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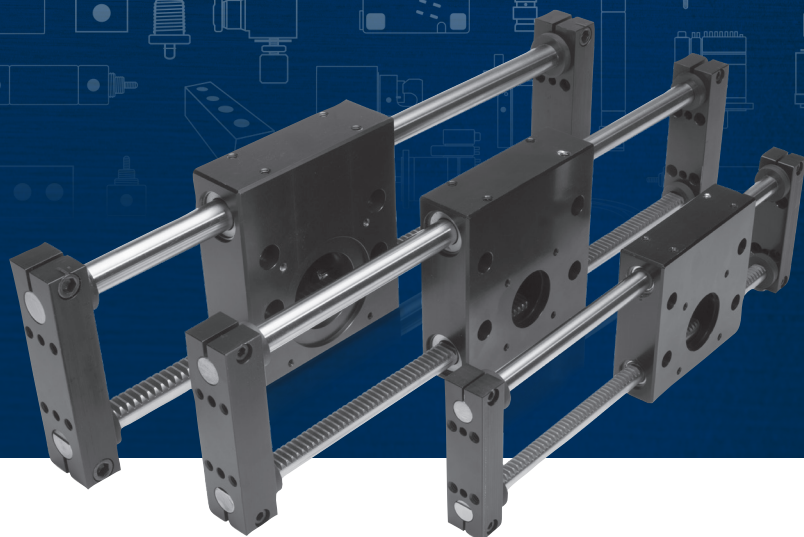
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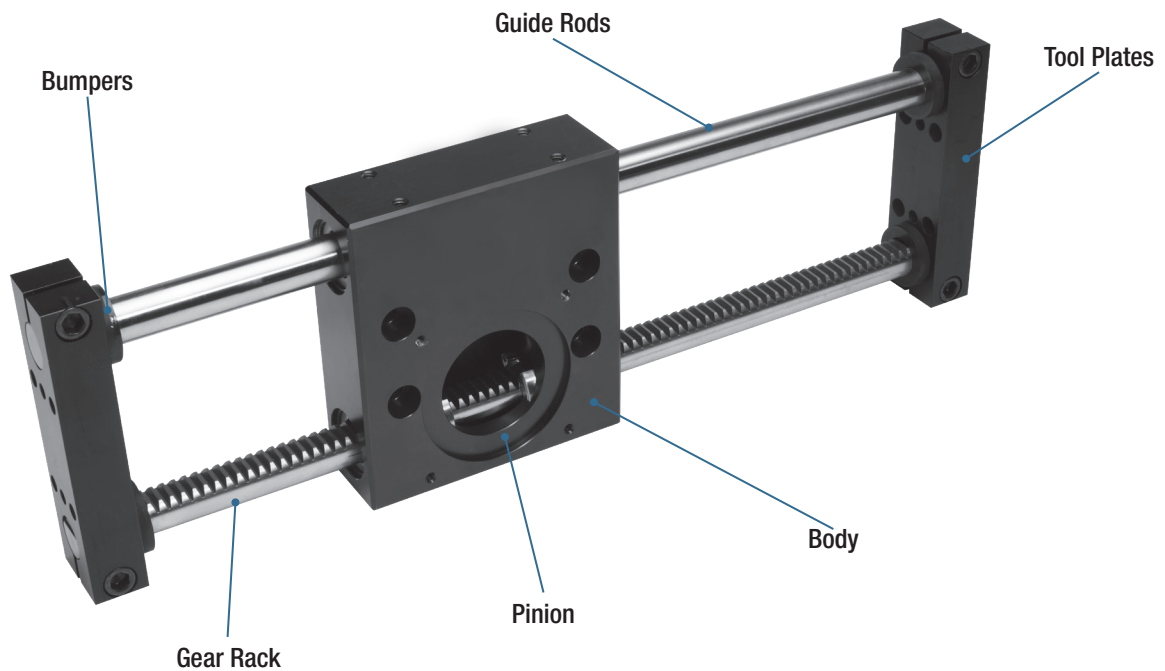


TRP RACK & PINION ELECTRIC ACTUATOR

The TRP Series is Bimba's first rack & pinion style electric actuator. This series features a hardened round shaft linear bearing and a high speed rack & pinion drive. Depending on the load and speed requirements of the application, the motor can either be direct coupled to the drive pinion or interfaced through a planetary gear reducer. The TRP actuator can be mounted with the motor driven platen fixed or moving with the load.

The TRP Series is built within a cost effective package which lends itself to linear motion in either a vertical or horizontal orientation. Ideal as the "Z-axis" or vertical member of a multi-axis assembly, the lightweight, dual tooling plate actuator provides high force and high speed within a sleek yet robust profile. The tooling plates are factory-ready for mounting to standard NEMA 23 or 34 motors with no additional hardware or adapter plates required. Additional force can be gained using a planetary gear reducer.

PRODUCT FEATURES



TRP Series rack and pinion electric actuators offer numerous advantages not found in many other electric actuator technologies. This series has a unique hardened round shaft linear bearing that lends itself to high force applications that require more speed than a traditional ballscrew actuator. When high thrust and high speed within a small envelope package are essential, the Bimba TRP is often the best, most logical choice.

FEATURES AND BENEFITS

Anodized Aluminum:

- Aluminum Alloy tool plates and body
- Reduces actuator weight
- Increases speed
- Ease of mounting

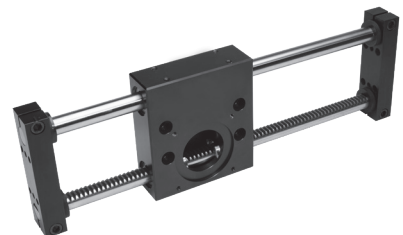
Hardened Guide Shafts:

- Maintenance free
- Self-Lubricating
- Low friction
- Smooth operation
- Long Life expectancy
- Four Bushings - two per shaft
- Provides rugged precise motion

Hardened Precision Ground Shafts

- High Thrust applications
- Repeatability to 0.003"
- Handles moment loading
- Several pinion pitches available
- End of travel stop pads

TRP



A rack & pinion is a type of linear actuator made from a pair of gears which convert rotational motion into linear motion. A circular gear called the “pinion” engages teeth on a linear “gear” bar called the “rack”. Rotational motion applied to the pinion from a motor causes the rack to move relative to the pinion, thereby translating the rotational motion of the pinion into linear motion.

While it may be used in a single axis motion application, due to the robust design of this rack & pinion actuator, it is an ideal actuator for use in the Z-axis of a dual actuator or gantry system. With transition plates available for coupling a TRP to a Bimba rod, rodless, or rack & pinion actuator, solving motion applications in two dimensions becomes an easy task.

MATERIALS OF CONSTRUCTION

Tool Plates:	Aluminum
Body:	Aluminum
Guide Rod:	Stainless Steel
Rack & Pinion:	Armoloy® Coated Steel

APPLICATION IDEAS

- Pick & Place
- Sorting
- Loading
- Stacking
- Insertion
- Clamping
- Parts Transfer
- Labeling
- Machine Tool
- Conveyor

TARGET APPLICATIONS

The TRP Series is intended for medium-duty industrial applications that require flexible motion with ample moment loading capacity. The TRP Series excels in and is often used with multi-axis applications as the “Z-axis” member. A multi-axis system can take advantage of the relatively lightweight yet robust performance of the TRP. The light weight adds value by providing significant thrust force with speeds approaching that of a belt actuator using a smaller motor. The inherent cost savings over a ballscrew actuator is yet another reason for selecting the TRP rack & pinion actuator. When thrust and speed are the primary characteristics required in your linear motion application and extreme precision is a secondary characteristic, the TRP Series can often be the best motion solution for your application.

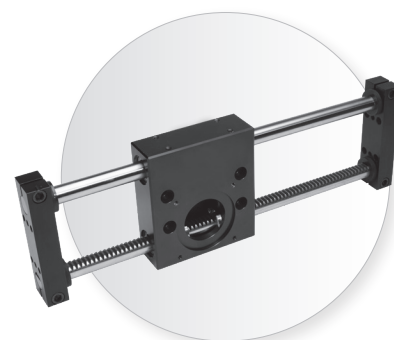
For applications that call for an alternative to a traditional pneumatic application, one that offers a more adaptable solution for your motion needs, Bimba rack & pinion electric actuators provide the interchangeable solution that adapts with your business in an easy-to-use, long-lasting, and tough electric actuator that exceeds the competition.

MOUNTING & DRIVE OPTIONS

While the TRP Series comes ready for direct mounting of NEMA-sized motors, Bimba makes available a number of additional motor mounts to choose from for mounting the motor of your choice. With many Bimba NEMA standard size stepper and servo motors to choose from, configuring a TRP electric actuator that best meets the needs of even your most demanding application has never been easier.

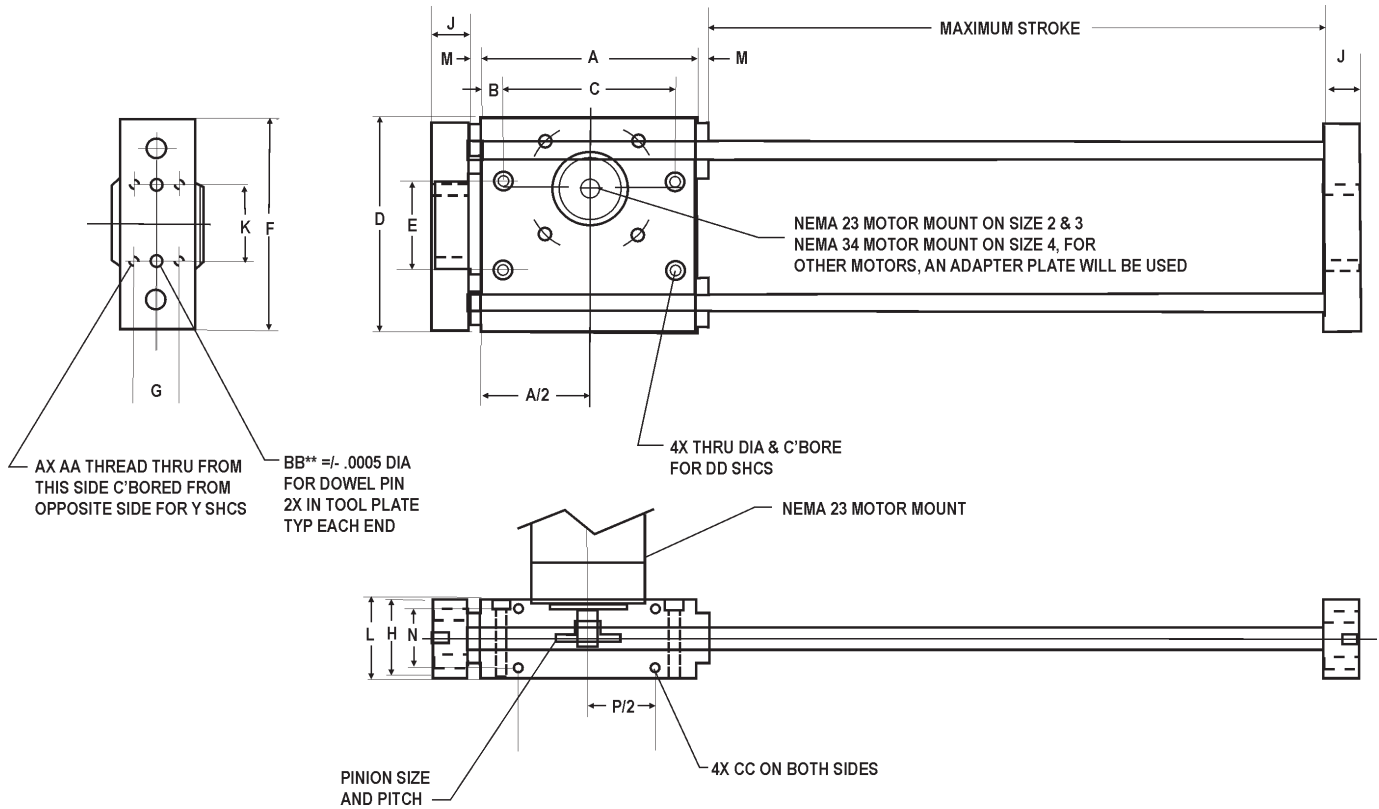
ADVANTAGES

FEATURE	ADVANTAGE	BENEFIT
Slim design with high strength	Offers great robustness in a cost-effective package	Outstanding performance per dollar spent
Dual guide shafts	Great loading and side load potential	Move large unguided loads easily and swiftly
Reducer Drive (optional with adapter)	Offers increased performance using embedded gear reducer	Move larger loads and improve inertia matching, using an aesthetically pleasing, cost-effective solution
Armoloy®-coated rack & pinion	Corrosion resistant	Long life and less friction



DIMENSIONS

Key specification information for TRP actuators is given below. For additional specification information, contact Bimba Customer Service at cs@bimba.com, or 800.44.BIMBA (800.442.4622).



DIMENSIONS										
SIZE	A	B	C	D	E	F	G	H	J	K
2	4.125	0.500	3.125	3.880	1.625	3.800	0.580	1.000	0.700	1.625
3	4.750	0.625	3.500	4.820	1.875	4.720	0.750	1.250	0.950	1.875
4	5.000	0.750	3.500	5.500	2.000	5.400	0.900	1.500	0.950	2.000
5	10.000	1.750	6.500	7.000	3.250	6.875	1.000	1.750	1.000	3.250

DIMENSIONS									
SIZE	L	M	N	P	Y	AA	BB	CC	DD
2	1.200	0.250	0.750	2.625	.201 X .215 DP	1/4-20 UNC	0.1884	10-24 X 3/8	1/4
3	1.500	0.250	1.062	2.875	.201 X .215 DP	1/4-20 UNC	0.2509	1/4-20 X 3/8	5/16
4	1.700	0.250	1.125	2.875	.257 X .275 DP	5/16-18 UNC	0.2509	1/4-20 X 7/16	3/8
5	1.900	0.250	1.250	5.000	.344 X .500 DP	3/8-16 UNC	0.2509	3/8-16 X 7/16	1/2

All dimensions are in inches.

NOTE: All motors must be evaluated to ensure that the motor shaft in an overhung condition can sustain the load.

ACTUATOR	PITCH	LOAD RATINGS N (lbs)	PINION DIAMETER in	LOAD RATINGS N (lbs)
TRP2	32	445 (100)	1.125	445 (100)
	24	667 (150)	1.000	667 (150)
TRP3	24	667 (150)	1.000	667 (150)
	20	1023 (230)	1.000	1023 (230)
TRP4	20	1023 (230)	1.000	1023 (230)
	16	1468 (330)	1.000	1468 (330)
TRP5	12	3559 (800)	2.000	3559 (800)

HOW TO ACCESSORIZE

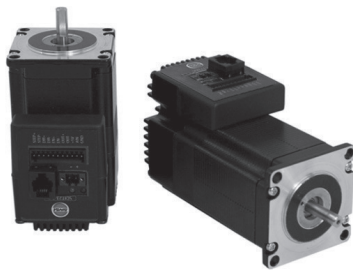
MOTORS AND DRIVES

Bimba motors are available to use as the rotary drive mechanism of the TRP Series. With a complete array of stepper and servo motors available in stock, Bimba has a motor*-drive solution that meets many demanding applications.

Configuring your motor and creating your first motion profile program is easier than ever with Bimba's intuitive and icon based IQ® suite of motion software. With our complete software suite available for free download from the Bimba website, there is no additional cost to your motion project. All Bimba stepper and servo programming software uses the same IQ® programming software, greatly reducing the learning curve. Existing programs can be easily shared or adapted among the two motor technologies.

See the Motors and Controls section for Bimba's wide selection of available motors and motor drives.

*Contact Bimba's Customer Service team for help in crossing your motor to a Bimba motor.



INTELLIMOTOR®
ITM-23Q-2-EIP-E-M12



AC STEPPER MOTOR
MTR-AC23T-753-S

HOW TO ORDER

The model numbers of TRP Series rack & pinion actuators consist of an alphanumeric cluster designating product type, size, stroke length, drive type, pitch, and shaft diameter that together make up the complete part number to use in ordering. Use the ordering information below to build a valid part number.

An example of a basic TRP2 unit with 5" stroke, 32mm pitch, and 3/8" shaft diameter is shown below.

ACTUATOR		PITCH		PROTECTION	
TRP2	32/24	00	Standard		
TRP3	24/20	Z1	Corrosion-Resistant		
TRP4	20/16	SS	Stainless Steel		
TRP5	12				

STROKE		DIAMETER		BUSHING	
XX (inches)		375	3/8"	SB	Solid
		500	1/2"	BB	Ball
		750	3/4"		
		010	10mm		
		011	11mm		
		014	14mm		
		019	19mm		

TRP2 05 32 375 00 SB

NOTE: Maximum stroke is 40". Stroke is determined in 1" increments.

NOTE: Not all pitches available on all sizes.

NOTE: Shaft size is larger on larger sizes.

NOTE: If a motor or gearbox adapter is required, please refer to the Adapters section of the Accessories chapter in this catalog.

HOW TO REPAIR

Bimba TRP Series rack & pinion actuators are repairable. A list of the individual components is given below that together make up the TRP Series actuator.

Please use the linear actuator serial number located at the drive end for all inquiries, along with the original purchase order number (if available). Describe the part required along with part number below. Contact Bimba Customer Service at 800-442-4622 (800-44-BIMBA) or e-mail cs@bimba.com.

DISASSEMBLY

Call Bimba before any disassembly of the linear actuator. Bimba warranty may be voided if the customer disassembles the linear actuator.

Qualified personnel should do disassembly of the tooling plates from the guide rod and gear rack only. If disassembly is required, then the rack and the pinion needs to be checked closely to insure proper alignment.

TRP2 REPAIR PARTS (PITCH 24)

QUANTITY	PART NO.	PART DESCRIPTION
1	TRP2-24-HSG	Housing Size 2 for 1/2" Rods
2	TRP2-24-TLPL	Tool Plate for 1/2" Rods
4	TRP2-24-RR	Retaining Rings
4	TRP2-24-BRG-A	Bushing
1	TRP2-24-ROD	1/2" Diameter Rod
1	RP-24-36	Gear Rack
1	RS12-24-08	Pinion
4	TRP2-24-BUMP	Bumper

TRP2 REPAIR PARTS (PITCH 32)

QUANTITY	PART NO.	PART DESCRIPTION
1	TRP2-32-HSG	Housing Size 2 for 3/8" Rods
2	TRP2-32-TLPL	Tool Plate for 3/8" Rods
4	TRP2-32-RR	Retaining Rings
4	TRP2-32-BRG-A	Bushing
1	TRP2-32-ROD	3/8" Diameter Rod
1	THC-RP-5	Gear Rack
1	THC-RP-32	Pinion
4	TRP2-32-BUMP	Bumper

TRP3 REPAIR PARTS (PITCH 20)

QUANTITY	PART NO.	PART DESCRIPTION
2	TRP3-20-TLPL	Tool Plate for 5/8" Rods
1	TRP3-20-ROD	5/8" Diameter Rod
1	RP-20	Gear Rack
1	THC-RP-20	Pinion
4	TRP3-20-BUMP	Bumper
1	TRP3-20-HSG-SPEC	Housing Size 3 for 5/8" Rods
4	TRP3-20-RR-BB	Retaining Rings
4	TRP3-20-BRG-BB	Bushing

TRP3 REPAIR PARTS (PITCH 24)

QUANTITY	PART NO.	PART DESCRIPTION
2	TRP3-24-TLPL	Tool Plate for 1/2" Rods
1	TRP2-24-ROD	1/2" Diameter Rod
1	RP-24-36	Gear Rack
1	THC-RP-24	Pinion
4	TRP2-24-BUMP	Bumper
1	TRP3-24-HSG-SPEC	Housing Size 3 for 1/2" Rods
4	TRP3-20-RR	Retaining Rings
4	TRP3-20-BRG-BB	Bushing

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TRP4 REPAIR PARTS (PITCH 16)

QUANTITY	PART NO.	PART DESCRIPTION
2	TRP4-16-TLPL	Tool Plate for 3/4" Rods
1	TRP4-16-ROD	3/4" Diameter Rod
1	RP-16	Gear Rack
1	THC-RP-16	Pinion
1	THC-RP-16-CC	Clamp Collar
4	TRP4-16-BUMP	Bumper
1	TRP4-16-HSG-SPEC	Housing Size 4 for 3/4" Rods
4	TRP4-16-RR-BB	Retaining Rings
4	TRP4-16-BRG-BB	Bushing

TRP5 REPAIR PARTS (PITCH 12)

QUANTITY	PART NO.	PART DESCRIPTION
1	TRP5-12-HSG	Housing Size 5 for 1" Rods
2	TRP5-12-TLPL	Tool Plate for 1" Rods
1	TRP5-12-ROD	1" Diameter Rod
1	TRP5-12DP	Gear Rack
1	THC-RP-12	Pinion
1	THC-RP-12-CC	Clamp Collar
1	TRP5-12-BUMP	Bumper
4	TRP5-12-RR-BB	Retaining Rings
2	TRP5-12-BRG-BB-OPN	Open Bushing
2	TRP5-12-BRG-BB	Bushing

HOW TO CUSTOMIZE

SWITCHES

Switches add versatility to your electric motion application. They can be used to provide end of stroke limits, count strokes, or communicate positioning to an outside source. Switches can provide safety to applications as well, preventing undesirable situations like runaways to prevent damage.

To learn more about Bimba's available switch selection, refer to the Switches section in this catalog.

PROTECTION

Bimba offers several protection options for our actuators. Our primary options are Armoloy® and stainless steel. **Armoloy®** offers additional protection against moisture and dirt. It is used to coat the steel linear rail and bearings in a Bimba actuator. Armoloy® coating can also be applied to the aluminum extrusion upon request. **Stainless steel** works in conjunction with Armoloy® coatings, providing additional protection to the end caps and carriage.

Additional coatings are available upon request.

MOTOR MOUNTING

Motor mounts allow you to mount any motor to any actuator (within the actuator's rating). They give end users the ability to use Bimba electric actuators with the motor of their choosing. Careful considerations regarding torque limitations must be made when mounting a motor the actuator is not rated for.

To request custom motor mounting options, please supply Bimba with the following information: shaft diameter, shaft length, pilot diameter, pilot depth, bolt circle, and hole size.

CUSTOMER-REQUESTED HOLES AND DOWEL PINS

Bimba can provide custom holes and dowel pins to accommodate the customer's specific tooling and mounting holes.