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:

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

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

Extruded aluminum anodized base helps reduce cost and maintain structural integrity

IP40 rating (complete unit) includes rod-end seal and breather port

A built-in guide provides a non-rotating piston rod and simplifies applications

Built-in absolute feedback with home-to-hard-stop feature eliminates limit and home switches

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

MP-Series Cylinder has IP66 rating for electrical and electronic components

Field replaceable mechanics simplify maintenance

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

Internal Bumpers
Help protect the screw and nut assembly from damage at end of stroke

High Resolution Multi-turn Absolute Feedback

Smooth Body Design
Eliminates potential contaminant collection points

Rotatable DIN (SpeedTec™) Connectors

High Thrust Bearing

Threaded Rod End
- Zinc plated alloy steel construction for corrosion resistance

Rotating Rod Wiper
Helps prevent contaminants from entering the actuator for extended life

Grease Port
- Screw relubrication system provides extended screw service life
- Convenient lubrication without disassembly

Food grade white paint option
- Stainless steel (type 316) actuator rod, all Viton seals
- Smooth body design with durable two-part white food grade epoxy coating and corrosion resistant stainless fasteners

Integral Servo Motor
Choice of 230V or 460V AC systems

Mounting
Four threaded holes on front face and bottom are available for direct mounting or addition of optional mounting hardware

Thrust Tube
- Steel thrust tube supports extremely high force capabilities
- Melonite treatment provides excellent corrosion resistance and surface hardness

Thrust Tube

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

<table>
<thead>
<tr>
<th>Flexible Positioning and Controlled Force</th>
<th>Reach &amp; Retract</th>
<th>Coordinated Control</th>
<th>Single or Multi-Axis Positioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Push, pull, eject, pivot</td>
<td>Marking/labeling</td>
<td>Web tension control</td>
<td>Set works positioning</td>
</tr>
<tr>
<td>Divert, tilt, lower, insert</td>
<td>Measurement</td>
<td>Web edge guiding</td>
<td>Vertical stackers</td>
</tr>
<tr>
<td>Forming/stamping</td>
<td>Inspection</td>
<td>Motion simulation</td>
<td>Blade positioning</td>
</tr>
<tr>
<td>Tube bending</td>
<td>Parts loading/unloading</td>
<td>Glue dispensing</td>
<td>Hatch/door closures</td>
</tr>
<tr>
<td>Assembly presses</td>
<td>Assembly</td>
<td>Mechanical CAM upgrade</td>
<td>Lane diverters</td>
</tr>
<tr>
<td>Welding gun</td>
<td>Pick &amp; place</td>
<td>Servo valve control</td>
<td>Volumetric filling</td>
</tr>
<tr>
<td>Molding</td>
<td></td>
<td>Flying die cut-to-length</td>
<td>On the fly set-up axes</td>
</tr>
<tr>
<td>Parts clamping</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fastening/joining</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Flexible positioning
- Parts, tools, gates, guards, guides, tables, cameras, probes, applicators, etc.
- Component assembly/pressing/parts clamping
- Flexible force or speed: press, insert, lift
- Edge guides: paper, print, textile
- Roll positioning
- Dispensing
- Valve timing
- Metering
- Damper
- Nozzle insertion, liquid dispensing
### MP-Series Electric Cylinders

<table>
<thead>
<tr>
<th>Frame ISO 1552</th>
<th>Maximum Feed Force N (lbs)</th>
<th>Continuous Feed Force N (lbs)</th>
<th>Maximum Speed m/sec (in/sec)</th>
<th>Screw Lead mm/rev</th>
<th>Maximum Acceleration mm/sec² (in/sec²)</th>
<th>Stroke Lengths</th>
<th>Catalog Number(1)(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size 32</td>
<td>300 (67)</td>
<td>240 (54)</td>
<td>.15 (5.9)</td>
<td>3</td>
<td>6 (236)</td>
<td>100, 200, 300, 400</td>
<td>MPAR-B1xxxB-x2a</td>
</tr>
<tr>
<td></td>
<td>350 (79)</td>
<td>280 (63)</td>
<td>.19 (7.7)</td>
<td>10</td>
<td></td>
<td>4, 8, 12, 16</td>
<td>MPAR-B1xxxE-x2a</td>
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<tr>
<td>Size 40</td>
<td>525 (118)</td>
<td>420 (94)</td>
<td>.25 (9.8)</td>
<td>5</td>
<td></td>
<td>4, 8, 12, 16, 24</td>
<td>MPAR-B2xxx-x2a</td>
</tr>
<tr>
<td></td>
<td>800 (180)</td>
<td>640 (143)(3)</td>
<td>.64 (25.2)</td>
<td>12.7</td>
<td></td>
<td>MPAR-B2xxxF-x2a</td>
<td></td>
</tr>
<tr>
<td>Size 63</td>
<td>2500 (562)</td>
<td>2000 (450)(3)</td>
<td>.5 (19.7)</td>
<td>10</td>
<td></td>
<td>4, 8, 12, 16, 24, 32</td>
<td>MPAR-B3xxx-x2a</td>
</tr>
<tr>
<td></td>
<td>1625 (365)</td>
<td>1300 (292)(3)</td>
<td>1 (39.4)</td>
<td>20</td>
<td></td>
<td>MPAR-B3xxHX-x2a</td>
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</tr>
</tbody>
</table>

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.
2. 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 number above to “-A”. Example: A 230V system catalog number begins with MPAR-A…
3. To specify an actuator with a 24V DC holding brake, substitute 4 for 2 in “2A”.

### TL-Series Electric Cylinders

- For TL-Series, change MPAR to TLAR in the catalog number above. Continuous feed force reduced approximately 25%.

### MP-Series Heavy Duty Electric Cylinders

<table>
<thead>
<tr>
<th>Frame Size (Sq. Flange) mm (in)</th>
<th>Maximum Feed Force N (lbs)</th>
<th>Continuous Feed Force @25°C ambient temp N (lbs)</th>
<th>Maximum Speed m/sec (in/sec)</th>
<th>Ball Screw Pitch mm/rev</th>
<th>Stroke Lengths</th>
<th>Dynamic Load Rating (1 mill rev.s) N (lbs)</th>
<th>Ball Screw Catalog Number(1)(2)(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>64 (2.5)</td>
<td>1446 (325)</td>
<td>890 (200)</td>
<td>305 (12)</td>
<td>5</td>
<td>76</td>
<td>4502 (1012)</td>
<td>MPAR-B2076CV12A</td>
</tr>
<tr>
<td></td>
<td>1446 (325)</td>
<td>1446 (325)</td>
<td>305 (12)</td>
<td>5</td>
<td>150, 300</td>
<td>7602 (1709)</td>
<td>MPAR-B3076CM23A</td>
</tr>
<tr>
<td>83 (3.3)</td>
<td>5140 (1155)</td>
<td>1624 (365)</td>
<td>305 (12)</td>
<td>5</td>
<td>76</td>
<td>5400 (1214)</td>
<td>MPAR-B3xxECM23A</td>
</tr>
<tr>
<td></td>
<td>2570 (578)</td>
<td>814 (184)</td>
<td>610 (24)</td>
<td>10</td>
<td>7620 (1709)</td>
<td>5400 (1214)</td>
<td>MPAR-B3xxECM23A</td>
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<tr>
<td></td>
<td>4448 (1000)</td>
<td>4003 (900)</td>
<td>279 (11.5)</td>
<td>5</td>
<td>7620 (1709)</td>
<td>15000 (3372)</td>
<td>MPAR-B4xxEM23A</td>
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<tr>
<td></td>
<td>4003 (900)</td>
<td>2004 (450)</td>
<td>559 (22)</td>
<td>10</td>
<td>28865 (6714)</td>
<td>4003 (900)</td>
<td>MPAR-B5xxEM23A</td>
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<tr>
<td>110 (4.3)</td>
<td>8896 (2000)</td>
<td>7784 (1750)</td>
<td>279 (11.5)</td>
<td>5</td>
<td>150, 300, 450</td>
<td>35255 (7476)</td>
<td>MPAR-B5xxEM23A</td>
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<tr>
<td></td>
<td>7784 (1750)</td>
<td>3892 (875)</td>
<td>559 (22)</td>
<td>10</td>
<td>35255 (7476)</td>
<td></td>
<td>MPAR-B5xxEM23A</td>
</tr>
<tr>
<td>144 (5.6)</td>
<td>13345 (3000)</td>
<td>13122 (2950)</td>
<td>200 (7.9)</td>
<td>5</td>
<td>35255 (7476)</td>
<td></td>
<td>MPAR-B5xxEM23A</td>
</tr>
</tbody>
</table>

* 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.
2. 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 number above to “-A”. Example: A 230V system catalog number begins with MPAR-A…
3. Specifying an actuator with 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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