

MXB RODLESS BELT DRIVE ACTUATORS

ENDURANCE TECHNOLOGYSM

A Tolomatic Design Principle

U UNGUIDED

S SOLID BEARING

P PROFILED RAIL



LINEAR SOLUTIONS MADE EASY

MXB Rodless Belt Drive Actuators

DESIGNED TO OUTLAST EVERY BELT DRIVE ACTUATOR ON THE MARKET



The MXB belt drive electric actuator is exactly what you would expect from the industry's number one rodless supplier. Designed with our exclusive **ENDURANCE TECHNOLOGY™** features, the MXB delivers superior performance to meet the most demanding applications. Nobody knows rodless like Tolomatic, and the MXB proves it.

- MXB-**U**, MXB-**S** & MXB-**P**: Low profile to fit your application
- MXB-**S**: Engineered bearing material in trapezoidal shape for less wear, low static & dynamic friction
- MXB-**P**: High precision bearings feature smooth, low breakaway motion
- MXB-**P**: Durable profiled rail design uses recirculating ball technology to reduce friction and extend actuator life.
- MXB-**P**: High load and bending moment capacities

TOLOMATIC'S ELECTRIC RODLESS BELT-DRIVE ACTUATORS

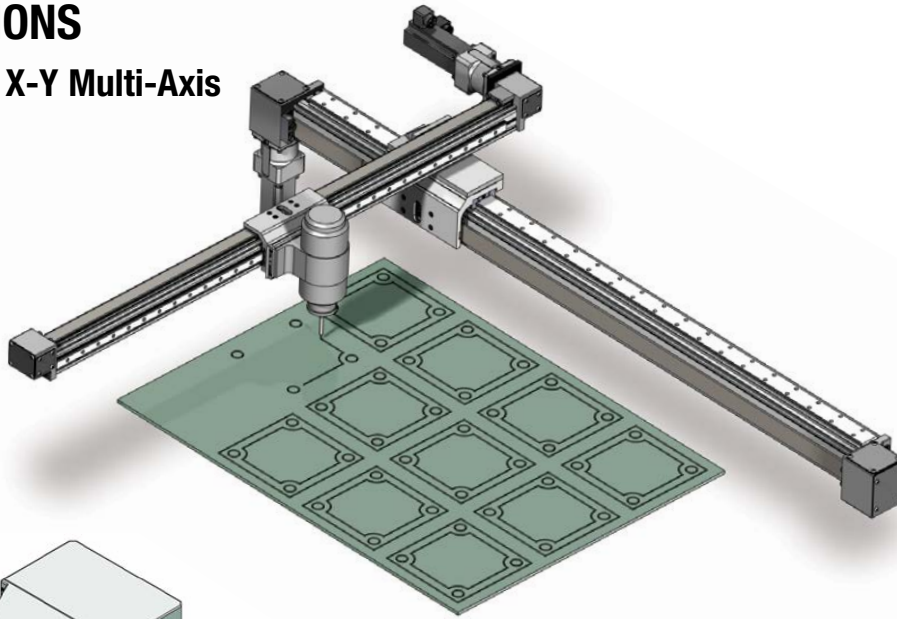
	MXB-U	MXB-S	MXB-P	B3W	TKB
					
Speed up to:	5,080 mm/sec (200 in/sec)	2,540 mm/sec (100 in/sec)	3,810 mm/sec (150 in/sec)	5,080 mm/sec (200 in/sec)	2,540 mm/sec (100 in/sec)
Stroke Length up to:	5,080 mm (200 in)	5,080 mm (200 in)	5,080 mm (200 in)	5,258 mm (207 in)	2,438 mm (96 in)
Load up to:	NA	236 kg; 2,313 N (520 lb)	586 kg; 5,745 N (1,292 lb)	911 kg; 8,932 N (2,008 lb)	340 kg; 8,932 N (750 lb)
Thrust up to:	1,859 N (418 lbf)	1,859 N (418 lbf)	1,859 N (418 lbf)	1,446 N (325 lbf)	1,090 N (245 lbf)
Literature Number:	8500-4000	8500-4000	8500-4000	3600-4609	2700-4000

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

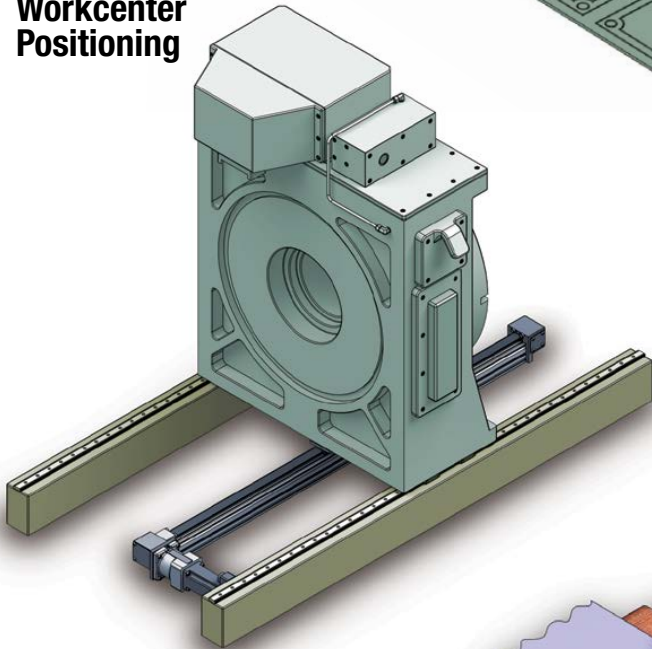
MXB Rodless Belt Drive Actuators

APPLICATIONS

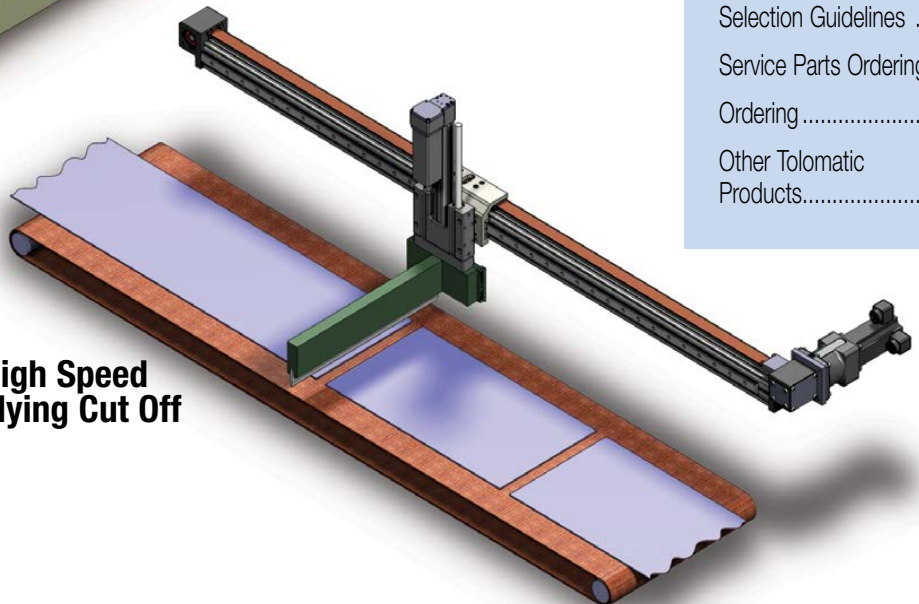
X-Y Multi-Axis



Workcenter Positioning



High Speed Flying Cut Off



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- Adhesive dispensing
- Aligning
- Animation
- Assembly
- Automotive
- Camera positioning
- Conveyors
- Cutting
- Diverters
- Inspection
- Laser marking
- Material cutting
- Milling
- Packaging equipment
- Parts transfer
- Pick & place
- Positioning
- Product handling
- Pulp & Paper
- Slitting
- Sorting
- Spraying
- Stacking
- Table positioning
- Test stations
- Wire winding

MXB- UNGUIDED BELT-DRIVE ACTUATOR

ENDURANCE TECHNOLOGYSM

A Tolomatic Design Principle

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

The MXB-U rodless actuator is a pre-assembled compact linear belt solution for use in applications with existing guides & supports. This economical actuator features speeds up to 5080 mm/sec (200 in/sec) and thrusts up to 1859 N (418 lbf). Built-to-order in stroke lengths up to 5842 mm (200 in).

MOTOR ORIENTATION

YOU CAN CHOOSE:

- Direct drive option directly couples motor to the drive shaft; one-piece housing construction for optimum alignment and support of the motor
- Reduction option in 3:1 reduction (2:1 on MXB16)

DURABLE BELT MATERIAL

High power polyurethane HTD tooth profile belt with steel tensile members resists stretching

YOUR MOTOR HERE

YOU CAN CHOOSE:

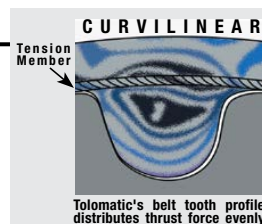
- Specify the device to be installed and actuator ships with proper mounting hardware
- Specify and ship your device to Tolomatic for factory installation
- Motor supplied and installed by Tolomatic

OVERSIZED PULLEY BEARINGS

Drive shaft assembly incorporates oversized shielded/sealed ball bearings for long life and high speeds

STEEL REINFORCED/HTD BELT PROFILE

- Belt of polyurethane material reinforced with steel tension members to produce high carrier thrusts without belt stretch.
- HTD tooth profile distributes tooth load more evenly and provides greater tooth shear strength, allowing for higher thrust loading.
- The deep teeth of the HTD profile are cogging-resistant, preventing potentially damaging positioning errors.



INCH OR METRIC MOUNTING

Your choice of blank, inch (US standard) or metric mounting to the plate

LOW PLATE HEIGHT

Reduces overall actuator envelope

EXTERNAL BUMPERS

Polyurethane bumpers protect the belt and clamp assembly from damage at end-of-stroke

BELT TENSIONING SYSTEM

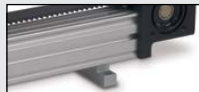
The open slot on the guide plate permits easy access to the belt tensioning screw. No disassembly required

LIGHTWEIGHT ALUMINUM DESIGN

Clear anodized extrusion design is optimized for rigidity and strength

NOTE: Boxed letters indicate ordering codes

OPTIONS



MOUNTING PLATES **M****P**

- Provides clearance for motor and mount
- 16,25,32 sizes attach with T-Nuts
- 40,50,63 sizes attach with Tube Clamps



HEAD COVER PLATE **H****C****2**

- Provides protection for pulley and bearing



TUBE CLAMPS **T****C**

- Used for intermediate support
- Flush with bottom of actuator to retain low profile
- Drop-in, adjustable mounting locations (Not available on the MXB16U)



SWITCHES

- Wide variety of sensing choices: Reed, Solid State PNP or NPN, available normally open or normally closed
- Flush mount, drop-in installation
- Bright LEDs, power & signal indication
- CE rated, RoHS compliant

MXB-S SOLID BEARING BELT-DRIVE

ENDURANCE TECHNOLOGYSM

A Tolomatic Design Principle

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

The MXB-S rodless style actuator is a compact linear belt solution for use in applications requiring light to moderate load carrying and guidance. The MXB-S actuator utilizes two field replaceable solid bearings that optimize stress distribution for optimal performance, rigidity and life. This economical actuator features speeds up to 2540 mm/sec (100 in/sec) and thrusts up to 1859 N (418 lbf). Built-to-order in stroke lengths up to 5080 mm (200 in).

LARGE FLEXIBLE MOUNTING PATTERN

- Carrier gives more load stability
- Directly compatible with existing BCS & BC2 applications
- More fastening options

BELT TENSIONING SYSTEM

The open slot on the guide plate permits easy access to the belt tensioning screw. No disassembly required

EXTERNAL BUMPERS

Polyurethane bumpers protect the belt and clamp assembly from damage at end-of-stroke

OVERSIZED PULLEY BEARINGS

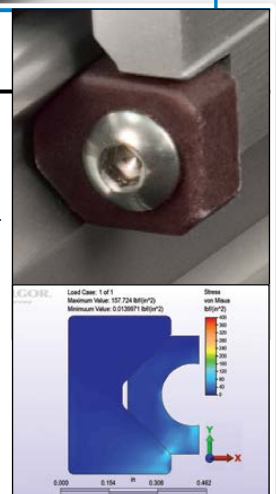
Drive shaft assembly incorporates oversized shielded/sealed ball bearings for long life and high speeds

DURABLE BELT MATERIAL

High power polyurethane HTD tooth profile belt with steel tensile members resists stretching

TRAPEZOIDAL BEARINGS

- Trapezoidal design maximizes bearing surface area for less pressure on bearing surfaces; less pressure results in less wear
- Engineered bearing material has low static and dynamic friction with low wear properties for long lasting, smooth operation
- Bearings are field replaceable for extended service life



INCH OR METRIC MOUNTING

Your choice of blank, inch (US standard) or metric mounting to the plate

MOTOR ORIENTATION

YOU CAN CHOOSE:

- Direct drive option directly couples motor to the drive shaft; one-piece housing construction for optimum alignment and support of the motor
- Reduction option in 3:1 reduction (2:1 on MXB16)

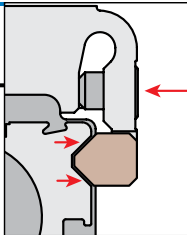
YOUR MOTOR HERE

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 supplied and installed by Tolomatic

NON-BINDING BEARING ARMS

Bearings are tensioned indirectly, providing bind free adjustment



LIGHTWEIGHT ALUMINUM DESIGN

Clear anodized extrusion design is optimized for rigidity and strength

OPTIONS



AUXILIARY CARRIER **D****C**

- 2X higher Fz (load) capacity
- High bending moment capacity



FLOATING MOUNT **F****L**

- Compensates for non-parallelism between MX actuator and externally guided load



TUBE CLAMPS **T****C**

- Used for intermediate support
- Flush with bottom of actuator to retain low profile
- Drop-in, adjustable mounting locations (MXB16 uses T-nuts with mounting plates)



MOUNTING PLATES **M****P**

- Provides clearance for motor and mount
- 16,25,32 sizes attach with T-Nuts
- 40,50,63 sizes attach with Tube Clamps



HEAD COVER PLATE **H****C****2**

- Provides protection for pulley and bearing



SWITCHES

- Wide variety of sensing choices: Reed, Solid State PNP or NPN, available normally open or normally closed
- Flush mount, drop-in installation
- Bright LEDs, power & signal indication
- CE rated, RoHS compliant

NOTE: Boxed letters indicate ordering codes

MXB- PROFILED RAIL BELT-DRIVE ACTUATOR

ENDURANCE TECHNOLOGYSM

A Tolomatic Design Principle

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

The MXB-P rodless electric belt-drive actuator is designed for applications requiring moderate to heavy load carrying and guidance. The MXB-P actuator features a profiled rail system with recirculating ball linear guides for optimal performance. The MXB-P belt-driven actuator features speeds up to 3810 mm/sec (150 in/sec) and thrusts up to 1859 N (418 lbf). Built-to-order in stroke lengths up to 5080 mm (200 in).

LOW CARRIER HEIGHT

- Reduces overall actuator envelope
- Large mounting pattern for excellent load stability

DURABLE BELT MATERIAL

High power polyurethane HTD tooth profile belt with steel tensile members resists stretching

OVERSIZED PULLEY BEARINGS

Drive shaft assembly incorporates oversized shielded/sealed ball bearings for long life and high speeds

MOTOR ORIENTATION

YOU CAN CHOOSE:

- Direct drive option directly couples motor to the drive shaft; one-piece housing construction for optimum alignment and support of the motor
- Reduction option in 3:1 reduction (2:1 on MXB16)

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 supplied and installed by Tolomatic

INCH OR METRIC MOUNTING

Your choice of blank, inch (US standard) or metric mounting to the plate

LIGHTWEIGHT ALUMINUM DESIGN

Clear anodized extrusion design is optimized for rigidity and strength

EXTERNAL BUMPERS

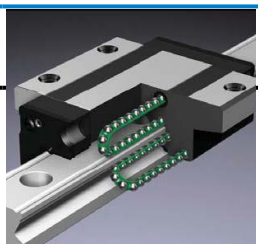
Polyurethane bumpers protect the belt and clamp assembly from damage at end-of-stroke

BELT TENSIONING SYSTEM

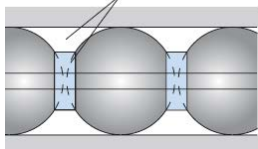
The open slot on the guide plate permits easy access to the belt tensioning screw. No disassembly required

RECIRCULATING BALL BEARINGS

- Recirculating ball bearings are used to reduce friction and extend actuator life
- Designed with a grease pocket between ball elements to reduce friction, noise and maintenance
- Large permissible moment loads
- High speed operation, low heat generation
- High precision, smooth, low friction motion



Grease pocket



NOTE: Boxed letters indicate ordering codes

OPTIONS



AUXILIARY CARRIER **D****C**

- 2X higher Fz & Fy (load) capacity
- High bending moment capacity



MOUNTING PLATES **M****P**

- Provides clearance for motor and mount
- 16,25,32 sizes attach with T-Nuts
- 40,50,63 sizes attach with Tube Clamps



TUBE CLAMPS **T****C**

- Used for intermediate support
 - Flush with bottom of actuator to retain low profile
 - Drop-in adjustable mounting locations
- (Not available on the 16, 25 or 32 MXB-P sizes)



HEAD COVER PLATE **H****C****2**

- Provides protection for pulley and bearing



SWITCHES

- Wide variety of sensing choices: Reed, Solid State PNP or NPN, available normally open or normally closed
- Flush mount, drop-in installation
- Bright LEDs, power & signal indication
- CE rated, RoHS compliant

MXB Rodless Belt Drive Actuators

ACTUATOR SPECIFICATIONS AND BREAKAWAY TORQUE

MXB U , S & P						BREAKAWAY TORQUE	
MXB SIZE	BELT WIDTH	BELT DEAD LENGTH	PULLEY PITCH DIA.	STROKE PER REV.	*MAX. STROKE	SINGLE CARRIER	AUX. CARRIER OPT. (MXB-P)
16	10	363.0	19.1	60.1	5.84	0.452	0.678
25	18	475.5	25.5	80.0	5.19	0.565	0.791
32	25	556.0	31.8	100.0	5.16	0.904	1.130
40	30	633.7	38.2	120.0	5.14	1.130	1.356
50	40	692.2	44.6	140.0	5.13	1.695	2.034
63	50	917.2	54.1	170.0	2.60	2.260	2.825

MXB U , S & P						BREAKAWAY TORQUE	
MXB SIZE	BELT WIDTH	BELT DEAD LENGTH	PULLEY PITCH DIA.	STROKE PER REV.	*MAX. STROKE	SINGLE CARRIER	AUX. CARRIER OPT. (MXB-P)
16	0.39	14.29	0.753	2.366	230	4.0	6.0
25	0.71	18.72	1.003	3.151	204	5.0	7.0
32	0.98	21.89	1.253	3.936	203	8.0	10.0
40	1.18	24.95	1.504	4.725	202	10.0	12.0
50	1.57	27.25	1.754	5.510	201	15.0	18.0
63	1.97	36.11	2.130	6.692	102	20.0	25.0

*Longer stroke length available, up to 40 feet (12.2m), contact Tolomatic

MXB-J SIZE	WEIGHT				INERTIA		
	PLATE ASSEMBLY	BELT TENSIONER ASSEMBLY	BASE ACTUATOR	PER cm OF STROKE	DRIVE/IDLE PULLEY ASSEMBLIES	PLATE ASSEMBLY (INCLUDING BELT TENSIONER ASSEMBLY)	PER cm OF STROKE
	kg	kg	kg	kg/cm	kg-cm ²	kg-cm ²	kg-cm ²
16	0.05	0.05	0.72	0.0150	0.0250	0.0870	0.0006
25	0.12	0.07	1.17	0.0246	0.0759	0.3073	0.0020
32	0.22	0.13	1.89	0.0423	0.4143	0.8906	0.0043
40	0.41	0.21	3.55	0.0629	1.0884	2.2430	0.0075
50	0.47	0.33	4.50	0.0843	2.1196	3.9449	0.0135
63	1.15	0.38	7.46	0.1488	5.7101	11.1931	0.0249

MXB-J SIZE	WEIGHT				INERTIA		
	PLATE ASSEMBLY	BELT TENSIONER ASSEMBLY	BASE ACTUATOR	PER in OF STROKE	DRIVE/IDLE PULLEY ASSEMBLIES	PLATE ASSEMBLY (INCLUDING BELT TENSIONER ASSEMBLY)	PER in OF STROKE
	lb	lb	lb	lb/in	lb-in ²	lb-in ²	lb-in ²
16	0.11	0.10	1.59	0.084	0.0085	0.0297	0.0005
25	0.27	0.15	2.59	0.138	0.0259	0.1050	0.0017
32	0.48	0.30	4.17	0.237	0.1416	0.3043	0.0037
40	0.90	0.46	7.83	0.352	0.3719	0.7665	0.0065
50	1.03	0.72	9.93	0.472	0.7243	1.3480	0.0117
63	2.54	0.83	16.44	0.833	1.9512	3.8249	0.0216

MXB-S SIZE	WEIGHT				INERTIA			
	CARRIER ASSEMBLY	BELT TENSIONER ASSEMBLY	BASE ACTUATOR	PER cm OF STROKE	DRIVE/IDLE PULLEY ASSEMBLIES	CARRIER ASSEMBLY (INCLUDING BELT TENSIONER ASSEMBLY)		PER cm OF STROKE
	kg	kg	kg	kg/cm	kg-cm ²	SINGLE CARRIER	AUX. CARRIER OPT.	kg-cm ²
16	0.15	0.05	0.84	0.0150	0.0250	0.1782	0.3151	0.0006
25	0.24	0.07	1.65	0.0246	0.0759	0.5060	0.9035	0.0020
32	0.45	0.14	2.63	0.0423	0.4143	1.4879	2.6365	0.0043
40	0.80	0.21	5.06	0.0629	1.0884	3.6828	6.6119	0.0075
50	1.17	0.33	7.35	0.0843	2.1196	7.4111	13.1956	0.0135
63	3.42	0.38	14.56	0.1488	5.7101	27.7891	52.8158	0.0249

MXB-S SIZE	WEIGHT				INERTIA			
	CARRIER ASSEMBLY	BELT TENSIONER ASSEMBLY	BASE ACTUATOR	PER in OF STROKE	DRIVE/IDLE PULLEY ASSEMBLIES	CARRIER ASSEMBLY (INCLUDING BELT TENSIONER ASSEMBLY)		PER in OF STROKE
	lb	lb	lb	lb/in	lb-in ²	SINGLE CARRIER	AUX. CARRIER OPT.	lb-in ²
16	0.33	0.10	1.86	0.084	0.0085	0.0609	0.1077	0.0005
25	0.54	0.15	3.64	0.138	0.0259	0.1729	0.3087	0.0017
32	1.00	0.30	5.80	0.237	0.1416	0.5084	0.9009	0.0037
40	1.77	0.46	11.16	0.352	0.3719	1.2585	2.2594	0.0065
50	2.57	0.72	16.20	0.472	0.7243	2.5325	4.5092	0.0117
63	7.54	0.83	32.10	0.833	1.9512	9.4960	18.0481	0.0216

MXB-P SIZE	WEIGHT				INERTIA			
	CARRIER ASSEMBLY	BELT TENSIONER ASSEMBLY	BASE ACTUATOR	PER cm OF STROKE	DRIVE/IDLE PULLEY ASSEMBLIES	CARRIER ASSEMBLY (INCLUDING BELT TENSIONER ASSEMBLY)		PER cm OF STROKE
	kg	kg	kg	kg/cm	kg-cm ²	SINGLE CARRIER	AUX. CARRIER OPT.	kg-cm ²
16	0.18	0.05	1.08	0.0183	0.0250	0.2014	0.3615	0.0006
25	0.38	0.07	1.98	0.0348	0.0759	0.7297	1.3508	0.0020
32	0.74	0.13	3.55	0.0569	0.4143	2.2232	4.1072	0.0043
40	1.14	0.21	6.38	0.0959	1.0884	4.9138	9.0740	0.0075
50	2.28	0.33	9.45	0.1337	2.1196	12.9416	24.2565	0.0135
63	4.25	0.38	16.89	0.1981	5.7101	33.8324	64.9024	0.0249

MXB-P SIZE	WEIGHT				INERTIA			
	CARRIER ASSEMBLY	BELT TENSIONER ASSEMBLY	BASE ACTUATOR	PER in OF STROKE	DRIVE/IDLE PULLEY ASSEMBLIES	CARRIER ASSEMBLY (INCLUDING BELT TENSIONER ASSEMBLY)		PER in OF STROKE
	lb	lb	lb	lb/in	lb-in ²	SINGLE CARRIER	AUX. CARRIER OPT.	lb-in ²
16	0.39	0.10	2.38	0.102	0.0085	0.0688	0.1235	0.0005
25	0.84	0.15	4.36	0.195	0.0259	0.2493	0.4616	0.0017
32	1.64	0.30	7.83	0.318	0.1416	0.7597	1.4035	0.0037
40	2.51	0.46	14.07	0.537	0.3719	1.6791	3.1007	0.0065
50	5.03	0.72	20.84	0.749	0.7243	4.4224	8.2889	0.0117
63	9.36	0.83	37.24	1.110	1.9512	11.5611	22.1783	0.0216

MAXIMUM VELOCITY **U** 5080 mm/sec 200 in/sec

MAXIMUM VELOCITY **S** 2540 mm/sec 100 in/sec

MAXIMUM VELOCITY **P** 3810 mm/sec 150 in/sec

MAXIMUM ACCELERATION 30.48 m/sec² 1200 in/sec²

REPEATABILITY ± 0.051 mm ± 0.002 in

TEMPERATURE RANGE -12 to 54 °C 10 to 130 °F

! 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 the factory.

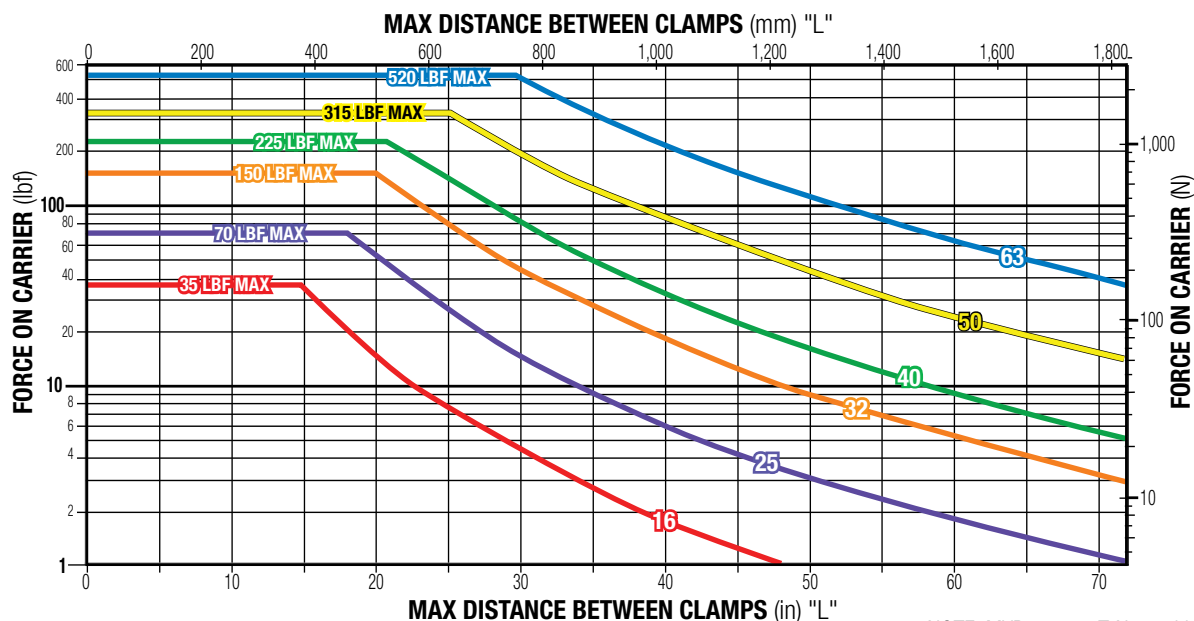
STRAIGHTNESS, FLATNESS 0.01702 L mm 0.00067 L in
Actuator mounted on a flat surface and fully restrained (see Mounting Plate Requirements, page MXB_11) L = Maximum distance between supports

! The listed values relating to straightness/flatness are intended for reference purposes only, and not as an engineering standard of absolute tolerance for a given actuator. Appropriate installation is the single most important factor in reducing variation, so good engineering practices such as measurement, mapping, etc. must be employed in applications with stringent straightness/flatness requirements.

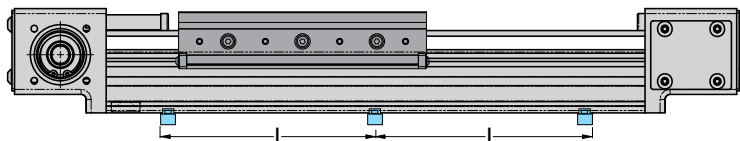


S & P TUBE CLAMP REQUIREMENTS

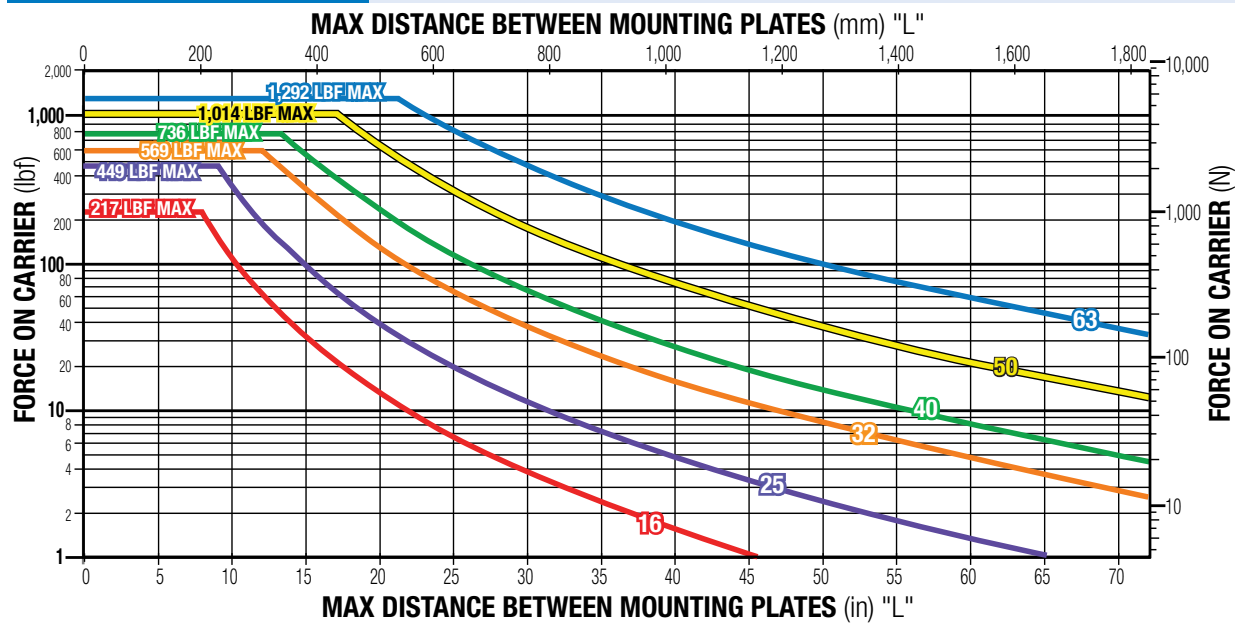
S SOLID BEARING



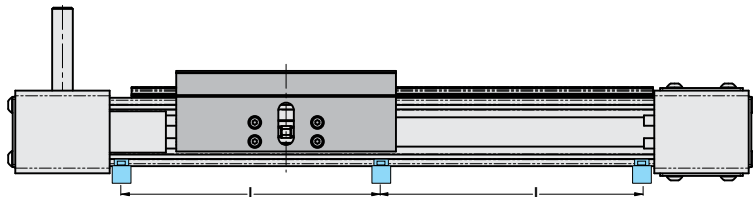
NOTE: MXB16 uses T-Nuts with mounting plates



P PROFILE RAIL BEARING



NOTE: MXB16 uses T-Nuts with mounting plates



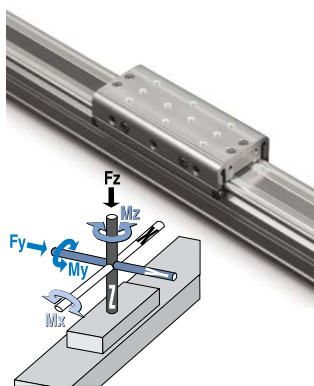
MXB-S Rodless Belt Drive Actuators

sizeit.tolomatic.com for fast, accurate actuator selection



S SOLID BEARING MOMENT AND LOAD CAPACITY

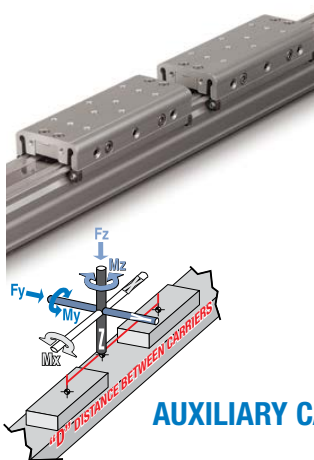
STANDARD CARRIER



SIZE	MAX. BENDING MOMENTS			MAX. LOAD
	Mx	My	Mz	Fz
	N-m	N-m	N-m	N
16	2.5	2.1	2.8	156
25	6.8	12.4	3.8	311
32	11.3	39.5	15.8	667
40	31.1	67.8	24.9	1,001
50	35.6	131.0	38.5	1,401
63	66.1	264.0	58.8	2,313

SIZE	MAX. BENDING MOMENTS			MAX. LOAD
	Mx	My	Mz	Fz
	in-lbs	in-lbs	in-lbs	lbf
16	22	19	25	35
25	60	110	34	70
32	100	350	140	150
40	275	600	220	225
50	315	1,155	341	315
63	585	2,340	520	520

AUXILIARY CARRIER

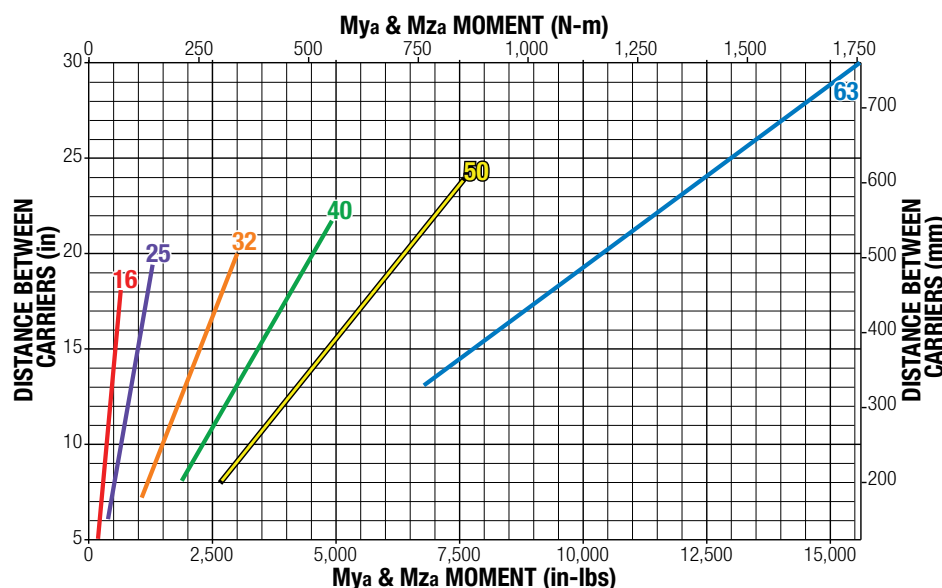


SIZE	"D" MIN. mm	MAX. BENDING MOMENTS*			MAX. LOAD
		Mxa	Mya	Mza	Fza
		N-m	N-m	N-m	N
16	127	5.0	19.8	19.8	311
25	152	13.6	47.5	47.5	623
32	178	22.6	119.0	119.0	1,334
40	216	62.1	216.0	216.0	2,002
50	218	71.2	306.0	306.0	2,802
63	330	132.0	764.0	764.0	4,626

SIZE	"D" MIN. in	MAX. BENDING MOMENTS*			MAX. LOAD
		Mxa	Mya	Mza	Fza
		in-lbs	in-lbs	in-lbs	lbf
16	5.0	44	175	175	70
25	6.0	120	420	420	140
32	7.0	200	1,050	1,050	300
40	8.5	550	1,913	1,913	450
50	8.6	630	2,709	2,709	630
63	13.0	1,170	6,760	6,760	1,040

*At minimum "D" distance see graph below for complete information

AUXILIARY CARRIER BENDING MOMENTS WITH INCREASED "D" DISTANCE BETWEEN CARRIERS



Ratings were calculated with the following conditions:

- 1.) Coupling between carriers is rigid.
- 2.) Load is equally distributed between carriers.
- 3.) Coupling device applies no misalignment loads to carriers.



The above ratings are the maximum values for shock-free, vibration-free operation in a typical industrial environment, which must not be exceeded even in dynamic operation. Contact Tolomatic for assistance in selecting the most appropriate actuator for your application.

The moment and load capacity of the actuator bearing system is based on an L10 life of 5,000 linear km (2×10^8 in) of travel. Life of the actuator will vary for each application depending on the combined loads, motion parameters and operating conditions. The load factor (L_F) for each application must not exceed a value of 1, as calculated below. Exceeding a load factor of 1 will diminish the actuator rated life.

$$L_F = \frac{M_x}{M_{x_{max}}} + \frac{M_y}{M_{y_{max}}} + \frac{M_z}{M_{z_{max}}} + \frac{F_y}{F_{y_{max}}} + \frac{F_z}{F_{z_{max}}} \leq 1$$

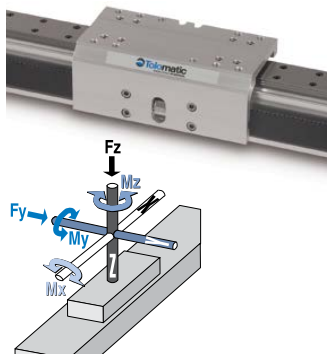
With combined loads, L_F must not exceed the value 1.

MXB-P Rodless Belt Drive Actuators

PROFILED RAIL BEARING MOMENT AND LOAD CAPACITY

⚠ Mating surface of mounted component must maintain a flatness of at least 0.040 mm [0.0015"]

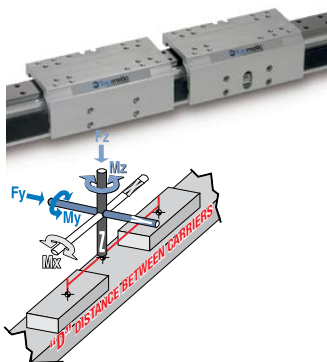
STANDARD CARRIER



SIZE	MAX. BENDING MOMENTS			MAX. LOAD	MAX. THRUST
	Mx	My	Mz	Fy & Fz	
	N-m	N-m	N-m	N	N
16	4.5	38.3	38.3	966	169
25	14.3	56.7	42.6	1,996	672
32	25.6	152.0	152.0	2,531	930
40	68.2	216.0	216.0	3,274	1,112
50	91.7	394.0	394.0	4,510	1,446
63	115.0	603.0	603.0	5,745	1,859

SIZE	MAX. BENDING MOMENTS			MAX. LOAD	MAX. THRUST
	Mx	My	Mz	Fy & Fz	
	in-lbs	in-lbs	in-lbs	lbf	lbf
16	39	339	339	217	38
25	126	502	377	449	151
32	226	1,344	1,344	569	209
40	604	1,913	1,913	736	250
50	811	3,483	3,483	1,014	325
63	1,019	5,339	5,339	1,292	418

AUXILIARY CARRIER



SIZE	"D" MIN.	MAX. BENDING MOMENTS			MAX. LOAD
	mm	Mxa	Mya	Mza	Fya & Fza
		N-m	N-m	N-m	N
16	127	8.9	70.0	70.0	1,932
25	152	28.5	182	182	3,993
32	178	51.1	249	249	5,063
40	216	136.0	407	407	6,549
50	218	183.0	561	561	9,020
63	330	230.0	1,074	1,074	11,490

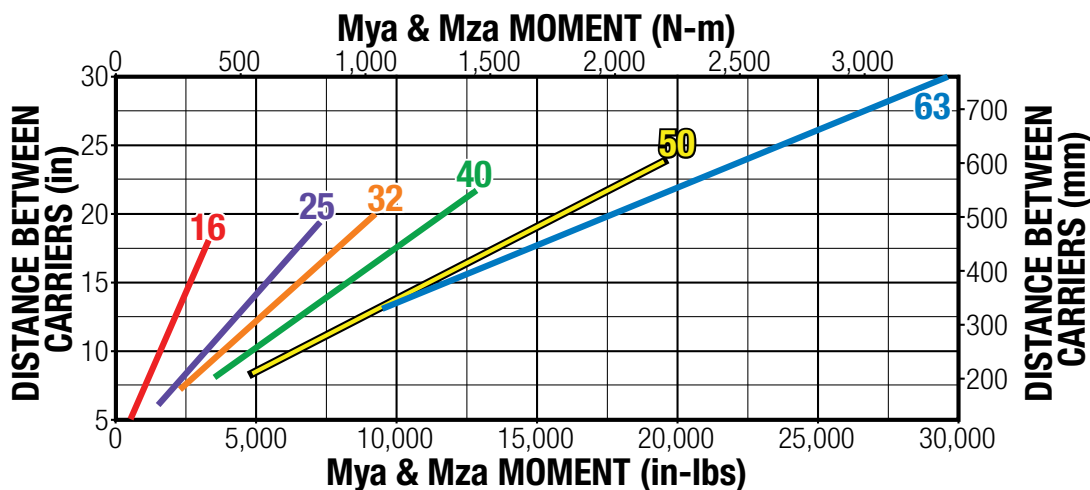
SIZE	"D" MIN.	MAX. BENDING MOMENTS			MAX. LOAD
	in	Mxa	Mya	Mza	Fya & Fza
		in-lbs	in-lbs	in-lbs	lbf
16	5.0	79	620	620	434
25	6.0	252	1,610	1,610	898
32	7.0	453	2,202	2,202	1,138
40	8.5	1,208	3,601	3,601	1,472
50	8.6	1,623	4,966	4,966	2,028
63	13.0	2,038	9,508	9,508	2,583

*At minimum "D" distance - see graph below for bending moments at greater distances

AUXILIARY CARRIER BENDING MOMENTS WITH INCREASED "D" DISTANCE BETWEEN CARRIERS

Ratings were calculated with the following conditions:

- 1.) Coupling between carriers is rigid.
- 2.) Load is equally distributed between carriers.
- 3.) Coupling device applies no misalignment loads to carriers.



⚠ The above ratings are the maximum values for shock-free, vibration-free operation in a typical industrial environment, which must not be exceeded even in dynamic operation. Contact Tolomatic for assistance in selecting the most appropriate actuator for your application.

The moment and load capacity of the actuator bearing system is based on an L10 life of 5,000 linear km (2x10⁸ in) of travel. Life of the actuator will vary for each application depending on the combined loads, motion parameters and operating conditions. The load factor (L_F) for each application must not exceed a value of 1, as calculated below. Exceeding a load factor of 1 will diminish the actuator rated life.

$$L_F = \frac{M_x}{M_{x_{max}}} + \frac{M_y}{M_{y_{max}}} + \frac{M_z}{M_{z_{max}}} + \frac{F_y}{F_{y_{max}}} + \frac{F_z}{F_{z_{max}}} \leq 1$$

With combined loads, L_F must not exceed the value 1.

MXB-P Rodless Belt Drive Actuator

sizeit.tolomatic.com for fast, accurate actuator selection

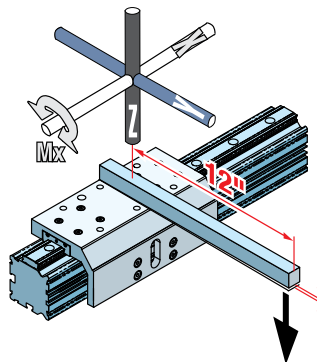
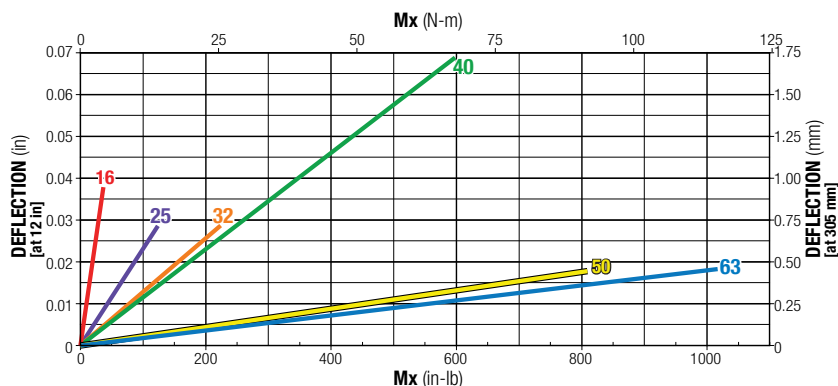


LOAD DEFLECTION

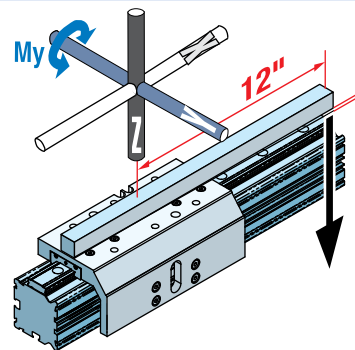
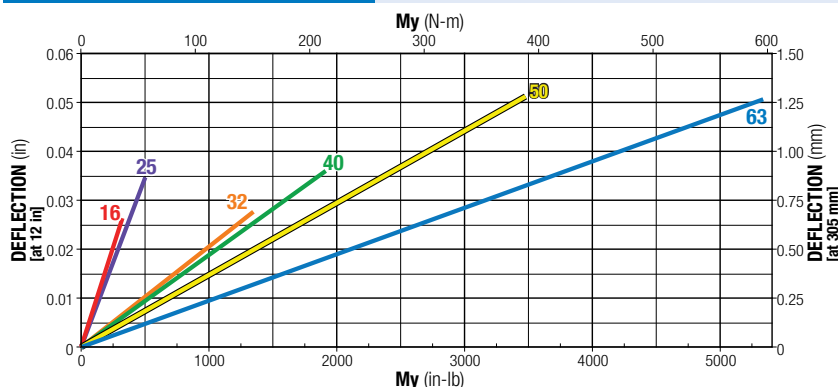
DEFLECTION TESTING WAS DONE UNDER THESE CRITERIA:

- 1.) Actuator was properly mounted with distance between mounting plates within recommendations
- 2.) Deflection was measured at 12" from center of carrier as shown (see Mounting Plate Requirements page me_11)

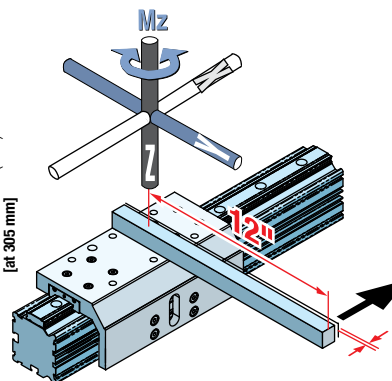
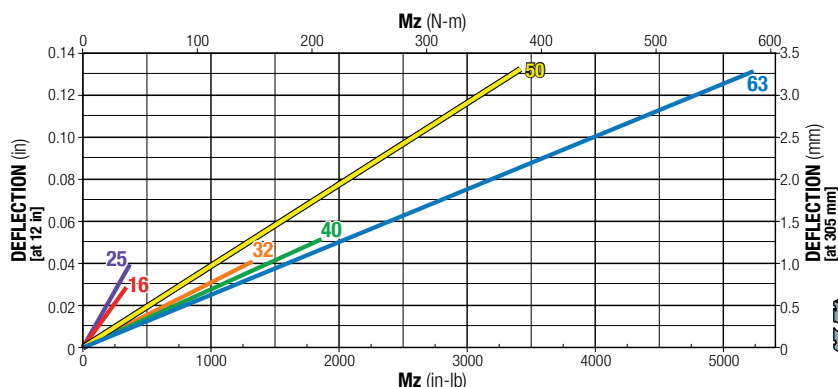
DEFLECTION ABOUT X AXIS



DEFLECTION ABOUT Y AXIS



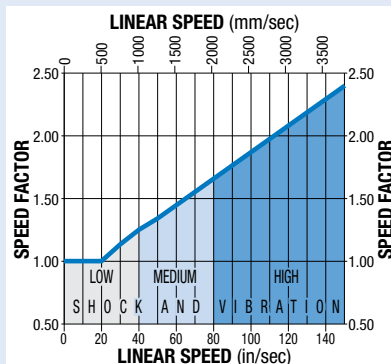
DEFLECTION ABOUT Z AXIS



SPEED FACTOR

FOR APPLICATIONS WITH HIGH SPEED OR SIGNIFICANT SHOCK AND VIBRATION:

Calculated values of loads and bending moments must be increased by speed factor from the graph at right to obtain full rated life of profiled rail bearing system.



PROFILLED RAIL LUBRICATION

Proper lubrication of profiled rail bearing system is essential for normal operation and achievement of full rated life of MX-P actuators. Lubrication should be performed at intervals of 101 km (4x10⁶ in) of travel or once every year, whichever occurs first. **However, operating conditions such as high speed or significant shock and vibration may require more frequent lubrication.** Please consult Tolomatic for recommendations.

Recommended grease types:

1. Refined mineral oil-based multi-purpose grease with lithium thickening agent.
2. High-grade synthetic oil-based grease with urea thickening agent.

ACTUATOR & OPTION DIMENSIONS

tolomatic.com/CAD Download 3D CAD
Always use CAD solid model to determine critical dimensions



	MXB16	MXB25	MXB32	MXB40	MXB50	MXB63
A	135.3	173.9	187.8	216.6	224.7	275.1
B	119.0	139.3	154.7	192.7	205.0	262.1
C	50.8	58.0	55.9	78.7	82.6	96.1
D	25.4	29.0	25.4	39.4	40.0	45.3
E	3.8	4.4	4.4	4.4	4.4	4.4
F	52.8	66.0	77.5	93.8	110.6	139.3
G*	45.3	61.9	77.4	88.3	109.6	135.5
H	44.5	50.8	69.9	82.6	98.4	111.1
(LM)J	15.0	57.7	57.7	47.5	47.5	47.5
(RP)J	46.6	57.7	57.7	47.5	47.5	47.5
K	09.53	012.70	012.70	012.70	012.70	012.70
L	26.4	29.2	27.9	39.7	41.5	52.2
N	34.9	54.0	63.5	88.9	95.3	114.3
O	110.0	135.0	170.0	200.0	216.0	304.8
P	40.0	40.0	27.1	25.4	25.4	40.0
Q	-	-	87.7	114.3	69.8	130.0
S	28.0	40.0	50.0	72.0	79.4	98.3
T	M4x0.7	M6x1.0	M8x1.25	M8x1.25	M8x1.25	M10x1.5
U*	17.5	27.0	31.8	44.5	47.7	57.2
V	30.00	42.00	55.37	64.00	78.74	100.00

OPTIONAL MOUNTING PLATES

AA	15.9	15.9	19.1	25.4	31.8	25.4
BB	6.4	6.4	7.6	—	—	—
CC	68.7	81.9	96.5	119.4	119.4	164.6
DD	60.9	77.7	95.2	106.1	127.4	161.0
EE	60.0	63.5	86.4	127.0	142.2	203.2
FF	44.5	50.8	59.9	112.0	127.0	177.8
GG	25.4	25.4	25.4	20.1	20.1	25.4
HH	05.6 THRU 07.1 THRU 08.7 THRU 10.3 THRU 11.9 THRU 13.5 THRU 15.1 THRU 16.7 THRU 18.3 THRU 19.9 THRU 21.5 THRU 23.1 THRU 24.7 THRU 26.3 THRU 27.9 THRU 29.5 THRU 31.1 THRU 32.7 THRU 34.3 THRU 35.9 THRU 37.5 THRU 39.1 THRU 40.7 THRU 42.3 THRU 43.9 THRU 45.5 THRU 47.1 THRU 48.7 THRU 50.3 THRU 51.9 THRU 53.5 THRU 55.1 THRU 56.7 THRU 58.3 THRU 59.9 THRU 61.5 THRU 63.1 THRU 64.7 THRU 66.3 THRU 67.9 THRU 69.5 THRU 71.1 THRU 72.7 THRU 74.3 THRU 75.9 THRU 77.5 THRU 79.1 THRU 80.7 THRU 82.3 THRU 83.9 THRU 85.5 THRU 87.1 THRU 88.7 THRU 90.3 THRU 91.9 THRU 93.5 THRU 95.1 THRU 96.7 THRU 98.3 THRU 99.9 THRU 101.5 THRU 103.1 THRU 104.7 THRU 106.3 THRU 107.9 THRU 109.5 THRU 111.1 THRU 112.7 THRU 114.3 THRU 115.9 THRU 117.5 THRU 119.1 THRU 120.7 THRU 122.3 THRU 123.9 THRU 125.5 THRU 127.1 THRU 128.7 THRU 130.3 THRU 131.9 THRU 133.5 THRU 135.1 THRU 136.7 THRU 138.3 THRU 139.9 THRU 141.5 THRU 143.1 THRU 144.7 THRU 146.3 THRU 147.9 THRU 149.5 THRU 151.1 THRU 152.7 THRU 154.3 THRU 155.9 THRU 157.5 THRU 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741.5 THRU 743.1 THRU 744.7 THRU 746.3 THRU 747.9 THRU 749.5 THRU 751.1 THRU 752.7 THRU 754.3 THRU 755.9 THRU 757.5 THRU 759.1 THRU 760.7 THRU 762.3 THRU 763.9 THRU 765.5 THRU 767.1 THRU 768.7 THRU 770.3 THRU 771.9 THRU 773.5 THRU 775.1 THRU 776.7 THRU 778.3 THRU 779.9 THRU 781.5 THRU 783.1 THRU 784.7 THRU 786.3 THRU 787.9 THRU 789.5 THRU 791.1 THRU 792.7 THRU 794.3 THRU 795.9 THRU 797.5 THRU 799.1 THRU 800.7 THRU 802.3 THRU 803.9 THRU 805.5 THRU 807.1 THRU 808.7 THRU 810.3 THRU 811.9 THRU 813.5 THRU 815.1 THRU 816.7 THRU 818.3 THRU 819.9 THRU 821.5 THRU 823.1 THRU 824.7 THRU 826.3 THRU 827.9 THRU 829.5 THRU 831.1 THRU 832.7 THRU 834.3 THRU 835.9 THRU 837.5 THRU 839.1 THRU 840.7 THRU 842.3 THRU 843.9 THRU 845.5 THRU 847.1 THRU 848.7 THRU 850.3 THRU 851.9 THRU 853.5 THRU 855.1 THRU 856.7 THRU 858.3 THRU 859.9 THRU 861.5 THRU 863.1 THRU 864.7 THRU 866.3 THRU 867.9 THRU 869.5 THRU 871.1 THRU 872.7 THRU 874.3 THRU 875.9 THRU 877.5 THRU 879.1 THRU 880.7 THRU 882.3 THRU 883.9 THRU 885.5 THRU 887.1 THRU 888.7 THRU 890.3 THRU 891.9 THRU 893.5 THRU 895.1 THRU 896.7 THRU 898.3 THRU 899.9 THRU 901.5 THRU 903.1 THRU 904.7 THRU 906.3 THRU 907.9 THRU 909.5 THRU 911.1 THRU 912.7 THRU 914.3 THRU 915.9 THRU 917.5 THRU 919.1 THRU 920.7 THRU 922.3 THRU 923.9 THRU 925.5 THRU 927.1 THRU 928.7 THRU 930.3 THRU 931.9 THRU 933.5 THRU 935.1 THRU 936.7 THRU 938.3 THRU 939.9 THRU 941.5 THRU 943.1 THRU 944.7 THRU 946.3 THRU 947.9 THRU 949.5 THRU 951.1 THRU 952.7 THRU 954.3 THRU 955.9 THRU 957.5 THRU 959.1 THRU 960.7 THRU 962.3 THRU 963.9 THRU 965.5 THRU 967.1 THRU 968.7 THRU 970.3 THRU 971.9 THRU 973.5 THRU 975.1 THRU 976.7 THRU 978.3 THRU 979.9 THRU 981.5 THRU 983.1 THRU 984.7 THRU 986.3 THRU 987.9 THRU 989.5 THRU 991.1 THRU 992.7 THRU 994.3 THRU 995.9 THRU 997.5 THRU 999.1 THRU 1000.7 THRU 1002.3 THRU 1003.9 THRU 1005.5 THRU 1007.1 THRU 1008.7 THRU 1010.3 THRU 1011.9 THRU 1013.5 THRU 1015.1 THRU 1016.7 THRU 1018.3 THRU 1019.9 THRU 1021.5 THRU 1023.1 THRU 1024.7 THRU 1026.3 THRU 1027.9 THRU 1029.5 THRU 1031.1 THRU 1032.7 THRU 1034.3 THRU 1035.9 THRU 1037.5 THRU 1039.1 THRU 1040.7 THRU 1042.3 THRU 1043.9 THRU 1045.5 THRU 1047.1 THRU 1048.7 THRU 1050.3 THRU 1051.9 THRU 1053.5 THRU 1055.1 THRU 1056.7 THRU 1058.3 THRU 1059.9 THRU 1061.5 THRU 1063.1 THRU 1064.7 THRU 1066.3 THRU 1067.9 THRU 1069.5 THRU 1071.1 THRU 1072.7 THRU 1074.3 THRU 1075.9 THRU 1077.5 THRU 1079.1 THRU 1080.7 THRU 1082.3 THRU 1083.9 THRU 1085.5 THRU 1087.1 THRU 1088.7 THRU 1090.3 THRU 1091.9 THRU 1093.5 THRU 1095.1 THRU 1096.7 THRU 1098.3 THRU 1099.9 THRU 1101.5 THRU 1103.1 THRU 1104.7 THRU 1106.3 THRU 1107.9 THRU 1109.5 THRU 1111.1 THRU 1112.7 THRU 1114.3 THRU 1115.9 THRU 1117.5 THRU 1119.1 THRU 1120.7 THRU 1122.3 THRU 1123.9 THRU 1125.5 THRU 1127.1 THRU 1128.7 THRU 1130.3 THRU 1131.9 THRU 1133.5 THRU 1135.1 THRU 1136.7 THRU 1138.3 THRU 1139.9 THRU 1141.5 THRU 1143.1 THRU 1144.7 THRU 1146.3 THRU 1147.9 THRU 1149.5 THRU 1151.1 THRU 1152.7 THRU 1154.3 THRU 1155.9 THRU 1157.5 THRU 1159.1 THRU 1160.7 THRU 1162.3 THRU 1163.9 THRU 1165.5 THRU 1167.1 THRU 1168.7 THRU 1170.3 THRU 1171.9 THRU 1173.5 THRU 1175.1 THRU 1176.7 THRU 1178.3 THRU 1179.9 THRU 1181.5 THRU 1183.1 THRU 1184.7 THRU 1186.3 THRU 1187.9 THRU 1189.5 THRU 1191.1 THRU 1192.7 THRU 1194.3 THRU 1195.9 THRU 1197.5 THRU 1199.1 THRU 1200.7 THRU 1202.3 THRU 1203.9 THRU 1205.5 THRU 1207.1 THRU 1208.7 THRU 1210.3 THRU 1211.9 THRU 1213.5 THRU 1215.1 THRU 1216.7 THRU 1218.3 THRU 1219.9 THRU 1221.5 THRU 1223.1 THRU 1224.7 THRU 1226.3 THRU 1227.9 THRU 1229.5 THRU 1231.1 THRU 1232.7 THRU 1234.3 THRU 1235.9 THRU 1237.5 THRU 1239.1 THRU 1240.7 THRU 1242.3 THRU 1243.9 THRU 1245.5 THRU 1247.1 THRU 1248.7 THRU 1250.3 THRU 1251.9 THRU 1253.5 THRU 1255.1 THRU 1256.7 THRU 1258.3 THRU 1259.9 THRU 1261.5 THRU 1263.1 THRU 1264.7 THRU 1266.3 THRU 1267.9 THRU 1269.5 THRU 1271.1 THRU 1272.7 THRU 1274.3 THRU 1275.9 THRU 1277.5 THRU 1279.1 THRU 1280.7 THRU 1282.3 THRU 1283.9 THRU 1285.5 THRU 1287.1 THRU 1288.7 THRU 1290.3 THRU 1291.9 THRU 1293.5 THRU 1295.1 THRU 1296.7 THRU 1298.3 THRU 1299.9 THRU 1301.5 THRU 1303.1 THRU 1304.7 THRU 1306.3 THRU 1307.9 THRU 1309.5 THRU 1311.1 THRU 1312.7 THRU 1314.3 THRU 1315.9 THRU 1317.5 THRU 1319.1 THRU 1320.7 THRU 1322.3 THRU 1323.9 THRU 1325.5 THRU 1327.1 THRU 1328.7 THRU 1330.3 THRU 1331.9 THRU 1333.5 THRU 1335.1 THRU 1336.7 THRU 1338.3 THRU 1339.9 THRU 1341.5 THRU 1343.1 THRU 1344.7 THRU 1346.3 THRU 1347.9 THRU 1349.5 THRU 1351.1 THRU 1352.7 THRU 1354.3 THRU 1355.9 THRU 1357.5 THRU 1359.1 THRU 1360.7 THRU 1362.3 THRU 1363.9 THRU 1365.5 THRU 1367.1 THRU 1368.7 THRU 1370.3 THRU 1371.9 THRU 1373.5 THRU 1375.1 THRU 1376.7 THRU 1378.3 THRU 1379.9 THRU 1381.5 THRU 1383.1 THRU 1384.7 THRU 1386.3 THRU 1387.9 THRU 1389.5 THRU 1391.1 THRU 1392.7 THRU 1394.3 THRU 1395.9 THRU 1397.5 THRU 1399.1 THRU 1400.7 THRU 1402.3 THRU 1403.9 THRU 1405.5 THRU 1407.1 THRU 1408.7 THRU 1410.3 THRU 1411.9 THRU 1413.5 THRU 1415.1 THRU 1416.7 THRU 1418.3 THRU 1419.9 THRU 1421.5 THRU 1423.1 THRU 1424.7 THRU 1426.3 THRU 1427.9 THRU 1429.5 THRU 1431.1 THRU 1432.7 THRU 1434.3 THRU 1435.9 THRU 1437.5 THRU 1439.1 THRU 1440.7 THRU 1442.3 THRU 1443.9 THRU 1445.5 THRU 1447.1 THRU 1448.7 THRU 1450.3 THRU 1451.9 THRU 1453.5 THRU 1455.1 THRU 1456.7 THRU 1458.3 THRU 1459.9 THRU 1461.5 THRU 1463.1 THRU 1464.7 THRU 1466.3 THRU 1467.9 THRU 1469.5 THRU 1471.1 THRU 1472.7 THRU 1474.3 THRU 1475.9 THRU 1477.5 THRU 1479.1 THRU 1480.7 THRU 1482.3 THRU 1483.9 THRU 1485.5 THRU 1487.1 THRU 1488.7 THRU 1490.3 THRU 1491.9 THRU 1493.5 THRU 1495.1 THRU 1496.7 THRU 1498.3 THRU 1499.9 THRU 1501.5 THRU 1503.1 THRU 1504.7 THRU 1506.3 THRU 1507.9 THRU 1509.5 THRU 1511.1 THRU 1512.7 THRU 1514.3 THRU 1515.9 THRU 1517.5 THRU 1519.1 THRU 1520.7 THRU 1522.3 THRU 1523.9 THRU 1525.5 THRU 1527.1 THRU 1528.7 THRU 1530.3 THRU 1531.9 THRU 1533.5 THRU 1535.1 THRU 1536.7 THRU 1538.3 THRU 1539.9 THRU 1541.5 THRU 1543.1 THRU 1544.7 THRU 1546.3 THRU 1547.9 THRU 1549.5 THRU 1551.1 THRU 1552.7 THRU 1554.3 THRU 1555.9 THRU 1557.5 THRU 1559.1 THRU 1560.7 THRU 1562.3 THRU 1563.9 THRU 1565.5 THRU 1567.1 THRU 1568.7 THRU 1570.3 THRU 1571.9 THRU 1573.5 THRU 1575.1 THRU 1576.7 THRU 1578.3 THRU 1579.9 THRU 1581.5 THRU 1583.1 THRU 1584.7 THRU 1586.3 THRU 1587.9 THRU 1589.5 THRU 1591.1 THRU 1592.7 THRU 1594.3 THRU 1595.9 THRU 1597.5 THRU 1599.1 THRU 1600.7 THRU 1602.3 THRU 1603.9 THRU 1605.5 THRU 1607.1 THRU 1608.7 THRU 1610.3 THRU 1611.9 THRU 1613.5 THRU 1615.1 THRU 1616.7 THRU 1618.3 THRU 1619.9 THRU 1621.5 THRU 1623.1 THRU 1624.7 THRU 1626.3 THRU 1627.9 THRU 1629.5 THRU 1631.1 THRU 1632.7 THRU 1634.3 THRU 1635.9 THRU 1637.5 THRU 1639.1 THRU 1640.7 THRU 1642.3 THRU 1643.9 THRU 1645.5 THRU 1647.1 THRU 1648.7 THRU 1650.3 THRU 1651.9 THRU 1653.5 THRU 1655.1 THRU 1656.7 THRU 1658.3 THRU 1659.9 THRU 1661.5 THRU 1663.1 THRU 1664.7 THRU 1666.3 THRU 1667.9 THRU 1669.5 THRU 1671.1 THRU 1672.7 THRU 1674.3 THRU 1675.9 THRU 1677.5 THRU 1679.1 THRU 1680.7 THRU 1682.3 THRU 1683.9 THRU 1685.5 THRU 1687.1 THRU 1688.7 THRU 1690.3 THRU 1691.9 THRU 1693.5 THRU 1695.1 THRU 1696.7 THRU 1698.3 THRU 1699.9 THRU 1701.5 THRU 1703.1 THRU 1704.7 THRU 1706.3 THRU 1707.9 THRU 1709.5 THRU 1711.1 THRU 1712.7 THRU 1714.3 THRU 1715.9 THRU 1717.5 THRU 1719.1 THRU 1720.7 THRU 1722.3 THRU 1723.9 THRU 1725.5 THRU 1727.1 THRU 1728.7 THRU 1730.3 THRU 1731.9 THRU 1733.5 THRU 1735.1 THRU 1736.7 THRU 1738.3 THRU 1739.9 THRU 1741.5 THRU 1743.1 THRU 1744.7 THRU 1746.3 THRU 1747.9 THRU 1749.5 THRU 1751.1 THRU 1752.7 THRU 1754.3 THRU 1755.9 THRU 1757.5 THRU 1759.1 THRU 1760.7 THRU 1762.3 THRU 1763.9 THRU 1765.5 THRU 1767.1 THRU 1768.7 THRU 1770.3 THRU 1771.9 THRU 1773.5 THRU 1775.1 THRU 1776.7 THRU 1778.3 THRU 1779.9 THRU 1781.5 THRU 1783.1 THRU 1784.7 THRU 1786.3 THRU 1787.9 THRU 1789.5 THRU 1791.1 THRU 1792.7 THRU 1794.3 THRU 1795.9 THRU 1797.5 THRU 1799.1 THRU 1800.7 THRU 1802.3 THRU 1803.9 THRU 1805.5 THRU 1807.1 THRU 1808.7 THRU 1810.3 THRU 1811.9 THRU 1813.5 THRU 1815.1 THRU 1816.7 THRU 1818.3 THRU 1819.9 THRU 1821.5 THRU 1823.1 THRU 1824.7 THRU 1826.3 THRU 1827.9 THRU 1829.5 THRU 1831.1 THRU 1832.7 THRU 1834.3 THRU 1835.9 THRU 1837.5 THRU 1839.1 THRU 1840.7 THRU 1842.3 THRU 1843.9 THRU 1845.5 THRU 1847.1 THRU 1848.7 THRU 1850.3 THRU 1851.9 THRU 1853.5 THRU 1855.1 THRU 1856.7 THRU 1858.3 THRU 1859.9 THRU 1861.5 THRU 1863.1 THRU 1864.7 THRU 1866.3 THRU 1867.9 THRU 1869.5 THRU 1871.1 THRU 1872.7 THRU 1874.3 THRU 1875.9 THRU 1877.5 THRU 1879.1 THRU 1880.7 THRU 1882.3 THRU 1883.9 THRU 1885.5 THRU 1887.1 THRU 1888.7 THRU 1890.3 THRU 1891.9 THRU 1893.5 THRU 1895.1 THRU 1896.7 THRU 1898.3 THRU 1899.9 THRU 1901.5 THRU 1903.1 THRU 1904.7 THRU 1906.3 THRU 1907.9 THRU 1909.5 THRU 1911.1 THRU 1912.7 THRU 1914.3 THRU 1915.9 THRU 1917.5 THRU 1919.1 THRU 1920.7 THRU 1922.3 THRU 1923.9 THRU 1925.5 THRU 1927.1 THRU 1928.7 THRU 1930.3 THRU 1931.9 THRU 1933.5 THRU 1935.1 THRU 1936.7 THRU 1938.3 THRU 1939.9 THRU 1941.5 THRU 1943.1 THRU 1944.7 THRU 1946.3 THRU 1947.9 THRU 1949.5 THRU 1951.1 THRU 1952.7 THRU 1954.3 THRU 1955.9 THRU 1957.5 THRU 1959.1 THRU 1960.7 THRU 1962.3 THRU 1963.9 THRU 1965.5 THRU 1967.1 THRU 1968.7 THRU 1970.3 THRU 1971.9 THRU 1973.5 THRU 1975.1 THRU 1976.7 THRU 1978.3 THRU 1979.9 THRU 1981.5 THRU 1983.1 THRU 1984.7 THRU 1986.3 THRU 1987.9 THRU 1989.5 THRU 1991.1 THRU 1992.7 THRU 1994.3 THRU 1995.9 THRU 1997.5 THRU 1999.1 THRU 2000.7 THRU 2002.3 THRU 2003.9 THRU 2005.5 THRU 2007.1 THRU 2008.7 THRU 2010.3 THRU 2011.9 THRU 2013.5 THRU 2015.1 THRU 2016.7 THRU 2018.3 THRU 2019.9 THRU 2021.5					

Dimensions in millimeters

	MXB16	MXB25	MXB32	MXB40	MXB50	MXB63
A	5.33	6.85	7.39	8.53	8.85	10.83
B	4.69	5.49	6.09	7.59	8.07	10.33
C	2.00	2.28	2.20	3.10	3.25	3.79
D	1.00	1.14	1.00	1.55	1.58	1.79
E	0.15	0.17	0.17	0.17	0.17	0.17
F	2.08	2.60	3.05	3.69	4.35	5.48
G*	1.77	2.44	3.05	3.48	4.31	5.34
H	1.75	2.00	2.75	3.25	3.88	4.38
(LM)J	0.59	2.27	2.27	1.87	1.87	1.87
(RP)J	1.83	2.27	2.27	1.87	1.87	1.87
K	0.375	0.500	0.500	0.500	0.500	0.500
L	1.04	1.15	1.10	1.56	1.63	2.06
N	1.38	2.13	2.50	3.50	3.75	4.50
O	4.33	5.31	6.69	7.87	8.50	12.00
P	1.57	1.57	1.07	1.00	1.00	1.57
Q	-	-	3.37	4.50	2.75	5.12
S	1.10	1.57	1.97	2.83	3.13	3.87
T	#8-32(6)	1/4-20(6)	5/16-18(8)	5/16-18(8)	5/16-18(8)	3/8-16(8)
U*	0.69	1.07	1.25	1.75	1.88	2.25
V	1.18	1.65	2.18	2.52	3.10	3.94

OPTIONAL MOUNTING PLATES

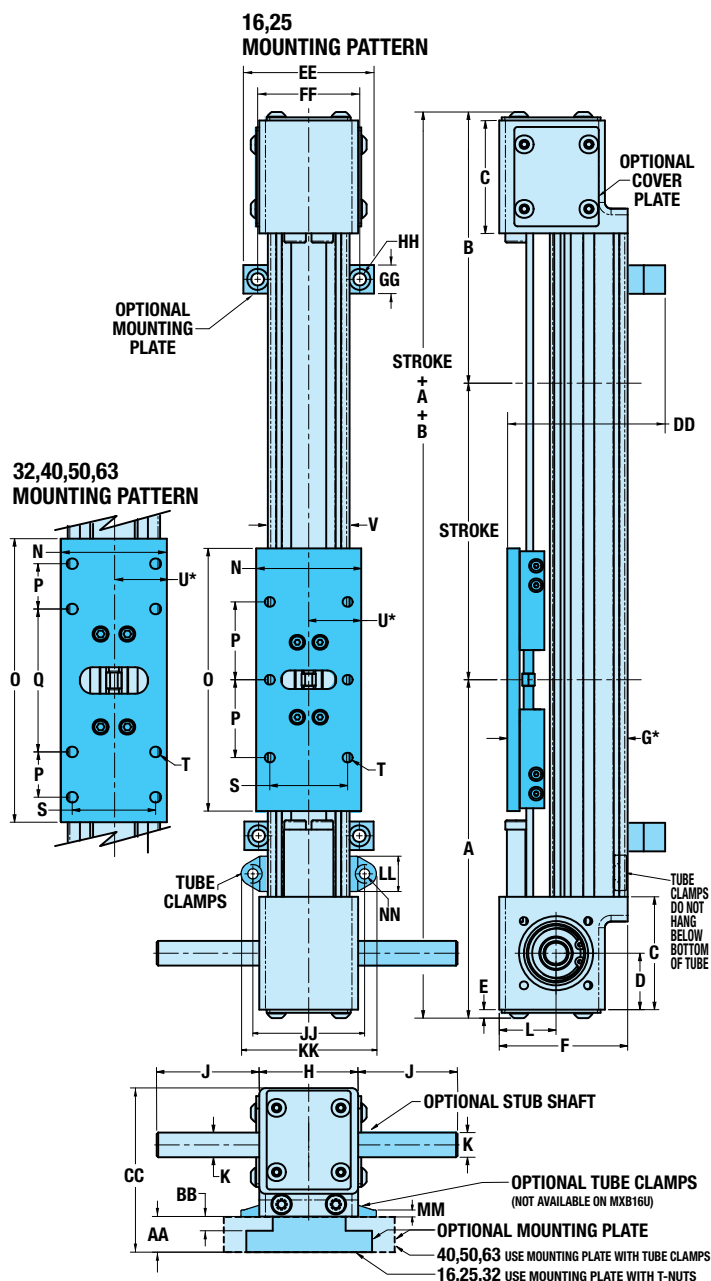
AA	0.63	0.63	0.75	1.00	1.25	1.00
BB	0.25	0.25	0.30	–	–	–
CC	2.71	3.22	3.80	4.70	5.60	6.48
DD	2.4	3.06	3.75	4.18	5.01	6.34
EE	2.36	2.50	3.40	5.00	5.60	8.00
FF	1.75	2.00	2.75	4.41	5.00	7.00
GG	1.00	1.00	1.00	0.79	0.79	1.00
HH	0.22 THRU ↓ 0.37 22 (2)	0.22 THRU ↓ 0.37 22 (2)	0.28 THRU ↓ 0.44 28 (2)	0.28 THRU (2)	0.28 THRU (2)	0.28 THRU (2)

Dimensions in inches

OPTIONAL TUBE CLAMPS

	MXB16	MXB25	MXB32	MXB40	MXB50	MXB63
JJ	-	57.0	74.1	82.7	97.5	131.7
KK	-	69.0	87.4	96.7	111.5	150.7
LL	-	18.0	16.0	14.0	14.0	19.0
MM	-	3.6	4.3	3.8	3.8	6.1
NN	-	5.2	7.1	7.1	7.1	10.7

Dimensions in millimeters



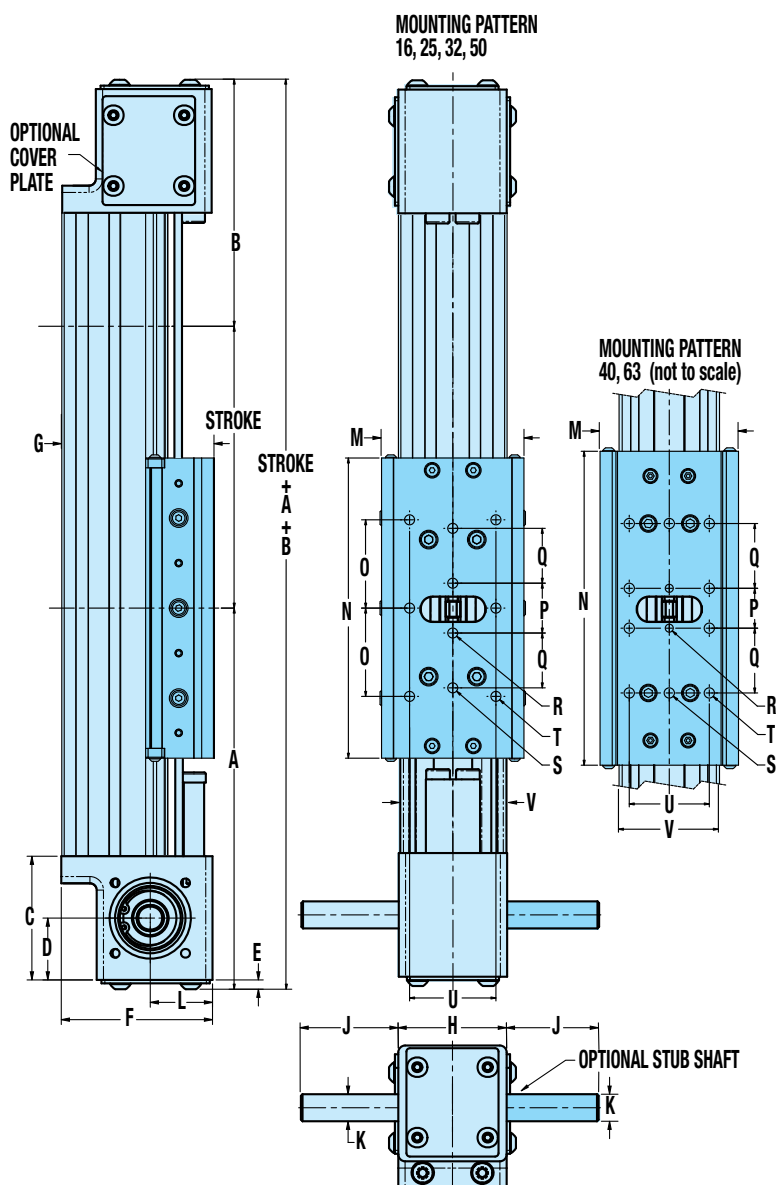
 In order for the actuator to operate properly, dimensions “G” and “U” must not vary more than 0.51mm [+0.020 in*] over the entire length of the stroke.

	MXB16	MXB25	MXB32	MXB40	MXB50	MXB63
JJ	-	2.24	2.92	3.26	3.84	5.19
KK	-	2.72	3.44	3.81	4.39	5.93
LL	-	0.71	0.63	0.55	0.55	0.75
MM	-	0.14	0.17	0.15	0.15	0.24
NN	-	0.20	0.28	0.28	0.28	0.42

Dimensions in inches

MXB-S Rodless Belt Drive Actuator

SOLID BEARING DIMENSIONS



	MXB16	MXB25	MXB32	MXB40	MXB50	MXB63
A	135.3	173.9	179.3	216.6	217.8	275.1
B	119.0	139.3	163.2	192.7	212.0	262.1
C	50.8	58.0	55.9	78.7	82.6	96.1
D	25.4	29.0	25.4	39.4	40.0	45.3
E	3.8	4.4	4.4	4.4	4.4	4.4
F	52.8	66.0	77.5	93.8	110.6	139.3
G*	45.8	58.4	77.8	89.2	112.8	139.7
H	44.5	50.8	69.9	82.6	98.4	111.1
(LMI) J	15.0	57.7	57.7	47.5	47.5	47.5
(RP) J	46.6	57.7	57.7	47.5	47.5	47.5
K	Ø9.53	Ø12.70	Ø12.70	Ø12.70	Ø12.70	Ø12.70
L	26.4	29.2	27.9	39.7	41.5	52.2
M	40.1	55.4	72.6	88.2	104.1	142
N	110.0	134.9	153	200	200.9	307.6
O	30	39.9	45	-	47.8	-
P	-	25.4	25.4	25.4	63.5	76.2
Q	-	27.2	28	41.3	31.8	38.1
R	-	M6x1.0 (2)	M8x1.25 (2)	M8x1.25 (2)	M10x1.5 (2)	M10x1.5 (2)
S	-	M6x1.0 (2)	M8x1.25 (2)	M8x1.25 (2)	M10x1.5 (2)	M10x1.5 (2)
T	M4x0.7 (6)	M6x1.0 (6)	M8x1.25 (6)	M8x1.25 (8)	M10x1.5 (6)	M10x1.5 (8)
U*	30.0	30.0	44.0	51.0	65.8	82.6
V	30.00	42.00	55.37	64.00	78.74	100.00

Dimensions in millimeters

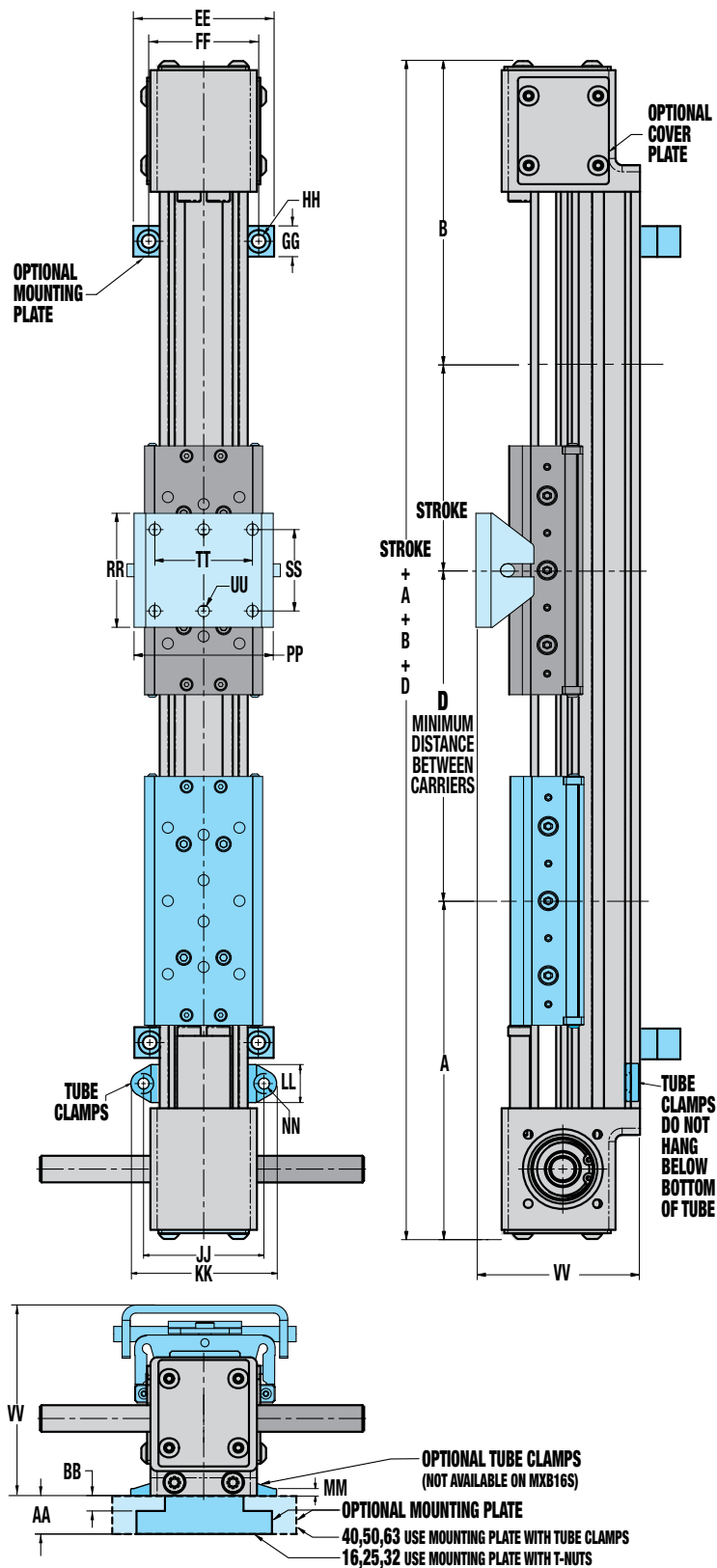
	MXB16	MXB25	MXB32	MXB40	MXB50	MXB63
A	5.33	6.85	7.06	8.53	8.57	10.83
B	4.69	5.49	6.43	7.59	8.34	10.33
C	2.00	2.28	2.20	3.10	3.25	3.79
D	1.00	1.14	1.00	1.55	1.58	1.79
E	0.15	0.17	0.17	0.17	0.17	0.17
F	2.08	2.60	3.05	3.69	4.35	5.48
G*	1.80	2.30	3.06	3.51	4.44	5.50
H	1.75	2.00	2.75	3.25	3.88	4.38
(LMI) J	0.59	2.27	2.27	1.87	1.87	1.87
(RP) J	1.83	2.27	2.27	1.87	1.87	1.87
K	Ø.375	Ø.500	Ø.500	Ø.500	Ø.500	Ø.500
L	1.04	1.15	1.10	1.56	1.63	2.06
M	1.58	2.18	2.86	3.47	4.1	5.59
N	4.33	5.31	6.02	7.87	7.91	12.11
O	1.18	1.57	1.77	-	1.88	-
P	-	1.00	1.00	1.00	2.50	3.00
Q	-	1.07	1.10	1.63	1.25	1.50
R	-	1/4-20 (2)	1/4-20 (2)	1/4-20 (2)	3/8-16 (2)	3/8-16 (2)
S	-	#10-32 (2)	1/4-20 (2)	5/16-18 (2)	3/8-16 (2)	3/8-16 (2)
T	#8-32 (6)	1/4-20 (6)	1/4-20 (6)	5/16-18 (8)	3/8-16 (6)	3/8-16 (8)
U*	1.18	1.18	1.73	2.00	2.59	3.25
V	1.18	1.65	2.18	2.52	3.10	3.94

Dimensions in inches

MXB-S Rodless Belt Drive Actuator

SOLID BEARING OPTION DIMENSIONS

tolomatic.com/CAD Download 3D CAD
Always use CAD solid model to determine
critical dimensions



	MXB16	MXB25	MXB32	MXB40	MXB50	MXB63
A	135.3	173.9	179.3	216.6	217.8	275.1
B	119.0	139.3	163.2	192.7	212.0	262.1
D	127.0	152.4	177.0	215.9	216.4	330.2

OPTIONAL MOUNTING PLATES

AA	15.9	15.9	19.1	25.4	31.8	25.4
BB	6.4	6.4	7.6	—	—	—
DD	60.9	77.7	95.2	106.1	127.4	153.3
EE	60.0	63.5	86.4	127.0	142.2	203.2
FF	44.5	50.8	59.9	112.0	127.0	177.8
GG	25.4	25.4	25.4	20.1	20.1	25.4
HH	Ø5.6 THRU └┐ Ø9.4 └┐ 5.6 (2)	Ø5.6 THRU └┐ Ø9.4 └┐ 5.6 (2)	Ø7.1 THRU └┐ Ø11.2 └┐ 7.1 (2)	Ø7.1 THRU (2)	Ø7.1 THRU (2)	Ø7.1 THRU (2)

OPTIONAL TUBE CLAMPS

JJ	—	57.0	74.1	82.7	97.5	131.7
KK	—	69.0	87.4	96.7	111.5	150.7
LL	—	18.0	16.0	14.0	14.0	19.0
MM	—	3.6	4.3	3.8	3.8	6.1
NN	—	5.2	7.1	7.1	7.1	10.7

OPTIONAL FLOATING MOUNT

PP	47.2	64.1	93.3	109.7	128.0	154.9
RR	24.9	31.8	70.1	100.0	100.0	127.0
SS	11.9	15.9	50.0	74.9	80.0	100.1
TT	—	—	—	55.1	—	70.1
UU	Ø4.6 (2)	Ø6.1 (2)	Ø7.1 (2)	Ø7.1 (4)	Ø9.1 (2)	Ø8.6 (4)
VV	58.5	70.9	93.3	108.2	133.1	156.8

Dimensions in millimeters

	MXB16	MXB25	MXB32	MXB40	MXB50	MXB63
A	5.33	6.85	7.06	8.53	8.57	10.83
B	4.69	5.49	6.43	7.59	8.34	10.33
D	5.00	6.00	7.00	8.50	8.60	13.00

OPTIONAL MOUNTING PLATES

AA	0.63	0.63	0.75	1.00	1.25	1.00
BB	0.25	0.25	0.30	—	—	—
DD	2.4	3.06	3.75	4.18	5.01	6.04
EE	2.36	2.50	3.40	5.00	5.60	8.00
FF	1.75	2.00	2.75	4.41	5.00	7.00
GG	1.00	1.00	1.00	0.79	0.79	1.00
HH	Ø.22 THRU └┐ Ø.37 └┐ .22 (2)	Ø.22 THRU └┐ Ø.37 └┐ .22 (2)	Ø.28 THRU └┐ Ø.44 └┐ .28 (2)	Ø.28 THRU (2)	Ø.28 THRU (2)	Ø.28 THRU (2)

OPTIONAL TUBE CLAMPS

JJ	—	2.24	2.92	3.26	3.84	5.19
KK	—	2.72	3.44	3.81	4.39	5.93
LL	—	0.71	0.63	0.55	0.55	0.75
MM	—	0.14	0.17	0.15	0.15	0.24
NN	—	0.20	0.28	0.28	0.28	0.42

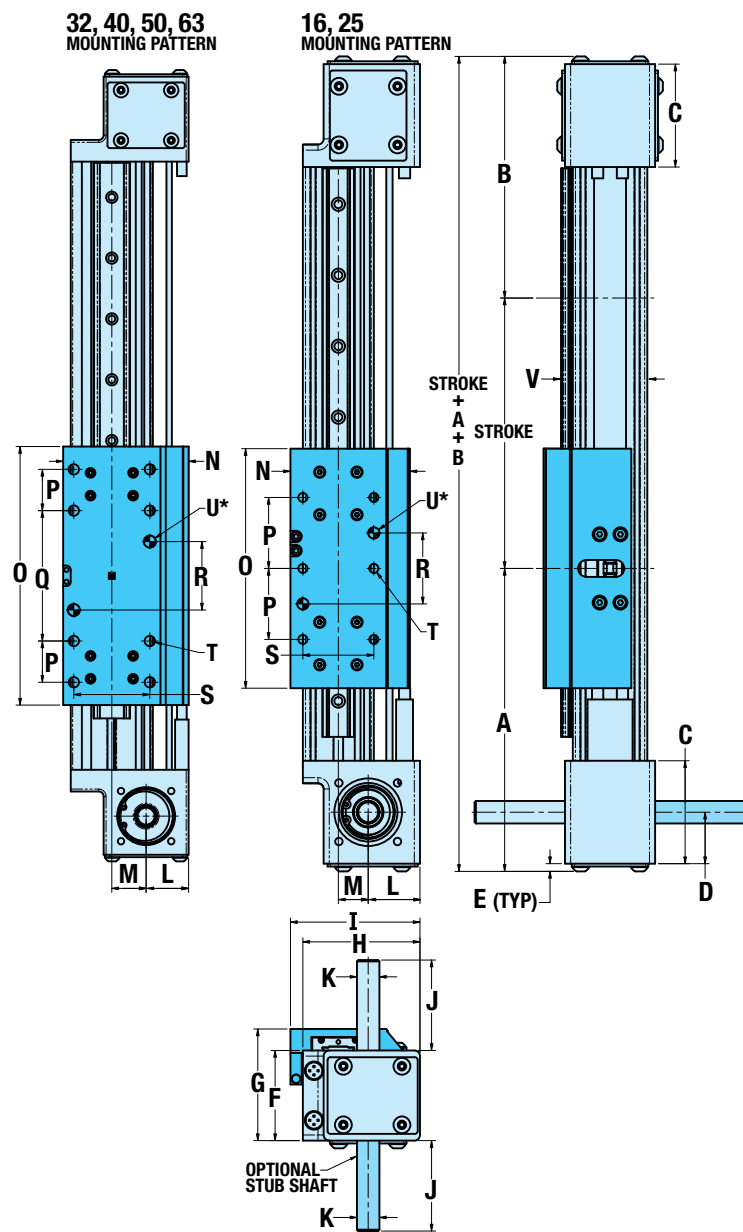
OPTIONAL FLOATING MOUNT

PP	1.86	2.52	3.37	4.32	5.04	6.10
RR	0.98	1.25	2.76	3.94	3.94	5.00
SS	0.47	0.63	1.97	2.95	3.15	3.94
TT	—	—	—	2.17	—	2.76
UU	Ø.18 (2)	Ø.24 (2)	Ø.28 (2)	Ø.28 (4)	Ø.36 (2)	Ø.34 (4)
VV	2.30	2.79	3.67	4.26	5.24	6.18

Dimensions in inches

MXB-P Rodless Belt Drive Actuator

PROFILED RAIL BEARING DIMENSIONS



	MXB16	MXB25	MXB32	MXB40	MXB50	MXB63
A	135.3	173.9	187.8	216.6	224.7	275.1
B	119.0	139.3	154.7	192.7	205.0	262.1
C	50.8	58.0	55.9	78.7	82.6	96.1
D	25.4	29.0	25.4	39.4	40.0	45.3
E	3.8	4.4	4.4	4.4	4.4	4.4
F	44.5	50.8	69.9	82.6	98.4	111.1
G	53.2	62.9	84.6	98.7	129.6	145.6
H	52.8	66.0	77.5	93.8	110.6	139.3
I	54.8	73.0	82.5	103.9	117.9	147.1
(LM)J	15.0	57.7	57.7	47.5	47.5	47.5
(RP)J	46.6	57.7	57.7	47.5	47.5	47.5
K	Ø9.53	Ø12.70	Ø12.70	Ø12.70	Ø12.70	Ø12.70
L	26.4	29.2	27.9	39.7	41.5	52.2
M	11.4	16.8	22.6	22.2	29.8	37.1
N	45.3	67.4	82.5	97.8	117.4	150.6
O	110.0	135.0	170.0	200.0	216.0	304.8
P	40.0	40.0	27.1	25.4	25.4	40.0
Q	—	—	85.7	114.3	69.8	130.0
R	40.00	40.00	45.00	63.50	38.10	65.00
S	28.00	40.00	50.00	72.00	79.38	98.30
T	M4x0.7	M6x1.0	M8x1.25	M8x1.25	M8x1.25	M10x1.5
U*	Ø4.045 / 4.020 ↓6.35	Ø6.045 / 6.020 ↓6.35	Ø8.045 / 8.020 ↓9.53	Ø8.045 / 8.020 ↓12.70	Ø8.045 / 8.020 ↓12.70	Ø10.045 / 10.020 ↓12.70
V	35.50	48.60	62.87	73.50	93.74	115.00

Dimensions in millimeters

	MXB16	MXB25	MXB32	MXB40	MXB50	MXB63
A	5.33	6.85	7.39	8.53	8.85	10.83
B	4.69	5.49	6.09	7.59	8.07	10.33
C	2.00	2.28	2.20	3.10	3.25	3.79
D	1.00	1.14	1.00	1.55	1.58	1.79
E	0.15	0.17	0.17	0.17	0.17	0.17
F	1.75	2.00	2.75	3.25	3.88	4.38
G	2.10	2.48	3.33	3.88	5.10	5.73
H	2.08	2.60	3.05	3.69	4.35	5.48
I	2.16	2.87	3.25	4.09	4.64	5.79
(LM)J	0.59	2.27	2.27	1.87	1.87	1.87
(RP)J	1.83	2.27	2.27	1.87	1.87	1.87
K	Ø.375	Ø.500	Ø.500	Ø.500	Ø.500	Ø.500
L	1.04	1.15	1.10	1.56	1.63	2.06
M	0.45	0.66	0.89	0.87	1.17	1.46
N	1.78	2.65	3.25	3.85	4.62	5.93
O	4.33	5.31	6.69	7.87	8.50	12.00
P	1.57	1.57	1.07	1.00	1.00	1.57
Q	—	—	3.37	4.50	2.75	5.12
R	1.575	1.575	1.772	2.500	1.500	2.559
S	1.102	1.575	1.969	2.835	3.125	3.870
T	#8-32(6)	1/4-20(6)	5/16-18(8)	5/16-18(8)	5/16-18(8)	3/8-16(8)
U*	Ø.1583 / .1573 (2) ↓.250	Ø.2520 / .2510 (2) ↓.250	Ø.3145 / .3135 (2) ↓.375	Ø.3145 / .3135 (2) ↓.500	Ø.3145 / .3135 (2) ↓.500	Ø.3770 / .3760 (2) ↓.500
V	1.40	1.91	2.48	2.89	3.69	4.53

Dimensions in inches

*DOWEL HOLES

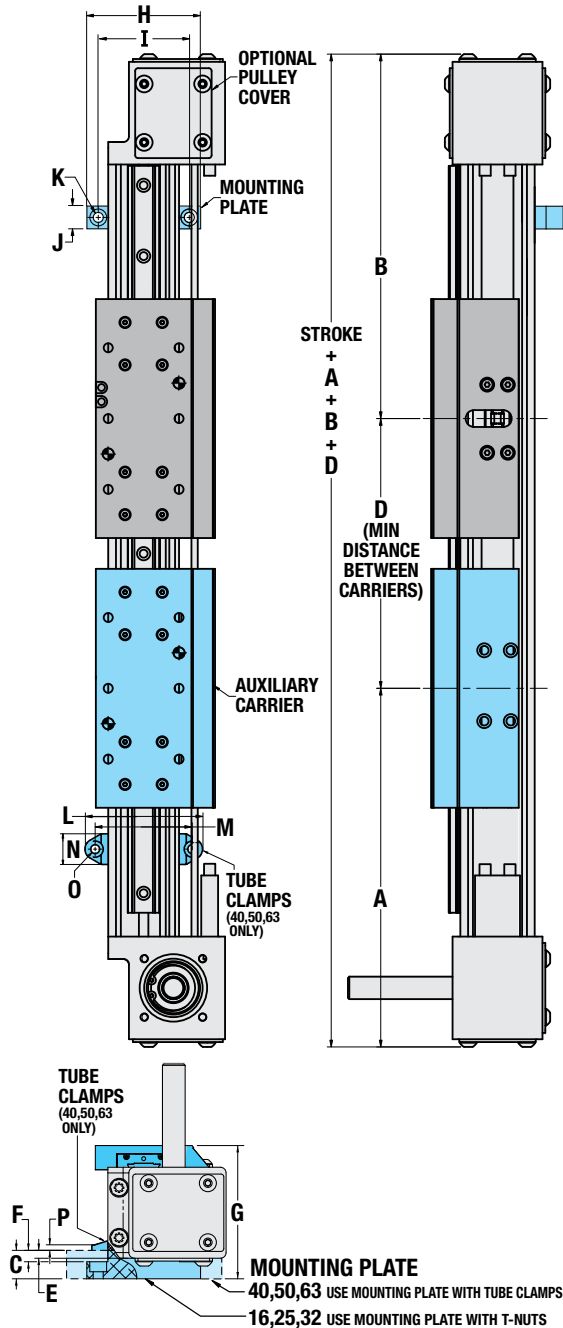
⊕	0.08 mm (M)
⊕	0.003 in (M)

MXB-P Rodless Belt Drive Actuator

tolomatic.com/CAD Download 3D CAD
Always use CAD solid model to determine
critical dimensions



PROFIED RAIL BEARING OPTION DIMENSIONS



	MXB16	MXB25	MXB32	MXB40	MXB50	MXB63
A	135.3	173.9	187.8	216.6	224.7	275.1
B	119.0	139.3	154.7	192.7	205.0	262.1
AUXILIARY CARRIER						
D	127.0	152.4	177.0	215.9	216.4	330.2
MOUNTING PLATE						
C	15.9	15.9	19.1	25.4	31.8	25.4
E	7.2	4.4	7.2	9.3	9.8	5.6
F	6.4	6.4	7.6	—	—	—
G	61.9	74.4	96.5	114.8	151.4	165.4
H	60.0	63.5	86.4	127.0	142.2	203.2
I	44.5	50.8	69.9	112.0	127.0	177.8
J	25.4	25.4	25.4	20.1	20.1	25.4
K	Ø5.6 THRU └┐ Ø9.4 └┐ 5.6 (2)	Ø5.6 THRU └┐ Ø9.4 └┐ 5.6 (2)	Ø7.1 THRU └┐ Ø11.2 └┐ 7.1 (2)	Ø7.1 THRU (2)	Ø7.1 THRU (2)	Ø7.1 THRU (2)
TUBE CLAMPS						
L	—	—	—	96.8	111.5	150.6
M	—	—	—	82.8	97.5	131.8
N	—	—	—	14.0	14.0	19.1
O	—	—	—	7.1	7.1	10.7
P	—	—	—	3.8	3.8	6.1

Dimensions in millimeters

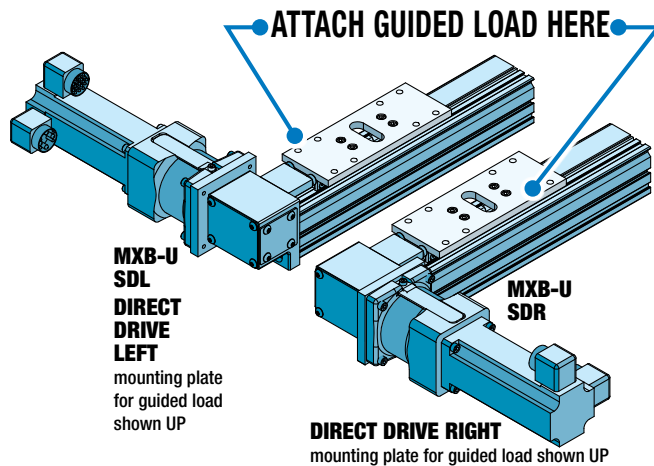
	MXB16	MXB25	MXB32	MXB40	MXB50	MXB63
A	5.33	6.85	7.39	8.53	8.85	10.83
B	4.69	5.49	6.09	7.59	8.07	10.33
AUXILIARY CARRIER						
D	5.00	6.00	7.00	8.50	8.60	13.00
MOUNTING PLATE						
C	0.63	0.63	0.75	1.00	1.25	1.00
E	0.28	0.17	0.29	0.37	0.39	0.22
F	0.25	0.25	0.30	—	—	—
G	2.44	2.93	3.80	4.52	5.96	6.51
H	2.36	2.50	3.40	5.00	5.60	8.00
I	1.75	2.00	2.75	4.41	5.00	7.00
J	1.00	1.00	1.00	0.79	0.79	1.00
K	0.22 THRU └┐ 0.37 └┐ .22 (2)	0.22 THRU └┐ 0.37 └┐ .22 (2)	0.28 THRU └┐ 0.44 └┐ .28 (2)	0.28 THRU (2)	0.28 THRU (2)	0.28 THRU (2)
TUBE CLAMPS						
L	—	—	—	3.81	4.39	5.93
M	—	—	—	3.26	3.84	5.19
N	—	—	—	0.55	0.55	0.75
O	—	—	—	0.28	0.28	0.42
P	—	—	—	0.15	0.15	0.24

Dimensions in inches

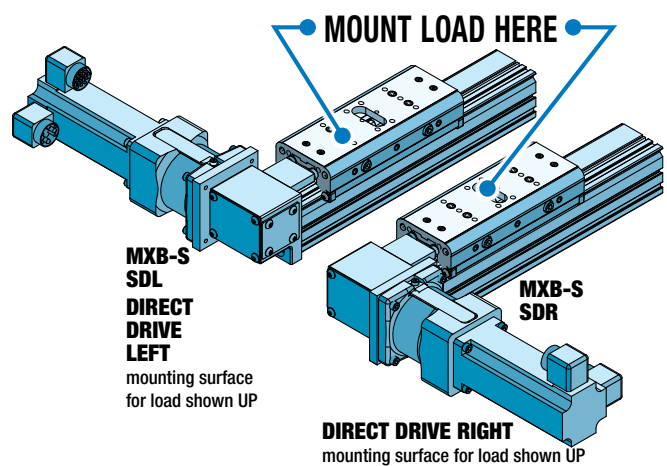
MXB Rodless Belt Drive Actuator

DIRECT DRIVE MOTOR MOUNTING

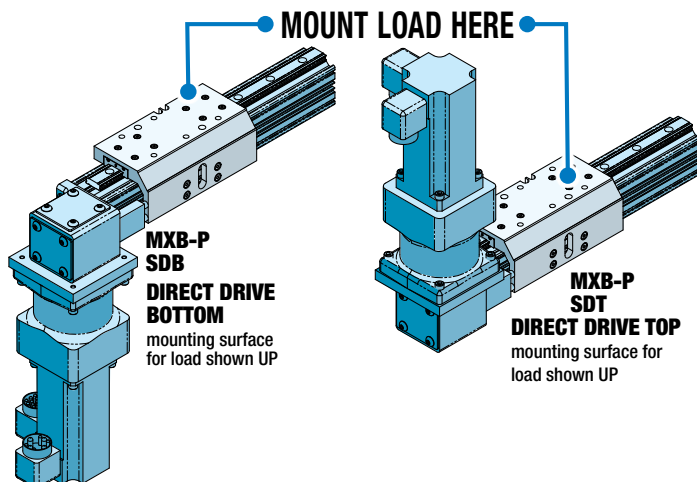
MXB-U



MXB-S



MXB-P



MOTOR MOUNTING

The MXB-P is unique among Tolomatic belt drive actuators. The mounting surface of the carrier is located 90° from the motion of the belt. The side opposite the belt is reserved for switch placement. The bottom of the actuator is reserved for mounting. If the motor is mounted in the SDT (direct drive top orientation), be sure the load mounted to the carrier does not interfere with the motor.



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.

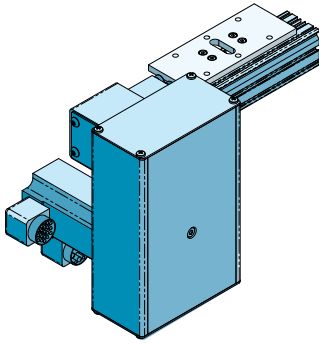
MXB Rodless Belt Drive Actuator

tolomatic.com/CAD Download 3D CAD
Always use CAD solid model to determine
critical dimensions

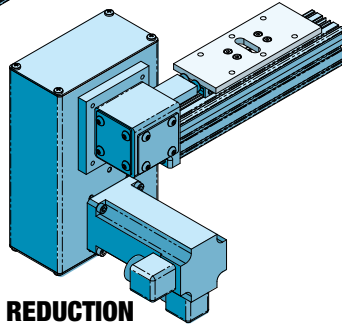


REDUCTION DRIVE MOTOR MOUNTING

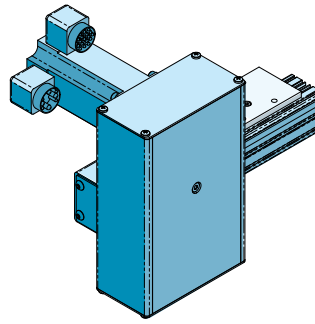
MXB-U



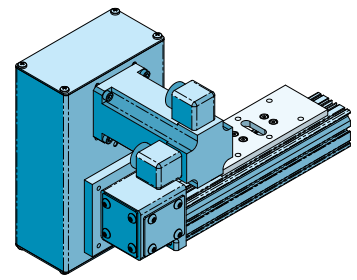
**REDUCTION DRIVE
BOTTOM LEFT (SDBL)**
mounting plate
for guided load shown UP



**REDUCTION
DRIVE
BOTTOM RIGHT (SDBR)**
mounting plate for
guided load shown UP

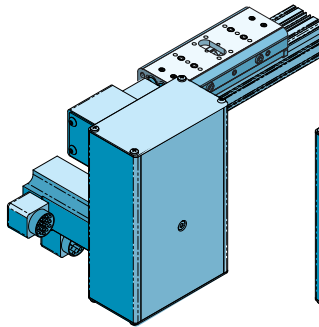


**REDUCTION DRIVE
TOP LEFT (SDTL)**
mounting plate for
guided load shown UP

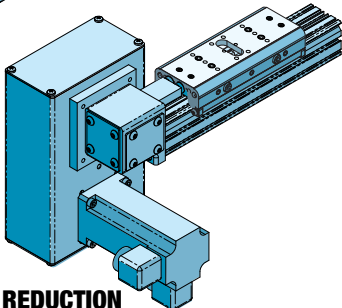


**REDUCTION DRIVE
TOP RIGHT (SDTR)**
mounting plate for
guided load shown UP

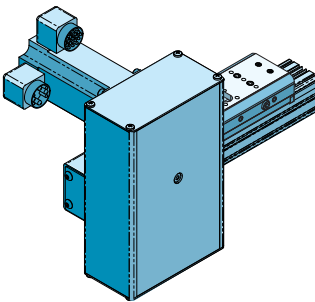
MXB-S



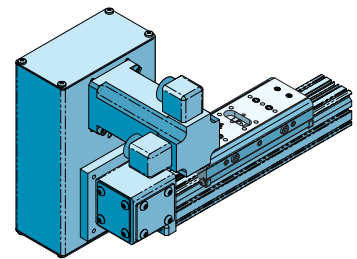
**REDUCTION DRIVE
BOTTOM LEFT (SDBL)**
mounting surface
for load shown UP



**REDUCTION
DRIVE
BOTTOM RIGHT (SDBR)**
mounting surface for load
shown UP

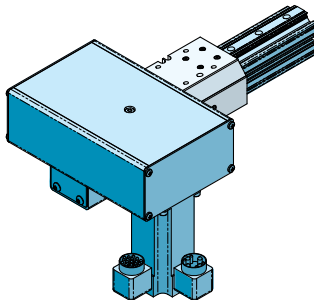


**REDUCTION DRIVE
TOP LEFT (SDTL)**
mounting surface
for load shown UP

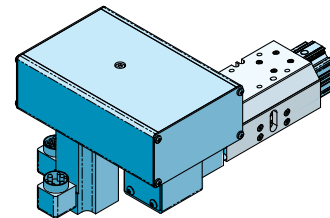


**REDUCTION DRIVE
TOP RIGHT (SDTR)**
mounting surface
for load shown UP

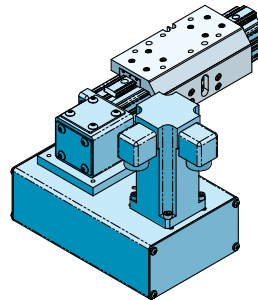
MXB-P



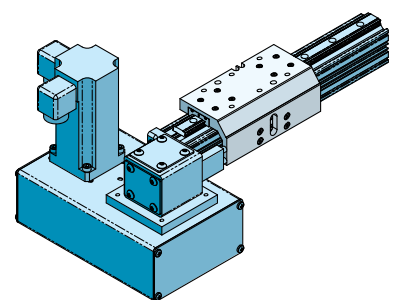
**REDUCTION DRIVE
RIGHT BOTTOM (SDBR)**
mounting surface
for load shown UP



**REDUCTION DRIVE
LEFT BOTTOM (SDLB)**
mounting surface
for load shown UP



**REDUCTION DRIVE
RIGHT TOP (SDRT)**
mounting surface
for load shown UP



**REDUCTION DRIVE
LEFT TOP (SDLT)**
mounting surface
for load shown UP



See tolomatic.com for 3D solid model(s) with motor mounting dimensions

MXB Rodless Belt Drive Actuator

SWITCHES

SPECIFICATIONS



RoHS
COMPLIANT



MX 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 drop-in installation anywhere along the entire actuator length. The one-piece design includes the retained fastening hardware. The magnet and magnet hardware are located on the carrier. See the dimensional drawings on page MXB_23 for details of magnet and switch locations. Switches and magnets 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*											

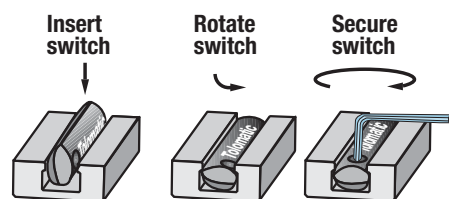
*QD = Quick-disconnect

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 AND REPLACEMENT

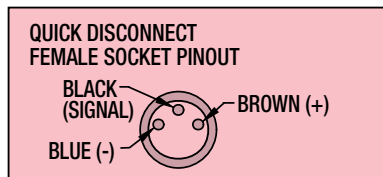
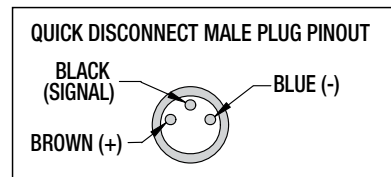
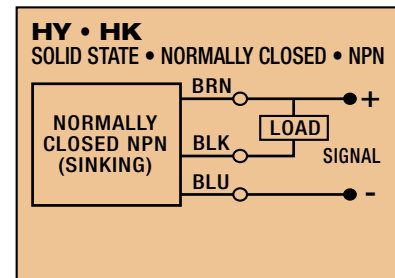
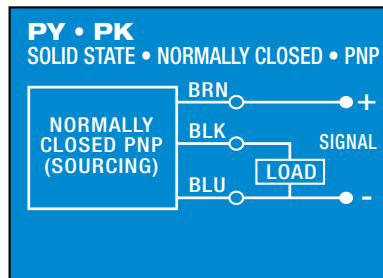
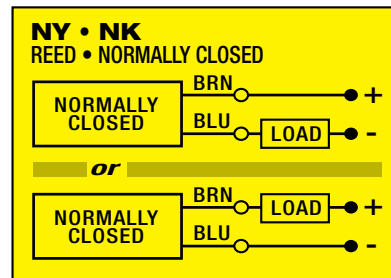
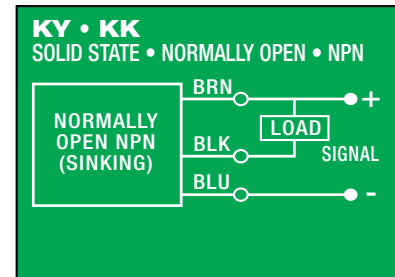
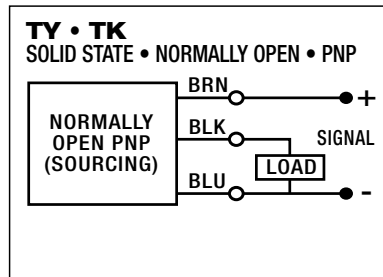
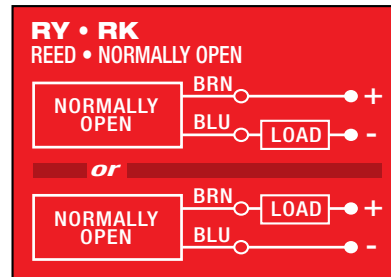


Place switch in side groove on tube at desired location with "Tolomatic" facing outward. While applying light pressure to the switch, rotate the switch halfway into the groove. Maintaining light pressure, rotate the switch in the opposite direction until it is fully inside the groove with "Tolomatic" visible. Re-position the switch to the exact location and lock the switch securely into place by tightening the screw on the switch.

MXB Rodless Belt Drive Actuator

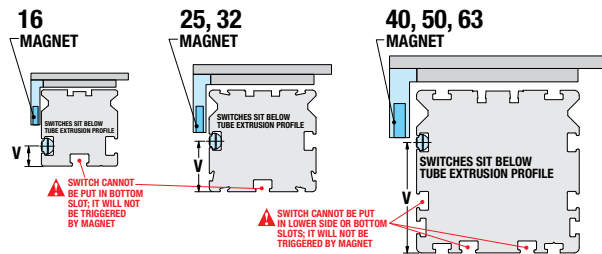
SWITCHES

WIRING DIAGRAMS

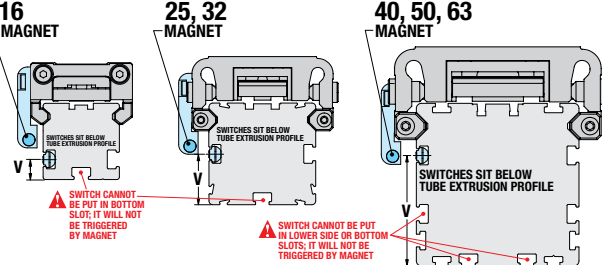


MOUNTING DIMENSIONS

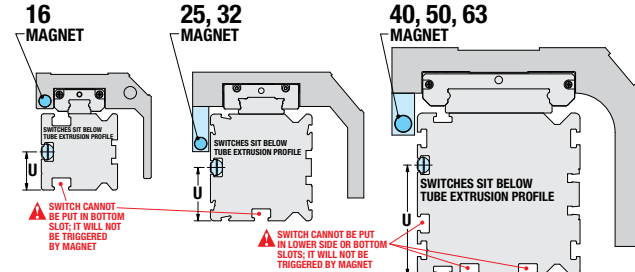
MXB-U



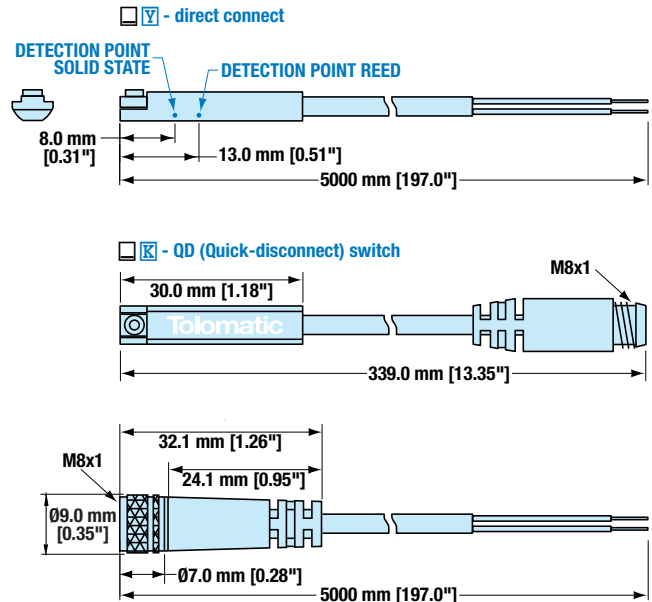
MXB-S



MXB-P



SWITCH DIMENSIONS



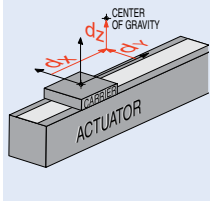
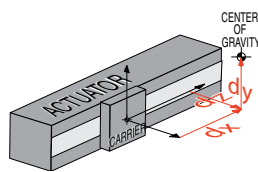
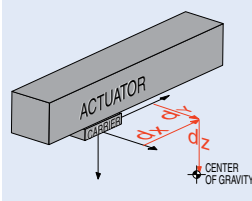
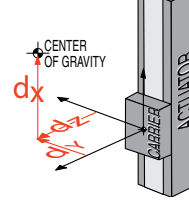
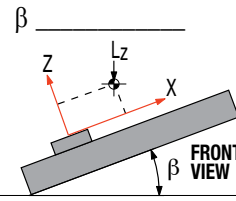
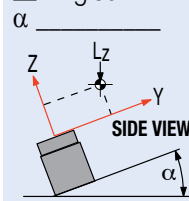
SWITCH MOUNTING

mm	MXB16	MXB25	MXB32	MXB40	MXB50	MXB63
U	15.0	21.0	27.7	43.5	51.4	62.0
V	7.9	20.0	27.0	43.5	51.4	62.0
in	MXB16	MXB25	MXB32	MXB40	MXB50	MXB63
U	0.59	0.83	1.09	1.71	2.02	2.44
V	0.31	0.79	1.06	1.71	2.02	2.44

NOTE: When ordering switches as a service part, Magnet Housing Kit (light blue in drawings) is required if actuator was not originally ordered with switches.

COMPILE APPLICATION REQUIREMENTS

ORIENTATION

☐ Horizontal

☐ Side

☐ Horizontal Down

☐ Vertical

☐ Angled °

☐ Load attached to carrier OR ☐ Load supported by other mechanism

DISTANCE FROM CENTER OF CARRIER TO LOAD CENTER OF GRAVITY

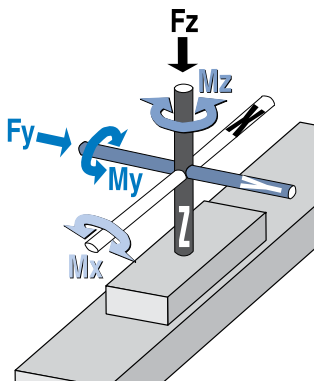
 d_x _____
 d_y _____
 d_z _____

☐ inch
 (U.S. Standard)

☐ millimeter
 (Metric)

STROKE LENGTH

☐ inch (S) (K)
 (U.S. Standard)

☐ millimeters
 (Metric)


BENDING MOMENTS APPLIED TO CARRIER

☐ in.-lbs.
 (U.S. Standard)

☐ N-m
 (Metric)

 M_x _____
 M_y _____
 M_z _____

PRECISION

Repeatability _____

☐ inch

☐ millimeters

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

LOAD

☐ lb.
 (U.S. Standard)

☐ kg.
 (Metric)

THRUST REQUIRED

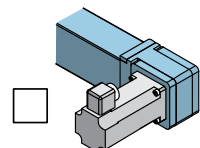
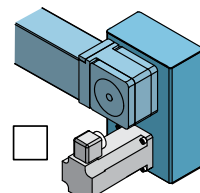
☐ lbf.
 (U.S. Standard)

☐ N
 (Metric)

 F_z _____
 F_y _____

OPERATING ENVIRONMENT

Temperature, Contamination, etc.


Direct Drive

Reduction Drive

MOVE PROFILE

Move Distance _____

☐ inch

☐ millimeters

Dwell Time After Move _____

☐ in/sec

☐ mm/sec

Max. Speed _____

☐ in/sec

☐ mm/sec

MOVE TIME

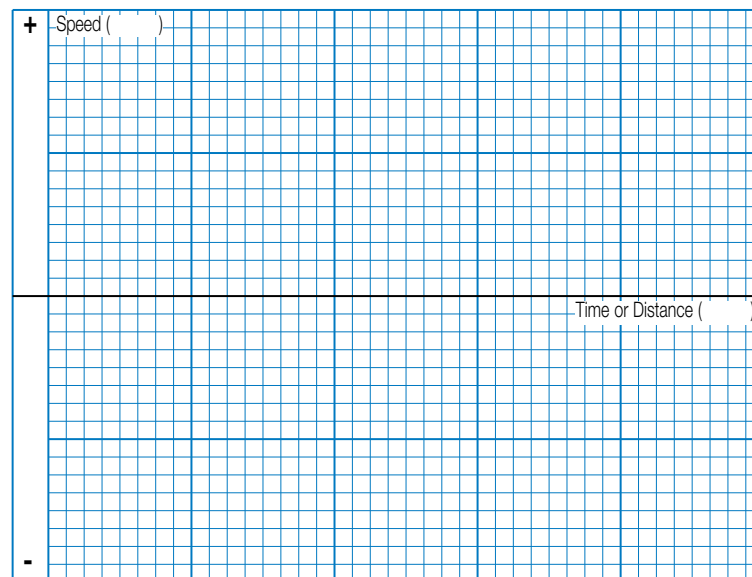
☐ sec

NO. OF CYCLES

☐ per minute

☐ per hour

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.

USE THE TOLOMATIC SIZING AND SELECTION SOFTWARE AVAILABLE ON-LINE AT
www.tolomatic.com OR... CALL TOLOMATIC 1-800-328-2174 with the above information. We will
 provide any assistance needed to determine the proper MX actuator for the job. **FAX 1-763-478-8080**

CONTACT INFORMATION

 Name, Phone, Email
 Co. Name, Etc.

SELECTION GUIDELINES

The process of selecting a belt drive actuator for a given application can be complex. **It is highly recommended that you contact Tolomatic or a Tolomatic distributor for assistance in selecting the best actuator for your application.** The following overview of the selection guidelines are for educational purposes only.

1 CHOOSE ACTUATOR SIZE

Choose an actuator that has the thrust, speed and moment load capacity to move the load.

- A) For maximum thrust use the table below.
- B) Max. speed of MXB-U 200 in/sec (5 m/sec); Max. speed of MXB-S 100 in/sec (2.5 m/sec) Max. speed of MXB-P 150 in/sec (3.8 m/sec).
- C) For MXB-S moment and load capacities see tables on page MXB_12. For MXB-P moment and load capacities see tables on page MXB_13.

SIZE	MAXIMUM THRUST	
	lbf	N
16	38	169
25	151	672
32	209	930
40	250	1112
50	325	1446
63	418	1859

2 COMPARE LOAD TO MAXIMUM LOAD CAPACITIES

Calculate the application load (combination of load mass and forces applied to the carrier) and application bending moments (sum of all moments M_x , M_y , and M_z applied to the carrier). Be sure to evaluate the magnitude of dynamic inertia moments. When a rigidly attached load mass is accelerated or decelerated, its inertia induces bending moments on the carrier. Careful attention to how the load is decelerated at the end of the stroke is required for improved actuator performance and application safety. If either load or any of the moments exceed figures indicated in the Moment and Load Capacity tables (page MXB_12 & 13) for the actuator consider:

- 1) A higher capacity carrier (ie. **S** to **P**)
- 2) A larger actuator size

3) Auxiliary carrier

- 4) External guide system (if the load is externally supported and guided, consider using MXB-U)

3 CALCULATE LOAD FACTOR (LF)

For loads with a center of gravity offset from the carrier account for both applied (static) and dynamic loads. The load factor (LF) must not exceed the value of 1.

$$L_f = \frac{M_x}{M_{x_{max}}} + \frac{M_y}{M_{y_{max}}} + \frac{M_z}{M_{z_{max}}} + \frac{F_y}{F_{y_{max}}} + \frac{F_z}{F_{z_{max}}} \leq 1$$

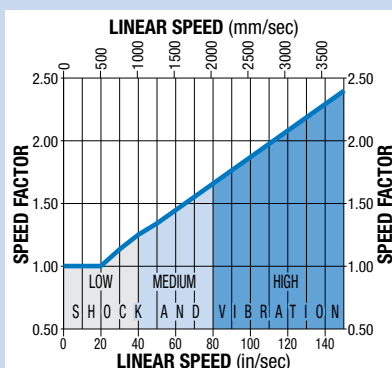
If L_f does exceed the value of 1, consider the four choices listed in step #2.

4 ESTABLISH YOUR MOTION PROFILE AND CALCULATE ACCELERATION RATE

Using the application stroke length and maximum carrier velocity (or time to complete the linear motion), establish the motion profile. Select either triangular (accel-decel) or trapezoidal (accel-constant speed-decel) profile. Now calculate the maximum acceleration and deceleration rates of the move. Acceleration/ deceleration should not exceed 1200 in/sec² (30.48 m/sec²). Also, do not exceed safe rates of dynamic inertia moments determined in step #3.

SPEED FACTOR

FOR APPLICATIONS WITH HIGH SPEED OR SIGNIFICANT SHOCK AND VIBRATION: Calculated values of loads and bending moments must be increased by speed factor from the graph below to obtain full rated life of profiled rail bearing system.



5 SELECT MOTOR (GEARHEAD IF NECESSARY) AND DRIVE

To help select a motor and drive, use the sizing equations located in the Engineering Resources section of the Tolomatic Electric Products Catalog (#3600-4609) to calculate the application thrust and torque requirements. Refer to Motor sections to determine the motor and drive.

6 DETERMINE MOUNTING PLATE REQUIREMENTS

- Consult the Mounting Plate Requirements graph for the model selected (page MXB_11)

- Cross reference the application load and maximum distance between supports

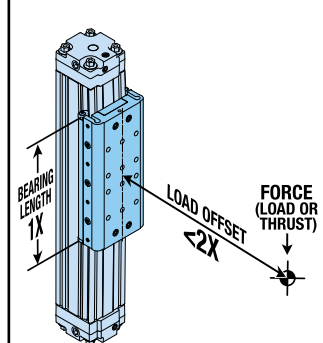
- Select the appropriate number of mounting plates

7 CONSIDER OPTIONS

- Choose metric or inch (U.S. standard) load mounting. When ordering use **S****I****N** for inch and **S****M** for metric.
- Switches - Reed, Solid State PNP or NPN, all available normally open or normally closed
- **FIL** Floating mount bracket - used when lack of parallelism occurs between the actuator and an externally guided and supported load (available for **S** Solid bearing style MXB actuators)

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S SOLID BEARING 2:1 RULE



For applications using **S** solid bearings, binding or interrupted motion may occur if the load offset is equal to or greater than twice the bearing length (1X). LOAD OFFSET is defined as: the distance from the applied force (or the load center of gravity) to the centerline of the carrier.

If the load offset cannot be changed consider:

- 1.) Higher capacity bearing style, i.e. **S** to **P**
- 2.) Larger actuator size
- 3.) Auxiliary carrier
- 4.) Add external guides

MXB Rodless Belt Drive Actuators

SERVICE PARTS ORDERING

SWITCHES

Switches for MXB include retained mounting hardware and are the same for all actuator sizes and bearing styles

Code	Lead	Normally	Sensor Type
R Y	5m (197 in)	Open	Reed
R K	Quick-disconnect		
N Y	5m (197 in)	Closed	Reed
N K	Quick-disconnect		
T Y	5m (197 in)	Open	Solid State PNP
T K	Quick-disconnect		
K Y	5m (197 in)	Open	Solid State NPN
K K	Quick-disconnect		
P Y	5m (197 in)	Closed	Solid State PNP
P K	Quick-disconnect		
H Y	5m (197 in)	Closed	Solid State NPN
H K	Quick-disconnect		

NOTE: All switch kits include retained hardware. Quick-disconnect kits include female connector

⚠ NOTE: When ordering switches as service part, Magnet Housing Kit is required if actuator was not originally ordered with switches

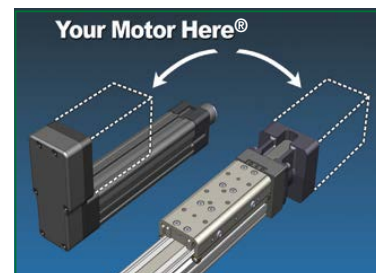
To order switch kit use configuration code for switch preceded by SW and actuator code.

EXAMPLE: **SWMXB25KK**



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 MXB.

Select a complete system from **tolomatic** or add any motion system to Tolomatic's actuators



YOUR MOTOR HERE® MADE-TO-ORDER MOTOR MOUNTS.

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ACSI integrated motor / Drive / Controller



STANDARD FEATURES:

- Integrated servo motor/drive
- NEMA 23 & 34 frame sizes
- Mounted, configured, tuned & tested as an actuator system
- Dual Ethernet ports: EtherNet/IP™ & Modbus TCP

in Partnership with these manufacturers and others for more options



JVL
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Nidec
CONTROL TECHNIQUES

OPTIONS

MXB SIZE	Mounting Plate Kit	S (inch) Floating Mount Kit	S (metric) Floating Mount Kit	**MXB-U Magnet Housing Kit	**MXB-S Magnet Housing Kit	**MXB-P Magnet Housing Kit
16	8516-9030	8116-9536	8116-9036	8516-9024	8516-9074	8340-1008
25	8525-9030	8525-9536	8525-9136	8525-9024	8525-9074	8525-9009
32	8532-9030	8132-9536	8132-9036	8525-9024	8532-9074	8532-9009
40	8540-9030	8140-9536	8140-9036	8525-9024	8540-9074	8540-9009
50	8550-9030	8550-9536	8550-9036	8550-9024	8550-9074	8550-9009
63	8563-9030	8163-9536	8163-9036	8550-9024	8563-9074	8563-9009

***Magnet Housing Kit is required if actuator was not originally ordered with switches

Check out our **MX--S** carrier adjustment video on the web
<https://youtu.be/LVWPg2gfy0A>

MXB Rodless Belt Drive Actuators

ORDERING

MODEL SELECTION (MUST BE IN THIS ORDER)

MXB 40 P BWS30 SM2007-02

OPTIONS (IN ANY ORDER)

SDB DC215-9 MP8 HC2 TK2

MODEL

MXB MX Rodless Belt Drive Actuators

SERIES

16 Series actuator **40** Series actuator
25 Series actuator **50** Series actuator
32 Series actuator **63** Series actuator

BEARING

U Unguided Carrier
S Solid Bearing Carrier
P Profiled Rail Bearing Carrier

BELT MATERIAL AND WIDTH

BWS10 10 mm Urethane Steel (MXB16)
BWS18 18 mm Urethane Steel (MXB25)
BWS25 25 mm Urethane Steel (MXB32)
BWS30 30 mm Urethane Steel (MXB40)
BWS40 40 mm Urethane Steel (MXB50)
BWS50 50 mm Urethane Steel (MXB63)

STROKE LENGTH & MOUNTING TYPE

SK _____ Stroke, enter desired stroke length in **inches**
SM† _____ Stroke, enter desired stroke length in **millimeters**

GPB Blank Plate (MXB-U only)
 NO MOUNTING HOLES allowing user to drill and tap as needed

NOTE: Actuator mounting threads and mounting fasteners will be either inch or metric, depending on how stroke length is indicated

SK=inch mounting

SM= metric mounting

† The metric version provides metric tapped holes for mounting of the load to the carrier and of the actuator to mounting surfaces

U & S MOTOR MOUNTING/REDUCTION

(must choose one)

SDL, SDL* Direct Drive on Left

SDR, SDR* Direct Drive on Right

▲ A motor size and code must be selected when specifying a 3:1 reduction.
 (2:1 reduction on MXB16)

SDL, SDL* 3:1 Reduction on Top Left

SDR, SDR* 3:1 Reduction on Top Right

SDBL, SDBL* 3:1 Reduction on Left Bottom

SDR, SDR* 3:1 Reduction on Right Bottom

***For Dual Stub Shaft Option**

P MOTOR MOUNTING / REDUCTION

(must choose one)

SDT, SDT* Direct Drive on Top

SDB, SDB* Direct Drive on Bottom

▲ A motor size and code must be selected when specifying a 3:1 reduction.
 (2:1 reduction on MXB16)

SDL, SDL* 3:1 Reduction on Left Top

SDR, SDR* 3:1 Reduction on Right Top

SDBL, SDBL* 3:1 Reduction on Left Bottom

SDR, SDR* 3:1 Reduction on Right Bottom

***For Dual Stub Shaft Option**

AUXILIARY CARRIER

DC _____ Auxiliary Carrier, (MXB-P only)
 enter center-to-center spacing desired in **inches** (SK) or **millimeters** (SM)

(Same unit of measure as stroke length is required)

Center-to-center spacing between carriers

▲ adds to overall length of the actuator, this distance will not be subtracted from stroke length specified in the previous step

HEAD COVER PLATES

HC2 Head Cover Plates

MOUNTING

MP _ Mounting Plates, & quantity

TC _ Tube Clamps, & quantity

NOTE: The MXB requires Mounting Plates to allow clearance for motor when mounted flush to surface.

16,25,32 sizes use T-Nuts with Mounting Plates.

40,50,63 sizes use Tube Clamps with Mounting Plates.

CARRIER ORIENTATION

BIR Mirrored Carrier Design

MOTOR / DRIVE / CONTROLLER / PLANETARY GEARBOX

▲ Reference the ordering pages in Tolomatic Electric Product Brochures Stepper Products Brochure #3600-4160 & Planetary Gearbox Doc. #3600-4161

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)
			QD	RK		
SOLID STATE	PNP	Open	no	TY		
			QD	TK		
	NPN	Open	no	KY		
			QD	KK		
	PNP	Closed	no	PY		
			QD	PK		
	NPN	Closed	no	HY		
			QD	HK		

▲ Not all codes listed are compatible with all options.

Call Tolomatic 1-800-328-2174 to determine available options and accessories based on your application requirements.

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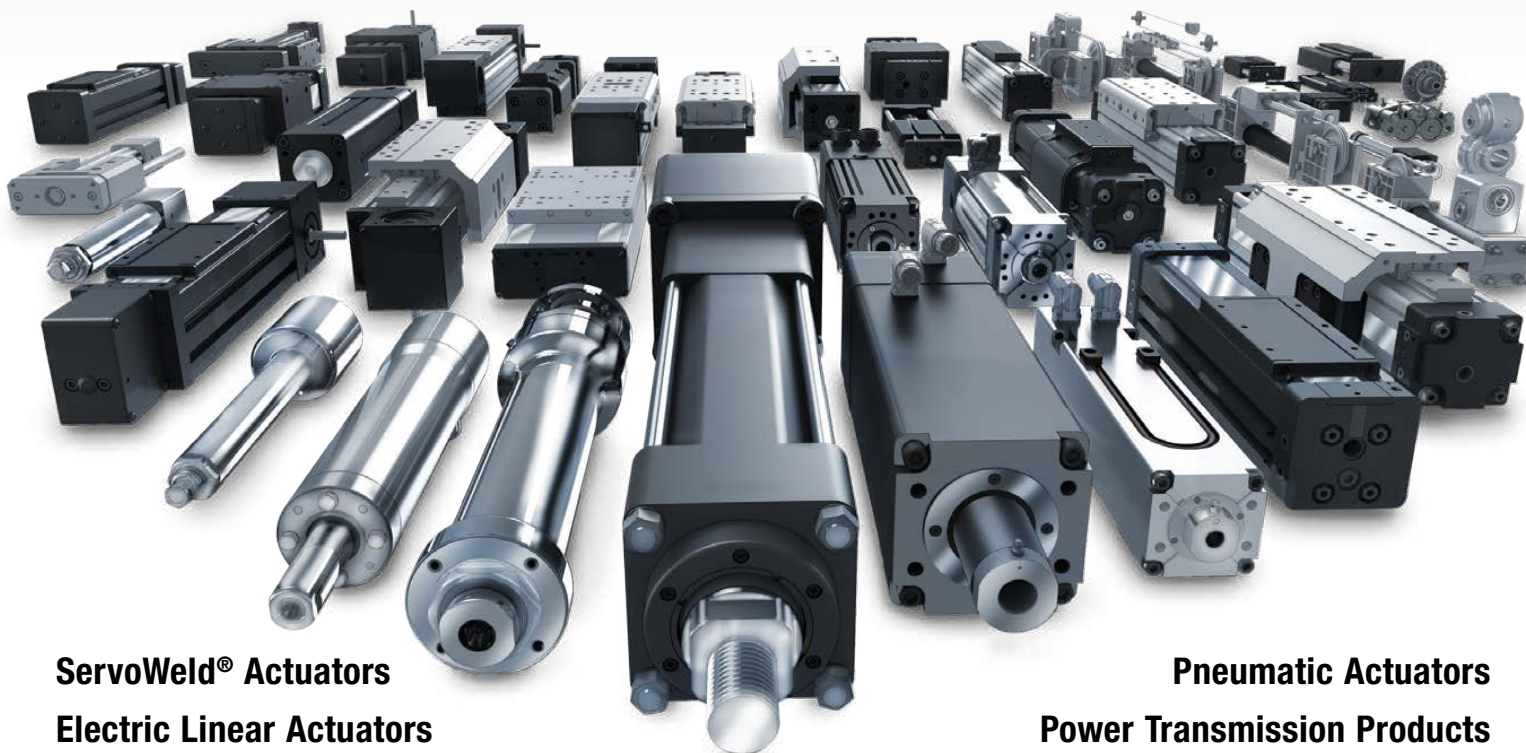
CAD LIBRARY

Download 2D or 3D CAD files for Tolomatic products.



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