



ACTUATION PNEUS

Actuation Pneus is just a sampling of what you will find online at bimba.com. For a comprehensive listing of technical support, product solutions, breaking news and more, log on to bimba.com today.

Bimba @ Work



A spine tingling approach to treating spinal cord injuries.

A Bimba actuator is helping a lab prepare donated organs for transplant surgery. The Double Wall® Bimba actuator with a stainless steel body powers a custom application to dissect a human spinal column for use in repair of critical spinal injuries. The actuator provides the motive force to section the spine into precise lengths for transplant.

The Bimba actuator and tooling replace a hand-operated version of the device, and allows much more precise sectioning that makes the most of the scarce material. An organ harvesting organization uses the stainless steel cutting device and tooling that allows much more precise sectioning into 1/4", 3/8" or 1/2" widths to fit the recipient.

A Bimba distributor, Action Automation, played a key role by supplying the control system for the actuator. The Double Wall® actuator provides enough power to cut through the dense bone of the spine and leave it ready for transplant. After sectioning, the tissue is sterilized and packaged for use.



Bimba's Double Wall® actuator has proven accurate and precise enough to be used in a critical operation—sectioning a human spine.

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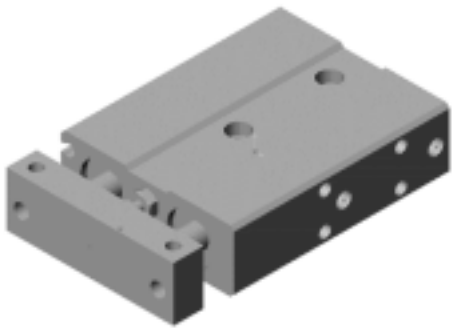
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This issue of Actuation Pneus brought to you by:

CAD File Update

In an effort to provide Bimba customers and business partners with the most up-to-date and useful tools for specifying, installing and using Bimba products, we are updating our website with CAD files of Bimba products. These PRO/E, 3D STEP, IGES and 2D DXF files can be inserted readily into your CAD application. Visit us online at www.bimba.com/cad/cad.htm.

NOW ONLINE



Web Site FAQ

This question comes to us via Bimba's website from Kurt Bilinski on 2/12/02.

Q: I want to replace a cable shift linkage with your cylinders and need help in selecting the best unit. The idea is to use two "push-pull" cylinders at each end, basically duplicating the "x-y" motion of the shifter at the transmission end. I was looking for hydraulic units. Desired specs are a "push-pull" stroke of 3" to 4", a force of 100 pounds max, and a shaft diameter of 1/4" to 1/2". It has an operating temperature range of -20° to +60° C. Does Bimba have an appropriate hydraulic unit?

A: Bimba offers a line of hydraulic cylinders we refer to as our "500" Series. They can be found in our Original Line Catalog, OL-1011, and are offered in three bore sizes, (1-1/16", 1-1/2" and 2"). Please consider model H-094-DUZ; this 4" stroke unit incorporates a 3/8" rod diameter. Also, you could use different bore cylinders on each end to change displacement/force relationships. You can access the catalog through the "Products" section of www.bimba.com. If you have any questions, you may also reach our Technical Assistance Center at 1-800-442-4622.

Tech Tips

Twist Clamp Test Data (BIMBA EFC vs. Competitor)

The Bimba EFCL-EF (left-hand rotation) and EFCR-EF (right-hand rotation) were developed from the Bimba EF1 cylinder body to provide a twisting motion upon extension. The rotating motion was required for a clamping application where the rod end interfered with the removal of the work piece. The test data below is the result of extensive testing on clamp arm accessories designed for work-holding for Bimba's EFC and a Competitor. Contact us for a copy of the formal test documentation.

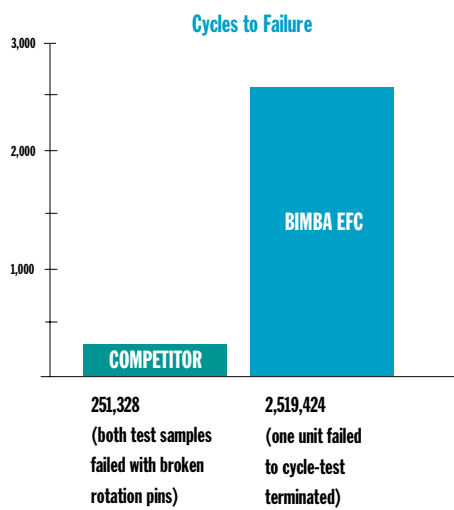


The EFC is a development of the Bimba EF1 cylinder with a twisting motion.

Common Test Parameters:

Cycle Rate: One per second
 Pressure: 85 psig
 Bore: 40 mm
 Orientation: vertical
 Filtration: 5 micron
 Dew Point: -40° F
 Lubrication: In-line mist lubricator

Both sets of clamps were adjusted so that the clamp arm screw bottoms out prior to the piston bottoming out. The Competitor units had .750" square steel clamp arms, 4" long, weighing approximately 11 ounces. The BIMBA units had .880" square steel clamp arms, 4" long, weighing approximately 15 ounces.



Clamp Arm Free Play

BIMBA 0.97 degrees (average two new units) 1.63 degrees (average two units at 1,496,337 cycles)	COMPETITOR 2.77 degrees (average two new units)
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Request Catalog NPB-302

Tech Bulletin

Narrow Profile Air Table Actuator

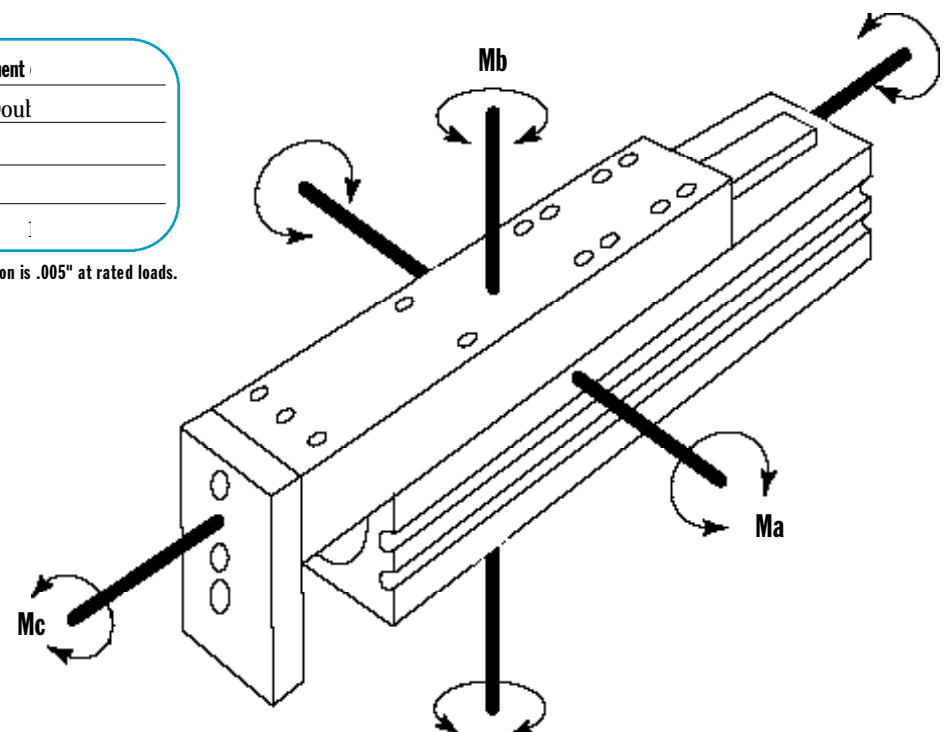
The NPA-12□ actuator provides precise load guiding with a recirculating ball rail above its bore. Two bearing styles are offered (single/double bearing block) to accommodate both lower cost and higher precision applications. With standard strokes up to 95mm, the NPA-12□ offers longer travel length than any competitive actuator of its type.



For calculation of allowable static loads, see Catalog F0, TBA section. Use the following data in calculations:

	Maximum Allowable Moment	
	Single Block	Double
Ma	2.55	
Mb	2.55	
Mc	5.10	

* Maximum table deflection in any direction is .005" at rated loads.



Request Catalog NPB-302

Inside Bimba

Air-to-Air Booster

Bimba's CSS-00118-A Air-to-Air Booster doubles supplied air pressure up to 125 psi input pressure. Small and self-contained, the 2:1 ratio Air-to-Air Booster can amplify inadequate air pressure using only integral valve components.

This unit is typically plumbed to a reservoir tank and begins reciprocating upon supply pressure input. It builds to maximum outlet and stalls. It then automatically restarts upon pressure drop.

- Maximum Input Pressure: 125 psi
- Operating Temperature: 15° to 150° F
- Lubrication: HT-99 oil
- Bodies and Center Section: Aluminum, Hard Coat with PTFE
- Mounting Plate: Anodized Aluminum

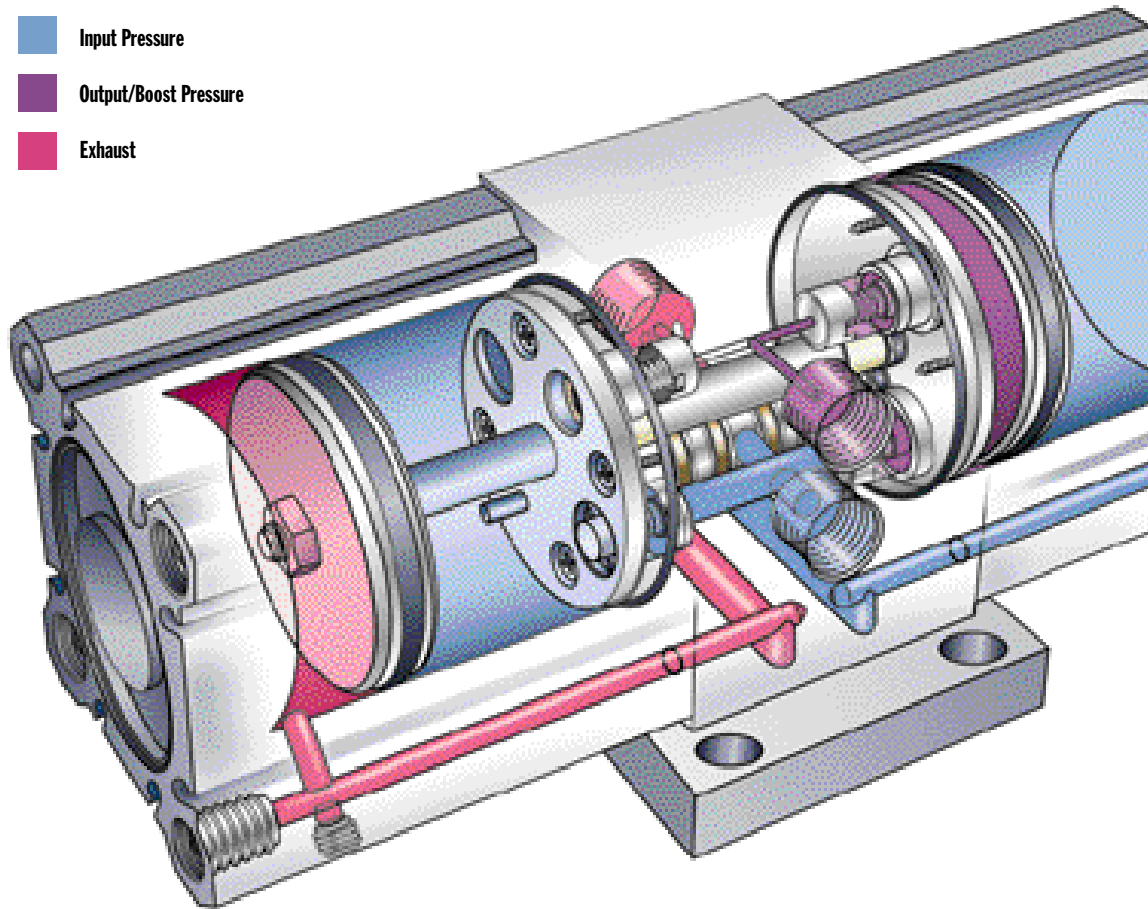


FIGURE A

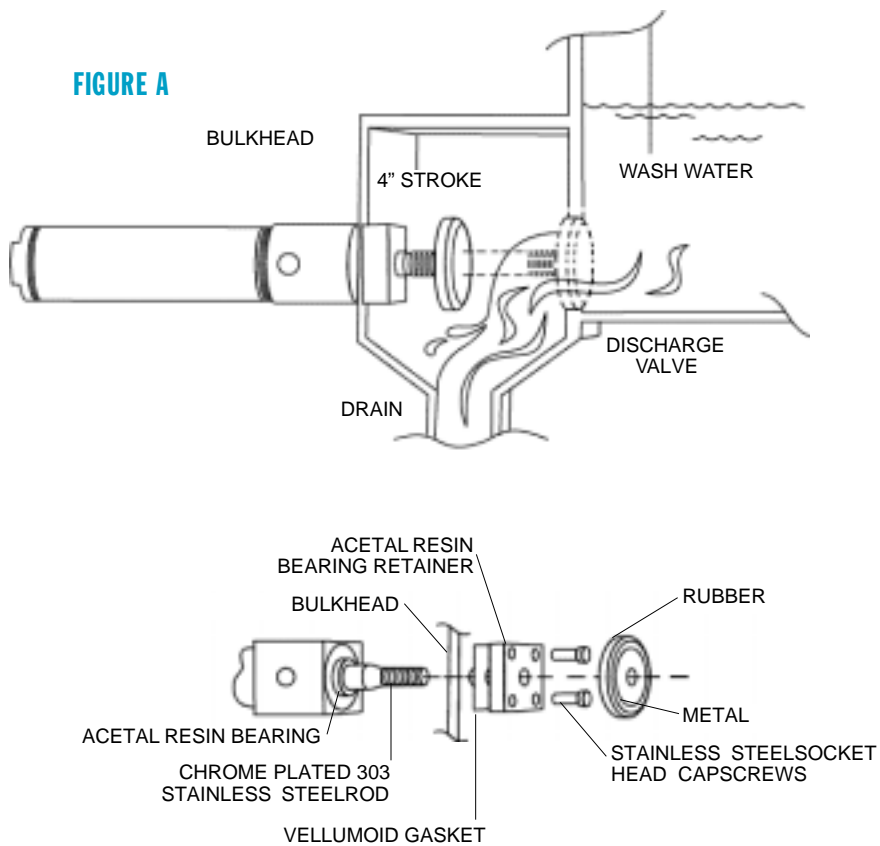
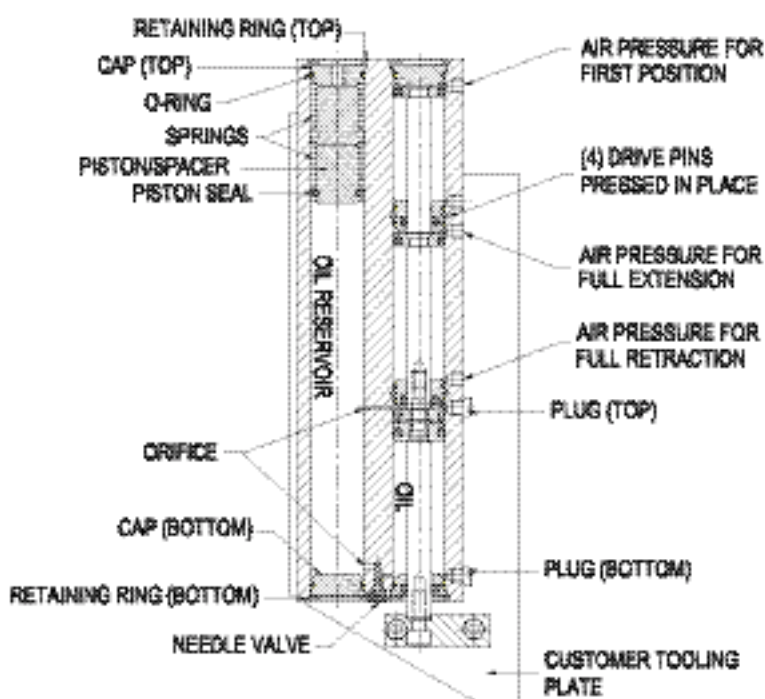


FIGURE B



Actuation Applications

Commercial Washing Machine

Problem: When a cylinder is installed in a laundry washing system it comes in direct contact with detergent and bleach. Dirt also enters the front bearing, and high temperature waste water passes the cylinder.

Bimba Solution: An Original Line Double-Acting Cylinder includes a block front mount, 1-1/2" bore and 4" stroke with a stainless steel body (see Figure A). Hard chrome-plated, 303 stainless rod, anodized end caps and stainless steel screws combat corrosion. The rod bearing seal and wiper are repairable via a bolt-on gland configuration, which facilitates mounting through the bulkhead/housing of the machine. Acetal resin material is used to fabricate the rod bearing and bearing retainer.

Polyethylene Film Processor

Problem: A customer needed a pneumatic actuator that provided smooth continuous movement through multiple positions in order to extend the life of the cutting knife attached to the actuator tooling plate. The customer envisioned several actuators plumbed together externally.

Bimba Solution: The base is a twin bore table slide actuator (see Figure B). It is modified to a three-position, recirculating ball, precision rail-slide cylinder with a custom tool plate attached to the piston rod and oil-filled reservoir. The reservoir allows motion control to a specified adjustable velocity via a needle valve. The cylinder bore is 20mm, with strokes approximately 40mm and 15mm in length, so that the cylinder is able to travel out a total of 55mm and then oscillate back and forth 15mm. The cylinder mounts by four #10-32 tapped holes in the side of the cylinder.

New Products

Stainless Steel TRD Series ideal for food processing applications

Bimba now offers the TRD series in stainless steel with FDA approved components. The TRD stainless steel tie rod series has a pre-lubed design and the



250 psi version is standard. A 400 psi non-shock hydraulic version is optional. Cylinder bore sizes range from 1-1/2" to 8", and oversized rods and single or double rod ends are

available. Stainless steel non-rotating (NR) versions are also available, in bore sizes from 2" to 8".

Stainless Steel MSE/MSR is available in two-, three- and four-stage force multiplying models. Both 125 psi pneumatic and low-pressure hydraulic versions are offered in bore sizes from 1-1/2" to 6". Accessories offered for all models include all stainless steel alignment coupler, rod clevises, mounts, and miniature reed and solid state switches.

Request Catalog CAT-TRDSS-301

TRD Micro Adjust allows for precise adjustment of extend stroke

The TRD Micro-Adjust series now has a calibrated stop collar that allows for precise adjustment of extend stroke. The stop collar is locked in place with a double mechanism that offers an easy-to-read precision scale and .001" calibration.

The TRD Micro-Adjust is available in the TA and multi-stage MSE series cylinders. Standard bore sizes range from 1-1/2" to 8", with up to 6" stroke.



Request Catalog TRD-MA-0601

Heavy-Duty Bench-Top Press offered in TRD Series

The TRD Series now has a steel heavy-duty bench top press version with keyed and bolted construction design. This version is ideal for open work areas for through feed or side feed of large parts. Its removable, oversized ground plate is dowel-pinned to the press frame and provides precise location for the tool plate to the press frame.



The Bench-Top version offers three built-in work height settings, and is designed to accept a TRD, NFPA interchangeable 5" bore cylinder or a TRD multi-stage cylinder, with strokes ranging from 1" to 8". Options include non-rotating piston rod, high temperature seals, Micro-Adjust and magnetic piston.

Request Catalog TRDPF-901

New TRD Position Feedback Cylinder (PFLF) and Pneumatic Motion Control System (PCS)

The new TA Series PFLF cylinder now comes equipped with a linear resistive transducer for 1-1/2" to 8" bore sizes in most NFPA mounts. The PCS is an electronic controller with pneumatic valves that use signals from a PLC for accuracy and repeatability as small as +/- .004", velocities from 2" to 7"/sec and payloads up to 360 pounds. Engineered as a complete system, it provides a completely integrated way to accurately stop and hold a cylinder.



Request Catalog PFLF-0601

High Load Ultram is now available in 1-1/16" bore

Bimba's High Load Ultram series now offers the UHL-09 in 1-1/16" bore, joining the 1-1/4" and 1-1/2" bore sizes. The UHL-09 offers the same large load bearing capabilities, pre-lubricated with Bimba's special bearing-grade grease, leak-free construction, and optional bumpers to reduce noise.



Request Catalog AP-1001

New Literature

OL-1011	New Original Line Catalog now includes double acting spring extend, double acting spring return and wiper on all bore sizes. Stainless steel couplers and switch track information is also included.
AP-1001	Automation Products Catalog
FO-202	Flat-1, EF Cylinders, Twin Bore Cylinders
NPB-302	New Products Bulletin Includes: Air-to-Air Booster Cylinder, Low Profile Air Table Actuator, Narrow Profile Air Table Actuator, Extruded Linear Thruster, EFC Twist Clamp Cylinder, Stopper Cylinder, Diaphragm Cylinder, Miniature Cube Cylinder and Ultram Proximity Sensor
TRD-MA-0601	Product Bulletin for TRD Micro-Adjust Cylinder Option
TRDPF-901	Product Bulletin for TRD Bench Top Press
CAT-TRDSS-301	TRD Stainless Steel Cylinders
PFLF-0601	TRD Position Control System Product Catalog

Trade Show Schedule

National Design Engineering Show	March 18-21, 2002	Booth #6916	Chicago, IL
ISA Expo	July 10-12, 2002	Booth #1718	Mexico City, Mexico
Semicon West	July 22-24, 2002	Booth #3011	San Francisco, CA
Assembly Technology Expo	September 24-26, 2002	Booth #15107	Rosemont, IL
PackExpo	November 3-7, 2002	Booth E-6829	Chicago, IL

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Bimba is an employee-owned company.