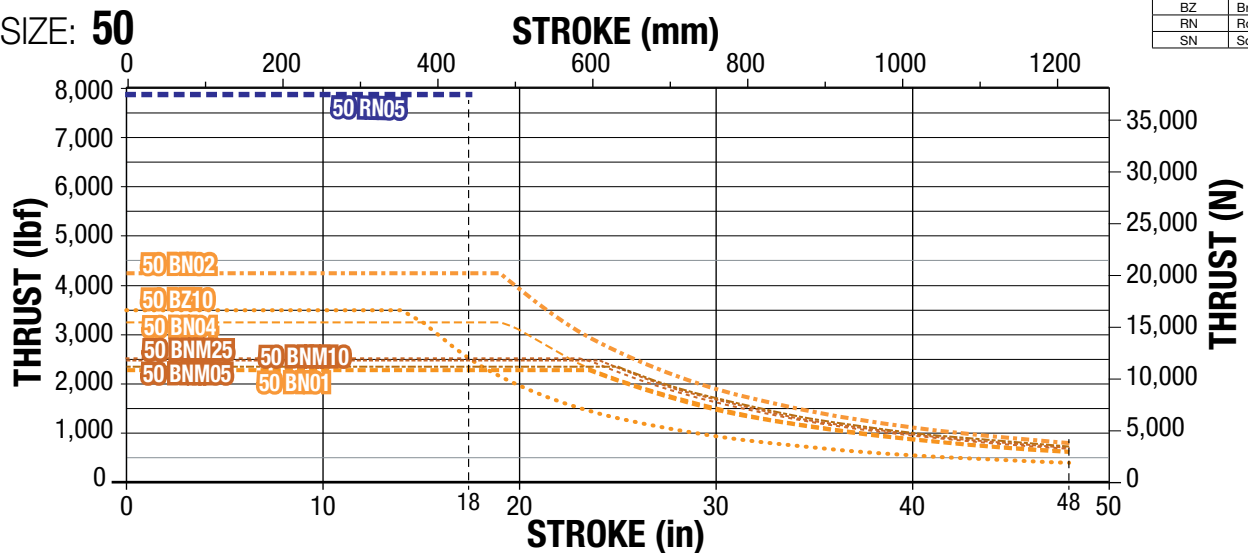
PERFORMANCE

SIZE: 12, 16, 24, 32

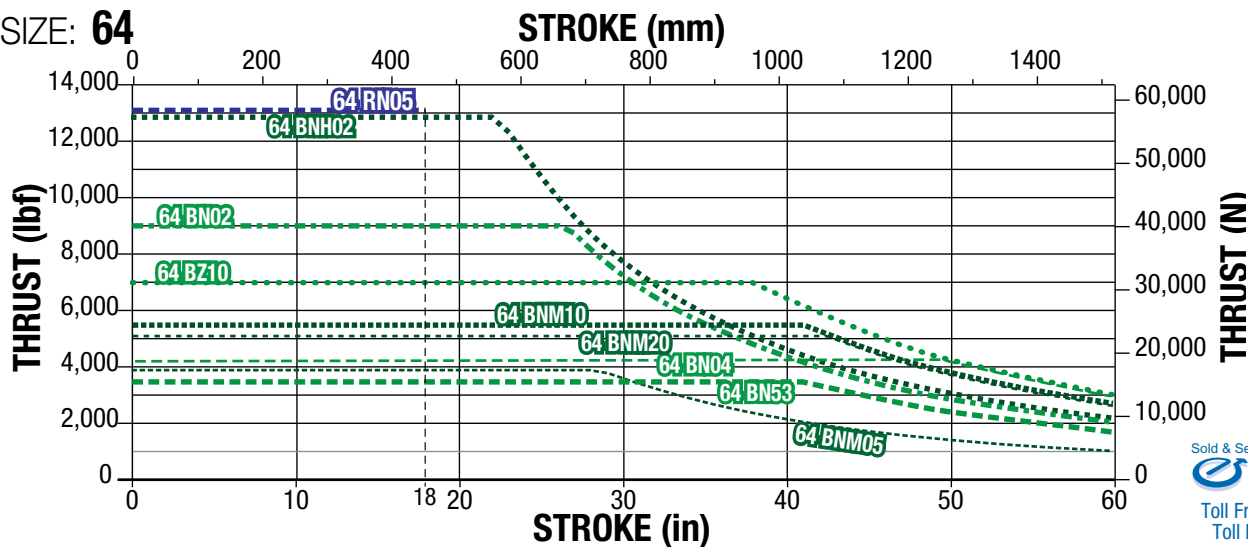


SCREW CODE	DESCRIPTION
BN	Ball Nut
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BNL	Low-Backlash Ball Nut
BNM	Ball Nut Metric
BZ	Bronze Nut
RN	Roller Nut
SN	Solid Nut

SIZE: 50



SIZE: 64



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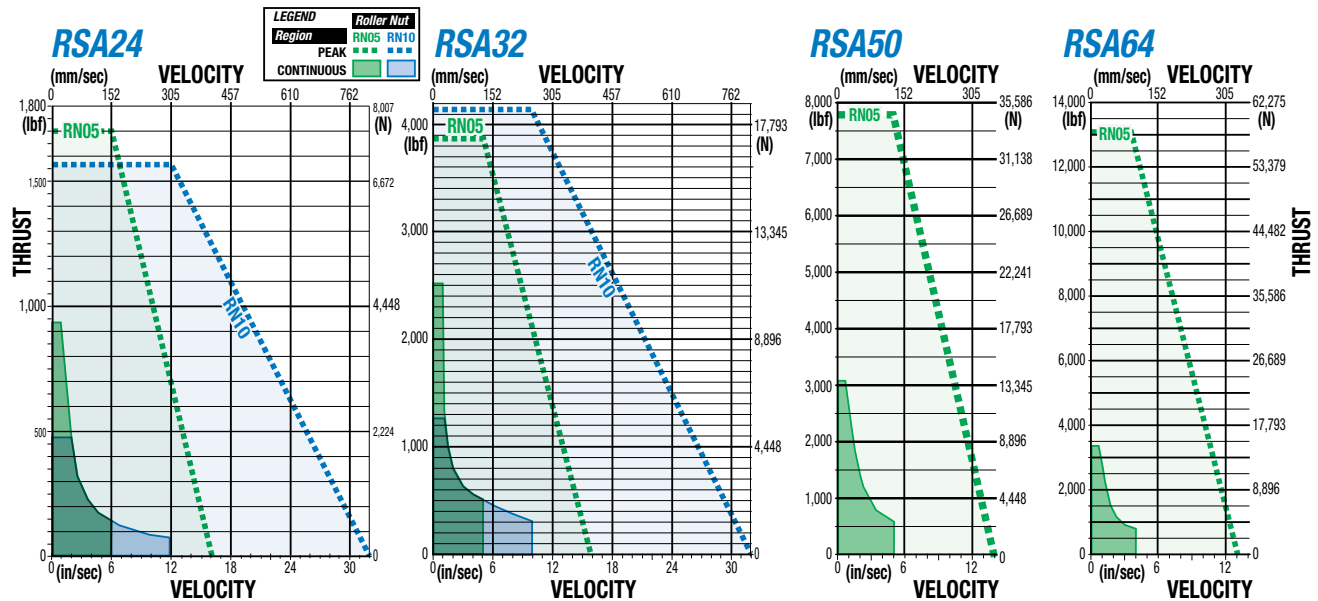
NOTE: Buckling load limits shown assume perfect alignment. It is recommended to use additional safety margin, particularly in high thrust applications.

RSA Electric Rod-Style Actuator

SIZE: 24, 32, 64

SPECIFICATIONS

SPEED vs THRUST, ROLLER SCREW/NUT



PEAK REGION is the maximum performance capabilities of the actuator system

CONTINUOUS DUTY REGION is defined as the RMS thrust and velocity limit that is derived from the thermal limits of the actuator system to achieve the dynamic load rating of the screw. (Example: Extend and retract under force 100% of the time with no dwells.)

CALCULATING RMS THRUST AND VELOCITY FOR CONTINUOUS DUTY

Roller screw actuator systems have two speed/thrust curves: one for continuous duty operation and another for intermittent (peak) duty. An actuator's roller screw can be selected according to the total thrust and maximum velocity indicated by the continuous duty curve. However, by calculating the root mean square (RMS) thrust based on the application duty cycle, you may be able to take advantage of the higher peak thrust available in the intermittent duty range. The RMS thrust must fall within the continuous duty region of the motor/drive and the application maximum thrust must fall under the peak thrust of the actuator. Use the following formulas when calculating the RMS thrust and velocity. When selecting a servo actuator motor, it is necessary to add a margin of safety to the thrust and velocity required to move the load.

$$T_{RMS} = \sqrt{\frac{\sum (T_i^2 \times t_i)}{\sum (t_i)}}$$

$$V_{RMS} = \sqrt{\frac{\sum (V_i^2 \times t_i)}{\sum (t_i)}}$$

Where:

T_{RMS} = RMS Thrust

V_{RMS} = RMS Velocity

T_i = Thrust during interval i

V_i = Velocity during interval i

t_i = Time interval i

LUBRICATION

RSA roller screw actuators require periodic re-lubrication to maintain optimal performance. Below are formulas to help determine lubrication interval. See parts sheets for formula definitions, complete instructions and examples.

STEP 1: $t_{BL} = 4500 \times (V_{RMS})^{-1.57}$ (hours)

STEP 2: $K_T = K_{Co} \left(\frac{T_{PEAK}}{T_{MAX}} \right) - 0.15$

STEP 3: $t_L = t_{BL} \times K_T$ (hours)

	24RN05	24RN10	32RN05	32RN10	50RN05	64RN05
K_{Co}	0.24	0.44	0.26	0.40	0.31	0.31

Re-lubricate with Tolomatic Grease into the grease zerk located on the rod end.

	RSA24	RSA32	RSA50	RSA64
Quantity	0.11 oz (3.0g)	0.18 oz (5.0g)	0.28 oz (8.0g)	0.35 oz (10.0g)



In some applications oil may leak from the grease zerk. In contamination sensitive applications replace grease zerk with plug.

Where:

t_{BL} = Basic Lubrication Interval (hours)

V_{RMS} = RMS Velocity (in/sec)

K_T = Thrust Correction Factor

K_{Co} = Screw Static Load Factor

T_{PEAK} = Actuator Peak Thrust Rating

T_{MAX} = Maximum Cycle Thrust Rating

t_L = Lubrication Interval (hours)

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RSA Electric Rod-Style Actuator

SIZE: ALL

units: US standard

SPECIFICATIONS

RSA SIZE	MAX. STROKE in	SCREW DIA. in	SCREW CODE	TPI turns/in	LEAD ACCURACY in/ft	BACKLASH in	MAX. THRUST* lbf	DYNAMIC LOAD RATING** lbf	BASE ACTUATOR INERTIA		INERTIA PER/in OF STROKE lb-in ²	BREAK-AWAY TORQUE lb-in	MOVING PARTS WEIGHT	
									In Line lb-in ²	Reverse Parallel lb-in ²			Base lb	Per Inch lb
12	18	0.375	SN01	1.00	0.0100	0.0070	70	NA	0.004	0.005	0.002	0.63	0.11	0.04
	18	0.375	SN02	2.00	0.0060	0.0070	70	NA	0.002	0.003	0.001	0.56	0.11	0.04
	18	0.375	SN05	5.00	0.0060	0.0070	70	NA	0.002	0.002	0.001	0.50	0.11	0.04
	18	0.375	BZ10	10.00	0.0060	0.0080	70	NA	0.002	0.002	0.001	0.50	0.11	0.04
	18	0.375	BN08	8.00	0.0030	0.0150	130	260	0.002	0.002	0.001	0.50	0.19	0.04
	18	0.375	BNL08	8.00	0.0030	0.0020	130	260	0.002	0.002	0.001	0.50	0.19	0.04
16	18	0.375	SN01	1.00	0.0100	0.0070	70	NA	0.006	0.007	0.002	1.31	0.19	0.06
	18	0.375	SN02	2.00	0.0060	0.0070	70	NA	0.003	0.003	0.001	1.13	0.19	0.06
	18	0.375	SN05	5.00	0.0060	0.0070	70	NA	0.002	0.002	0.001	1.06	0.19	0.06
	18	0.375	BZ10	10.00	0.0060	0.0080	70	NA	0.002	0.002	0.001	1.06	0.19	0.06
	18	0.375	BN08	8.00	0.0030	0.0150	130	260	0.002	0.002	0.001	1.00	0.27	0.06
	18	0.375	BNL08	8.00	0.0030	0.0020	130	260	0.002	0.002	0.001	1.00	0.27	0.06
24	24	0.625	SN02	2.00	0.0050	0.0070	200	NA	0.022	0.023	0.005	1.81	0.75	0.14
	24	0.625	SN04	4.00	0.0100	0.0070	200	NA	0.019	0.019	0.004	1.69	0.75	0.14
	24	0.625	SN08	8.00	0.0100	0.0070	200	NA	0.018	0.018	0.004	1.63	0.75	0.14
	24	0.625	BZ10	10.00	0.0060	0.0080	850	NA	0.018	0.018	0.004	1.63	0.75	0.14
	24	0.625	BN05	5.00	0.0030	0.0150	825	1,411	0.021	0.021	0.004	2.19	1.01	0.14
	24	0.625	BNL05	5.00	0.0030	0.0020	825	1,411	0.021	0.021	0.004	2.19	1.01	0.14
	24	0.500	BN02	2.00	0.0030	0.0150	850	1,071	0.019	0.019	0.003	2.50	1.01	0.14
	24	0.500	BNL02	2.00	0.0030	0.0020	850	1,071	0.019	0.019	0.003	2.50	1.01	0.14
	18	0.591	RN05	5.08	0.0004	0.0012	1,700	5,577	0.221	0.041	0.004	5.30	1.64	0.14
	18	0.591	RN10	2.54	0.0004	0.0012	1,556	5,577	0.227	0.047	0.004	5.30	1.64	0.14
32	36	0.750	SN01	1.00	0.0050	0.0070	188	NA	0.077	0.073	0.013	3.13	0.97	0.15
	36	0.750	SN02	2.00	0.0050	0.0070	300	NA	0.059	0.055	0.010	2.69	0.97	0.15
	36	0.750	BZ10	10.00	0.0060	0.0080	2,500	NA	0.053	0.049	0.009	3.13	0.97	0.15
	36	0.750	BN02	2.00	0.0040	0.0150	2,500	3,364	0.072	0.068	0.010	2.44	1.44	0.15
	36	0.750	BNL02	2.00	0.0040	0.0020	2,500	3,364	0.072	0.068	0.010	2.44	1.44	0.15
	36	0.750	BN05	5.00	0.0030	0.0150	950	1,624	0.065	0.060	0.009	2.31	1.44	0.15
	36	0.750	BNL05	5.00	0.0030	0.0020	950	1,624	0.065	0.060	0.009	2.31	1.44	0.15
	36	0.787	BNM20	1.27	0.0020	0.0050	2,364	2,560	0.080	0.075	0.011	5.60	1.44	0.15
	18	0.787	RN05	5.08	0.0004	0.0012	3,878	13,114	1.250	1.351	0.011	6.20	3.15	0.15
	18	0.787	RN10	2.54	0.0004	0.0012	4,159	12,729	1.263	1.363	0.011	6.20	3.15	0.15
50	48	1.000	SN04	4.00	0.0100	0.0070	400	NA	0.206	0.203	0.028	4.25	2.62	0.30
	48	1.000	BZ10	10.00	0.0060	0.0080	3,500	NA	0.319	0.316	0.035	4.13	2.62	0.30
	48	1.000	BN01	1.00	0.0040	0.0150	2,300	2,300	0.319	0.316	0.035	4.13	3.55	0.30
	48	1.000	BNL01	1.00	0.0040	0.0020	2,300	2,300	0.319	0.316	0.035	4.13	3.55	0.30
	48	1.000	BN02	2.00	0.0040	0.0150	4,250	5,355	0.252	0.249	0.029	3.63	3.55	0.30
	48	1.000	BNL02	2.00	0.0040	0.0020	4,250	5,355	0.252	0.249	0.029	3.63	3.55	0.30
	48	1.000	BN04	4.00	0.0040	0.0150	3,250	5,159	0.235	0.232	0.028	4.25	3.55	0.30
	48	1.000	BNL04	4.00	0.0040	0.0020	3,250	5,159	0.235	0.232	0.028	4.25	3.55	0.30
	48	0.984	BNM05	5.08	0.0020	0.0040	2,347	4,035	0.215	0.210	0.026	7.50	3.55	0.30
	48	0.984	BNM10	2.54	0.0020	0.0040	2,471	3,372	0.215	0.210	0.026	7.50	3.55	0.30
	48	0.984	BNM25	1.02	0.0040	0.0050	2,524	2,537	0.215	0.210	0.026	7.50	3.55	0.30
	18	1.181	RN05	5.08	0.0004	0.0012	7,868	15,736	1.950	1.846	0.060	8.50	6.77	0.30
	64	60	1.500	SN04	4.00	0.0100	0.0070	500	NA	1.545	1.504	0.140	5.38	5.01
60		1.500	BZ10	10.00	0.0060	0.0080	7,000	NA	1.538	1.498	0.139	5.44	5.01	0.45
60		1.500	BN53	0.53	0.0040	0.0150	3,500	5,961	2.500	2.459	0.180	7.19	7.59	0.45
60		1.500	BNL53	0.53	0.0040	0.0020	3,500	5,961	2.500	2.459	0.180	7.19	7.59	0.45
60		1.500	BN02	2.00	0.0040	0.0150	9,050	11,402	1.863	1.823	0.142	5.31	7.59	0.45
60		1.500	BNL02	2.00	0.0040	0.0020	9,050	11,402	1.863	1.823	0.142	5.31	7.59	0.45
60		1.500	BN04	4.00	0.0040	0.0150	4,250	6,746	1.827	1.787	0.140	5.38	7.59	0.45
60		1.500	BNL04	4.00	0.0040	0.0020	4,250	6,746	1.827	1.787	0.140	5.38	7.59	0.45
60		1.575	BNM05	5.08	0.0020	0.0040	3,906	6,714	3.030	2.950	0.170	9.40	7.59	0.45
60		1.575	BNM10	2.54	0.0020	0.0040	5,479	7,476	3.030	2.950	0.170	9.40	7.59	0.45
60		1.575	BNM20	1.27	0.0020	0.0050	5,105	5,528	3.030	2.950	0.170	9.40	7.59	0.45
60		1.500	BNH02	2.00	0.0040	0.0150	12,900	16,253	2.875	2.800	0.140	9.40	7.59	0.45
60		1.500	BNHL02	2.00	0.0040	0.0020	12,900	16,253	2.875	2.800	0.140	9.40	7.59	0.45
18		1.417	RN05	5.08	0.0004	0.0012	13,039	21,973	2.590	2.520	0.125	9.40	7.59	0.45

ELECTROMATE
Toll Free Phone (877) SERV098
12188 or Fax (977) SERV099

SCREW CODE	DESCRIPTION	SCREW CODE	DESCRIPTION
BN	Ball Nut	BZ	Bronze Nut
BNH	Ball Nut H-series	RN	Roller Nut

Contact Tolomatic for higher accuracy and lower backlash options.
* For SN & BZ screws, maximum continuous dynamic thrust subject to Thrust x Velocity limitation.
** For BN, BNH & BNH screws, maximum dynamic thrust subject to Thrust x Velocity limitation.

www.electromate.com

RSM Electric Rod-Style Actuator

SIZE: **ALL** units: **metric****

SPECIFICATIONS

** RSM metric actuators use the same leadscrew as the RSA inch actuators. Threaded mounting and dowel pin holes are metric.

RSA SIZE	MAX. STROKE mm	SCREW DIA. mm	SCREW CODE	LEAD mm/rev	LEAD ACCURACY mm/300mm	BACKLASH mm	MAX. THRUST* N	DYNAMIC LOAD RATING** N	BASE ACTUATOR INERTIA		INERTIA PER/in OF STROKE kg-m ² x 10 ⁻⁶	BREAK-AWAY TORQUE N-m	MOVING PARTS WEIGHT	
									In Line kg-m ² x 10 ⁻⁶	Reverse Parallel kg-m ² x 10 ⁻⁶			Base N	Per 25mm N
12	457	9.53	SN01	25.40	0.25	0.18	311	NA	1.287	1.375	0.4388	0.071	0.49	0.18
	457	9.53	SN02	12.70	0.15	0.18	311	NA	0.702	0.761	0.2340	0.064	0.49	0.18
	457	9.53	SN05	5.08	0.15	0.18	311	NA	0.527	0.585	0.1463	0.056	0.49	0.18
	457	9.53	BZ10	2.54	0.15	0.20	311	NA	0.497	0.556	0.1463	0.056	0.49	0.18
	457	9.53	BN08	3.18	0.08	0.38	578	1,157	0.497	0.585	0.1463	0.056	0.85	0.18
	457	9.53	BNL08	3.18	0.08	0.05	578	1,157	0.497	0.585	0.1463	0.056	0.85	0.18
16	457	9.53	SN01	25.40	0.25	0.18	311	NA	1.872	1.901	0.5850	0.148	0.85	0.27
	457	9.53	SN02	12.70	0.15	0.18	311	NA	0.819	0.848	0.2633	0.127	0.85	0.27
	457	9.53	SN05	5.08	0.15	0.18	311	NA	0.527	0.556	0.1755	0.120	0.85	0.27
	457	9.53	BZ10	2.54	0.15	0.20	311	NA	0.468	0.497	0.1463	0.120	0.85	0.27
	457	9.53	BN08	3.18	0.08	0.38	578	1,157	0.497	0.527	0.1463	0.113	1.20	0.27
	457	9.53	BNL08	3.18	0.08	0.05	578	1,157	0.497	0.527	0.1463	0.113	1.20	0.27
24	610	15.88	SN02	12.70	0.13	0.18	890	NA	6.523	6.640	1.4918	0.205	3.34	0.62
	610	15.88	SN04	6.35	0.25	0.18	890	NA	5.470	5.616	1.2870	0.191	3.34	0.62
	610	15.88	SN08	3.18	0.25	0.18	890	NA	5.207	5.353	1.2285	0.184	3.34	0.62
	610	15.88	BZ10	2.54	0.15	0.20	3,781	NA	5.177	5.324	1.2285	0.184	3.34	0.62
	610	15.88	BN05	5.08	0.08	0.38	3,670	6,275	5.996	6.113	1.2578	0.247	4.49	0.62
	610	15.88	BNL05	5.08	0.08	0.05	3,670	6,275	5.996	6.113	1.2578	0.247	4.49	0.62
	610	12.70	BN02	12.70	0.08	0.38	3,781	4,764	5.411	5.528	0.7605	0.282	4.49	0.62
	610	12.70	BNL02	12.70	0.08	0.05	3,781	4,764	5.411	5.528	0.7605	0.282	4.49	0.62
	457	15.01	RN05	5.00	0.01	0.03	7,562	24,808	64.643	11.993	1.0530	0.599	7.30	0.64
	457	15.01	RN10	10.00	0.01	0.03	6,921	24,808	66.485	13.806	1.1993	0.599	7.30	0.64
32	914	19.05	SN01	25.40	0.13	0.18	836	NA	22.640	21.382	3.6563	0.353	4.31	0.67
	914	19.05	SN02	12.70	0.13	0.18	1,334	NA	17.258	16.000	2.8080	0.304	4.31	0.67
	914	19.05	BZ10	2.54	0.15	0.20	11,121	NA	15.532	14.274	2.5448	0.353	4.31	0.67
	914	19.05	BN02	12.70	0.10	0.38	11,121	14,964	21.148	19.890	2.8080	0.275	6.41	0.67
	914	19.05	BNL02	12.70	0.10	0.05	11,121	14,964	21.148	19.890	2.8080	0.275	6.41	0.67
	914	19.05	BN05	5.08	0.08	0.38	4,226	7,226	18.925	17.667	2.5740	0.261	6.41	0.67
	914	19.05	BNL05	5.08	0.08	0.05	4,226	7,226	18.925	17.667	2.5740	0.261	6.41	0.67
	914	20.00	BNM20	20.00	0.05	0.13	10,516	11,388	23.400	21.938	3.2175	0.633	6.41	0.67
	457	19.99	RN05	5.00	0.01	0.03	17,250	58,334	365.845	395.405	3.2175	0.701	14.01	0.66
457	19.99	RN10	10.00	0.01	0.03	18,500	56,621	369.650	398.917	3.2175	0.701	14.01	0.66	
50	1219	25.40	SN04	6.35	0.25	0.18	1,779	NA	60.255	59.290	8.1900	0.480	11.65	1.33
	1219	25.40	BZ10	2.54	0.15	0.20	15,569	NA	93.395	92.430	10.2668	0.466	11.65	1.33
	1219	25.40	BN01	25.40	0.10	0.38	10,231	10,231	93.395	92.430	10.2668	0.466	15.79	1.33
	1219	25.40	BNL01	25.40	0.10	0.05	10,231	10,231	93.395	92.430	10.2668	0.466	15.79	1.33
	1219	25.40	BN02	12.70	0.10	0.38	18,905	23,820	73.681	72.686	8.5995	0.410	15.79	1.33
	1219	25.40	BNL02	12.70	0.10	0.05	18,905	23,820	73.681	72.686	8.5995	0.410	15.79	1.33
	1219	25.40	BN04	6.35	0.10	0.38	14,457	22,949	68.738	67.772	8.1900	0.480	15.79	1.33
	1219	25.40	BNL04	6.35	0.10	0.05	14,457	22,949	68.738	67.772	8.1900	0.480	15.79	1.33
	1219	25.00	BNM05	5.00	0.05	0.10	10,440	17,947	62.888	61.425	7.6050	0.847	15.79	1.33
	1219	25.00	BNM10	10.00	0.05	0.10	10,992	14,999	62.888	61.425	7.6050	0.847	15.79	1.33
	1219	25.00	BNM25	25.00	0.10	0.13	11,227	11,285	62.888	61.425	7.6050	0.847	15.79	1.33
457	30.00	RN05	5.00	0.01	0.03	34,999	69,998	570.375	539.955	17.5500	0.960	30.11	1.33	
64	1524	38.10	SN04	6.35	0.25	0.18	2,224	NA	451.825	440.008	40.9208	0.607	22.29	2.00
	1524	38.10	BZ10	2.54	0.15	0.20	31,138	NA	449.865	438.077	40.7453	0.614	22.29	2.00
	1524	38.10	BN53	47.93	0.10	0.38	15,569	26,516	731.133	719.316	52.5623	0.812	33.76	2.00
	1524	38.10	BNL53	47.93	0.10	0.05	15,569	26,516	731.133	719.316	52.5623	0.812	33.76	2.00
	1524	38.10	BN02	12.70	0.10	0.38	40,257	50,719	544.986	533.198	41.5350	0.600	33.76	2.00
	1524	38.10	BNL02	12.70	0.10	0.05	40,257	50,719	544.986	533.198	41.5350	0.600	33.76	2.00
	1524	38.10	BN04	6.35	0.10	0.38	18,905	30,010	534.456	522.639	40.9208	0.607	33.76	2.00
	1524	38.10	BNL04	6.35	0.10	0.05	18,905	30,010	534.456	522.639	40.9208	0.607	33.76	2.00
	1524	40.00	BNM05	5.00	0.05	0.10	17,375	29,865	886.275	862.875	49.7250	1.062	33.76	2.00
	1524	40.00	BNM10	10.00	0.05	0.10	24,372	33,253	886.275	862.875	49.7250	1.062	33.76	2.00
	1524	40.00	BNM20	20.00	0.05	0.13	22,708	24,592	886.275	862.875	49.7250	1.062	33.76	2.00
	1524	38.10	BNH02	12.70	0.10	0.38	57,382	72,297	840.938	819.000	40.9500	1.062	33.76	2.00
	1524	38.10	BNHL02	12.70	0.10	0.05	57,382	72,297	840.938	819.000	40.9500	1.062	33.76	2.00
	457	36.00	RN05	5.00	0.01	0.03	58,001	97,741	757.575	737.100	36.5625	1.062	33.76	2.00

SCREW CODE	DESCRIPTION
BN	Ball Nut
BNH	Ball Nut H-series

SCREW CODE	DESCRIPTION
BZ	Bronze Nut
RN	Roller Nut

Contact Tolomatic for higher accuracy and lower backlash options.
 * For SN & BZ screws, maximum continuous dynamic thrust subject to Thrust x Velocity limits.
 ** For BN, RN & RNL screws, dynamic load rating reflects 90% reliability for 1 million revolutions.
 www.electromate.com
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GSA Electric Rod-Style Actuator

SIZE: **ALL**

units: **US standard**

SPECIFICATIONS

SIZE	BEARING TYPE	GUIDE ROD	MAX. STROKE	SCREW DIA.	SCREW TYPE	TPI	LEAD ACCURACY	BACKLASH	MAX THRUST*	DYNAMIC LOAD RATING**	BASE ACTUATOR INERTIA		INERTIA PER/in OF STROKE	BREAKAWAY TORQUE	MOVING PARTS WEIGHT	
											In Line	Rev. Parallel			Base	Per Inch
											lb-in ²	lb-in ²			lb	lb
12	LINEAR	STANDARD Ø0.50	18	0.38	SN01	1	0.010	0.007	70	NA	0.0324	0.0326	0.0040	2.938	1.21	0.14
			18	0.38	SN02	2	0.006	0.007	70	NA	0.0095	0.0097	0.0014	1.500	1.21	0.14
			18	0.38	SN05	5	0.006	0.007	70	NA	0.0030	0.0032	0.0006	0.563	1.21	0.14
			18	0.38	BZ10	10	0.006	0.008	70	NA	0.0021	0.0023	0.0005	0.438	1.21	0.14
			18	0.38	BN08	8	0.003	0.015	130	260	0.0023	0.0025	0.0006	0.500	1.29	0.14
			18	0.38	BNL08	8	0.003	0.002	130	260	0.0023	0.0025	0.0006	0.500	1.29	0.14
	COMPOSITE	STANDARD Ø0.50	18	0.38	SN01	1	0.010	0.007	70	NA	0.0324	0.0326	0.0040	5.625	1.21	0.14
			18	0.38	SN02	2	0.006	0.007	70	NA	0.0095	0.0097	0.0014	2.813	1.21	0.14
			18	0.38	SN05	5	0.006	0.007	70	NA	0.0030	0.0032	0.0006	1.125	1.21	0.14
			18	0.38	BZ10	10	0.006	0.008	70	NA	0.0021	0.0023	0.0005	0.813	1.21	0.14
			18	0.38	BN08	8	0.003	0.015	130	260	0.0023	0.0025	0.0006	0.688	1.29	0.14
			18	0.38	BNL08	8	0.003	0.002	130	260	0.0023	0.0025	0.0006	0.688	1.29	0.14
		OVERSIZED Ø0.63	18	0.38	SN01	1	0.010	0.007	70	NA	0.0413	0.0415	0.0056	6.125	1.56	0.20
			18	0.38	SN02	2	0.006	0.007	70	NA	0.0117	0.0119	0.0018	3.063	1.56	0.20
			18	0.38	SN05	5	0.006	0.007	70	NA	0.0034	0.0036	0.0007	1.250	1.56	0.20
			18	0.38	BZ10	10	0.006	0.008	70	NA	0.0022	0.0024	0.0006	0.938	1.56	0.20
			18	0.38	BN08	8	0.003	0.015	130	260	0.0024	0.0026	0.0006	0.750	1.64	0.20
			18	0.38	BNL08	8	0.003	0.002	130	260	0.0024	0.0026	0.0006	0.750	1.64	0.20
16	LINEAR	STANDARD Ø0.63	24	0.38	SN01	1	0.010	0.007	70	NA	0.0631	0.0633	0.0058	2.938	2.42	0.21
			24	0.38	SN02	2	0.006	0.007	70	NA	0.0171	0.0173	0.0018	1.500	2.42	0.21
			24	0.38	SN05	5	0.006	0.007	70	NA	0.0043	0.0045	0.0007	0.563	2.42	0.21
			24	0.38	BZ10	10	0.006	0.008	70	NA	0.0024	0.0026	0.0006	0.438	2.42	0.21
			24	0.38	BN08	8	0.003	0.015	130	260	0.0028	0.0030	0.0006	0.500	2.50	0.21
			24	0.38	BNL08	8	0.003	0.002	130	260	0.0028	0.0030	0.0006	0.500	2.50	0.21
	COMPOSITE	STANDARD Ø0.63	24	0.38	SN01	1	0.010	0.007	70	NA	0.0631	0.0633	0.0058	6.125	2.42	0.21
			24	0.38	SN02	2	0.006	0.007	70	NA	0.0171	0.0173	0.0018	3.063	2.42	0.21
			24	0.38	SN05	5	0.006	0.007	70	NA	0.0043	0.0045	0.0007	1.250	2.42	0.21
			24	0.38	BZ10	10	0.006	0.008	70	NA	0.0024	0.0026	0.0006	0.938	2.42	0.21
			24	0.38	BN08	8	0.003	0.015	130	260	0.0028	0.0030	0.0006	0.688	2.50	0.21
			24	0.38	BNL08	8	0.003	0.002	130	260	0.0028	0.0030	0.0006	0.688	2.50	0.21
		OVERSIZED Ø0.75	24	0.38	SN01	1	0.010	0.007	70	NA	0.0763	0.0765	0.0078	6.625	2.94	0.29
			24	0.38	SN02	2	0.006	0.007	70	NA	0.0204	0.0206	0.0023	3.313	2.94	0.29
			24	0.38	SN05	5	0.006	0.007	70	NA	0.0048	0.0050	0.0008	1.313	2.94	0.29
			24	0.38	BZ10	10	0.006	0.008	70	NA	0.0025	0.0027	0.0006	1.000	2.94	0.29
			24	0.38	BN08	8	0.003	0.015	130	260	0.0030	0.0032	0.0006	0.750	3.02	0.29
			24	0.38	BNL08	8	0.003	0.002	130	260	0.0030	0.0032	0.0006	0.750	3.02	0.29

SCREW CODE	DESCRIPTION
BN	Ball Nut
BNH	Ball Nut H-series
BNL	Low-Backlash Ball Nut

SCREW CODE	DESCRIPTION
BNM	Ball Nut Metric
BZ	Bronze Nut
SN	Solid Nut



Contact Tolomatic for higher accuracy and lower backlash options.
 * For SN & BZ screws, maximum continuous dynamic thrust subject to 1.5x velocity limit.
 ** For BN & BNL screws, dynamic load rating reflects 90% reliability for 1 million revolutions.

Sold & Serviced By:
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www.electromate.com
sales@electromate.com

GSA Electric Rod-Style Actuator

SIZE: ALL

units: US standard

SPECIFICATIONS

SIZE	BEARING TYPE	GUIDE ROD	MAX. STROKE	SCREW DIA.	SCREW TYPE	TPI	LEAD ACCURACY	BACKLASH	MAX THRUST*	DYNAMIC LOAD RATING**	BASE ACTUATOR INERTIA		INERTIA PER/in OF STROKE	BREAKAWAY TORQUE	MOVING PARTS WEIGHT			
											In Line	Rev. Parallel			Base	Per Inch		
											lb-in ²	lb-in ²			lb	lb		
24	LINEAR	STANDARD Ø0.75	30	0.625	SN02	2	0.0050	0.0070	200	NA	0.0399	0.0404	0.0060	1.875	4.49	0.33		
			30	0.625	SN04	4	0.0100	0.0070	200	NA	0.0260	0.0265	0.0047	1.125	4.49	0.33		
			30	0.625	SN08	8	0.0100	0.0070	200	NA	0.0225	0.0230	0.0043	1.563	4.49	0.33		
			30	0.625	BZ10	10	0.0060	0.0080	850	NA	0.0220	0.0225	0.0043	2.000	4.49	0.33		
			30	0.625	BN05	5	0.0030	0.0150	825	1,411	0.0244	0.0249	0.0045	1.563	4.75	0.33		
			30	0.625	BNL05	5	0.0030	0.0020	825	1,411	0.0244	0.0249	0.0045	1.563	4.75	0.33		
			30	0.500	BN02	2	0.0030	0.0150	850	1,071	0.0441	0.0446	0.0039	1.56	4.75	0.330		
			30	0.500	BNL02	2	0.0030	0.0020	850	1,071	0.0441	0.0446	0.0039	1.56	4.75	0.330		
			COMPOSITE	STANDARD Ø0.75	30	0.625	SN02	2	0.0050	0.0070	200	NA	0.0497	0.0502	0.0063	3.438	4.49	0.33
					30	0.625	SN04	4	0.0100	0.0070	200	NA	0.0284	0.0289	0.0047	2.188	4.49	0.33
					30	0.625	SN08	8	0.0100	0.0070	200	NA	0.0231	0.0236	0.0043	1.563	4.49	0.33
					30	0.625	BZ10	10	0.0060	0.0080	850	NA	0.0224	0.0229	0.0043	2.000	4.49	0.33
					30	0.625	BN05	5	0.0030	0.0150	825	1,411	0.0261	0.0266	0.0045	1.563	4.75	0.33
					30	0.625	BNL05	5	0.0030	0.0020	825	1,411	0.0261	0.0266	0.0045	1.563	4.75	0.33
	30	0.500			BN02	2	0.0030	0.0150	850	1,071	0.0441	0.0446	0.0039	1.56	4.75	0.330		
	30	0.500			BNL02	2	0.0030	0.0020	850	1,071	0.0441	0.0446	0.0039	1.56	4.75	0.330		
	OVERSIZED Ø1.00	30			0.625	SN02	2	0.0050	0.0070	200	NA	0.0597	0.0602	0.0076	3.875	6.06	0.53	
		30			0.625	SN04	4	0.0100	0.0070	200	NA	0.0309	0.0314	0.0050	2.813	6.06	0.53	
		30			0.625	SN08	8	0.0100	0.0070	200	NA	0.0237	0.0242	0.0044	1.875	6.06	0.53	
		30			0.625	BZ10	10	0.0060	0.0080	850	NA	0.0228	0.0233	0.0043	2.188	6.06	0.53	
		30			0.625	BN05	5	0.0030	0.0150	825	1,411	0.0277	0.0282	0.0047	1.875	6.32	0.53	
		30			0.625	BNL05	5	0.0030	0.0020	825	1,411	0.0277	0.0282	0.0047	1.875	6.32	0.53	
		30	0.500	BN02	2	0.0030	0.0150	850	1,071	0.0567	0.0572	0.0053	1.88	6.32	0.530			
		30	0.500	BNL02	2	0.0030	0.0020	850	1,071	0.0567	0.0572	0.0053	1.88	6.32	0.530			
		LINEAR	STANDARD Ø1.00	36	0.75	SN01	1	0.0050	0.0070	188	NA	0.2903	0.2946	0.0239	4.375	9.03	0.60	
				36	0.75	SN02	2	0.0050	0.0070	300	NA	0.1188	0.1231	0.0125	3.750	9.03	0.60	
	36			0.75	BZ10	10	0.0060	0.0080	785	NA	0.0639	0.0682	0.0088	2.000	9.03	0.60		
	36			0.75	BN02	2	0.0040	0.0150	534	3,364	0.1218	0.1261	0.0125	3.125	9.51	0.60		
36	0.75			BNL02	2	0.0040	0.0020	534	3,364	0.1218	0.1261	0.0125	3.125	9.51	0.60			
36	0.75			BN05	5	0.0030	0.0150	950	1,624	0.0712	0.0755	0.0093	1.875	9.51	0.60			
36	0.75			BNL05	5	0.0030	0.0020	950	1,624	0.0712	0.0755	0.0093	1.875	9.51	0.60			
36	0.787			BNM20	1.27	0.0020	0.0050	339	2,560	0.0712	0.0755	0.0093	1.875	9.51	0.60			
COMPOSITE	STANDARD Ø1.00			36	0.75	SN01	1	0.0050	0.0070	188	NA	0.2903	0.2946	0.0239	8.688	9.03	0.60	
				36	0.75	SN02	2	0.0050	0.0070	300	NA	0.1188	0.1231	0.0125	4.375	9.03	0.60	
				36	0.75	BZ10	10	0.0060	0.0080	785	NA	0.0639	0.0682	0.0088	2.813	9.03	0.60	
				36	0.75	BN02	2	0.0040	0.0150	534	3,364	0.1218	0.1261	0.0125	3.438	9.51	0.60	
				36	0.75	BNL02	2	0.0040	0.0020	534	3,364	0.1218	0.1261	0.0125	3.438	9.51	0.60	
				36	0.75	BN05	5	0.0030	0.0150	950	1,624	0.0712	0.0755	0.0093	2.188	9.51	0.60	
		36	0.75	BNL05	5	0.0030	0.0020	950	1,624	0.0712	0.0755	0.0093	2.188	9.51	0.60			
		36	0.75	BNM20	1.27	0.0020	0.0050	339	2,560	0.0712	0.0755	0.0093	2.188	9.51	0.60			
	OVERSIZED Ø1.25	36	0.75	SN01	1	0.0050	0.0070	188	NA	0.3504	0.3547	0.0305	10.000	11.40	0.86			
		36	0.75	SN02	2	0.0050	0.0070	300	NA	0.1338	0.1381	0.0141	5.625	11.40	0.86			
		36	0.75	BZ10	10	0.0060	0.0080	785	NA	0.0645	0.0688	0.0089	3.438	11.40	0.86			
		36	0.75	BN02	2	0.0040	0.0150	534	3,364	0.1368	0.1411	0.0141	4.063	11.88	0.86			
		36	0.75	BNL02	2	0.0040	0.0020	534	3,364	0.1368	0.1411	0.0141	4.063	11.88	0.86			
		36	0.75	BN05	5	0.0030	0.0150	950	1,624	0.0736	0.0779	0.0096	2.500	11.88	0.86			
36		0.75	BNL05	5	0.0030	0.0020	950	1,624	0.0736	0.0779	0.0096	2.500	11.88	0.86				
36		0.75	BNM20	1.27	0.0020	0.0050	339	2,560	0.0736	0.0779	0.0096	2.500	11.88	0.86				

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GSM Electric Rod-Style Actuator

SIZE: **ALL**

units: **metric****

SPECIFICATIONS

** GSM metric actuators use the same leadscrew as the GSA inch actuators. Threaded mounting and dowel pin holes are metric.

SIZE	BEARING TYPE	GUIDE ROD in	SCREW DIA. mm	SCREW TYPE	LEAD mm/rev	LEAD ACCURACY mm/300	BACKLASH mm	MAX THRUST* N	DYNAMIC THRUST RATING**	BASE ACTUATOR INERTIA		INERTIA PER/in OF STROKE kg-m ² x10 ⁻⁶	BREAKAWAY TORQUE N-m	MOVING PARTS WEIGHT	
										In Line kg-m ² x10 ⁻⁶	Rev. Parallel kg-m ² x10 ⁻⁶			Base Kg	Per Inch Kg
12	LINEAR	STANDARD Ø0.50	9.5	SN01	25.40	0.25	0.18	311	NA	9.492	9.550	1.184	0.332	0.549	0.063
				SN02	12.70	0.15	0.18	311	NA	2.768	2.826	0.406	0.169	0.549	0.063
				SN05	5.08	0.15	0.18	311	NA	0.885	0.944	0.188	0.064	0.549	0.063
				BZ10	2.54	0.15	0.20	311	NA	0.616	0.675	0.157	0.049	0.549	0.063
				BN08	3.18	0.08	0.38	578	1,157	0.676	0.734	0.163	0.056	0.585	0.063
				BNL08	3.18	0.08	0.05	578	1,157	0.676	0.734	0.163	0.056	0.585	0.063
	COMPOSITE	STANDARD Ø0.50	9.5	SN01	25.40	0.25	0.18	311	NA	9.492	9.550	1.184	0.636	0.549	0.063
				SN02	12.70	0.15	0.18	311	NA	2.798	2.826	0.406	0.318	0.549	0.063
				SN05	5.08	0.15	0.18	311	NA	0.885	0.944	0.188	0.127	0.549	0.063
				BZ10	2.54	0.15	0.20	311	NA	0.616	0.675	0.157	0.092	0.549	0.063
				BN08	3.18	0.08	0.38	578	1,157	0.676	0.734	0.163	0.078	0.585	0.063
				BNL08	3.18	0.08	0.05	578	1,157	0.676	0.734	0.163	0.078	0.585	0.063
		OVERSIZED Ø0.63	9.5	SN01	25.40	0.25	0.18	311	NA	12.085	12.143	1.628	0.692	0.707	0.09
				SN02	12.70	0.15	0.18	311	NA	3.416	3.475	0.517	0.346	0.707	0.09
				SN05	5.08	0.15	0.18	311	NA	0.989	1.047	0.206	0.141	0.707	0.09
				BZ10	2.54	0.15	0.20	311	NA	0.642	0.701	0.161	0.106	0.707	0.09
				BN08	3.18	0.08	0.38	578	1,157	0.716	0.775	0.169	0.085	0.744	0.09
				BNL08	3.18	0.08	0.05	578	1,157	0.716	0.775	0.169	0.085	0.744	0.09
16	LINEAR	STANDARD Ø0.63	9.5	SN01	25.40	0.25	0.18	311	NA	18.457	18.515	1.702	0.332	1.10	0.095
				SN02	12.70	0.15	0.18	311	NA	5.009	5.068	0.535	0.169	1.10	0.095
				SN05	5.08	0.15	0.18	311	NA	1.245	1.302	0.209	0.064	1.10	0.095
				BZ10	2.54	0.15	0.20	311	NA	0.706	0.764	0.162	0.049	1.10	0.095
				BN08	3.18	0.08	0.38	578	1,157	0.816	0.874	0.171	0.056	1.13	0.095
				BNL08	3.18	0.08	0.05	578	1,157	0.816	0.874	0.171	0.056	1.13	0.095
	COMPOSITE	STANDARD Ø0.63	9.5	SN01	25.40	0.25	0.18	311	NA	18.457	18.515	1.702	0.692	1.10	0.095
				SN02	12.70	0.15	0.18	311	NA	5.009	5.068	0.535	0.346	1.10	0.095
				SN05	5.08	0.15	0.18	311	NA	1.244	1.302	0.209	0.141	1.10	0.095
				BZ10	2.54	0.15	0.20	311	NA	0.706	0.764	0.162	0.106	1.10	0.095
				BN08	3.18	0.08	0.38	578	1,157	0.816	0.874	0.171	0.078	1.13	0.095
				BNL08	3.18	0.08	0.05	578	1,157	0.816	0.874	0.171	0.078	1.13	0.095
		OVERSIZED Ø0.75	9.5	SN01	25.40	0.25	0.18	311	NA	22.309	22.368	2.295	0.749	1.33	0.132
				SN02	12.70	0.15	0.18	311	NA	5.972	6.031	0.683	0.374	1.33	0.132
				SN05	5.08	0.15	0.18	311	NA	1.398	1.456	0.232	0.148	1.33	0.132
				BZ10	2.54	0.15	0.20	311	NA	0.744	0.803	0.168	0.113	1.33	0.132
				BN08	3.18	0.08	0.38	578	1,157	0.876	0.935	0.180	0.085	1.37	0.132
				BNL08	3.18	0.08	0.05	578	1,157	0.876	0.935	0.180	0.085	1.37	0.132

SCREW CODE	DESCRIPTION
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GSM Electric Rod-Style Actuator

SIZE: ALL units: metric**

SPECIFICATIONS

** GSM metric actuators use the same leadscrew as the GSA inch actuators. Threaded mounting and dowel pin holes are metric.

SIZE	BEARING TYPE	GUIDE ROD in	SCREW DIA. mm	SCREW TYPE	LEAD mm/rev	LEAD ACCURACY mm/300	BACKLASH mm	MAX THRUST* N	DYNAMIC THRUST RATING**	BASE ACTUATOR INERTIA		INERTIA PER/in OF STROKE kg-m ² x10 ⁻⁶	BREAKAWAY TORQUE N-m	MOVING PARTS WEIGHT			
										In Line	Rev. Parallel			Base	Per Inch		
										kg-m ² x10 ⁻⁶	kg-m ² x10 ⁻⁶			Kg	Kg		
24	LINEAR	STANDARD Ø0.75	15.88	SN02	12.70	0.13	0.18	890	NA	11.676	11.822	1.764	0.212	2.04	0.15		
				SN04	6.35	0.25	0.18	890	NA	7.592	7.738	1.361	0.127	2.04	0.15		
				SN08	3.18	0.25	0.18	890	NA	6.571	6.717	1.260	0.177	2.04	0.15		
				BZ10	2.54	0.15	0.20	3,781	NA	6.448	6.594	1.248	0.226	2.04	0.15		
				BN05	5.08	0.08	0.38	3,670	6,275	7.125	7.272	1.313	0.177	2.15	0.15		
				BNL05	5.08	0.08	0.05	3,670	6,275	7.125	7.272	1.313	0.177	2.15	0.15		
		12.7	BN02	12.70	0.08	0.38	3,781	4,764	12.905	13.051	1.144	0.176	2.15	0.15			
			BNL02	12.70	0.08	0.05	3,781	4,764	12.905	13.051	1.144	0.176	2.15	0.15			
			COMPOSITE	STANDARD Ø0.75	15.88	SN02	12.70	0.13	0.18	890	NA	14.547	14.693	1.838	0.388	2.04	0.15
						SN04	6.35	0.25	0.18	890	NA	8.309	8.456	1.380	0.247	2.04	0.15
						SN08	3.18	0.25	0.18	890	NA	6.750	6.896	1.265	0.177	2.04	0.15
						BZ10	2.54	0.15	0.20	3,781	NA	6.563	6.709	1.251	0.226	2.04	0.15
	BN05	5.08				0.08	0.38	3,670	6,275	7.638	7.784	1.325	0.177	2.15	0.15		
	BNL05	5.08				0.08	0.05	3,670	6,275	7.638	7.784	1.325	0.177	2.15	0.15		
	12.7	BN02	12.70	0.08	0.38	3,781	4,764	12.905	13.051	1.144	0.176	2.15	0.15				
		BNL02	12.70	0.08	0.05	3,781	4,764	12.905	13.051	1.144	0.176	2.15	0.15				
		OVERSIZED Ø1.00	15.88	SN02	12.70	0.13	0.18	890	NA	17.455	17.601	2.209	0.438	2.75	0.24		
				SN04	6.35	0.25	0.18	890	NA	9.037	9.183	1.472	0.318	2.75	0.24		
				SN08	3.18	0.25	0.18	890	NA	6.932	7.078	1.288	0.212	2.75	0.24		
				BZ10	2.54	0.15	0.20	3,781	NA	6.679	6.826	1.266	0.247	2.75	0.24		
	BN05			5.08	0.08	0.38	3,670	6,275	8.103	8.230	1.384	0.212	2.87	0.24			
	BNL05			5.08	0.08	0.05	3,670	6,275	8.103	8.230	1.384	0.212	2.87	0.24			
	12.7	BN02	12.70	0.08	0.38	3,781	4,764	16.588	16.734	1.541	0.212	2.87	0.24				
		BNL02	12.70	0.08	0.05	3,781	4,764	16.588	16.734	1.541	0.212	2.87	0.24				
LINEAR		STANDARD Ø1.00	19.1	SN01	25.40	0.13	0.18	836	NA	84.922	86.180	6.987	0.494	4.10	0.27		
				SN02	12.70	0.13	0.18	1,334	NA	34.744	36.002	3.653	0.424	4.10	0.27		
				BZ10	2.54	0.15	0.20	3,492	NA	18.687	19.945	2.586	0.226	4.10	0.27		
				BN02	12.70	0.10	0.38	2,375	14,964	35.633	36.891	3.653	0.353	4.31	0.27		
	BNL02			12.70	0.10	0.05	2,375	14,964	35.633	36.891	3.653	0.353	4.31	0.27			
	BN05			5.08	0.08	0.38	4,226	7,226	20.836	22.094	2.720	0.212	4.31	0.27			
	20.0	BNL05	5.08	0.08	0.05	4,226	7,226	20.836	22.094	2.720	0.212	4.31	0.27				
		BNM20	20.00	0.05	0.13	1,508	11,388	20.836	22.094	2.720	0.212	4.31	0.27				
		COMPOSITE	STANDARD Ø1.00	19.1	SN01	25.40	0.13	0.18	836	NA	84.922	86.180	6.987	0.982	4.10	0.27	
					SN02	12.70	0.13	0.18	1,334	NA	34.744	36.002	3.653	0.494	4.10	0.27	
					BZ10	2.54	0.15	0.20	3,492	NA	18.687	19.945	2.586	0.318	4.10	0.27	
					BN02	12.70	0.10	0.38	2,375	14,964	35.633	36.891	3.653	0.388	4.31	0.27	
BNL02	12.70				0.10	0.05	2,375	14,964	35.633	36.891	3.653	0.388	4.31	0.27			
BN05	5.08				0.08	0.38	4,226	7,226	20.836	22.094	2.720	0.247	4.31	0.27			
19.1	BNL05	5.08	0.08	0.05	4,226	7,226	20.836	22.094	2.720	0.247	4.31	0.27					
	BNM20	20.00	0.05	0.13	1,508	11,388	20.836	22.094	2.720	0.212	4.31	0.27					
	OVERSIZED Ø1.25	19.1	SN01	25.40	0.13	0.18	836	NA	102.482	103.740	8.914	1.130	5.17	0.39			
			SN02	12.70	0.13	0.18	1,334	NA	39.134	40.392	4.135	0.636	5.17	0.39			
			BZ10	2.54	0.15	0.20	3,492	NA	18.863	20.120	2.606	0.388	5.17	0.39			
			BN02	12.70	0.10	0.38	2,375	14,964	40.023	41.281	4.135	0.459	5.39	0.39			
BNL02			12.70	0.10	0.05	2,375	14,964	40.023	41.281	4.135	0.459	5.39	0.39				
BN05			5.08	0.08	0.38	4,226	7,226	21.539	22.797	2.797	0.282	5.39	0.39				
20.0	BNL05	5.08	0.08	0.05	4,226	7,226	21.539	22.797	2.797	0.282	5.39	0.39					
	BNM20	20.00	0.05	0.13	1,508	11,388	21.539	22.797	2.797	0.282	5.39	0.39					

SCREW CODE	DESCRIPTION
BN	Ball Nut
BNH	Ball Nut H-series
BNL	Low-Backlash Ball Nut

SCREW CODE	DESCRIPTION
BNM	Ball Nut Metric
BZ	Bronze Nut
SN	Solid Nut



Contact Tolomatic for higher accuracy and lower backlash options.
 * For SN & BZ screws, maximum continuous dynamic thrust subject to Thrust x Velocity Limitation.
 ** For BN & BNL screws, dynamic load rating reflects 90% reliability for 1 million revolutions.

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RSA & GSA Electric Rod-Style Actuator

SIZE: ALL

SPECIFICATIONS

ACTUATOR SPECIFICATIONS

RSA (M) SIZE			12	16	24		32ST	32HT		50ST	50HT		64ST	64HT		
					All Others	Roller Nut		All Others	Roller Nut		All Others	Roller Nut		All Others	Roller Nut	
WEIGHT	BASE MODEL	IN-LINE	lb	1.73	3.73	3.98	5.81	6.11	12.76	17.29	14.21	20.58	22.08	23.01	38.10	40.06
			kg	0.78	1.68	1.79	2.61	2.75	5.79	7.84	6.39	9.33	10.01	10.35	17.28	18.17
	REVERSE PARALLEL	lb	2.40	4.00	6.25	7.64	10.40	12.01	20.36	19.66	25.32	26.82	29.69	44.43	46.39	
		kg	1.08	1.80	2.81	3.44	4.68	5.45	9.17	8.85	11.40	12.08	13.36	20.15	21.04	
	PER UNIT OF STROKE	lb/in	0.128	0.300	0.330	0.321	0.460	0.460	0.473	0.860	0.860	0.950	1.380	1.380	1.325	
kg/mm	0.0023	0.0053	0.0058	0.0057	0.0081	0.0081	0.0084	0.0152	0.0152	0.0168	0.0244	0.0244	0.0234			
MAX. STROKE	in	18.0	18.0	24.0	18.0	36.0	36.0	18.0	48.0	48.0	18.0	60.0	60.0	18.0		
	mm	457.2	457.2	609.6	457.2	914.4	914.4	457.2	1219.2	1219.2	457.2	1524	1524	457.2		
TEMP. RANGE*	°F	40 - 130			50-122	40 - 130		50-122	40 - 130		50-122	40 - 130		50-122		
	°C	4 - 54			10-50	4 - 54		10-50	4 - 54		10-50	4 - 54		10-50		

Gasket Kit providing ingress protection against dust and splashing water available upon request

GSA(M) SIZE			12				16		24		32		
			17 frame		23 frame								
Guide Rod			STD	OVR	STD	OVR	STD	OVR	STD	OVR	STD	OVR	
WEIGHT	BASE MODEL	IN-LINE	lb	3.65	4.44	3.68	4.47	7.25	7.54	16.48	17.35	27.34	28.65
			kg	1.65	2.01	1.67	2.03	3.29	3.42	7.48	7.87	12.40	13.00
	REVERSE PARALLEL	lb	3.92	4.72	4.05	4.85	7.59	7.88	17.09	17.96	28.81	30.12	
		kg	1.78	2.14	1.84	2.20	3.44	3.57	7.75	8.15	13.07	13.66	
	PER UNIT OF STROKE	lb/in	0.21	0.27	0.21	0.27	0.30	0.38	0.54	0.74	0.93	1.19	
kg/mm	0.004	0.005	0.004	0.005	0.005	0.007	0.010	0.013	0.017	0.021			
MAX. STROKE	in	18				24		30		36			
	mm	457				609		762		914			
TEMP. RANGE*	°F	40 - 130											
	°C	4 - 54											

Gasket Kit providing ingress protection against dust and splashing water available upon request



*** Heat generated by the motor and drive should be taken into consideration as well as linear velocity and work cycle time. For applications that require operation outside of the recommended temperature range, contact Tolomatic.**

LARGE FRAME MOTORS AND SMALLER SIZE ACTUATORS: Cantilevered motors need to be supported, if subjected to continuous rapid reversing duty and/or under dynamic conditions.

SIDE LOADING CONSIDERATIONS: Rod screw actuators are designed to push guided and supported loads and are not meant for applications that require substantial side loading. Please contact Tolomatic for details regarding side loading capabilities.

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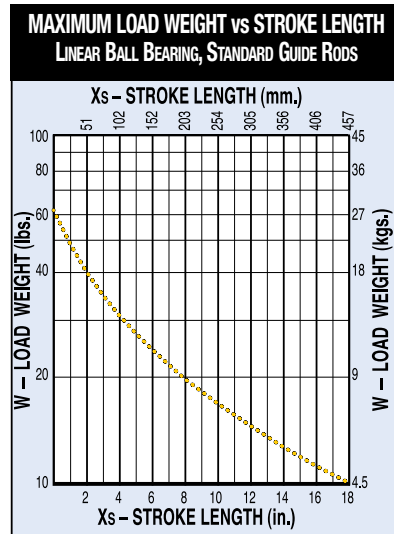
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GSA/GSM Electric Rod-Style Actuator

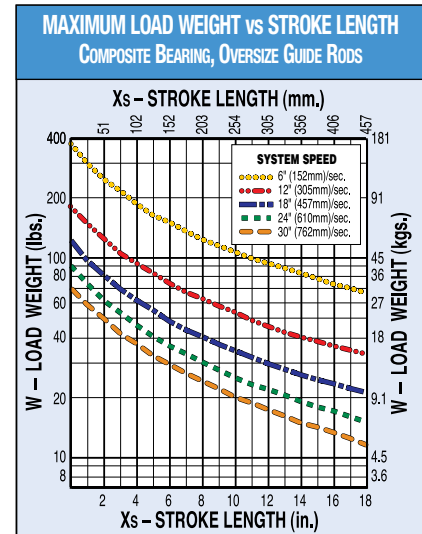
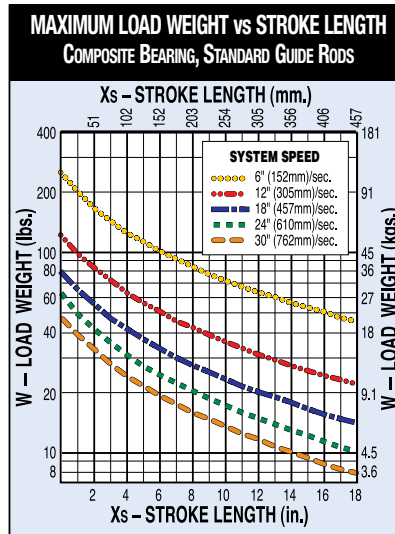
SIZE: 12

PERFORMANCE

MAX. LOAD WEIGHT & GUIDE ROD DEFLECTION



Linear ball bearings are not available with stainless steel guide rod option.



DO NOT EXCEED MAXIMUM LOAD CURVE

Maximum load values are based on 200 million linear inches of travel.

- To obtain most accurate results, stroke length should be adjusted by the distance between the center of mass of the load and tooling plate.

$$X_{adj} = X_s + X_{cm}$$

Then, use X_{adj} instead of X_s on the Maximum Load Weight vs. Stroke Length graph.

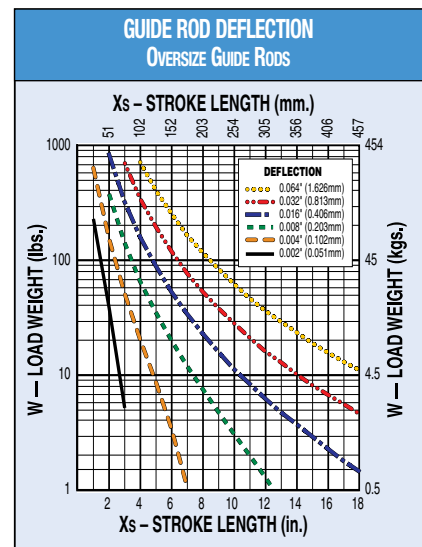
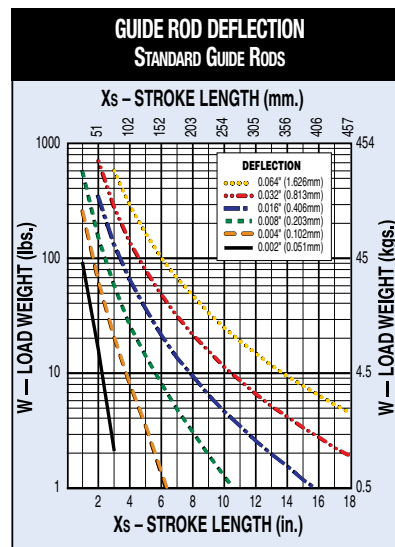
- For the off-center loads, calculate adjusted load weight using the following formula:

$$W_{adj} = W (1 + 0.67 Y_{cm})$$

where Y_{cm} is distance between center of mass of off-center load and center of tooling plate.

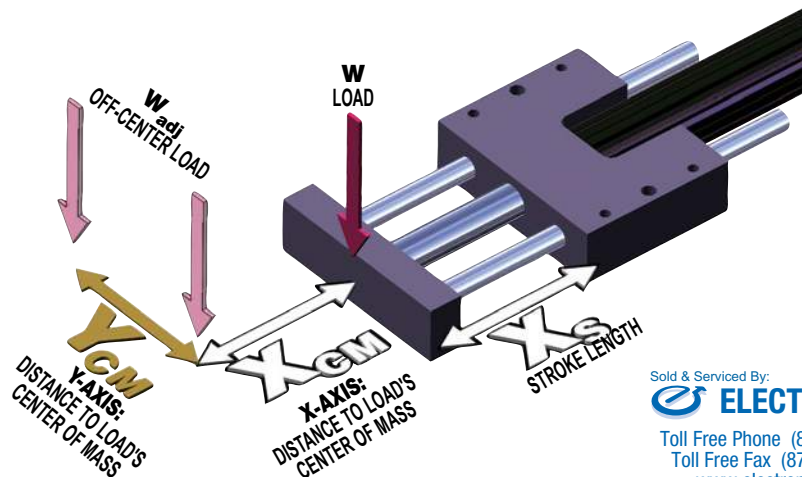
Then, use W_{adj} instead of W on Maximum Load Weight vs. Stroke Length graph.

- Using your stroke length and load weight, evaluate guide rod deflection. If the intersection point is above the highest curve (.064"), contact Tolomatic for assistance.



- Impact loading is not recommended for GSA/GSM actuators.
- Motor brakes may be required on vertically positioned actuators with plastic (solid) or ball nuts in applications with risk of load backdriving. (Actuators with bronze nuts will not backdrive for loads, thrusts within catalog specifications.)

Contact Tolomatic for assistance.



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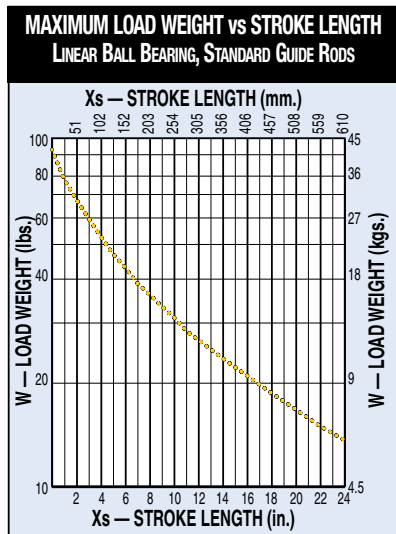
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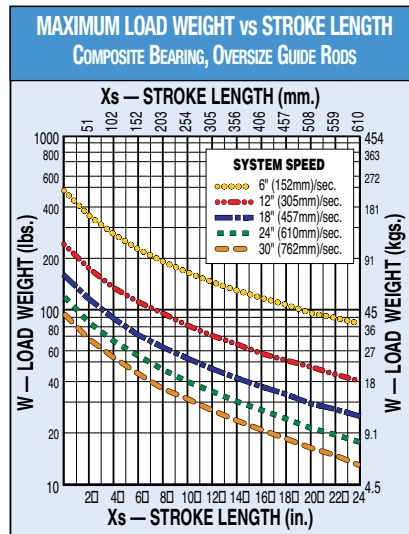
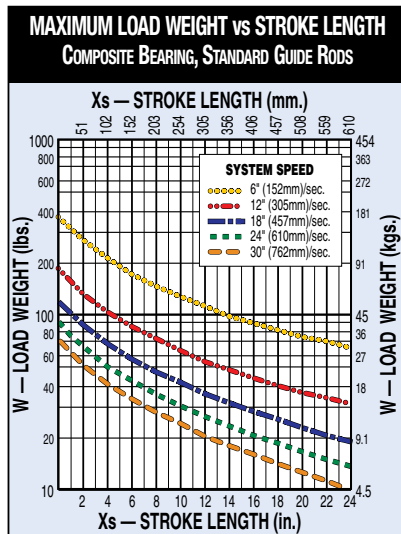
SIZE: 16

PERFORMANCE

MAX. LOAD WEIGHT & GUIDE ROD DEFLECTION



Linear ball bearings are not available with stainless steel guide rod option.



DO NOT EXCEED MAXIMUM LOAD CURVE

Maximum load values are based on 200 million linear inches of travel.

- To obtain most accurate results, stroke length should be adjusted by the distance between the center of mass of the load and tooling plate.

$$X_{adj} = X_s + X_{cm}$$

Then, use X_{adj} instead of X_s on the Maximum Load Weight vs. Stroke Length graph.

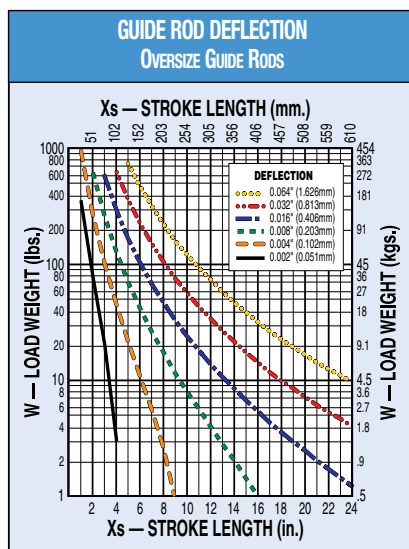
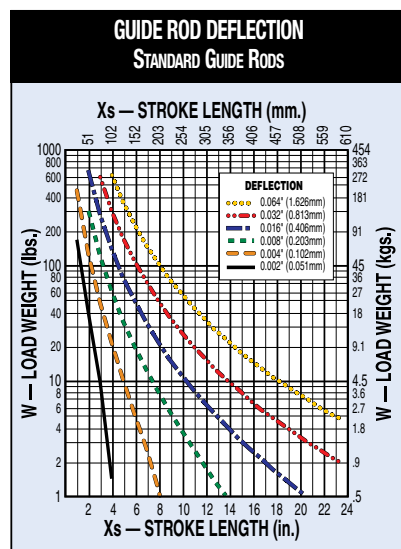
- For the off-center loads, calculate adjusted load weight using the following formula:

$$W_{adj} = W (1 + 0.53 Y_{cm})$$

where Y_{cm} is distance between center of mass of off-center load and center of tooling plate.

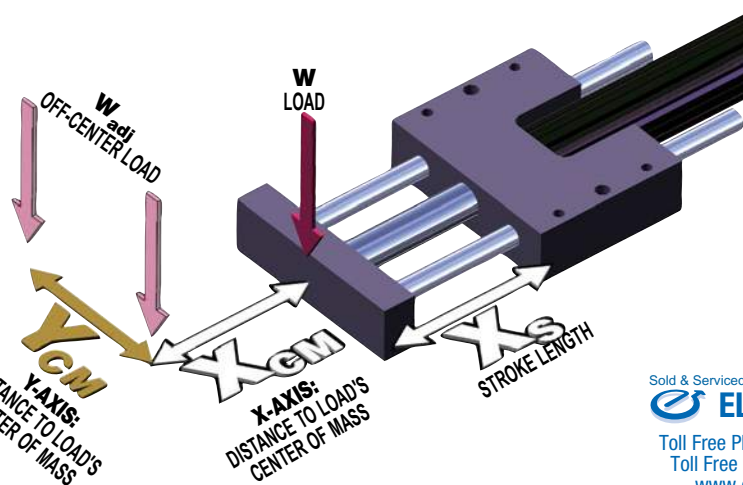
Then, use W_{adj} instead of W on Maximum Load Weight vs. Stroke Length graph.

- Using your stroke length and load weight, evaluate guide rod deflection. If the intersection point is above the highest curve (.064"), contact Tolomatic for assistance.



- Impact loading is not recommended for GSA/GSM actuators.
- Motor brakes may be required on vertically positioned actuators with plastic (solid) or ball nuts in applications with risk of load backdriving. (Actuators with bronze nuts will not backdrive for loads, thrusts within catalog specifications.)

Contact Tolomatic for assistance.



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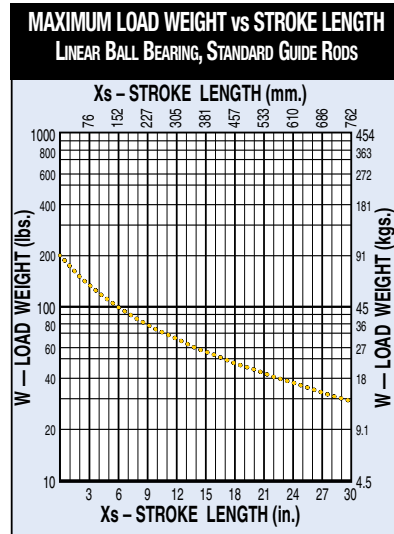
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GSA/GSM Electric Rod-Style Actuator

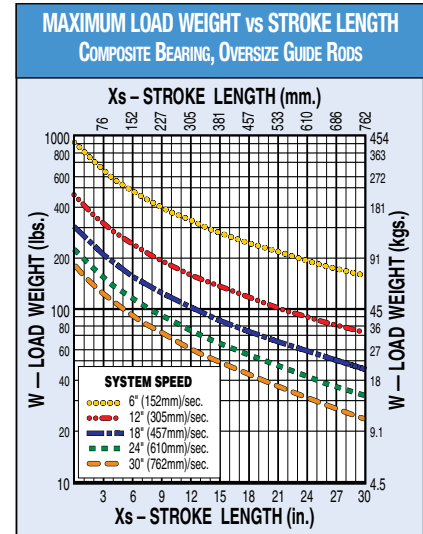
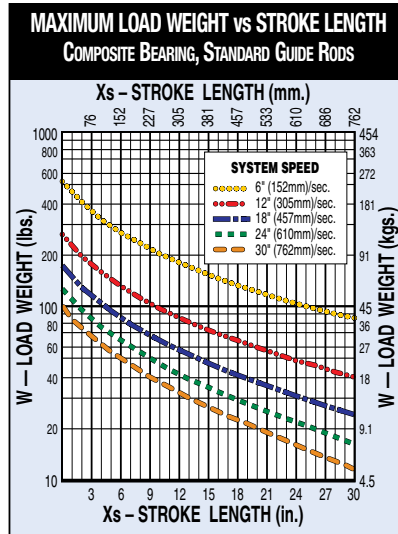
SIZE: 24

PERFORMANCE

MAX. LOAD WEIGHT & GUIDE ROD DEFLECTION



Linear ball bearings are not available with stainless steel guide rod option.



DO NOT EXCEED MAXIMUM LOAD CURVE

Maximum load values are based on 200 million linear inches of travel.

- To obtain most accurate results, stroke length should be adjusted by the distance between the center of mass of the load and tooling plate.

$$X_{adj} = X_s + X_{cm}$$

Then, use X_{adj} instead of X_s on the Maximum Load Weight vs. Stroke Length graph.

- For the off-center loads, calculate adjusted load weight using the following formula:

$$W_{adj} = W (1 + 0.40 Y_{cm})$$

where Y_{cm} is distance between center of mass of off-center load and center of tooling plate.

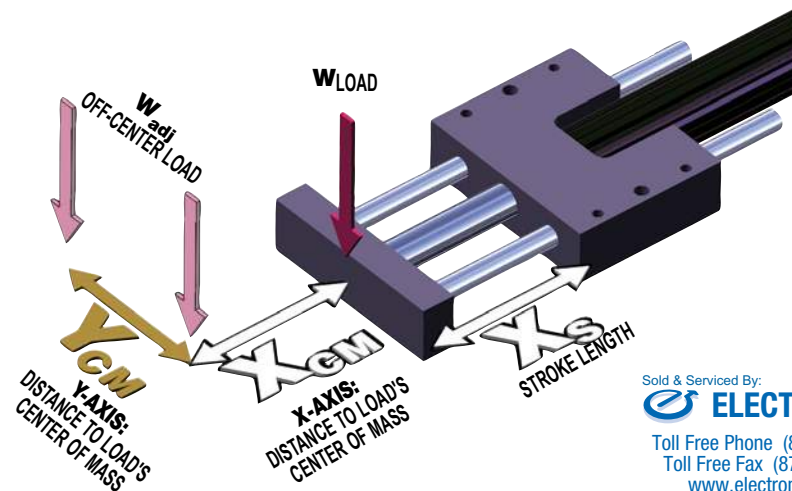
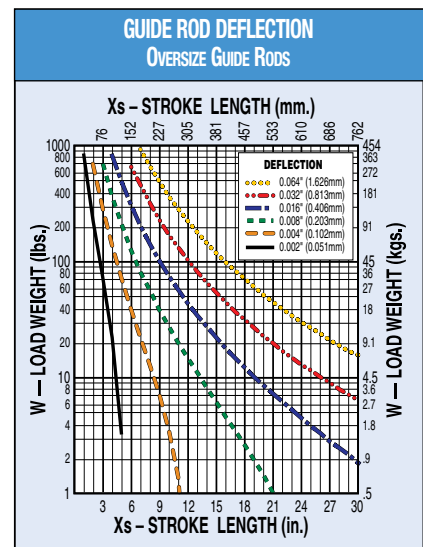
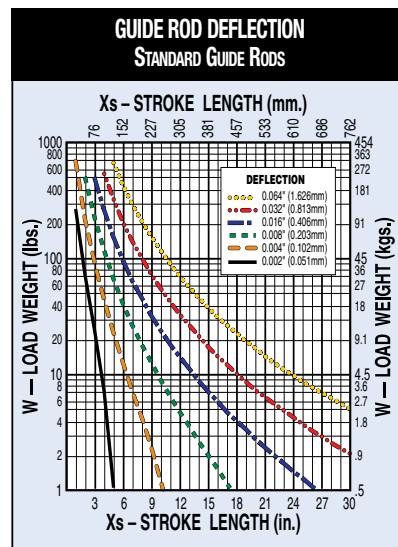
Then, use W_{adj} instead of W on Maximum Load Weight vs. Stroke Length graph.

- Using your stroke length and load weight, evaluate guide rod deflection. If the intersection point is above the highest curve (.064"), contact Tolomatic for assistance.



- Impact loading is not recommended for GSA/GSM actuators.
- Motor brakes may be required on vertically positioned actuators with plastic (solid) or ball nuts in applications with risk of load backdriving. (Actuators with bronze nuts will not backdrive for loads, thrusts within catalog specifications.)

Contact Tolomatic for assistance.



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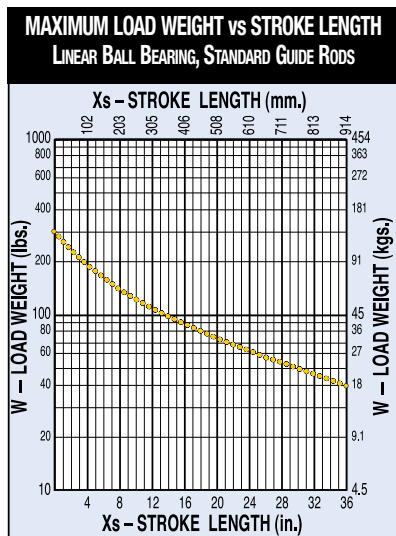
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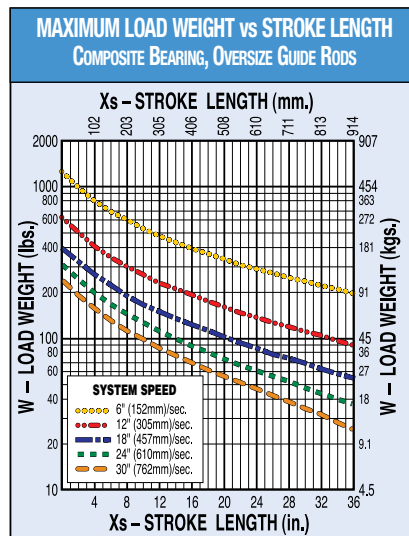
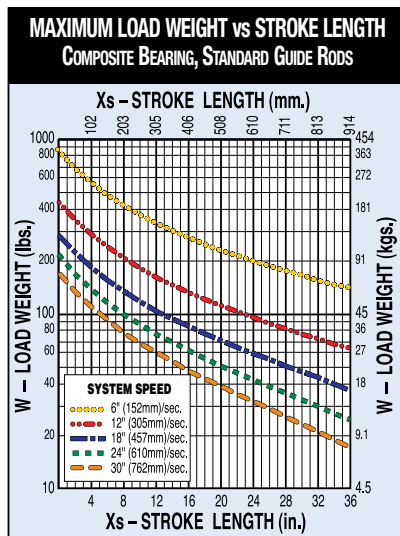
SIZE: 32

PERFORMANCE

MAX. LOAD WEIGHT & GUIDE ROD DEFLECTION

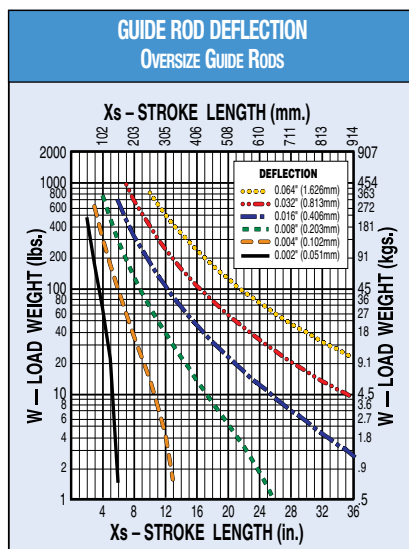
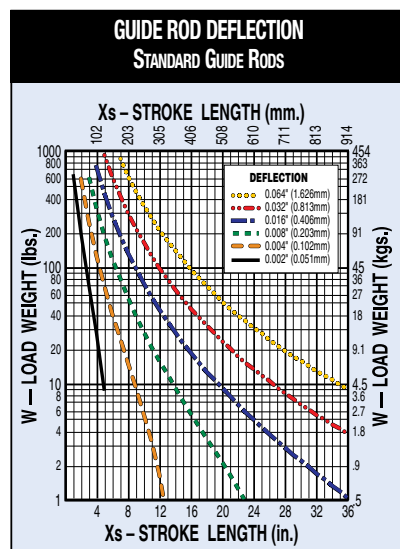


Linear ball bearings are not available with stainless steel guide rod option.



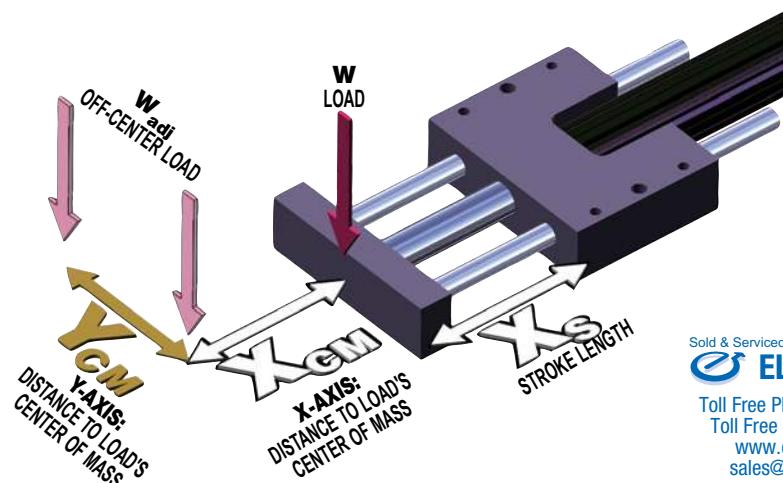
DO NOT EXCEED MAXIMUM LOAD

$$CURVEX_{adj} = X_s + X_{cm} X_{adj}; X_s W_{adj} = W (1 + 0.30 Y_{cm}) Y_{cm} W_{adj} W$$



- Impact loading is not recommended for GSA/GSM actuators.
- Motor brakes may be required on vertically positioned actuators with plastic (solid) or ball nuts in applications with risk of load backdriving. (Actuators with bronze nuts will not backdrive for loads, thrusts within catalog specifications.)

Contact Tolomatic for assistance.



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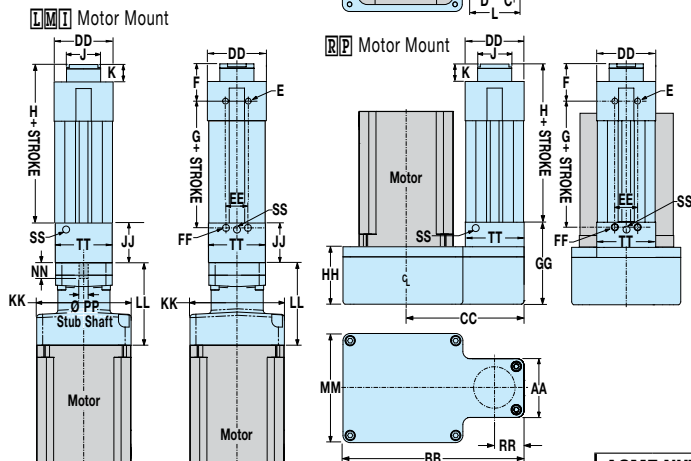
RSA Rod-Style Screw Driven Actuator

SIZE: ALL

ST ACTUATOR DIMENSIONS

3D CAD available at www.tolomatic.com

Always use configured CAD solid model to determine critical dimensions



*NOTE: RSA64 HT (All Configurations) and RSA50 HT (Roller Nut Configuration ONLY) have 6 mounting holes, all other configurations have 4 mounting holes.



∞NOTE: YM code may change this dimension. Always use configured CAD model to determine critical dimensions

*For BN08 & BNL08 only.	See table at right for BNML05 dimensions	Size 16	BNML05		
			G	H	
			in	2.51	3.37
			mm	63.8	85.6

Size		ACME NUT		BALL NUT		ROLLER NUT											
		A	B	G	H	G	H	G	H	J Ø	K	RR	SS (2)				
12	in	0.906	0.391	5-40 \downarrow 0.50	1/4-28 \downarrow 0.75	8-32 \downarrow 0.25	0.81	2.17	2.76	2.17	2.76	-	-	0.56	0.31	0.56	-
	mm	23.01	9.93	M3x0.5 \downarrow 12.7	M6x1.0 \downarrow 19	M4x0.7 \downarrow 6.3	20.7	55.1	70.1	55.1	70.1	-	-	14.2	7.8	14.3	-
16	in	0.500	1.063	8-32 \downarrow 0.50	5/16-24 \downarrow 0.75	8-32 \downarrow 0.25	1.06	2.13	2.99	2.13*	2.99*	-	-	0.69	0.43	0.69	-
	mm	12.70	27.00	M4x0.7 \downarrow 12.7	M8x1.25 \downarrow 19	M4x0.7 \downarrow 6.3	26.9	54.2	75.9	54.2*	75.9*	-	-	17.5	10.9	17.5	-
24	in	0.875	1.603	10-24 \downarrow 0.79	7/16-20 \downarrow 1.00	1/4-20 \downarrow 0.33	1.11	2.90	3.84	3.36	4.30	4.54	5.21	1.18	0.43	1.96	-
	mm	22.23	40.72	M5x0.8 \downarrow 20.0	M10x1.25 \downarrow 25.0	M6x1.0 \downarrow 8.6	28.2	73.7	97.5	85.4	109.2	115.2	132.3	30.0	10.9	49.8	-
32	in	1.181	1.969	1/4-20 \downarrow 0.70	7/16-20 \downarrow 1.13	5/16-18 \downarrow 0.47	1.43	3.87	5.05	5.05	6.23	-	-	1.25	0.50	1.29	1/16-27 NPT
	mm	30.00	50.00	M6x1.0 \downarrow 18.0	M16x1.5 \downarrow 26.0	M8x1.25 \downarrow 12.0	36.3	98.4	128.3	128.3	158.2	-	-	31.8	12.7	32.8	1/16-27 NPT
50	in	1.969	3.000	5/16-18 \downarrow 1.00	3/4-16 \downarrow 1.50	3/8-16 \downarrow 0.75	1.95	4.78	6.44	5.78	7.44	-	-	1.75	0.70	1.86	1/8-27 NPT
	mm	50.00	76.20	M8x1.25 \downarrow 25.4	M20x1.5 \downarrow 38.0	M10x1.5 \downarrow 19.0	49.5	121.5	163.6	146.9	189.0	-	-	44.5	17.8	47.1	1/8-27 NPT
64	in	1.969	3.500	7/16-14 \downarrow 1.50	3/4-16 \downarrow 1.50	7/16-14 \downarrow 0.88	2.37	6.94	8.90	8.94	10.90	-	-	2.25	0.68	2.29	1/8-27 NPT
	mm	50.00	88.90	M12x1.75 \downarrow 38.1	M27x2.0 \downarrow 38.0	M12x1.75 \downarrow 22.2	60.2	176.2	226.1	227.0	276.9	-	-	57.2	17.3	58.2	1/8-27 NPT

Size	Motor Frame	AA	BB	CC 1:1	CC 2:1	DD	EE	FF [2x]	ALL OTHER NUTS					ROLLER NUTS					MM∞	NN	PP	
									GG	HH	JJ	KK∞	LL∞	GG	HH	JJ	KK∞	LL∞				
12	17	in	1.34	3.92	2.57	NA	1.13	0.500	8-32 \downarrow 0.25	1.66	1.66	0.72	1.66	1.85	-	-	-	-	-	2.26	0.61	0.188
		mm	34.1	99.6	65.3	NA	28.6	12.70	M4x0.7 \downarrow 6.3	42.1	42.1	18.3	42.0	47.0	-	-	-	-	-	57.3	15.5	4.78
	23	in	1.34	3.92	2.57	NA	1.13	0.500	8-32 \downarrow 0.25	1.66	1.66	0.72	2.00	2.49	-	-	-	-	-	2.26	0.61	0.188
		mm	34.1	99.6	65.3	NA	28.6	12.70	M4x0.7 \downarrow 6.3	42.1	42.1	18.3	50.8	63.2	-	-	-	-	-	57.3	15.5	4.78
16	23	in	1.34	4.04	2.64	NA	1.38	0.500	8-32 \downarrow 0.25	1.66	1.66	0.72	2.25	2.49	-	-	-	-	-	2.26	0.61	0.188
		mm	34.1	102.7	67.0	NA	35.0	12.70	M4x0.7 \downarrow 6.3	42.1	42.1	18.3	57.2	63.2	-	-	-	-	-	57.3	15.5	4.78
24	23	in	2.04	5.13	3.68	3.65	2.04	0.787	1/4-20 \downarrow 0.31	2.28	1.66	1.42	2.35	2.55	4.25	2.25	2.25	2.35	3.28	2.50	0.55	0.315
		mm	51.8	130.2	93.4	92.6	51.8	19.98	M6x1.0 \downarrow 8.6	57.9	42.2	36.0	59.7	64.8	107.8	57.2	57.2	59.7	83.3	63.5	14.0	8.00
	34	in	2.04	6.29	4.09	4.06	2.04	0.787	1/4-20 \downarrow 0.31	2.87	2.00	1.42	3.75	3.28	4.25	2.00	2.25	3.75	3.28	3.79	0.55	0.315
		mm	51.8	159.8	103.9	103.2	51.8	19.98	M6x1.0 \downarrow 8.6	72.8	50.7	36.0	95.3	83.3	107.8	50.7	57.2	95.3	83.3	96.3	14.0	8.00
32	23	in	2.58	5.89	4.18	4.20	2.58	0.950	5/16-18 \downarrow 0.50	3.19	2.00	1.79	3.00	2.63	-	-	-	-	-	2.58	0.69	0.394
		mm	65.5	149.6	106.1	106.7	65.5	24.13	M8x1.25 \downarrow 12.7	80.9	50.7	45.4	76.2	66.8	-	-	-	-	-	65.5	17.5	10.00
	34	in	2.58	7.52	5.03	5.00	2.58	0.950	5/16-18 \downarrow 0.50	3.19	2.00	1.79	3.75	2.38	-	-	-	-	-	4.25	0.69	0.394
		mm	65.5	190.9	127.8	126.9	65.5	24.13	M8x1.25 \downarrow 12.7	80.9	50.7	45.4	95.3	60.5	-	-	-	-	-	108.0	17.5	10.00
50	23	in	3.71	8.51	6.28	6.24	3.71	1.18	3/8-16 \downarrow 0.68	3.60	2.22	2.13	3.00	3.30	-	-	-	-	-	3.69	1.36	0.500
		mm	94.2	216.2	159.6	158.5	94.1	30.0	M10x1.5 \downarrow 17.5	91.3	56.3	54.0	76.2	83.8	-	-	-	-	-	93.7	34.5	12.70
	34	in	3.71	8.51	6.28	6.24	3.71	1.18	3/8-16 \downarrow 0.68	3.60	2.27	2.13	3.95	3.05	-	-	-	-	-	3.69	1.36	0.500
		mm	94.2	216.2	159.6	158.5	94.1	30.0	M10x1.5 \downarrow 17.5	91.3	57.5	54.0	100.2	63.5	-	-	-	-	-	93.7	34.5	12.70
56	in	3.71	9.50	6.78	6.73	3.71	1.18	3/8-16 \downarrow 0.68	3.60	2.52	2.13	5.00	4.48	-	-	-	-	-	5.58 & 54.36	0.500		
	mm	94.2	241.3	172.1	171.1	94.1	30.0	M10x1.5 \downarrow 17.5	91.3	63.9	54.0	127.0	77.4	-	-	-	-	-	145.5	34.5	10.05	
64	34	in	4.73	8.84	6.72	6.82	4.58	1.97	7/16-14 \downarrow 0.88	4.73	2.75	3.48	3.75	3.05	-	-	-	-	-	4.48	1.36	0.500
		mm	120.2	224.6	170.7	173.2	116.3	50.0	M12x1.75 \downarrow 22.2	120.2	69.9	88.3	95.2	77.5	-	-	-	-	-	113.8	34.5	12.70
	56	in	4.73	10.05	7.21	7.12	4.58	1.97	7/16-14 \downarrow 0.88	4.73	2.85	3.48	5.00	4.48	-	-	-	-	-	5.73	1.36	0.500
		mm	120.2	255.3	183.1	180.8	116.3	50.0	M12x1.75 \downarrow 22.2	120.2	72.4	88.3	127.0	113.8	-	-	-	-	-	145.5	34.5	10.05

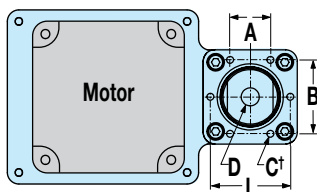
RSA Rod-Style Screw Driven Actuator

SIZE: 32,50,64

3D CAD available at www.tolomatic.com
Always use configured CAD solid model to determine critical dimensions

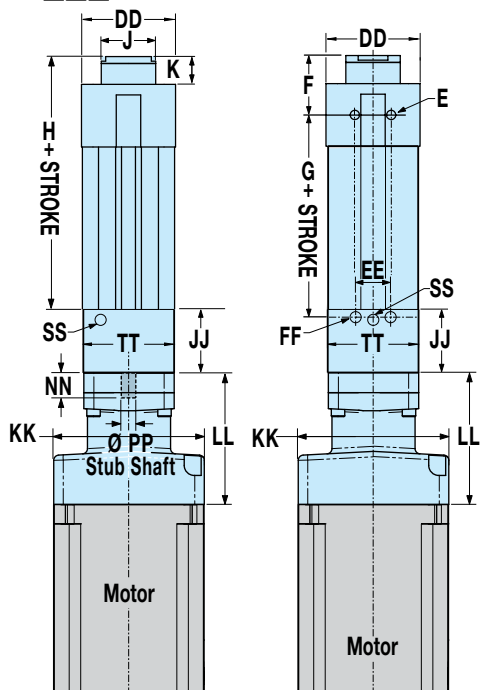


HT ACTUATOR DIMENSIONS

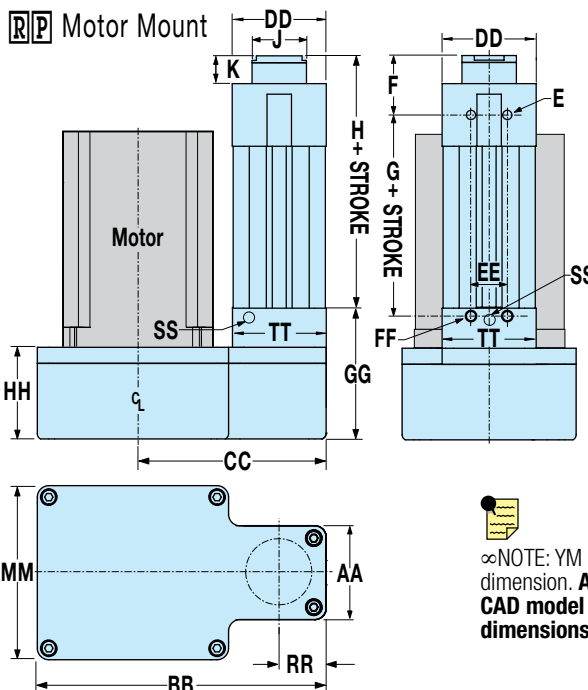


†NOTE: RSA64 HT (All Configurations) and RSA50 HT (Roller Nut Configuration ONLY) have 6 mounting holes, all other configurations have 4 mounting holes.

LMI Motor Mount



RIP Motor Mount



NOTE: See previous page for additional dimensions



∞NOTE: YM code may change this dimension. **Always use configured CAD model to determine critical dimensions**

Size		A	B	C†	D	E	F	J	K	EE	KK [Frame Size] ∞			SS (2)
											23	34	56	
32	in	1.181	1.969	1/4-20 ∓ 0.70	7/16-20 ∓ 1.13	1/4-20 ∓ 0.33	1.43	1.25	0.50	0.950	3.00	3.75	NA	1/16-27 NPT
	mm	30.00	50.00	M6x1.0 ∓ 18.0	M16x1.5 ∓ 26.0	M6x1.0 ∓ 8.6	36.3	31.8	12.7	24.13	76.2	95.3	NA	1/16-27 NPT
50	in	1.969	3.000	5/16-18 ∓ 0.47	3/4-16 ∓ 1.50	5/16-18 ∓ 0.47	1.95	1.75	0.70	1.18	3.00	3.95	5.00	1/8-27 NPT
	mm	50.00	76.20	M8x1.25 ∓ 12.0	M20x1.5 ∓ 38.0	M8x1.25 ∓ 12.0	49.5	49.5	17.8	30.0	76.2	100.2	127.0	1/8-27 NPT
64	in	1.969	3.500	1/2-13 ∓ 0.75	1-1/4-12 ∓ 2.50	7/16-14 ∓ 0.88	2.37	2.25	0.68	1.97	NA	3.75	5.00	1/8-27 NPT
	mm	50.00	88.90	M12x1.75 ∓ 18.0	M27x2.0 ∓ 63.5	M12x1.75 ∓ 22.2	60.2	57.2	17.3	50.0	NA	95.3	127.0	1/8-27 NPT

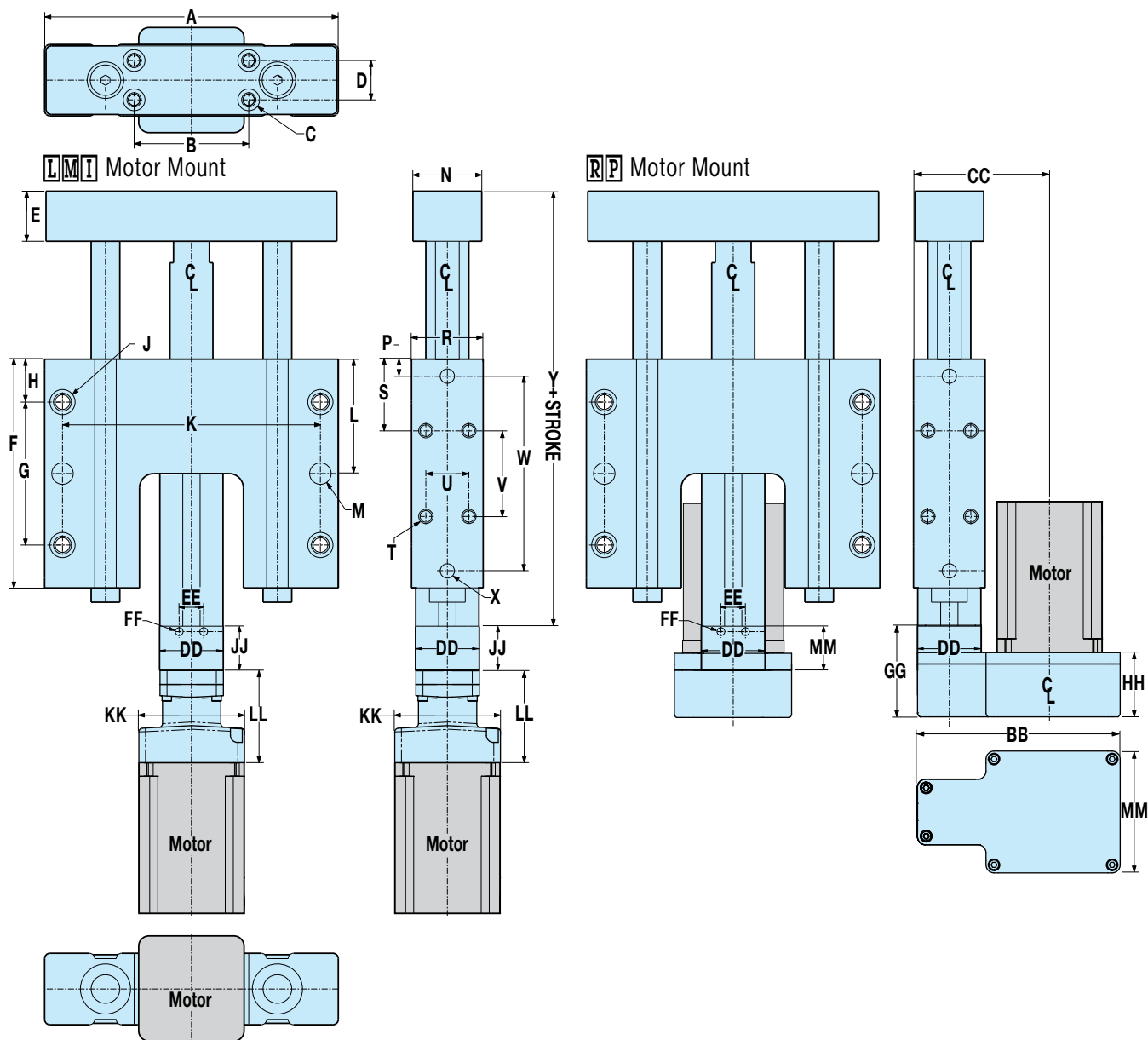
Size		BZ10		ROLLER NUTS																		
		G	H	G	H	L	AA	BB	CC 1:1	CC 2:1	DD	GG	HH ∞	JJ	LL [Frame Size]			MM	NN	PP	RR	TT
															23	34	56					
32	in	3.87	5.05	5.92	5.74	NA	3.25	7.88	5.56	5.55	2.58	5.83	2.33	3.50	4.14	4.10	NA	4.38	1.69	0.625	1.63	3.25
	mm	98.4	128.3	150.4	145.7	NA	82.6	200.0	141.3	140.8	65.5	148.1	59.2	88.9	105.1	104.2	NA	111.1	43.0	15.9	41.3	82.6
50	in	4.78	6.44	7.21	8.41	3.00	5.88	11.00	7.85	7.92	3.71	6.80	3.00	3.80	NA	5.21	5.41	5.88	2.30	0.730	2.83	3.71
	mm	121.5	163.6	183.1	213.6	76.2	149.2	279.4	199.3	201.1	94.2	172.7	76.2	96.5	NA	132.4	137.4	149.2	58.4	18.54	71.8	94.2
64	in	7.80	9.29	7.80	9.29	3.50	6.88	12.10	8.81	8.75	4.58	7.75	3.50	4.50	NA	5.88	5.88	6.88	1.85	0.999	3.30	4.58
	mm	198	235.9	198.0	235.9	88.9	174.6	306.1	223.9	222.3	116.3	196.9	88.9	108.0	NA	149.3	149.3	174.6	47.1	25.37	83.8	116.3

Size		BALL NUTS		ALL OTHER NUTS																
		G	H	L	AA	BB	CC 1:1	CC 2:1	DD	GG	HH ∞	JJ	LL [Frame Size]			MM	NN	PP	RR	TT
													23	34	56					
32	in	5.05	6.23	NA	2.58	7.52	4.83	4.8	2.58	3.19	2.00	1.79	4.14	4.10	NA	4.25	1.75	0.531	1.29	2.58
	mm	128.3	158.2	NA	65.5	190.9	122.8	121.9	65.5	80.9	50.7	45.4	105.1	104.2	NA	108	44.5	13.49	32.8	65.5
50	in	5.78	7.44	NA	3.71	9.50	6.68	6.62	3.71	3.60	2.20	2.13	NA	5.36	5.41	5.58	2.30	0.730	1.85	3.71
	mm	146.9	189.0	NA	94.2	241.3	169.6	168.1	94.2	91.3	55.9	54.0	NA	136.2	137.4	141.7	58.4	18.54	47.1	94.2
64	in	10.25	11.7	3.50	6.88	12.1	8.81	8.75	4.58	7.75	3.50	4.50	NA	5.88	5.88	6.88	1.85	0.999	3.30	4.58
	mm	260.3	298.2	88.9	174.6	306.1	223.9	222.3	116.3	196.9	88.9	108.0	NA	149.3	149.3	174.6	47.1	25.37	83.8	116.3

GSA Electric Rod-Style Actuator

SIZE: ALL

3D CAD available at www.tolomatic.com
Always use configured CAD solid model to determine critical dimensions



Size		A	B	C [4x]	D	E	F	G	H	J [4x]
12	in	5.13	2.000	1/4-20 \perp \perp 0.38 \perp 0.22 OPP	0.688	0.88	4.00	2.500	0.750	\perp 0.266 Thru \perp 0.44 \perp 0.28 5/16-18 \perp 0.75 OPP
	mm	130.2	50.80	M6x1.0 \perp \perp 9.5 \perp 5.6 OPP	17.46	22.4	101.6	63.50	19.05	\perp 6.76 Thru \perp 11.1 \perp 7.1 M8 \perp 1.25 OPP
16	in	6.25	2.500	5/16-18 \perp \perp 0.44 \perp 0.28 OPP	1.000	1.13	5.00	2.625	1.188	\perp 0.266 Thru \perp 0.44 \perp 0.28 5/16-18 \perp 0.75 OPP
	mm	158.8	63.50	M8x1.25 \perp \perp 11.1 \perp 7.1 OPP	25.40	28.6	127.0	66.68	30.18	\perp 6.76 Thru \perp 11.1 \perp 7.1 M8 \perp 1.25 OPP
24	in	7.75	3.500	5/16-18 \perp \perp 0.44 \perp 0.28 OPP	1.375	1.38	6.00	3.875	1.063	\perp 0.328 Thru \perp 0.53 \perp 0.34 3/8-16 \perp 1.00 OPP
	mm	196.9	88.90	M8x1.25 \perp \perp 11.1 \perp 7.1 OPP	34.93	35.1	152.4	98.43	27.00	\perp 8.33 Thru \perp 13.5 \perp 8.6 M10 \perp 1.5 OPP
32	in	10.00	5.000	3/8-16 \perp \perp 0.53 \perp 0.50 OPP	1.750	1.63	7.00	4.125	1.438	\perp 0.453 Thru \perp 0.72 \perp 0.47 1/2-13 \perp 1.50 OPP
	mm	254.0	127.00	M10x1.5 \perp \perp 13.5 \perp 12.7 OPP	44.45	41.4	177.8	104.78	36.51	\perp 11.49 Thru \perp 18.2 \perp 11.9 M12x1.75 \perp 1.50 OPP

GSA Electric Rod-Style Actuator

SIZE: ALL

3D CAD available at www.tolomatic.com
Always use configured CAD solid model
to determine critical dimensions



DIMENSIONS

Size		K	L	M Ø [2x]	N	P	R	S	T Ø [4x]	U	V	W	X Ø [4x]	Y
12	in	4.500	2.000	0.375 \Downarrow 0.50	1.20	0.297	1.25	1.250	1/4-20 \Downarrow 0.50	0.750	1.500	3.406	0.250 \Downarrow 0.38	5.68
	mm	114.30	50.80	10.00 \Downarrow 12.7	30.5	7.54	31.8	31.75	M6x1.0 \Downarrow 12.7	19.05	38.10	86.51	6.00 \Downarrow 9.5	144.1
16	in	5.438	2.500	0.375 \Downarrow 0.50	1.70	0.516	1.75	1.625	1/4-20 \Downarrow 0.50	1.000	1.750	3.969	0.250 \Downarrow 0.38	6.42
	mm	138.13	63.50	10.00 \Downarrow 12.7	43.2	13.11	44.5	41.28	M6x1.0 \Downarrow 12.7	25.40	44.45	100.81	6.00 \Downarrow 9.5	163.1
24	in	7.000	3.000	0.500 \Downarrow 0.50	2.15	0.438	2.25	1.625	5/16-18 \Downarrow 0.63	1.250	2.750	5.125	0.313 \Downarrow 0.50	8.14
	mm	177.80	76.20	12.00 \Downarrow 12.7	54.6	11.13	57.2	41.28	M8x1.25 \Downarrow 16.0	31.75	69.85	130.18	8.00 \Downarrow 9.5	206.6
32	in	9.000	3.500	0.500 \Downarrow 0.50	2.65	0.594	2.75	2.125	3/8-16 \Downarrow 0.75	1.750	2.750	5.812	0.375 \Downarrow 0.50	9.81
	mm	228.60	88.90	12.00 \Downarrow 12.7	67.3	15.09	69.9	53.98	M10x1.5 \Downarrow 19.1	44.45	69.85	147.62	10.00 \Downarrow 12.7	249.0

Size	Motor Frame	AA	BB	CC 1:1	CC 2:1	DD	EE	FF [2x]	GG	HH	JJ	KK ∞	LL ∞	MM ∞	
12	17	in	1.34	3.92	2.63	NA	1.13	0.500	8-32 \Downarrow 0.25	1.66	0.72	1.66	1.85	2.26	
		mm	34.1	99.5	66.9		28.6	12.70	M4x0.7 \Downarrow 6.3	42.1	18.3	42.0	47.0	57.3	
	23	in	1.34	3.92	2.63		1.13	0.500	8-32 \Downarrow 0.25	1.66	0.72	2.00	2.49	2.26	
		mm	34.1	99.5	66.9		28.6	12.70	M4x0.7 \Downarrow 6.3	42.1	18.3	50.8	63.2	57.3	
16	23	in	1.34	4.04	2.88	1.38	0.500	8-32 \Downarrow 0.25	1.66	0.72	2.25	2.49	2.26		
		mm	34.1	102.7	73.2	35.0	12.70	M4x0.7 \Downarrow 6.3	42.1	18.3	57.2	63.2	57.3		
24	23	in	2.04	5.13	3.78	3.75	2.04	0.787	1/4-20 \Downarrow 0.31	2.28	1.66	1.42	2.35	2.55	2.50
		mm	51.8	130.2	96.1	95.3	51.8	20.00	M6x1.0 \Downarrow 8.6	57.9	42.2	36.0	59.7	64.8	63.5
	34	in	2.04	6.29	4.20	4.17	2.04	0.787	1/4-20 \Downarrow 0.31	2.87	2.00	1.42	3.75	3.28	3.79
		mm	51.8	159.8	106.6	105.9	51.8	20.00	M6x1.0 \Downarrow 8.6	72.8	50.7	36.0	95.3	83.3	96.3
32	23	in	2.58	5.89	4.26	4.28	2.58	0.950	5/16-18 \Downarrow 0.50	3.19	2.00	1.79	3.00	2.63	2.58
		mm	65.5	149.6	108.3	108.9	65.5	24.13	M8x1.25 \Downarrow 12.7	80.9	50.7	45.4	76.2	66.8	65.5
	34	in	2.58	7.52	5.11	5.08	2.58	0.950	5/16-18 \Downarrow 0.50	3.19	2.00	1.79	3.75	2.38	4.25
		mm	65.5	190.9	129.9	129.0	65.5	24.13	M8x1.25 \Downarrow 12.7	80.9	50.7	45.4	95.3	60.5	108.0



∞ NOTE: YM code may change this dimension. Always use configured CAD to determine critical dimensions

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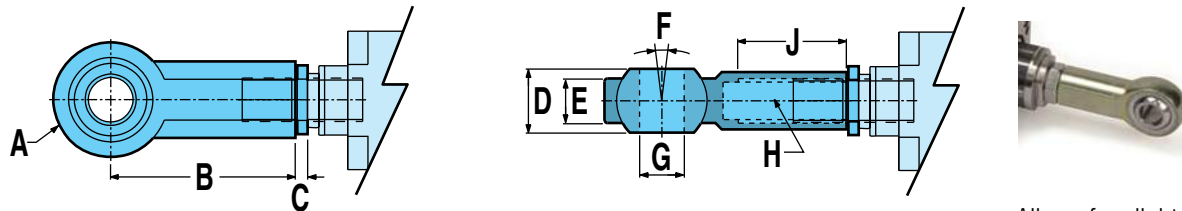
RSA/RSM Rod End Options

SIZE: ALL

3D CAD available at www.tolomatic.com
Always use configured CAD solid model
to determine critical dimensions



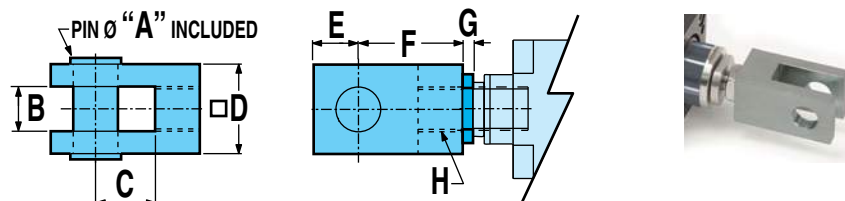
SRE SPHERICAL ROD END



Size		A Ø	B	C	D	E	F	G Ø	H	J
12	in	0.750	1.312	0.10	0.375	0.281	10°	0.250	1/4-28	0.75
	mm	18.00	30.00	2.5	9.00	6.80		6.00	M6x1	12.0
16	in	0.875	1.375	0.10	0.437	0.344		0.312	5/16-24	0.75
	mm	24.00	36.00	2.5	12.00	9.00		8.00	M8x1.25	16.0
24	in	1.125	1.812	0.15	0.560	0.437		0.438	7/16-20	1.06
	mm	28.00	43.00	3.8	14.00	10.50		10.00	M10x1.25	20.0
32	in	1.125	1.812	0.15	0.560	0.437		0.437	7/16-20	1.06
	mm	42.00	64.00	4.8	21.00	15.00		16.00	M16x1.5	28.0
50	in	1.750	2.875	0.19	0.875	0.687		0.750	3/4-16	1.75
	mm	50.00	77.00	4.8	25.00	18.00		20.00	M20x1.5	33.0
64ST	in	1.750	2.875	0.19	0.875	0.687		0.750	3/4-16	1.75
	mm	70.00	110.00	6.4	37.00	25.00		30.00	M27x2.0	51.0
64HT	in	2.750	4.125	0.19	1.375	1.000	1.00	1-1/4-12	2.13	
	mm	70.00	110.00	6.4	37.00	25.00	30.00	M27x2.0	51.0	

Allows for slight misalignment between the load and the actuator (radial and angular). Uses an industry-standard bearing.

CLV CLEVIS ROD END



Used with the externally threaded rod end when the actuator has to compensate for misalignment or pivot about an axis.

Size		A Ø	B	C	D	E	F	G	H
12	in	0.250	0.250	0.50	0.50	0.25	0.812	0.10	1/4-28
	mm	6.10 / 6.07	6.01 / 6.14	12.0	12.0	9.5	24.00	2.5	M6x1.0
16	in	0.375	0.375	0.50	0.75	0.38	0.875	0.10	5/16-24
	mm	8.10 / 8.07	6.01 / 6.14	16.0	16.0	13.0	32.00	2.5	M8x1.25
24	in	0.50	0.51	0.75	1.00	0.50	1.375	0.15	7/16-20
	mm	10.0	10.0	20.0	20.0	16.0	40.00	3.8	M10x1.25
32	in	0.50	0.51	0.75	1.00	0.50	1.375	0.15	7/16-20
	mm	16.0	16.0	32.0	32.0	19.0	64.00	4.8	M16x1.5
50	in	0.75	0.75	1.00	1.50	0.75	1.750	0.19	3/4-16
	mm	20.0	20.0	40.0	40.0	25.0	80.00	4.8	M20x1.5
64ST	in	0.75	0.75	1.00	1.50	0.75	1.750	0.19	3/4-16
	mm	30.0	30.0	54.0	55.0	45.0	110.00	6.4	M27x2.0
64HT	in	1.375	2.03	1.75	4.03	1.38	3.750	0.19	1-1/4-12
	mm	30.0	30.0	54.0	55.0	45.0	110.00	6.4	M27x2.0

KEY TO SYMBOLS

▲ Indicates a note of high importance

⊗ Indicates incompatibility with option(s) or size(s)

📄 Make note of this note

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RSA/RSM Rod End Options

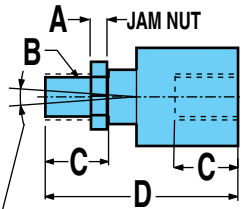
SIZE: ALL

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Always use configured CAD solid model
to determine critical dimensions



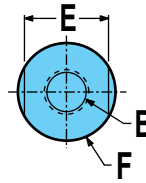
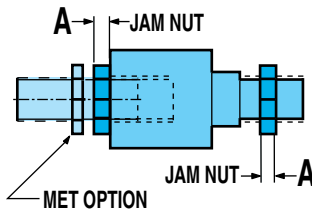
A|L|C ALIGNMENT COUPLER

INTERNALLY THREADED END



2 SPHERICAL MOTION,
0.0625 (1.6) RADIAL FLOAT

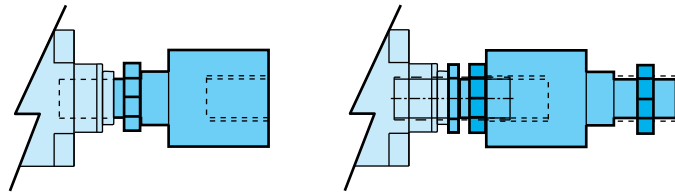
EXTERNALLY THREADED END



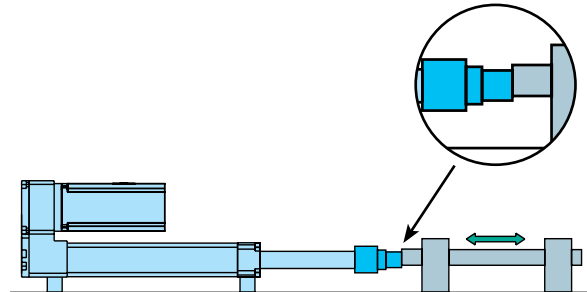
Used in combination with the externally threaded rod end to provide smooth motion and extends actuator life by preventing binding caused by angular or axial misalignment. Not available for use with clevis or trunnion mounts, as they must be rigidly mounted.

THE ALIGNMENT COUPLER COMES WITH AN INTERNAL THREAD. IF AN EXTERNAL THREAD IS PREFERRED, THE ADDITION OF THE "MET" OPTION IS REQUIRED.

If you need external thread, be sure to also order the **MET** external rod end



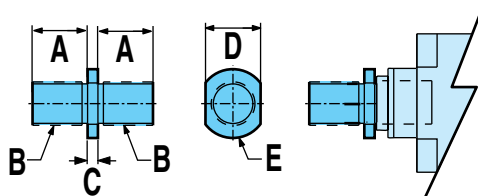
Size		A	B	C	D	E	F
12	in	0.16	1/4-28	0.63	1.88	0.81	0.88
	mm	—	—	—	—	—	—
16	in	0.20	5/16-24	0.63	1.88	0.81	0.88
	mm	—	—	—	—	—	—
24	in	0.25	7/16-20	0.75	2.75	1.13	1.25
	mm	6.4	M10x1.25	24.0	77.0	19.0	30.0
32	in	0.25	7/16-20	0.75	2.75	1.13	1.25
	mm	8.0	M16x1.5	32.0	106.0	30.0	42.0
50	in	0.45	3/4-16	1.13	3.44	1.50	1.75
	mm	10.0	M20x1.5	42.0	122.0	30.0	42.0
64ST	in	0.45	3/4-16	1.13	3.44	1.50	1.75
	mm	13.5	M27x2.0	54.0	147.0	32.0	55.0
64HT	in	0.50	1-1/4-12	1.63	4.56	2.25	2.50
	mm	13.5	M27x2.0	54.0	147.0	32.0	55.0



M|E|T EXTERNALLY THREADED ROD END



An alternative to the standard internally threaded end.



Size		A	B	C	D	E Ø
12	in	0.50	1/4-28	0.10	0.315	0.42
	mm	12.7	M6x1.0	2.5	8.00	10.7
16	in	0.50	5/16-24	0.10	0.375	0.48
	mm	12.7	M8x1.25	2.5	10.00	12.2
24	in	0.87	7/16-20	0.15	0.750	0.97
	mm	22.1	M10x1.25	3.8	19.00	24.6
32	in	0.87	7/16-20	0.15	0.750	0.97
	mm	28.0	M16x1.5	4.8	19.00	24.6
50	in	1.50	3/4-16	0.19	1.250	1.48
	mm	38.1	M-20x1.5	4.8	32.00	37.6
64ST	in	1.50	3/4-16	0.19	1.250	1.48
	mm	38.1	M27x2	6.4	32.00	38.1
64HT	in	2.13	1-1/4-12	0.19	1.313	1.60
	mm	50.8	M27x2	6.4	32.00	40.6

RSA/RSM Mounting Options

SIZE: ALL

3D CAD available at www.tolomatic.com

Always use configured CAD solid model to determine critical dimensions



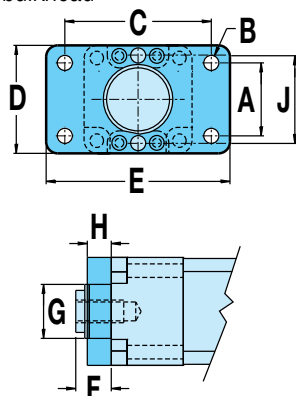
DIMENSIONS

FFG FRONT FLANGE MOUNT



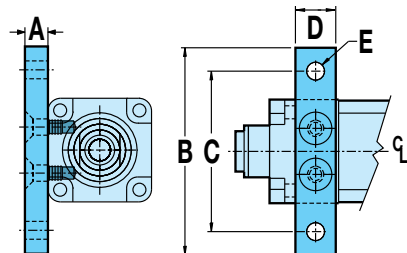
Used when a bottom-tapped mount is not an option or where bottom support mechanisms are

not feasible. Flange can be mounted directly to framework or a bulkhead



Size		A	B Ø	C	D	E	F	G Ø	H	J
12	in	0.500	0.157	1.500	1.12	2.00	0.31	0.56	0.25	–
	mm	12.70	4.00	38.10	28.5	50.8	7.8	14.0	6.3	–
16	in	0.945	0.18	1.896	1.38	2.39	0.43	0.68	0.37	–
	mm	24.00	4.5	48.16	35.1	60.7	11.0	17.0	9.3	–
24	in	1.430	0.31	2.750	2.00	3.37	0.43	1.18	0.37	–
	mm	32.00	7.2	64.00	47.0	80.0	11.0	30.0	10.0	–
32	in	1.840	0.37	3.375	2.50	4.12	0.50	1.25	0.37	–
	mm	45.00	92.0	90.00	65.0	113.0	12.7	40.0	12.0	–
50ST	in	2.760	0.43	4.687	3.75	5.50	0.70	1.75	0.62	–
	mm	63.00	12.2	126.00	97.0	153.0	17.7	50.0	16.0	–
50HT	in	2.760	0.43	4.687	3.75	5.50	1.32	1.75	0.62	–
	mm	63.00	12.2	126.00	97.0	153.0	33.5	50.0	16.0	–
50HT RN	in	2.760	0.43	7.000	3.75	8.00	1.32	1.75	0.62	3.00
	mm	63.00	12.2	177.80	97.0	203.2	33.5	50.0	16.0	76.2
64ST	in	3.320	0.43	5.437	4.50	6.25	0.68	2.25	0.62	–
	mm	75.00	14.2	150.00	111.0	186.0	17.3	65.0	16.0	–
64HT	in	3.320	0.58	8.000	4.50	9.00	0.86	2.25	0.80	3.50
	mm	75.00	14.7	203.2	114.3	228.6	21.8	65.0	20.3	88.9

M P 2 MOUNTING PLATE



Used for mountings other than flush.

Size		A	B	C	D	E Ø
12	in	0.50	2.25	1.75	0.40	0.19
17 FRAME	mm	12.7	57.2	44.4	10.2	4.8
12 23 FRAME or YMH option	in	0.63	2.50	2.00	0.40	0.19
	mm	16.0	63.5	50.8	10.2	4.8
16	in	0.63	2.50	2.00	0.40	0.19
	mm	16.0	63.5	50.8	10.2	4.8
24	in	0.50	3.50	2.75	1.50	0.44
	mm	12.0	78.0	62.0	25.4	6.7
32	in	0.50	4.00	3.25	1.50	0.44
	mm	12.0	104.0	84.0	31.80	8.70
50	in	0.75	5.75	4.75	1.75	0.56
	mm	20.0	146.1	120.7	44.5	14.2
50 RN	in	1.25	5.75	4.75	1.75	0.56
	mm	31.8	146.1	120.7	44.5	14.2
64ST	in	0.75	6.50	5.50	1.75	0.56
	mm	20.0	180.0	150.0	57.2	12.8
64HT	in	1.25	6.50	5.50	1.75	0.56
	mm	31.8	180.0	150.0	44.5	12.8

KEY TO SYMBOLS

Indicates a note of high importance

Indicates incompatibility with option(s) or size(s)

Make note of this item

ELECTROMATE

Toll Free Phone (877) SERV098

Toll Free Fax (877) SERV099

www.electromate.com

sales@electromate.com

RSA/RSM Mounting Options

SIZE: **ALL**

3D CAD available at www.tolomatic.com
Always use configured CAD solid model
to determine critical dimensions



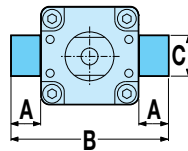
T R R TRUNNION MOUNT



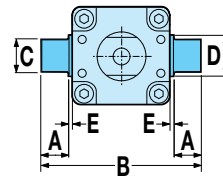
Used where space is limited in the rear of the actuator and when pivoting about an axis is required.

⊗ Not available with 12 or 16 size LMI (inline) motor mounting

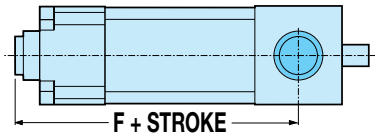
RSA US standard
(Sizes: 24, 32, 50, 64)



RSM Metric
(+RSA12, RSA16)



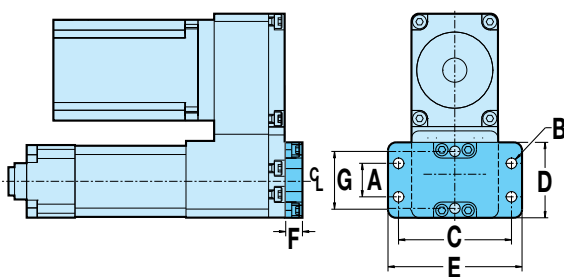
Both RSA US standard RSM Metric



RSA: US standard	Size	in	A	B	C Ø	D Ø	E	F (LMI)			F (RP)		
								ACME NUT	BALL NUT	ROLLER NUT	ACME NUT	BALL NUT	ROLLER NUT
								12	0.38	2.25	0.4374/0.4368	0.562	0.078
16	0.38	2.25	0.4374/0.4368	0.562	0.078	NA	NA	NA	3.30	3.30	NA		
24	1.04	4.12	0.9999/0.9993	NA	NA	4.46	4.94	6.33	4.30	4.73	6.33		
32	1.00	4.58	0.9999/0.9993	NA	NA	6.06	7.24	7.42	5.65	6.83	7.42		
50ST	1.06	5.83	0.9999/0.9993	NA	NA	7.44	8.44	NA	7.14	8.14	NA		
50HT	1.06	5.83	0.9999/0.9993	NA	NA	7.44	8.44	9.07	7.14	8.14	9.07		
64ST	1.06	6.70	0.9999/0.9993	NA	NA	9.90	11.90	NA	9.80	11.80	NA		
64HT	1.25	7.92	0.9999/0.9993	1.50	0.42	10.29	12.74	10.29	10.29	12.74	10.29		

RSM: Metric	Size	mm	A	B	C Ø	D Ø	E	F (LMI)			F (RP)		
								ACME NUT	BALL NUT	ROLLER NUT	ACME NUT	BALL NUT	ROLLER NUT
								12	9.5	57.2	12.000/11.981	14.2	2.0
16	9.5	57.2	12.000/11.980	14.2	2.0	NA	NA	NA	83.8	83.8	NA		
24	8.6	75.7	11.999/11.981	18.0	3.3	113.4	125.5	160.8	109.1	120.2	160.8		
32	16.0	107.0	15.999/15.981	25.0	4.74	153.8	183.8	188.5	143.5	173.5	188.5		
50ST	20.1	150.1	19.99/19.96	30.0	7.9	191.0	214.4	NA	181.3	206.7	NA		
50HT	20.1	150.1	19.99/19.96	30.0	7.9	191.0	214.4	230.3	181.3	206.7	230.3		
64ST	24.9	181.9	24.999/24.981	40.0	7.9	251.6	302.4	NA	248.9	299.7	NA		
64HT	24.9	181.9	24.999/24.981	40.0	7.9	261.3	323.6	261.3	261.3	323.6	261.3		

B F G BACK FLANGE MOUNT



Used when a bottom-tapped mount is not an option or where bottom support mechanisms are not feasible. Flange can be mounted directly to framework or a bulkhead

⊗ Not available with LMI (inline) motor mounting

Size		A	B Ø	C	D	E	F	G
12	in	0.500	0.157	1.500	1.12	2.00	0.31	—
	mm	12.70	4.00	38.10	28.5	50.8	7.8	—
16	in	0.945	0.18	1.896	1.38	2.39	0.43	—
	mm	24.00	4.5	48.16	35.1	60.7	11.0	—
24	in	1.430	0.31	2.750	2.00	3.37	0.43	—
	mm	32.00	7.2	64.00	47.0	80.0	11.0	—
32	in	1.840	0.37	3.375	2.50	4.12	0.50	—
	mm	45.00	92.0	90.00	65.0	113.0	12.7	—
50ST	in	2.760	0.43	4.687	3.75	5.50	0.70	—
	mm	63.00	12.2	126.00	97.0	153.0	17.7	—
50HT	in	2.760	0.43	4.687	3.75	5.50	1.32	—
	mm	63.00	12.2	126.00	97.0	153.0	33.5	—
50HT RN	in	2.760	0.43	7.000	3.75	8.00	1.32	3.00
	mm	63.00	12.2	177.80	97.0	203.2	33.5	76.2
64ST	in	3.320	0.43	5.437	4.50	6.25	0.68	—
	mm	75.00	14.2	150.00	111.0	186.0	17.3	—
64HT	in	3.320	0.58	8.000	4.50	9.00	0.86	—
	mm	75.00	14.7	203.2	114.3	228.6	21.8	—

RSA Electric Rod-Style Actuator

SIZE: ALL

3D CAD available at www.tolomatic.com
Always use configured CAD solid model to determine critical dimensions



PCS EYE MOUNT & PCD CLEVIS MOUNT



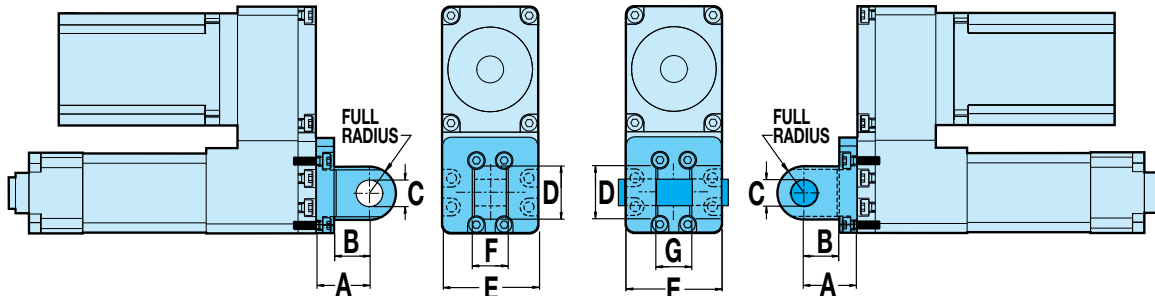
Used when the actuator has to compensate for misalignment or pivot about an axis when free movement is available in the back of the actuator.

✗ Not available with LMI (inline) motor mounting



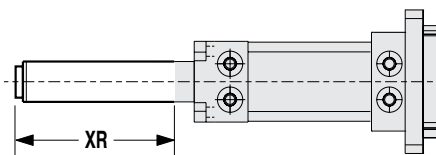
Used when the actuator has to compensate for misalignment or pivot about an axis when free movement is available in the back of the actuator.

✗ Not available with LMI (inline) motor mounting.



Size		A	B	C Ø	D	E	F	G
12	in	0.750	0.500	0.3761 / 0.3751	0.75	1.34	0.447 / 0.442	0.453 / 0.448
	mm	19.05	12.70	10.018 / 10.000	19.0	34.0	11.35 / 11.22	11.51 / 11.38
16	in	0.750	0.500	0.3761 / 0.3751	0.75	1.34	0.447 / 0.442	0.453 / 0.448
	mm	19.05	12.70	10.018 / 10.000	19.0	34.0	11.35 / 11.22	11.51 / 11.38
24	in	1.062	0.687	0.501 / 0.500	1.00	1.98	0.750 / 0.745	0.755 / 0.751
	mm	22.00	12.00	10.03 / 10.00	20.0	50.2	25.80 / 25.60	26.12 / 26.01
32	in	1.062	0.687	0.501 / 0.500	1.00	2.58	0.750 / 0.745	0.755 / 0.751
	mm	27.00	15.00	12.03 / 12.00	26.0	65.5	31.80 / 31.60	32.12 / 32.01
50	in	1.875	1.375	0.751 / 0.750	1.50	3.60	1.250 / 1.245	1.255 / 1.251
	mm	36.00	20.00	16.03 / 16.00	40.0	91.5	49.80 / 49.60	50.12 / 50.01
64ST	in	1.875	1.375	0.751 / 0.750	1.50	4.48	1.250 / 1.245	1.255 / 1.251
	mm	44.00	26.00	20.03 / 20.00	40.0	113.7	59.80 / 59.60	60.12 / 60.01
64HT	in	2.335	1.535	1.003 / 1.002	2.00	4.48	1.500 / 1.495	1.505 / 1.501
	mm	59.31	38.99	28.03 / 28.00	50.8	113.7	39.90 / 39.80	40.10 / 40.00

XR OPTIONAL ROD EXTENSION



In **vertical applications only**, the thrust rod length can be extended by specifying the rod extension option. This does not increase the working stroke, only the length of the thrust rod.

NOTE: the XR dimension in the configurator string (extension + stroke) should not exceed the maximum stroke of the specified actuator. Consult Tolomatic for extensions greater than the maximum stroke length.

Maximum Stroke Length

Size		All Others	Roller Screws
12	in	18	—
	mm	457	
16	in	18	—
	mm	457	
24	in	24	18
	mm	610	457
32	in	36	18
	mm	914	457
50	in	48	18
	mm	1219	457
64	in	60	18
	mm	1524	457

RSA Electric Rod-Style Actuator

SIZE: ALL

3D CAD available at www.tolomatic.com
Always use configured CAD solid model
to determine critical dimensions



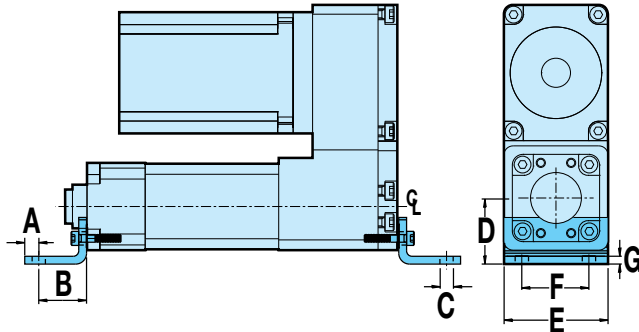
DIMENSIONS

F M 2 FOOT MOUNTS



Used when mounting holes on bottom of actuator are not accessible.

- ⊗ Not available with LMI (inline) motor mounting
- ⊗ Not available with HT option



Size		A	B	C Ø	D	E	F	G
12	in	0.16	0.55	0.15	0.75	1.13	0.77	0.09
	mm	4.1	14.0	3.9	19.1	28.6	19.7	2.3
16	in	0.16	0.55	0.15	0.77	1.34	1.00	0.09
	mm	4.1	14.0	3.9	19.7	34.0	25.4	2.3
24	in	0.37	1.00	0.33	1.19	2.04	1.25	0.12
	mm	7.1	23.9	7.0	29.9	51.8	32.2	3.0
32	in	0.37	1.00	0.41	1.43	2.58	1.75	0.13
	mm	9.5	32.0	9.0	36.3	64.0	45.0	3.2
50	in	0.50	1.25	0.46	1.93	3.70	2.75	0.12
	mm	16.5	41.0	12.0	49.1	96.0	63.0	3.2
64	in	0.50	1.25	0.46	2.32	4.58	3.50	0.12
	mm	19.0	41.0	14.0	59.0	113.0	75.0	3.2

GSA Electric Rod-Style Actuator

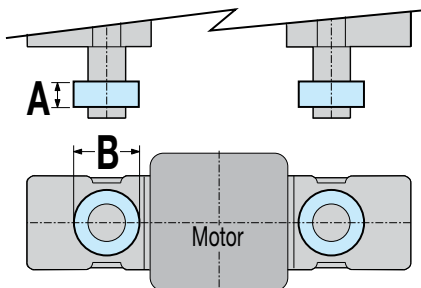
SIZE: ALL

DIMENSIONS 3D CAD available at www.tolomatic.com

C K & C K S STOP COLLARS



Provides a positive stop mechanism when required.



STANDARD GUIDE RODS

Size		A	B Ø
12	in	0.406	1.125
	mm	10.31	28.58
16	in	0.438	1.313
	mm	11.13	33.35
24	in	0.500	1.500
	mm	12.70	38.10
32	in	0.500	1.750
	mm	12.70	44.45

OVERSIZED GUIDE RODS

Size		A	B Ø
12	in	0.438	1.313
	mm	11.13	33.35
16	in	0.500	1.500
	mm	12.70	38.10
24	in	0.500	1.750
	mm	12.70	44.45
32	in	0.500	2.063
	mm	12.70	52.40

Sold & Serviced By:

ELECTROMATE

Toll Free Phone (877) SERV098

Toll Free Fax (877) SERV099

www.electromate.com

sales@electromate.com

RSA & GSA Electric Rod-Style Actuator

SIZE: ALL

SWITCHES



RSA & GSA products offer a wide range of sensing choices. There are 12 switch choices: reed, solid state PNP (sourcing) or solid state NPN (sinking); in normally open or normally closed; with flying leads or quick-disconnect.

Commonly used for end-of-stroke positioning, these switches allow installation anywhere along the entire actuator length. The internal magnet is a standard feature. Switches can be installed in the field at any time.

Switches are used to send digital signals to PLC (programmable logic controller), TTL, CMOS circuit or other controller device. Switches contain reverse polarity protection. Solid state QD cables are shielded; shield should be terminated at flying lead end.

All switches are CE rated and are RoHS compliant. Switches feature bright red or yellow LED signal indicators; solid state switches also have green LED power indicators.



	Order Code	Lead	Switching Logic	Power LED	Signal LED	Operating Voltage	**Power Rating (Watts)	Switching Current (mA max.)	Current Consumption	Voltage Drop	Leakage Current	Temp. Range	Shock / Vibration
REED	R Y	5m	SPST Normally Open	—	Red	5 - 240 AC/DC	**10.0	100mA	—	3.0 V max.	—	14 to 158°F [-10 to 70°C]	50 G / 9 G
	R K	QD*											
	N Y	5m	SPST Normally Closed	—	Yellow	5 - 110 AC/DC							
	N K	QD*											
SOLID STATE	T Y	5m	PNP (Sourcing) Normally Open	Green	Yellow	10 - 30 VDC	**3.0	100mA	20 mA @ 24V	2.0 V max.	0.05 mA max.		
	T K	QD*											
	K Y	5m	NPN (Sinking) Normally Open	Green	Red								
	K K	QD*											
	P Y	5m	PNP (Sourcing) Normally Closed	Green	Yellow								
	P K	QD*											
	H Y	5m	NPN (Sinking) Normally Closed	Green	Red								
	H K	QD*											

*QD = Quick-disconnect Enclosure classification IEC 529 IP67 (NEMA 6)

CABLES: Robotic grade, oil resistant polyurethane jacket, PVC insulation

⚠️ **WARNING: Do not exceed power rating (Watt = Voltage x Amperage). Permanent damage to sensor will occur.

SWITCH INSTALLATION



Place switch bracket into one of the four slots that run the length of the extruded tube. Note that there is a cutout on the actuator head (RSA) or tube (GSA) to allow insertion of the bracket. Insert the switch with the word "Tolomatic" facing up and slide it under the bracket. Position the bracket with the switch to the exact location desired. Lock them securely into place by tightening both set screws on the bracket.

Sold & Serviced By: **ELECTROMATE**

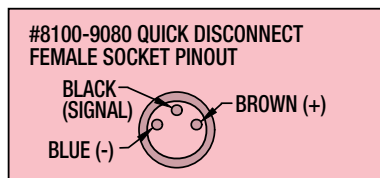
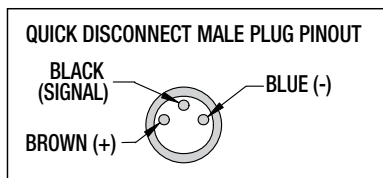
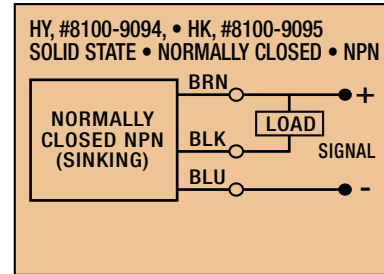
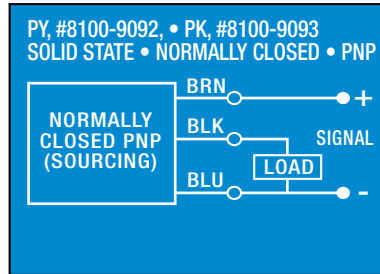
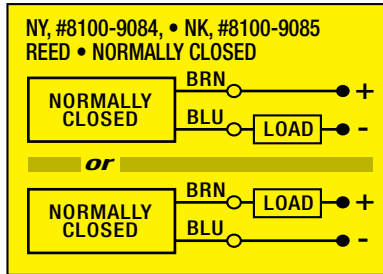
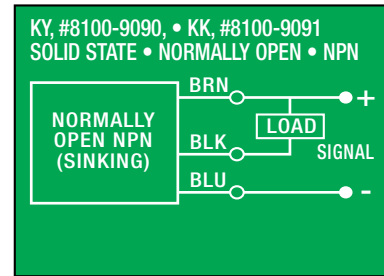
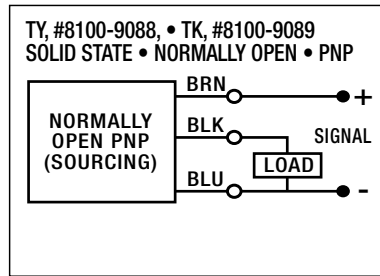
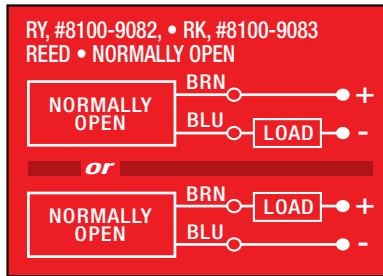
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SIZE: ALL

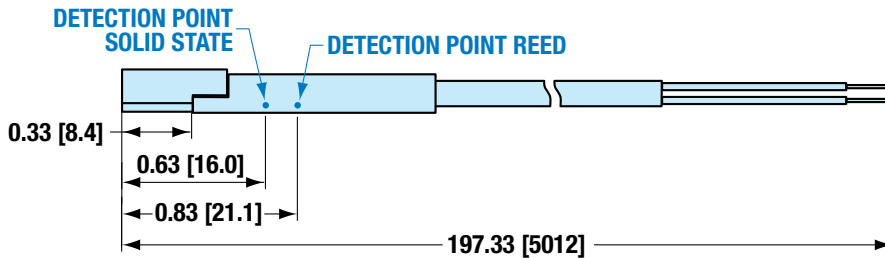
SWITCHES

WIRING DIAGRAMS

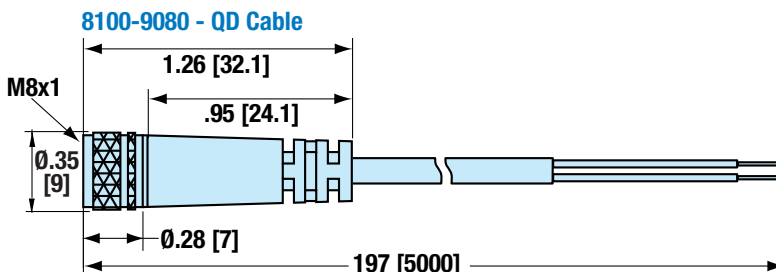
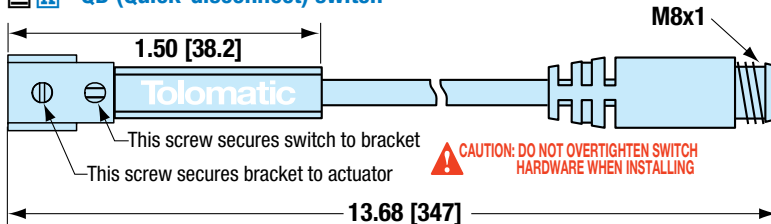


SWITCH DIMENSIONS

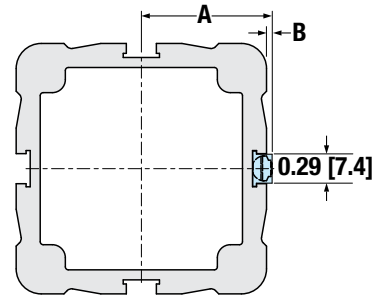
- direct connect



- QD (Quick-disconnect) switch



MOUNTING DIMENSIONS



Size	A		B	
	in	mm	in	mm
12	0.68	17.2	0.13	3.3
16	0.77	19.6	0.11	2.9
24	1.06	26.9	0.06	1.5
32	1.31	33.2		
50	1.87	47.5		
64	2.31	58.6		

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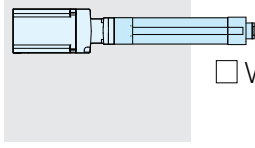
APPLICATION DATA WORKSHEET

Fill in known data. Not all information is required for all applications

ORIENTATION

RSA

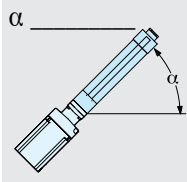
Horizontal



Vertical

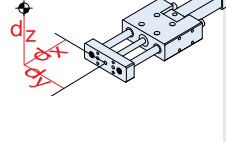


Incline °

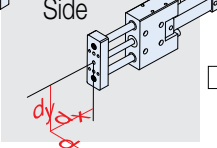


GSA

Horizontal



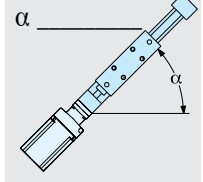
Horizontal Side



Vertical



Incline °



Load supported by actuator OR Load supported by other mechanism

MOVE PROFILE

EXTEND

Move Distance _____

inch
(US Standard)

millimeters
(Metric)

Move Time _____ sec

Max. Speed _____

in/sec

mm/sec

Dwell Time After Move _____ sec

RETRACT

Move Distance _____

inch

millimeters

Move Time _____ sec

Max. Speed _____

in/sec

mm/sec

Dwell Time After Move _____ sec

NO. OF CYCLES

per minute

per hour

HOLD POSITION?

Required

Not Required

After Move

During Power Loss

NOTE: If load or force changes during cycle use the highest numbers for calculations

EXTEND

LOAD

lb.
(U.S. Standard)

kg.
(Metric)

RETRACT

LOAD

lb.
(U.S. Standard)

kg.
(Metric)

FORCE

lb.
(U.S. Standard)

kg.
(Metric)

FORCE

lb.
(U.S. Standard)

kg.
(Metric)

STROKE LENGTH

inch
(US Standard)

millimeters
(Metric)

DISTANCE FROM TOOLING PLATE TO LOAD CENTER OF GRAVITY*

inch

millimeters

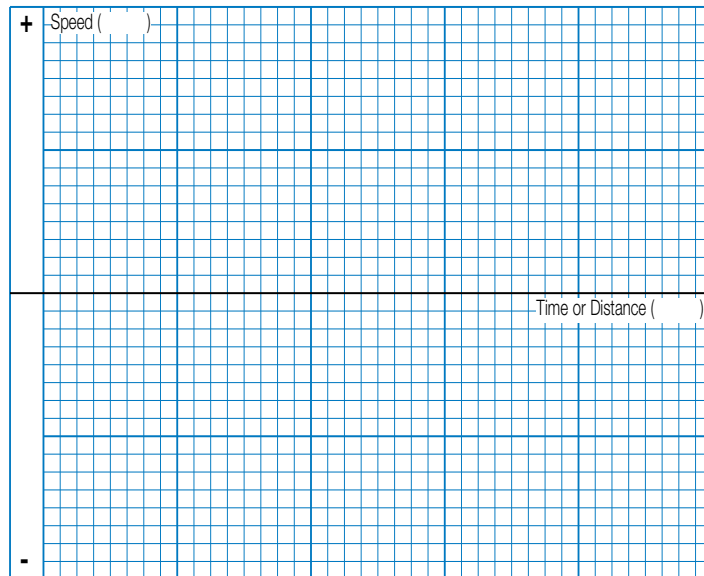
NOTE: Use for GSA only, RSA requires external support and guidance for load



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MOTION PROFILE



Graph your most demanding cycle, including accel/decel, velocity and dwell times. You may also want to indicate load variations and I/O changes during the cycle. Label axes with proper scale and units.

CONTACT INFORMATION

Name, Phone, Email
Co. Name, Etc.



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RSA & GSA Electric Rod-Style Actuator



Selection Guidelines

1 ESTABLISH MOTION PROFILE

Using the application stroke length, desired cycle time, loads and forces, establish the motion profile details including linear velocity and thrust in each of its segments.

2 SELECT ACTUATOR TYPE

If side (radial) loads are present, select GSA.

3 SELECT ACTUATOR SIZE AND SCREW TYPE

Based on the required velocities and thrust select an actuator size and type and lead of screw drive.

4 VERIFY CRITICAL SPEED OF THE SCREW

Verify that the application's peak linear velocity does not exceed the critical speed value for the size and lead of the screw selected.

5 VERIFY AXIAL BUCKLING STRENGTH OF THE SCREW

Verify that the peak thrust does not exceed the critical buckling force for the size of the screw selected.

6 COMPARE APPLICATION'S PEAK PARAMETERS TO PEAK CAPACITY (PEAK REGION) OF SELECTED ACTUATOR (ROLLER SCREW)

When a roller screw is selected, calculate the application's required peak thrust and peak velocity and compare to the graphs on page R/GSA_12. The selection must satisfy the application's peak requirements.

7 COMPARE APPLICATION'S CONTINUOUS OPERATION PARAMETERS TO CONTINUOUS OPERATION CAPACITY (CONTINUOUS DUTY REGION) OF SELECTED ACTUATOR (ROLLER SCREW)

When a roller screw is selected, calculate the application's continuous operation thrust and velocity and compare to the graph on page R/GSA_12. The selection must satisfy the application's peak requirements.

8 CALCULATE LUBRICATION INTERVAL (ROLLER SCREW)

When a roller screw is selected, calculate the recommended lubrication interval. See page R/GSA_12 and parts sheets for complete lubrication information for the RSA24, RSA32 and RSA64.

9 TEMPERATURE CONSIDERATIONS

If the application's ambient temperature lies outside of the allowed range [roller screw: 50° to 122°F (10° to 50°C), all others 40° to 130°F (4° to 54°C), contact the factory. Note that in aggressive applications where roller screw is used, outside temperature of the actuator's body can approach 180°F (82°C), and adequate clearance to avoid overheating of other system components should be allowed.

10 ESTABLISH TOTAL TORQUE REQUIREMENTS

Calculate total system inertia, the peak and the RMS torque required from the motor to overcome internal friction, external forces and accelerate/decelerate the load.

11 SELECT A MOTOR AND A CONTROLLER

Use the obtained total torque value to select a motor and a reduction device (if required). Verify that the peak torque value is below the motor's peak torque curve, and that the continuous torque value is below the motor's continuous torque curve. Verify the minimum torque margin (15%). Verify the inertia match. Select a controller.

12 SELECT A MOTOR-ACTUATOR CONFIGURATION AND SENSORS IF REQUIRED

Select an inline or a reverse-parallel motor configuration. Select mounting and rod end options. Select position sensors (if required). 12 sensor choices include: reed, solid state PNP or NPN, all in normally open or normally closed, with flying leads or quick-disconnect couplers.

13 SELECT ROD END OPTIONS AND MOUNTING OPTIONS

Rod end options include: CLV clevis rod end, SRE spherical rod end, MET externally threaded rod end, ALC alignment coupler, XR rod extension. Mounting options include: TRN trunnion mount, FFG front flange mount, MP2 mounting plates, FM2 foot mount, PCD clevis mount, PCS eye mount, BFG back flange mount.



The above guidelines are for reference only. Use Tolomatic online sizing software for best results.

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RSA & GSA Electric Rod-Style Actuator

SIZE: ALL

SERVICE PARTS ORDERING

RSA ACTUATOR MOUNTING REPLACEMENT KITS

Code	Size Description	12		16		24		32		50		64ST		64HT	
		RSA	RSM	RSA	RSM	RSA	RSM	RSA	RSM	RSA	RSM	RSA	RSM	RSA	RSM
For all motor mounts															
FFG	Front Flange Mount	1107-9013	2107-9013	1112-9013	2112-9013	1124-9022	2124-9032	1132-9022	2132-9042	1150-9022	2150-9042	1164-9022	2164-9022	1164-9384	2164-9384
MP2	Mounting Plate	1107-9015	2107-9015	1112-9014	2112-9014	1124-9023	2124-9033	1132-9023	2132-9043	1150-9023	2150-9043	1164-9023	2164-9023	1164-9375	2164-9375
		1112-9014*	2112-9014*	*Mounting Plate with 23 frame motor or YMH Option (for RSA12 size only)											
For RP motor mounting only															
FM2	Foot Mount	1107-9010	2107-9009	1112-9010	2112-9010	1124-9020	2124-9030	1132-9020	2132-9040	1150-9020	2150-9040	1164-9020	2164-9020	NA	NA
BFG	Back Flange Mount	1107-9014	2107-9014	1112-9013	2112-9025	1124-9022	2124-9032	1132-9022	2132-9042	1150-9022	2150-9042	1164-9022	2164-9022	1164-9384	2164-9384
PCS	Eye Mount	1107-9016	2107-9016	1107-9016	2107-9016	1124-9024	2124-9034	1132-9024	2132-9044	1150-9024	2150-9044	1164-9024	2164-9024	1164-9344	2164-9344
PCD	Clevis Mount	1107-9017	2107-9017	1107-9017	2107-9017	1124-9025	2124-9035	1132-9025	2132-9045	1150-9025	2150-9045	1164-9025	2164-9025	1164-9345	2164-9345

⊗ FM2 Not available with HT option

RSA ROD END REPLACEMENT KITS

Code	Size Description	12		16		24		32		50		64ST		64HT	
		RSA	RSM	RSA	RSM	RSA	RSM	RSA	RSM	RSA	RSM	RSA	RSM	RSA	RSM
CLV	Clevis End	1107-9021	2107-9021	1112-9020	2112-9020	1124-9029	2124-9039	1124-9029	2132-9049	1150-9029	2150-9049	1150-9029	2164-9029	1164-9386	2164-9386
SRE	Spherical Rod Eye	1107-9020	2107-9020	1112-9019	2112-9019	1124-9028	2124-9038	1124-9028	2132-9048	1150-9028	2150-9048	1150-9028	2164-9028	1164-9028	2164-9387
MET	External Threaded	1107-1073	2107-1073	1112-1058	2112-1058	1124-1057	2124-1067	1124-1057	2132-1057	1150-1057	2150-1057	1150-1057	2164-1057	1164-1035	2164-1546
ALC*	Alignment Coupler	1107-1076	NA	1112-1065	NA	1124-9004	2124-1070	1124-9004	2132-1060	1150-9009	2150-1060	1150-9009	2164-1060	1164-9385	2164-1060

📖 *NOTE: Alignment coupler is internally threaded, if external thread is desired order MET also

NA = Not Available

GSA OPTIONS REPLACEMENT KITS

Description	SIZE			
	12	16	24	32
Stop Collar	2312-1005	2317-1005	2334-1005	2332-1005
Stainless Steel Stop Collar	2312-1056	2317-1056	2324-1056	2332-1056

Description	SIZE			
	12	16	24	32
Over-Sized Stop Collar	2317-1005	2324-1005	2332-1005	2348-1005
Stainless Steel Over-Sized Stop Collar	2317-1056	2324-1056	2332-1056	2348-1056

📖 Kits include one collar and required fasteners

RSA & GSA SWITCHES

To order switch kit use configuration code for switch preceded by SW and actuator code.

EXAMPLE: **SWR** **SA** **24** **KK**

KIT
ACTUATOR
SIZE
SWITCH CODE

The example is for Solid State NPN, Normally Open Switch with Quick-disconnect couplers. Each switch kit is complete with Bracket, Set Screw, Switch and mating QD cable. Note that the bracket/switch size is common and may be used on any size RSA.

To order switch ONLY see part number in table at right

Code	Switch & Bracket Part No.	**Switch ONLY Part No.	Lead	Normally	Sensor Type
R Y	8100-9282	8100-9082	5m (197 in)	Open	Reed
R K	8100-9283*	8100-9083*	Quick-disconnect		
N Y	8100-9284	8100-9084	5m (197 in)	Closed	Reed
N K	8100-9285*	8100-9085*	Quick-disconnect		
T Y	8100-9288	8100-9088	5m (197 in)	Open	Solid State PNP
T K	8100-9289*	8100-9089*	Quick-disconnect		
K Y	8100-9290	8100-9090	5m (197 in)	Open	Solid State NPN
K K	8100-9291*	8100-9091*	Quick-disconnect		
P Y	8100-9292	8100-9092	5m (197 in)	Closed	Solid State PNP
P K	8100-9293*	8100-9093*	Quick-disconnect		
H Y	8100-9294	8100-9094	5m (197 in)	Closed	Solid State NPN
H K	8100-9295*	8100-9095*	Quick-disconnect		

**Also order bracket with set screw #1124-9007

*Also order mating QD cable #8100-9080

NOTE: Refer to parts sheets to replace switches on actuators manufactured before 5-10-2010.

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RSA & GSA Electric Rod-Style Actuator



ORDERING

ACTUATOR **OPTIONS**

RSA 50 BN02 SK35 RP1 ST1 TRR FFG XR6 ALC MET KK2 YM

MODEL & MOUNTING	
RSA	Rod-Style Screw-Drive Actuator, inch mounting
RSM	metric mounting
GSA	Guided Screw-Drive Actuator, inch mounting
GSM	metric mounting

SIZE	
12, 16, 24, 32, 50*, 64*	
⊗ *GSA not available in 50 or 64 size	

NUT/SCREW COMBINATIONS		
SIZE	CODE	TURNS/in (TPI)
12	SN	01,02,05
	BZ	10
	BN, BNL	08
16	SN	01,02,05
	BZ	10
	BN, BNL	08
24	SN	02,04,08
	BZ	10
	BN,BNL	02,05
	RN*	05,10
32	SN	01,02
	BZ	10
	BN,BNL	02,05
	BNM	20
	RN*	05,10
50	SN	04
	BZ	10
	BN,BNL	01,02,04
	BNM	05,10,25
64	SN	04
	BZ	10
	BN,BNL	02,04,53
	BNM	05,10,20
	BNH	02
	RN	05

⊗ *RN is Non-standard for GSA/GSM

STROKE LENGTH	
SK_...	Enter desired stroke length in decimal inches

SIZE	MAXIMUM STROKE			
	RSA		GSA	
	in	mm	in	mm
12	18	457.2	18	457.2
16	18	457.2	24	609.6
24	24	609.6	30	762.0
32	36	914.4	36	914.4
50	48	1,219.2		
64	60	1,524.0		NA

MOTOR MOUNTING	
LMI	In-line motor mount
RP1	1:1 ratio, reverse parallel motor mount
RP2	2:1 ratio, reverse parallel motor mount
⊗ RP2 not available on 12 or 16 size	

STANDARD OR HIGH TORQUE	
ST1	Standard RS Actuator
HT1*	High Torque Option
HT2*	High Torque Roller Screw Opt. *requires keyed motor
⊗ HT not available on 12, 16 or 24 size	

BEARINGS & GUIDE RODS (GSA ONLY)	
LB	Linear Bearings*
CB	Composite Bearings, Standard Size Rods
COB	Composite Bearings, Over Sized Rods
CBS	Composite Bearings, Standard Size Stainless Steel Rods
CBSO	Composite Bearings, Over-Sized Stainless Steel Rods
⊗ *Stainless steel guide rods not available with Linear Bearings	

STOP COLLAR (GSA ONLY)	
CK	Steel Stop Collar
CKS	Stainless Steel Stop Collar
NOTE: The correct Stop Collar will be automatically chosen based on the bearing and guide rod previously selected.	

TRUNNION MOUNT (RSA ONLY)	
TRR	Trunnion mount
⊗ Not available on 12 or 16 size with LMI motor mount	
NOTE: Trunnion mount is not available for field retrofit, contact Tolomatic for details	

IP67 (RSA32, 50, 64 ONLY)	
IP67	Basic ingress protection
NOTE: *HT actuator (LMI & RP); ST actuator (RP motor mount only)	

ACTUATOR MOUNTING (RSA ONLY)	
For all motor mounts:	
FFG	Front Flange Mount
MP2	Mounting Plates (2 required)
For RP motor mounting only:	
FM2*	Foot Mount (2 required)
PCD	Clevis Mount
PCS	Eye Mount
BFG	Back Flange Mount
⊗ *FM2 not available with HT option	

ROD EXTENSION (RSA ONLY)	
XR_...	Enter desired rod extension in decimal inches
▲ For vertical applications only.	
NOTE: The XR extension + stroke should not exceed the max. stroke of the specified actuator. (See MAX. STROKE table) Consult Tolomatic for extensions greater than the max. stroke length.	

ROD END (RSA ONLY)	
Internally threaded rod end is standard	
CLV	Clevis Rod End
SRE	Spherical Rod End
MET	Externally Threaded Rod End
ALC	Alignment Coupler Rod End*
NOTE: Alignment coupler is internally threaded, if external thread is desired order MET also	

SWITCHES						
TYPE	LOGIC	NORMALLY	QUICK-DISCONNECT	CODE	QUANTITY	LEAD LENGTH
REED	SPST	Open	no	RY	After code enter quantity desired	5 meters (16.4 feet)
		Closed	yes	RK		
SOLID STATE	PNP	Open	no	TY		
		Closed	yes	TK		
	NPN	Open	no	KY		
		Closed	yes	KK		
	PNP	Open	no	PY		
		Closed	yes	PK		
NPN	Open	no	HY			
	Closed	yes	HK			

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ACTUATOR Use Tolomatic On-line Sizing & Selection to determine available options and accessories based on your application requirements

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