

BIMBA SPECIAL DESIGN CAPABILITIES

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BIMBA

SOLUTIONS SHOP™

Delivering cutting-edge solutions to engineering challenges is Bimba's top priority. Our innovative designs have helped countless OEMs and MROs meet the demands of changing markets and new needs. In fact, we created our Original Line of non-repairable, stainless steel body air cylinders for a customer who couldn't afford the amount of down-time necessary to repair tie-rod cylinders. Since then, the breadth of Bimba's custom and semi-custom solutions has grown to nearly half of our business. While other companies walk away when off-the-shelf products don't measure up, we will do whatever it takes to develop a solution for your unique application. Bimba has the knowledge, experience and drive to tackle the toughest challenge.

SPECIALTY VALVES

Air Operated Fluid Valves

In filling applications, pneumatic actuators are often used to open and close fluid filling valves. From paints or chemicals to spaghetti sauce, fluid properties are not the same.

Whatever your requirements or fluids may be, Bimba provides custom solutions that are a perfect fit for your application. Featured in the photo is an all stainless steel filling valve with a detachable nozzle extension available for the bottom filling application as seen in the rendering.



Pinch Valve

Developed to help the medical industry avoid microscopic contamination within plumbing that is often created with traditional valves, the Pinch Valve comes complete with cylinder, plunger and back stop. The valve controls the flow of fluids by pinching a tube when extended and gives an on-off function to tubing. The turnkey design thus eliminates costly labor and set-up time, while consistent pinching forces deliver high-quality performance.



Special Mead 3/2 Manual Valve with Automatic Reset

Mead, a Bimba Company that specializes in valves, was approached by a manufacturer who needed a manual valve to engage/disengage the hose clamp on a fire truck exhaust ventilation system. An operator fits the capture hose over the exhaust pipe and then shifts the valve to supply air to the clamping device.

To remove the hose, the operator simply shifts the valve to disengage the clamp. But for emergency calls, the system is required to disengage automatically to conserve time. To accomplish this, the valve includes an automatic shift override that activates with a low pressure pilot signal. The pilot signal is sent when the fire truck starts to move. Because the pressure supply may be inconsistent and very low, Mead designed the automatic reset function with a large, unbalanced spool, to ensure the valve will shift and prevent equipment damage, even at a very low pilot pressure.



SPACE SAVINGS AND UNIQUE GEOMETRIES

Rectangular Stopper Actuator

The Rectangular Stopper Actuator has a hard-coat anodized body that extends to stop the product and retracts flat, allowing the product to be moved across the table. With a "box-top" design, the actuator provides stability and a large stopping surface.



Air-Driven Double Finger Toggle Clamp

The Air-Driven Double Finger Toggle Clamp was initially designed for a window frame manufacturer to hold multiple boards in a fastening application, replacing multiple manual toggle clamps. The cylinder provides "1-stop locking" using pneumatics and gives the customer the ability to vary the locking force by simply adjusting the finger clamping mechanism. It serves as a single solution for all the various frame geometries by offering adjustable length clamping fingers and the option to have either a single clamp or a dual clamp.



Multi-Bore Manifolds

The most efficient and effective approach to minimizing the center-line-to-center-line spacing in between cylinders is to offer multiple cylinder bores inside one housing. These designs with close centers offer the ability to fit more actuators in a smaller space. Pictured is a five-bore cylinder block that incorporates (5) single-acting cylinders with an integrally mounted manifold valve.



THOUGHT-PROVOKING DESIGNS

All-Plastic Cylinder

Designed for a semiconductor application to withstand the harsh environment of hydrofluoric acid fumes used for surface cleaning, the All-Plastic Cylinder incorporates a piston-rod made from PVDF, while a PTFE sheath covers the traditional stainless steel construction of the Bimba PC cylinder. The result is a cylinder having the construction and strength of a traditional Bimba cylinder with 100% plastic components exposed to the environmental elements.



Hand Tools

Bimba has created many hand tool solutions, from hand-pumping hydraulic intensifiers to surgical equipment. Our wealth of experience enables us to provide effective solutions for any hand tool application. This featured hand tool was developed for an automotive manufacturer to automate the application of plastic lock-out ties.



Rate Controls

Bimba has designed many unique rate control devices. This particular Rate Control Actuator was designed for a food service company to provide free flow in one direction and controlled flow in the opposite, or controlled flow in both directions. The fluid-filled cylinder delivers smooth, consistent velocity control, as well as improved aesthetics and integrated mounting hardware.



Vane Remover Rotary Actuator

Engineered to replace a traditional vane style rotary actuator, this design incorporates traditional and more reliable linear actuator sealing technology to offer long life, leak free operation and full torque at start-up. This innovative design is available in a variety of rotations and torque outputs.



Desiccant Drier

The Desiccant Drier was developed as a solution for a customer looking for a long life, maintenance-free, compact desiccant drier that could be placed within a control box. The drier incorporates the design of a traditional air reservoir but is packed full of desiccant drier beads, tightly compacted with a spring-loaded piston. The design is further improved with the addition of RoHS compliant materials, which ensure that proper disposal guidelines are met after the product is consumed.



Gripper with Integrated Valve

The Gripper with Integrated Valve was designed at the request of a manufacturer of post-press finishing equipment to increase workflow efficiency for an application used in their commercial printers. This gripper features a special tooling plate with “end effector” pads, mechanical switch, and an internal porting and valve system, all built into the unit.



TRD Special Slide with Rod Lock

TRD, a Bimba Company specializing in NFPA tie rod cylinders, designed this pneumatic positioning system for a military armaments contractor that needed a solution for a potentially explosion-proof environment. The application required a large moveable work surface that could be repositioned in less than one second, in one-inch increments. TRD developed a low friction cylinder/slide assembly with an integral cylinder rod lock that met the specific space envelope. And, the pneumatically controlled position system would repeatedly reposition the customer’s 20-pound payload to within .008 inch throughout the 4 inch stroke range.

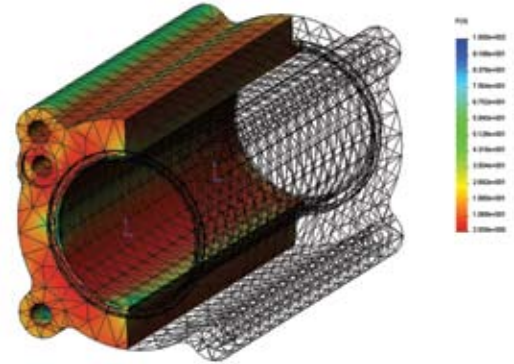


“Throughout the design process, the Bimba team was instrumental in helping with PLC specs, set-up, programming and troubleshooting. In the end, the system of original line and position feedback cylinders functions perfectly. I thank you for your product line, your inside sales staff, your technical expertise, willingness to take on tough issues, and overall responsiveness, especially in the last hours of the project. The team effort was critical to the success of the project.”

— M.J., Military Equipment Design Engineer

A COMMITMENT TO INNOVATION

Bimba often pushes product design and testing to the limit to ensure that the customer receives the most durable product possible for a given application through rigorous Finite Element Analysis (FEA) and meticulous empirical testing. Virtual FEA, through the market leading computer aided manufacturing (CAM) system, allows entire designs to be constructed, refined, tested and optimized before the design is manufactured, substantially decreasing production time.



FEA and the empirical tests have increased product accuracy, enhanced insights into critical design limitations and boosted productivity, all in an effort to help engineers worldwide get the job done. It's no surprise that customers rate Bimba first above all other cylinder manufacturers when it comes to consistent product performance and trouble-free operation.

Find more solutions from Bimba at www.bimba.com/solutionshop

Bimba Manufacturing Company
Monee, Illinois 60449-0068
Tel: 708.534.8544
Tech Support: 800.44BIMBA
Fax: 708.235.2014
support@bimba.com

www.bimba.com



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