

VPAR Linear Electric Actuator

Superior Motion Control and Axis Coordination

Features and Benefits

- Fully assembled and ready to mount
- Axial or parallel motor mount
- Operates without externally mounted limit or home switches
- Retains position during power loss for faster machine start
- Eliminates piping, valving, air or oil supply
- Linear feed force of up to 2500 N
- Position repeatability of $\pm 0.02\text{mm}$ (0.0008 in)
- Cost effective solution with single cable connection
- Simplified commissioning by use of standard Allen Bradley single cable
- Optional 24VDC holding brakes



Designed to Save Operating Installation Cost while Providing Top Performance

The new Allen Bradley® series of VPAR linear electric actuator provide flexible servo-control with superior accuracy.

Due to the ability to synchronize and coordinate with multi-axis machine motions, the VPAR actuators provide a dynamic and precise response for a wide range of linear motion applications.

Available in three ISO15552 pneumatic-class frame sizes (32, 40, and 63), the VPAR is an excellent upgrade solution for pneumatic systems.

The single cable design makes installation, commissioning and changeout of these actuators fast and easy, increasing customer uptime and reducing cost.

Electric actuators are commonly used in packaging, material handling, and assembly machine applications across a variety of industries.

Kinetix Drive Compatibility

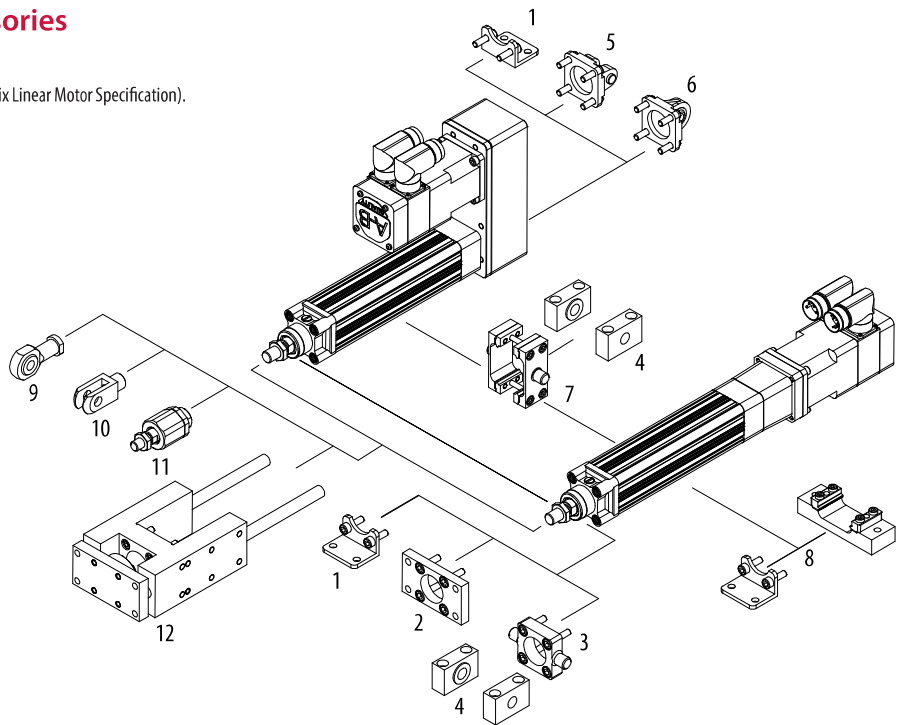
Full integration with Kinetix 5500 and Kinetix 5700 Servo Drives.
Direct compatibility with single cable installation (no DSL converter kit required).





Product Performance

Frame	Electric Cylinder Catalog Number	Peak Feed Force N (lb)	Continuous Stall Force N (lb)	Speed, Max m/s (in/s)	Stroke Lengths mm (in)
32	VPAR-A1xxxB-Pxx	300 (67)	240 (54)	0.15 (5.9)	100 (3.94) 200 (7.87) 300 (11.81) 400 (15.75)
	VPAR-B1xxxB-Wxx				
	VPAR-A1xxxE-Pxx	350 (79)	280 (63)	0.50 (19.7)	
	VPAR-B1xxxE-Wxx				
40	VPAR-A2xxxC-Pxx	525 (118)	420 (94)	0.25 (9.8)	100 (3.94) 200 (7.87) 300 (11.81) 400 (15.75) 600 (23.62)
	VPAR-B2xxxC-Wxx				
	VPAR-A2xxxF-Pxx	800 (180)	640 (144)	0.64 (25.2)	
	VPAR-B2xxxF-Wxx				
63	VPAR-A3xxxE-Pxx	2500 (562)	2000 (450)	0.50 (19.7)	100 (3.94) 200 (7.87) 300 (11.81) 400 (15.75) 600 (23.62) 800 (31.50)
	VPAR-B3xxxE-Qxx				
	VPAR-A3xxxH-Pxx	1625 (365)	1300 (292)	1.0 (39.4)	
	VPAR-B3xxxH-Qxx				

Mounting and Rod-End Accessories

For accessory catalog numbers, please refer to KNX-TD002 (Kinetix Linear Motor Specification).



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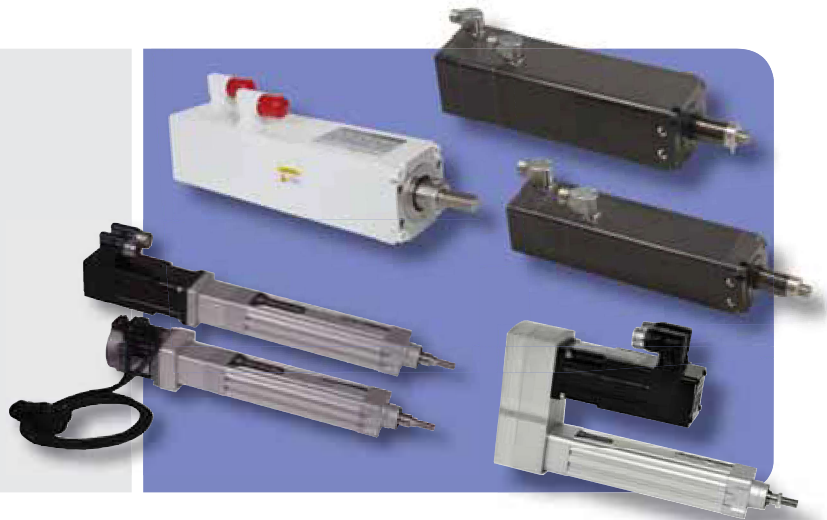
expanding human possibilit

AMERICAS: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444
 EUROPE/MIDDLE EAST/AFRICA: Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640
 ASIA PACIFIC: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

MP-Series™ and TL-Series™ Electric Cylinders

Flexibility and Efficiency for Industrial Applications

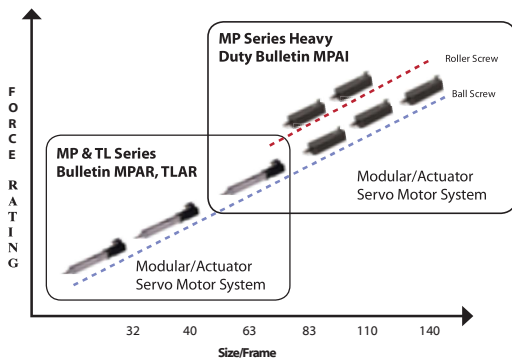
Linear motion applications using fluid power systems are often noisy and inefficient with limited control functionality. But with the MP-Series and TL-Series Electric Cylinders, your applications can experience flexible servo control providing both accurate positioning as well as forces which can build very quickly. These quiet, clean and energy-efficient piston rod actuators provide an excellent upgrade for your current systems.



Precise and Dynamic

With the ability to synchronize and coordinate with multi-axis machine motions, the TL-Series and MP-Series cylinders provide a dynamic, precise response for a wide range of linear motion applications. When seamlessly integrated into the Rockwell Automation Integrated Architecture™, these electric cylinders use RSLogix™ 5000 software to extend and retract with precise positioning, velocity or force. Allen-Bradley Electric Cylinders have:

Electric Cylinder Product Range



- Peak feed force of up to 14679 N (3300 lbs)
- Speeds up to 1 m/sec
- Linear stroke lengths to 800 mm
- Positioning repeatability of ± 0.02 mm
- High resolution absolute feedback
- 100% duty cycle rating

Ready-to-Install Solution

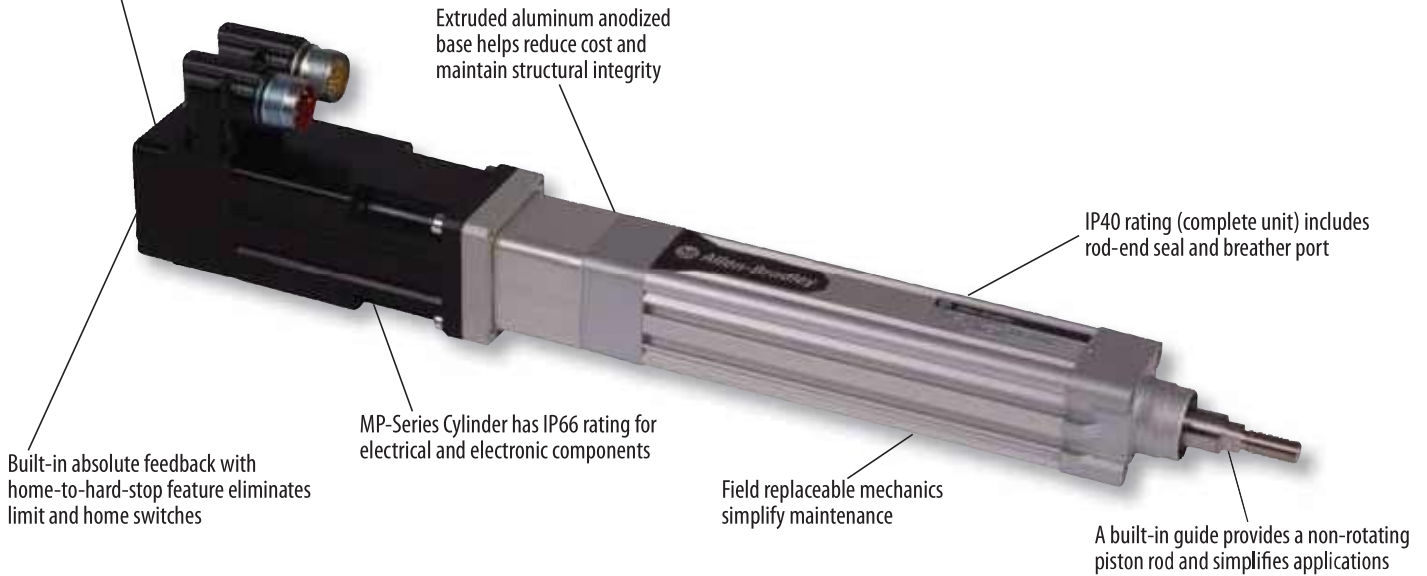
- These fully assembled and ready to mount cylinders contribute to reductions in mechanical design engineering, assembly, wiring and commissioning time
- Operates without externally mounted limit or home switches, retaining position in power loss for faster machine restart
- Integration is simplified with the use of the same power and feedback cables as Allen-Bradley® MP-Series Low Inertia and TL-Series Motors
- Food grade white paint option available
- No piping, valving, air or oil supply required
- Flexible control (unlike fluid power cylinders)
 - Thrust forces can be controlled
 - Motion profiles can be customized
 - Movements can have smooth startups and soft stops
- Full setup and programming support in Allen-Bradley controllers and software (RSLogix 5000 and Ultraware) makes set up and commissioning fast and easy
- Easy sizing and operating life estimates using Motion Analyzer software
- 3D solid model files are available to simplify mechanical and electrical design
- Available with or without 24V DC holding brakes
- Use MP-Series with either 230V AC or 480V AC Kinetix® 6x000 servo drives as well as Ultra™ 3000, Kinetix 300 and Kinetix 350 drives. Use TL-Series with 230VAC Kinetix 3 drives.
- Versions available with UL, c-UL and CE

LISTEN.
THINK.
SOLVE.®

A Simplified, Precise Solution Designed to Meet the Needs of Your Industrial Application

Optional built-in electrically released brake is ideal for holding vertical loads

MP-Series Electric Cylinder (Bulletin MPAR)



MP-Series Heavy Duty Electric Cylinder Accessory Attachments

- Spherical rod eye
- Clevis
- Anti-rotate unit

Mounting Options

- Front flange kit
- Front trunion
- Rear clevis kits
- Bottom base mounting kit

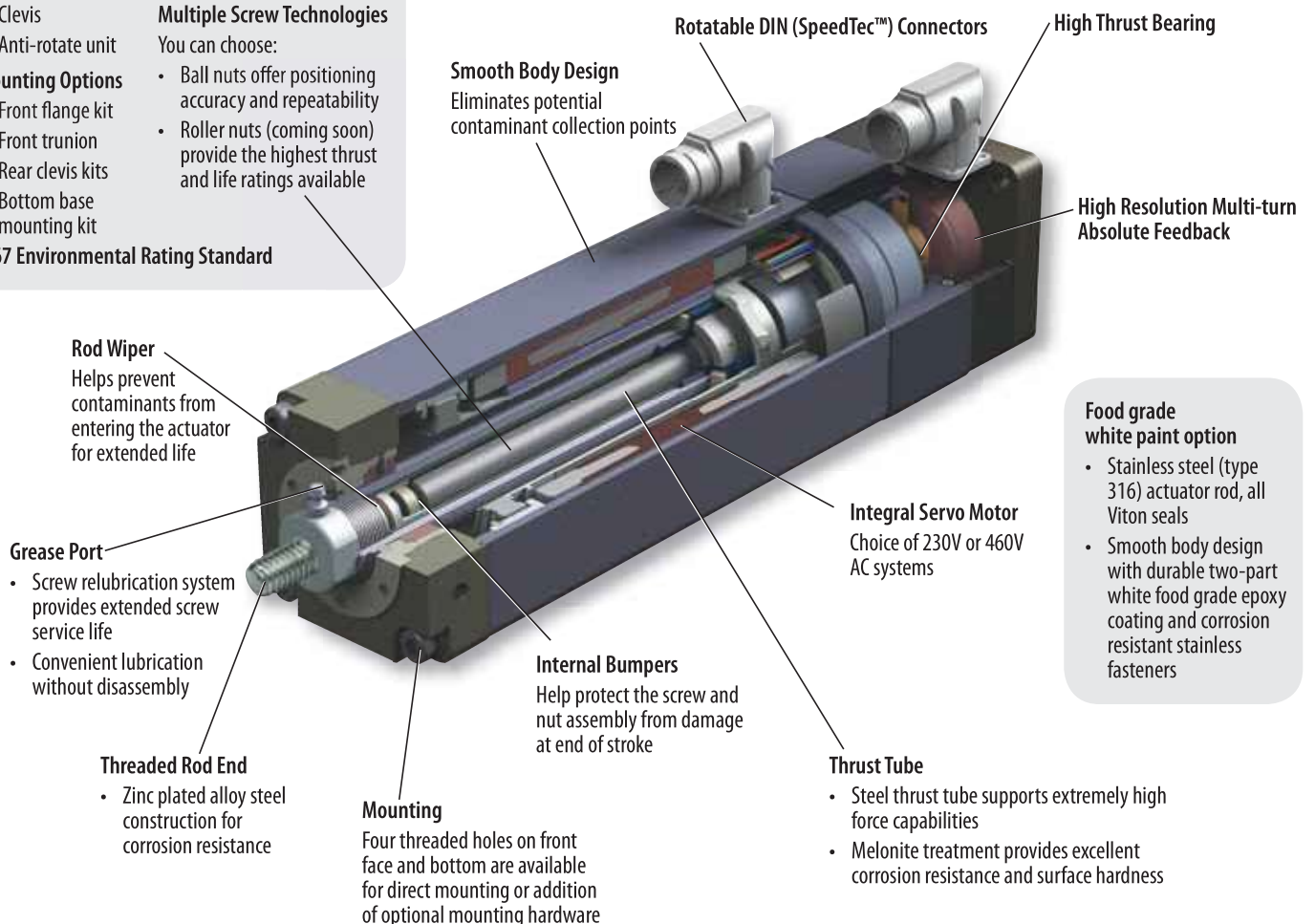
IP67 Environmental Rating Standard

Multiple Screw Technologies

You can choose:

- Ball nuts offer positioning accuracy and repeatability
- Roller nuts (coming soon) provide the highest thrust and life ratings available

MP-Series Heavy Duty Electric Cylinder (Bulletin MPAI)



Flexible, Sustainable and Cost-Effective at Each Phase of Development and Operation

Design Phase

- Eliminate mechanical design, selection and integration of multiple components from different suppliers
- Performance tested as a single integrated actuator
- Comprehensive support from established selection and support tools including Integrated Architecture Builder and Motion Analyzer

Assembly Phase

- Eliminate assembly of motor, coupler, adapter and ballscrew
- Eliminate installation, wiring and alignment of home and over-travel sensors

Commissioning Phase

- Complete integration using RSLogix 5000, Ultraware or Kinetix 300 software helps reduce time and related expense



Support Phase

- Integrated device reduces reliability problems caused by using separate components from different manufacturers
- Reduce operating expense with energy-efficient, clean and quiet alternative to fluid power actuators

Applications

Flexible Positioning and Controlled Force

- Push, pull, eject, pivot
- Divert, tilt, lower, insert
- Forming/stamping
- Tube bending
- Assembly presses
- Welding gun
- Molding
- Parts clamping
- Fastening/joining

Reach & Retract

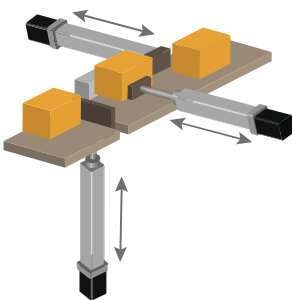
- Marking/labeling
- Measurement
- Inspection
- Parts loading/unloading
- Assembly
- Pick & place

Coordinated Control

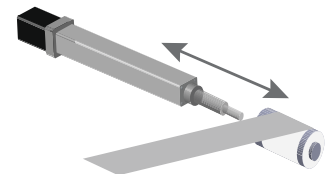
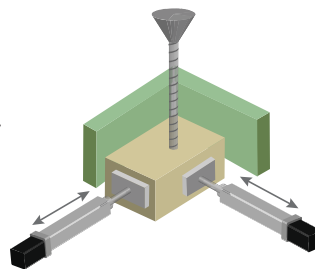
- Web tension control
- Web edge guiding
- Motion simulation
- Glue dispensing
- Mechanical CAM upgrade
- Servo valve control
- Flying die cut-to-length

Single or Multi-Axis Positioning

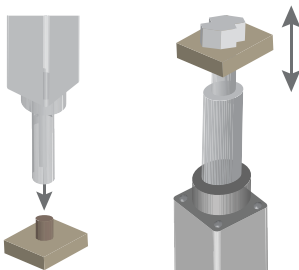
- Set works positioning
- Vertical stackers
- Blade positioning
- Hatch/door closures
- Lane diverters
- Volumetric filling
- On the fly set-up axes



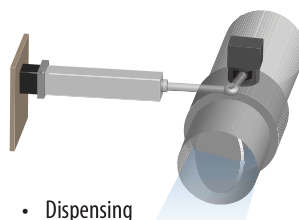
- Flexible positioning
- Parts, tools, gates, guards, guides, tables, cameras, probes, applicators, etc.



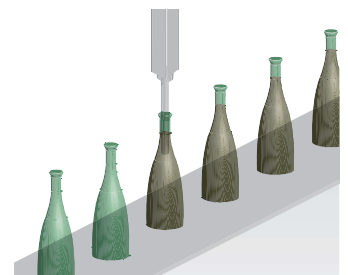
- Edge guides: paper, print, textile
- Roll positioning



- Component assembly/pressing/parts clamping
- Flexible force or speed: press, insert, lift



- Dispensing
- Valve timing
- Metering
- Damper



- Nozzle insertion, liquid dispensing

MP-Series Electric Cylinders



TL-Series Electric Cylinders⁽²⁾



Frame ISO 1552	Maximum Feed Force N (lbs)	Continuous Feed Force N (lbs)	Maximum Speed mm/sec (in/sec)	Screw Lead mm/rev	Maximum Acceleration mm/sec ² (in/sec ²)	Stroke Lengths		Catalog Number ⁽¹⁾⁽²⁾
						mm	inches	
Size 32	300 (67)	240 (54)	.15 (5.9)	3	6 (236)	100, 200, 300, 400	4, 8, 12, 16	MPAR-B1xxxB-x2a
	350 (79)	280 (63)	.5 (19.7)	10				MPAR-B1xxxE-x2a
Size 40	525 (118)	420 (94)	.25 (9.8)	5		100, 200, 300, 400, 600	4, 8, 12, 16, 24	MPAR-B2xxxC-x2a
	800 (180)	640 (143) ⁽²⁾	.64 (25.2)	12.7				MPAR-B2xxxF-x2a
Size 63	2500 (562)	2000 (450) ⁽²⁾	.5 (19.7)	10		100, 200, 300, 400, 600, 800	4, 8, 12, 16, 24, 32	MPAR-B3xxxE-x2a
	1625 (365)	1300 (292) ⁽²⁾	1 (39.4)	20				MPAR-B3xxxH-x2a

MP-Series, catalog MPAR, Available with motor mounted in-line or parallel – as pictured above.

- (1) Catalog number incomplete: (a) Specify the desired stroke length in mm by replacing xxx in the catalog number with a length listed in the mm column on the left.
 (b) Actuators listed are rated for an amplifier/system voltage of 380 to 480V AC. To specify MP-Series Actuators for use on 230V AC systems, change “-B” in the part# above to “-A” Example: A 230V system catalog number begins with MPAR-A...
 (c) To specify an actuator with a 24V DC holding brake, substitute 4 for 2 in “2A”.
- (2) For TL-Series, change MPAR to TLAR in the catalog number above. Continuous feed force reduced approximately 25%.

MP-Series Heavy Duty Electric Cylinders



Frame Size (Sq. Flange) mm (in)	Maximum Feed Force N (lbs)	Continuous* Feed Force @25°C ambient temp N (lbs)	Maximum Speed mm/sec (in/sec)	Ball Screw Pitch mm/rev	Stroke Lengths mm	Dynamic Load Rating ^(1 mill revs) N (lbs)	Ball Screw
							Catalog Number ⁽¹⁾⁽²⁾⁽³⁾
64 (2.5)	1446 (325)	890 (200)	305 (12)	5	76	4502 (1012)	MPAI-B2076CV12A
		1446 (325)	305 (12)		150, 300		MPAI-B2xxxCV32A
83 (3.3)	5140 (1155)	1624 (365)	305 (12)	5	76	7602 (1709)	MPAI-B3076CM32A
	2570 (578)	814 (183)	610 (24)	10		5400 (1214)	MPAI-B3xxxEM32A
	4448 (1000)	4003 (900)	279 (11.5)	5		7602 (1709)	MPAI-B3xxxCM32A
	4003 (900)	2002 (450)	559 (22)	10		5400 (1214)	MPAI-B3xxxEM32A
110 (4.3)	8896 (2000)	7784 (1750)	279 (11.5)	5	150, 300, 450	15100 (3395)	MPAI-B4xxxCM32A
	7784 (1750)	3892 (875)	559 (22)	10		15000 (3372)	MPAI-B4xxxEM32A
144 (5.6)	13345 (3000)	13122 (2950)	200 (7.9)	5		28865 (6714)	MPAI-B5xxxCM32A
	13122 (2950)	6561 (1475)	400 (15.7)	10		35255 (7476)	MPAI-B5xxxEM32A

Frame Size (Sq. Flange) mm (in)	Maximum Feed Force N (lbs)	Continuous* Feed Force @25°C ambient temp N (lbs)	Maximum Speed mm/sec (in/sec)	Roller Screw Pitch mm/rev	Stroke Lengths mm	Dynamic Load Rating ^(1 mill revs) N (lbs)	Roller Screw
							Catalog Number ⁽¹⁾⁽²⁾
83 (3.3)	7562 (1700)	3781 (850)	279 (11.5)	5	76, 150, 300, 450	27198 (6564)	MPAI-B3xxxRM32A
	3781 (850)	1891 (425)	559 (22)	10		26013 (5848)	MPAI-B3xxxSM32A
110 (4.3)	14679 (3300)	7340 (1650)	279 (11.5)	5	150, 300, 450	36831 (8280)	MPAI-B4xxxRM32A
	7340 (1650)	3670 (825)	559 (22)	10		34193 (7687)	MPAI-B4xxxSM32A

* Characteristics w/mounting to 11" x 11" x 0.5" aluminum mounting surface.

- (1) Catalog number incomplete: (a) Specify the desired stroke length in mm by replacing xxx in the catalog number with a length listed in the mm column on the left.
 (b) Actuators listed are rated for an amplifier/system voltage of 380 to 480V AC.
 To specify MP Series Actuators for use on 230V AC systems, change “-B” in the part# above w/ “-A.” Example: A 230V system catalog number begins with MPAI-A...
 (2) Specifying an actuator w/ optional features
 (a) optional 24V DC holding brakes, substitute 4 for 2 in “M32A” at the end of the part#.
 (b) Std. actuator mounting: direct face or base (front flange, foot mount, and rear clevis w/ accessories)
 To specify front trunnion mounted actuators, substitute B for A in “M32A” at the end of the part#.
 (3) Available with optional food grade white epoxy paint.

Refer to Motion Control Selection Guide, pub GMC-td002 for complete specifications.

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