

PNEUMATIC PRODUCTS

ENDURANCE TECHNOLOGYSM
A Tolomatic Design Principle



MAXIMUM DURABILITY

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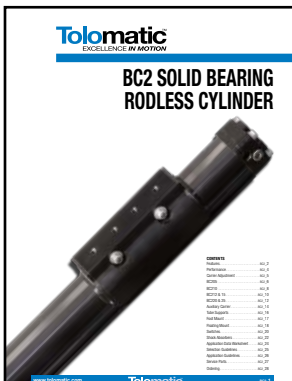
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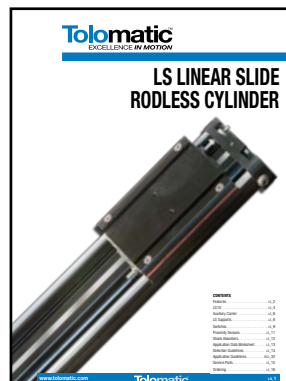
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NOTE: The BC4 has been discontinued. Consider the Tolomatic MXP-N rodless cylinder, it has similar performance and size.



LINEAR SLIDE

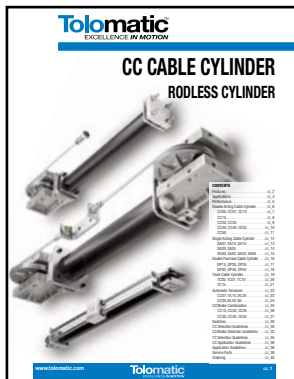
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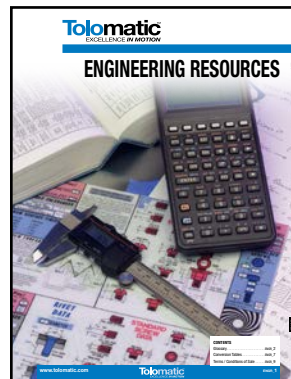
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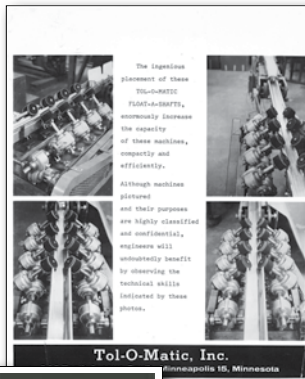
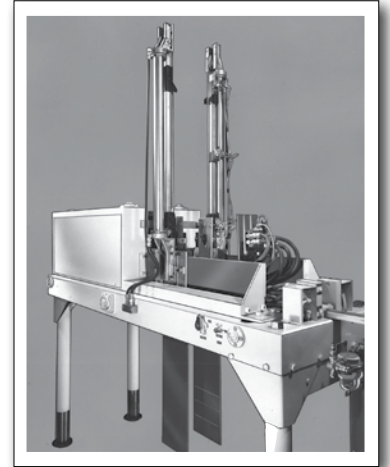


It started with a custom solution.

Tolomatic's first product, the Float-A-Shaft®, marked the beginning of Tolomatic's innovative product solutions for the industrial automation market. Burton Toles, Tolomatic's founder, designed the Float-A-Shaft to greatly improve the efficiency of bagger/sealing machinery used in the flour and milling industry. The unique right-angle gear box permitted quick product changeover and is still used today by the thousands!

On the same bagger/sealer machine, customers also wanted a low-cost simple mechanism to lift and sort bags. Again, the Tolomatic solution proved to be a winner with the invention of the cable cylinder – the world's first rodless product.

Thus began Tolomatic's product innovation legacy: unique and robust automation component solutions to solve customers' machinery motion challenges.



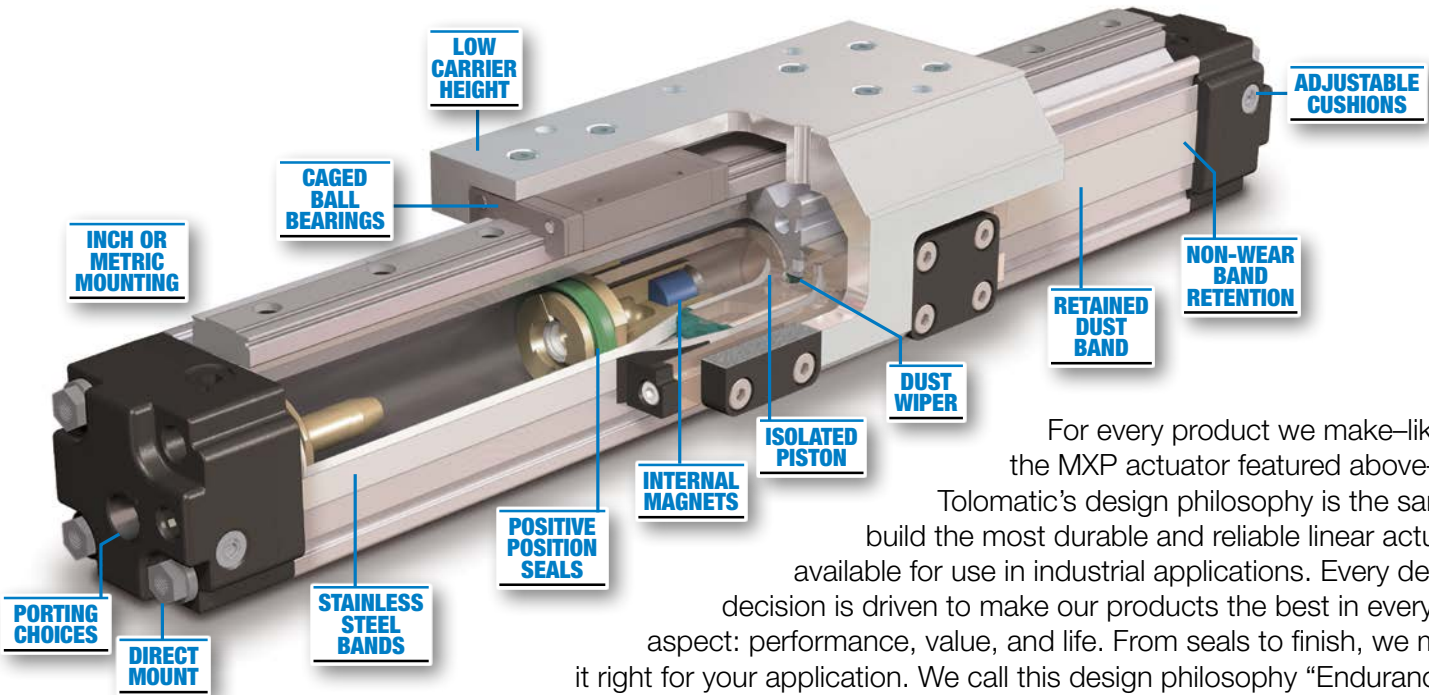
Tolomatic Milestones

- Founded in 1954 by Burton Toles – invented the first right-angle gearbox that floats along the shaft.
- Designed the first rodless cylinder in 1955 – today cable cylinders ship to over 40 countries!
- Introduced the BC2 in 1985 – the world's best selling pneumatic rodless cylinder.
- Tolomatic entered the electric linear motion and controls market in 1992 with its first electric actuators.
- First certified in 1995 Tolomatic is current with ISO 9001:2008 certification.
- In 2004 the top global auto producer selected Tolomatic as its sole worldwide supplier of servo actuators for robotic welding.
- Tolomatic has an expanding portfolio of patents for actuators, mechanical assemblies and manufacturing processes.
- Today Tolomatic automation components, numbering in the hundreds of millions, continue to perform flawlessly in critical applications throughout the world.

n in solving customer needs.

Durable products, built to last with

ENDURANCE TECHNOLOGYSM
A Tolomatic Design Principle



For every product we make—like the MXP actuator featured above—Tolomatic’s design philosophy is the same: build the most durable and reliable linear actuator available for use in industrial applications. Every design decision is driven to make our products the best in every aspect: performance, value, and life. From seals to finish, we make it right for your application. We call this design philosophy “Endurance Technology.” Customers call it “assurance.”

“Your products are built like a tank and run like a deer.” – Actual customer quote

Real data. Real specs. Real world.

Products operate in the real world, not in a lab under a controlled environment. Complex and extreme motion profiles are often the norm. This is why Tolomatic rigorously tests products in a variety of operating conditions and provides complete performance information.

Tolomatic wrote the book on actuator life. Visit www.tolomatic.com/resources to view white papers on optimizing service life, selecting the best lead screw and how to avoid sizing mistakes. Want the facts? Turn to Tolomatic.

Thousands of customers... working in material handling, packaging, medical, food & beverage and automotive... rely on Tolomatic products to get the job done. Do what they do – turn to Tolomatic for your machinery motion and automation needs.



Go to www.tolomatic.com/resources and get the facts from Tolomatic. Download our latest white papers, guides and technical bulletins.



Power Transmission

- *Float-A-Shaft®* and *Slide-Rite®* right-angle gearboxes turn power around any corner.
- *Caliper disc brakes* in mechanical, hydraulic, pneumatic and spring-applied models offer a wide variety of industrial stopping power.
- *Disc cone clutches* with high torque output and non-slip, dependable performance.

Pneumatic Actuators

- *Largest selection of rodless cylinders* in band, cable, and magnetically coupled styles with a wide range of load capacities. We're the only company that offers all three types of rodless cylinders.
- *Rod slides* for maximum force in short stroke packages, perfect for conveyor stops or load lifting applications.

Electric Actuators

- *Rodless screw and belt designs* solve a wide range of moment, load, precision, speed, and performance requirements.
- *A broad range of rod style actuators.* Offered with acme, ball or roller screws for the force, life and repeatability required. Guided actuator models are available.
- *Integrated rod style actuators IMA* integrates a servo motor with ball & roller screw technologies to deliver a powerful compact actuator.

More solutions. Built to last.



Drives & Motors

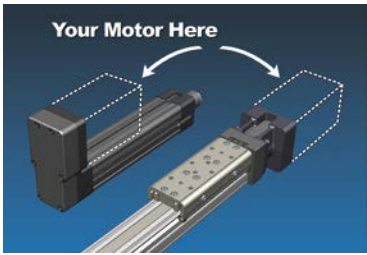
- *Servo controllers, drives and motors* provide smooth, quiet operation and high performance.
- *Stepper controllers, drives and motors*, to achieve precise positioning at economical prices.

Customized Products

- *Industry leading quick turnaround on custom modifications* to Tolomatic standard products.
- *Linear motion solutions with custom design and prototype services.*
- *Your Motor Here* program matches a Tolomatic actuator to customer motor and supplies the in-line or reverse-parallel motor adapter device free of charge, mounted and shipped with the actuator.

Service & Technical Support

- *Fast service and full technical support.*
- *All pneumatic & power transmission catalog products are built-to-order in the stroke length you specify when you need it.*
- *Sizing & selection software and CAD* available online at www.tolomatic.com



CUSTOM CAPABILITIES



Tolomatic's custom model shop can create first-piece prototypes with the industry's fastest turnaround times.

Custom Solutions are Standard Business

Hundreds of customers partner with Tolomatic to solve unique automation application challenges. We are geared to handle design requests—from our Model Shop (for fast prototypes) all the way through our ISO 9001:2008 certified manufacturing facility. Over 33% of our total business is based on products not found in our standard catalog.

With a mind-set toward innovation, years of solid industry experience, and fast response times, Tolomatic can help you get the job done. If you are looking for linear motion solutions—pneumatic or electromechanical—and you cannot find a catalog product, get with Tolomatic. You will experience what we mean by **Excellence in Motion.**



MATERIAL HANDLING



Conveying machinery with built-in lane diverters offer a compact footprint with optimal performance.

Customer Challenge:

The traditional method of using tie rod cylinders to operate diverters required too much space to fit in space-restrictive production areas.

Tolomatic Solution:

Tolomatic recommended a series of pneumatic rodless band cylinders that could be easily retrofitted into production lines by offering a variety of mounting options. The manufacturer's customers were pleased with the space saving results and durability of the machines. The result was an increase of repeat customers for the manufacturer.



PACKAGING



Modular bagging system fills and seals a wide range of materials and bag sizes.

Customer Challenge:

A leader in packaging technology was faced with the problem of compensating for inconsistent bag dimensions on its modular bag filling and sealing system. Irregularly sized bags required manual setup and were slowing the production process which required high-speed accuracy and flexibility.

Tolomatic Solution:

Tolomatic supplied a series of customized electric screw drive actuators that precisely positioned the incoming bags before insertion into the filling/sealing line. Two actuators adjust the vertical position and two others center the bags in the tray. The results: variations in bag lengths and widths are automatically compensated for eliminating filling, sealing and leakage problems and increasing production.



Turn to Tolomatic for

and standard product solutions.

MEDICAL



Angiographic-fluid-delivery system combines motion control technology with physician-interactive control.

Customer Challenge:

Power injection systems used in the angiography technique to diagnose coronary disease did not offer the ability to vary the fluid flow rate during injection. A medical company was looking to improve this technology by giving the physician more control of the process and streamline the complexity of equipment setup. Reliable, consistent performance was a key factor.

Tolomatic Solution:

Tolomatic designed a customized rod screw actuator to provide the rigidity, precision and repeatability required for the injection system. The compact design is capable of performing the necessary consistent thrust required for fluid delivery. Physicians are able to easily control and monitor the fluid delivery keeping their focus on diagnosis and treatment.



CUSTOM ELECTRIC ACTUATOR

FOOD & BEVERAGE



Custom designed high force corrosion resistant actuator for volumetric filling.

Customer Challenge:

A designer and manufacturer of volumetric filling equipment for the food / beverage industry desired to deploy electric actuators to improve performance and minimize product waste. The challenge was to provide an electric actuator that could meet the demanding force, speed and duty cycle requirements with stainless steel construction and IP69K protection.

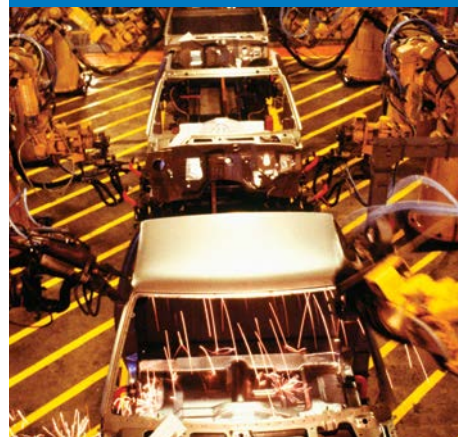
Tolomatic Solution:

An entirely custom electric actuator was developed by Tolomatic. The solution included a round-bodied actuator made from 316 stainless steel that made it ideal for the wash down operating environment. In addition, Tolomatic deployed high force and long life roller screw technology, heavy duty bearings and corrosion resistant seals while adapting the actuator motor mount to the customer's choice of wash down motor.



CUSTOM STAINLESS STEEL ELECTRIC ACTUATOR

AUTOMOTIVE



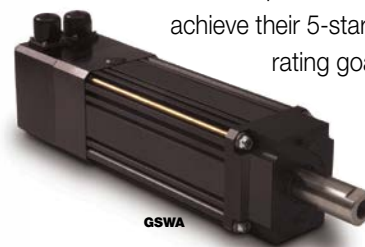
Servo actuators used in resistance spot welding (RSW) increase weld quality.

Customer Challenge:

A leading automotive manufacturer was creating a state-of-the-art automotive assembly facility using electric technology. Specifications demanded a servo actuator with precise performance to create the highest quality welds possible. The actuator needed to be compatible with leading robot manufacturer equipment with minimized setup and provide zero maintenance operation over the life of the actuator.

Tolomatic Solution:

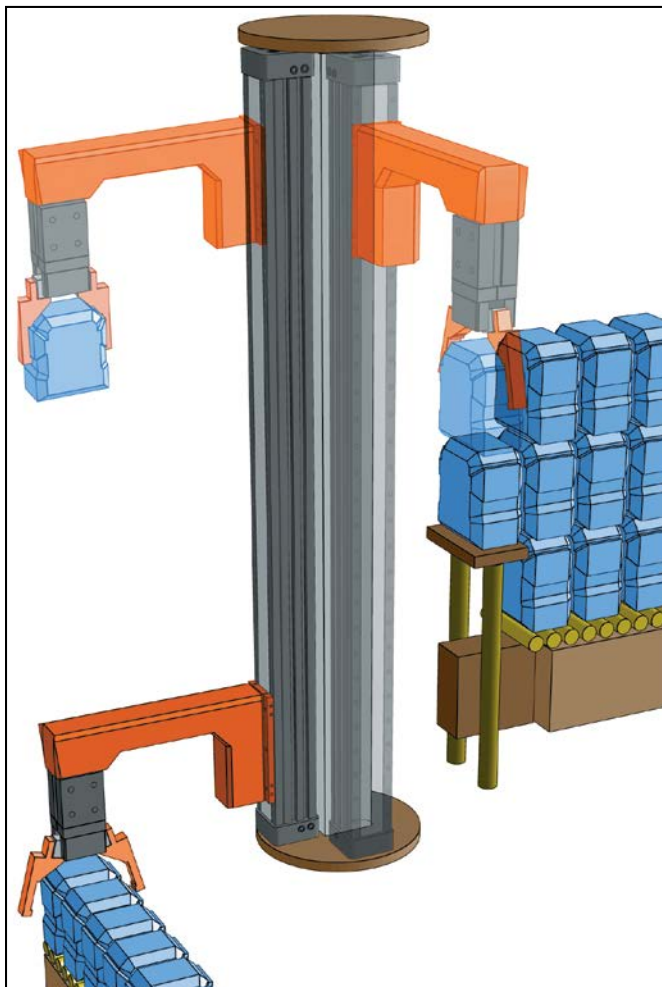
Working closely with the customer, Tolomatic developed ServoWeld®, a custom servo actuator with an integral motor. The actuator required no air cooling (a common trait of weld actuators) with zero maintenance. Completely compatible with the top robot manufacturer weld guns, ServoWeld technology proved efficient, durable and helped the customer achieve their 5-star crash rating goal.



GSWA

the best motion control and linear motion solutions for your applications.

APPLICATIONS



APPLICATION DESCRIPTION:

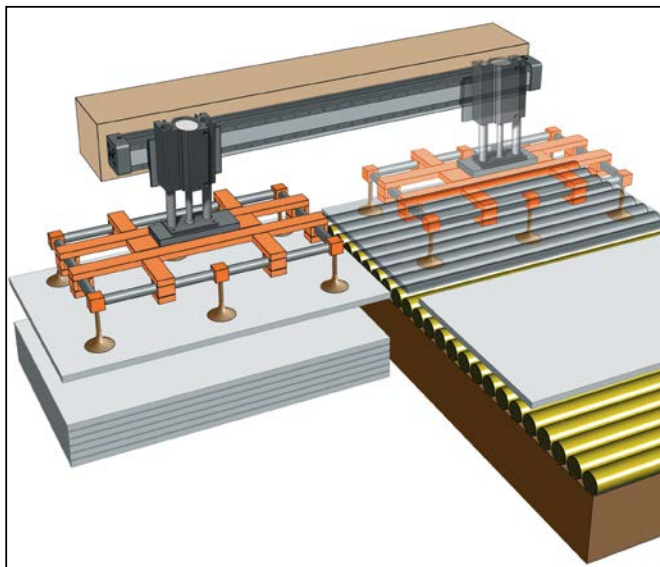
A manufacturer of ceramic blocks needed a method of stacking and moving heavy blocks for final packing. Speed, and power are critical; end-of-stroke position must be consistent. Tolomatic pneumatic products were chosen for this system.

APPLICATION REQUIREMENTS:

- Fast response; 1 block must be moved and stacked each 3 seconds
- Movement from end-of-stroke to end-of-stroke with consistent positioning
- High power; able to move 43 lb. ceramic blocks
- Low cost

TOLOMATIC SOLUTION:

This application uses a Tolomatic BC3 Band Cylinder. The BC3 was chosen because its high bending moment capacity allows it to support the high overhung load at the distance required.



APPLICATION DESCRIPTION:

A manufacturer of battery chargers needed a method of taking sheet metal off of pallets and placing onto the assembly line. Speed is critical and end-of-stroke position must be consistent, thus, Tolomatic pneumatic products were chosen for this system.

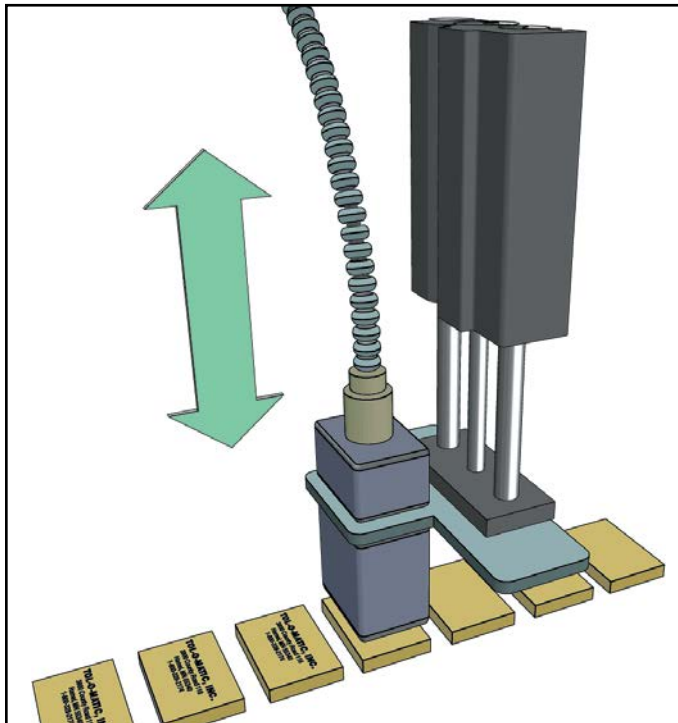
APPLICATION REQUIREMENTS:

- Fast response, 1 part must be reoriented and moved each 3 seconds
- Movement from end-of-stroke to end-of-stroke with consistent positioning
- Low cost
- End-of-stroke adjustment

TOLOMATIC SOLUTION:

This application uses a Tolomatic PB2 Rod Cylinder Slide, attached to a BC3 Band Cylinder with adjustable shocks. This actuator assembly moves the vacuum grid attachment that holds the sheet metal.

APPLICATIONS



APPLICATION DESCRIPTION:

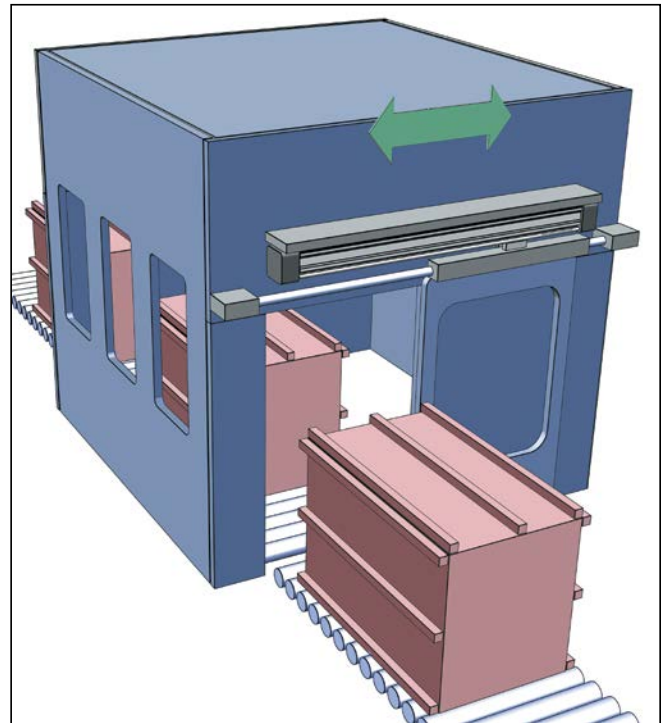
A manufacturer needed a method to stamp information on a plastic case.

APPLICATION REQUIREMENTS:

- Fast response, less than 1 second
- Movement from end-of-stroke to end-of-stroke with consistent positioning
- Relatively high force applied

TOLOMATIC SOLUTION:

This application uses a single Power-Block2 and custom adapter plate with customer's heat stamper.



APPLICATION DESCRIPTION:

A manufacturer of automated spray booths needed actuators to open and close the doors on the spray booth. The doors were already guided and supported.

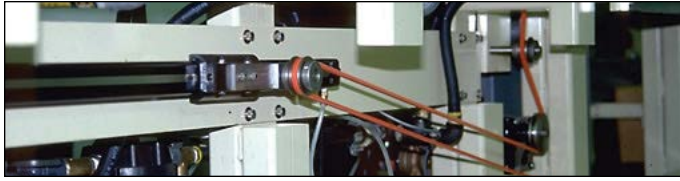
APPLICATION REQUIREMENTS:

- Fast response; doors to open (close) within 2 seconds
- Movement from end-of-stroke to end-of-stroke with consistent positioning
- Low cost
- End-of-stroke cushioning

TOLOMATIC SOLUTION:

This application had used a competitor's band cylinder in previous designs. The MXP-N was chosen because it had the same envelope as the other band cylinder yet offered lower cost, with longer cylinder life. Because thousands of these spray booths are being made, the spray booth manufacturer was able to create a better product and improve its bottom line.

APPLICATIONS



With over 50 years of proven application experience, Tolomatic pneumatic products are key components in the following industries and applications:

INDUSTRY INSTALLATIONS

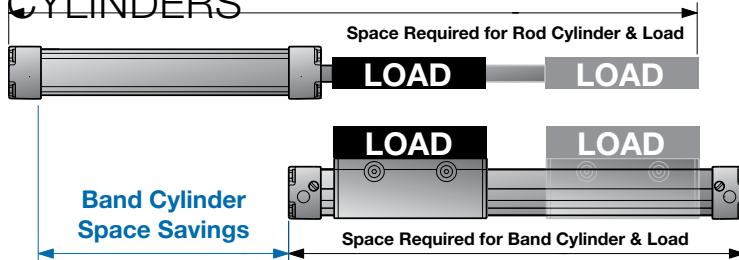
- Packaging
- Automotive
- Food and Beverage
- Material Handling & Conveying
- Plastic Injection Molding
- Metal Processing
- Paper and Textiles
- Medical
- Electronics
- Printing
- and More ...

APPLICATIONS

- Material Handling
- Part Transfer
- Part Advancement
- Part Sorting
- Cutting
- Elevators
- Palletizing
- Door Closure
- Conveyors
- Robotics
- Machine Tools
- General Automation
- and More ...

THE RODLESS ADVANTAGE

TOLOMATIC RODLESS BAND CYLINDERS GET THE JOB DONE IN LESS SPACE THAN ROD STYLE CYLINDERS



Consider this: A rodless band cylinder contains its stroke within the cylinder itself. A 2" bore cylinder with a 24" stroke can provide a 43% space savings when compared to an equivalently sized rod cylinder. In addition, the load is supported throughout the entire stroke so there is minimal load deflection when compared to rod style cylinders.

With a Tolomatic Band Cylinder, there is no concern about rod rotation. Also, because rodless cylinders have equal piston areas in both directions, the cylinder experiences zero load variation in either direction.

GO RODLESS AND SAVE SPACE!

ROD STYLE vs RODLESS FEATURE COMPARISON

Feature	Tolomatic Rodless	Rod Style
Integrated Load Support	✓	—
Space Saving Design	✓	—
Piston Seals Isolated from Load	✓	—
Internal Air Cushioning	✓	✓

RODLESS CYLINDER COMPARISON



Use this table as a quick reference to help understand the differences and similarities of each product line

ST = Standard Feature **OP** = Optional Feature **-** = Not Available

FEATURE	MXP-N	MXP-S	MXP-P	BC2	BC3	LS	MG	MGS	CC
Stainless Steel Band	ST	ST	ST	ST	ST	ST	-	-	-
Internal Air Cushioning	ST	ST	ST	ST ³	ST	-	-	-	ST
Internal Polyurethane Bumper	-	-	-	-	-	-	ST	-	-
External Shock Absorbers	OP	OP	OP	OP ¹	OP	OP	-	OP	-
Adjustable Shock Absorbers	OP	OP	OP	OP ¹	OP	-	-	-	-
Caliper Disc Brake	-	-	-	-	-	-	-	-	OP
Foot Mounts	OP	OP	OP	OP	OP	-	OP	-	-
Tube Supports	OP	OP	OP	OP	OP	OP	-	-	-
Floating Mount	OP	OP	-	OP	-	-	OP	-	-
Auxiliary Carrier	OP	OP	OP	OP	OP	OP	-	-	-
Dual 180° Carrier	-	-	-	-	OP	-	-	-	-
Proximity Sensors	-	-	-	-	-	OP	-	OP	-
Long Carrier	-	-	-	-	-	-	-	-	-
Multi-Ported Head	ST	ST	ST	ST ¹	ST	ST	-	ST	OP
Single End Porting	OP ⁴	OP ⁴	OP ⁴	-	ST	ST	-	-	-
Sensors / Switches	OP	OP	OP	OP	OP	OP	OP	OP	OP ²
Carrier Bearing Type	Engineered Resin	Engineered Resin	Profiled Rail	Engineered Resin	Recirculating Ball Bearing	LS05: Composite LS10: Ball Bearing	-	Composite, Sintered Bronze OR Ball Bearing	-
Piston Isolated From Load	-	ST	ST	ST	ST	ST	ST	ST	ST
Extruded Aluminum Tube	ST	ST	ST	ST	ST	ST	-	-	-

¹Not available for the BC205 ²Switches are not available for cable cylinders with steel tube ³BC205 features external bumper ⁴Not available for the MXP16

THE Tolomatic™ DIFFERENCE

EXCELLENCE IN MOTION

SUPERIOR CUSTOMER SERVICE

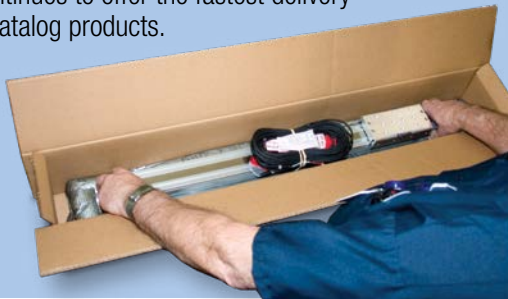


- JUST A PHONE CALL AWAY - Expect prompt, courteous replies to all of your application and product questions. Check us out at 1-800-328-2174

FAST DELIVERY; BUILT-TO-ORDER

- Tolomatic continues to offer the fastest delivery of standard catalog products.

Our products will be there when you need them. **Depend on Tolomatic!**

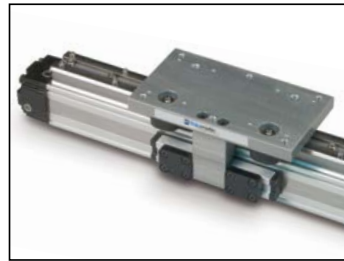


INNOVATIVE PRODUCTS



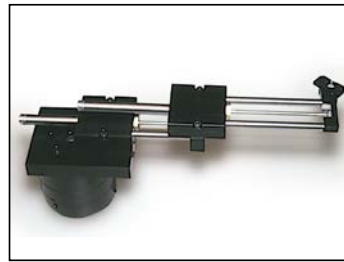
STANDARD PRODUCTS

Tolomatic offers a complete product line of rodless and slide actuators, rod-style electric actuators, controllers and complete motion systems.



MODIFIED PRODUCTS

Modified products, like this MXP with custom rail and carrier, extend the range of environments and applications where Tolomatic products can be used.

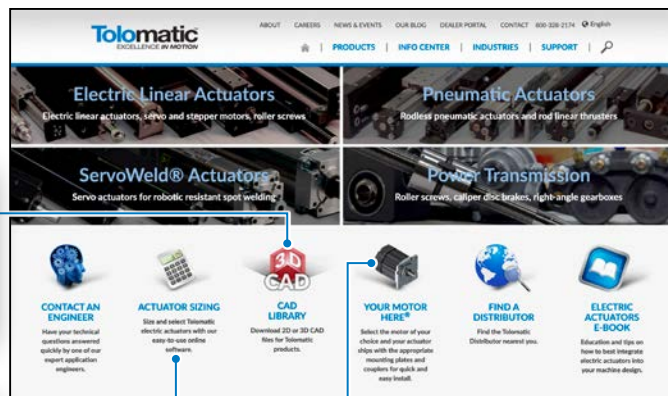


CUSTOM PRODUCTS

Challenges like this multi-axis actuator, built to fit a manufacturer's motion, space and accuracy requirements, are a regular part of our daily activities.

TECHNICAL AND APPLICATION SUPPORT

- COMPLETE INFORMATION AVAILABLE ONLINE - www.tolomatic.com - your definitive source for everything you need to know about Tolomatic and our products.






3D MODELS & 2D DRAWINGS
Available in all common formats.



SIZING & SELECTION
Step by step instructions, specifications and performance data for every electric product.



YOUR MOTOR HERE
Your Motor Here is a program to make mounting most standard motors to appropriately sized actuators easy and seamless.