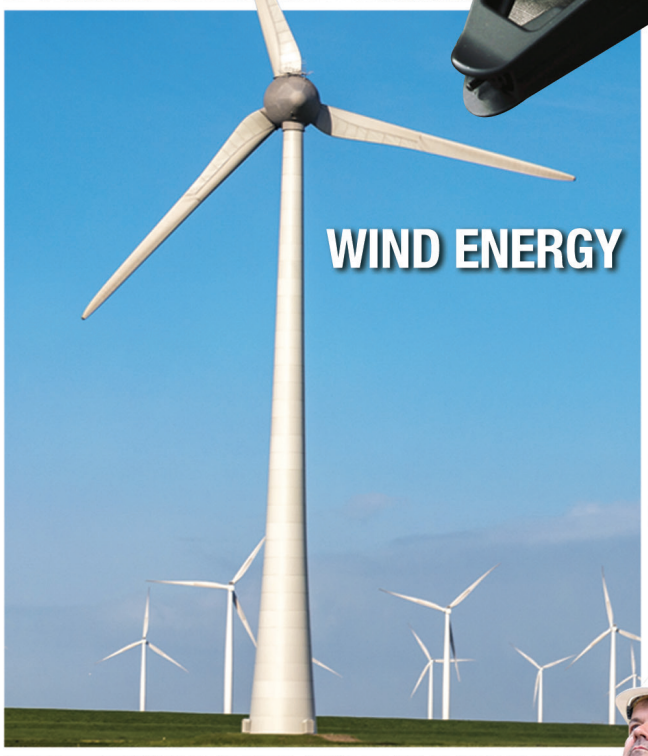
ABRASIVE BLASTING AUTOMATION

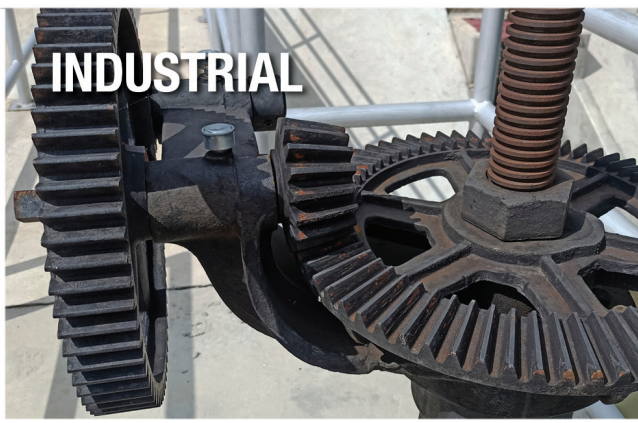
BNP A-Series Indexing Turntable Blasting Systems

Clemco Industries Corp.

ZERO Blast Cabinets®

INDUSTRIES SERVED





BNP A-SERIES

ZERO® BNP A-Series Blasting Systems put precise, repeatable, automated blast cleaning, surface finishing, deburring, and peening within reach of small to midsize manufacturers and machining centers.

Each system features an indexing turntable, rotating satellites and automatic blow-off, as well as fingertip controls for setting cycle time and parts rotation.

These features and others are accessed through a recipe-management system powered by intuitive PLC driven controls mounted on a swing-away HMI.

Easy to Use

Consistent, Repeatable Results

Safer for Parts and People

Low Total Cost of Ownership

PLC and HMI Controls

Clemco manufactures two A-Series Automated Blasting Systems: the A200 (pictured in the upper left) and the larger A205.

ZERO® BNP A-Series

For cleaning, deflashing, etching, finishing and shot peening, A-Series Blasting Systems can eliminate expensive, time-consuming rework.

Easy to Use

Six low-profile, rotating satellites and generous 12” x 16” door openings accommodate a wide array of parts. Each satellite supports up to 25 lbs, including the part being blasted and the fixture to hold it in place.

Adjustable mounts allow the automatic blast guns to be set at the appropriate angles and distances for the part being blasted.

Unlike special purpose machines designed to clean just one or two types of parts, A-Series Blasting Systems can switch quickly from one part to another.

Changing fixtures and repositioning blast guns takes just a few minutes. In addition, some changeovers can be accomplished by changing recipes with the HMI, such as using the HMI to activate as many or as few blast guns as needed for an application. The capability to quickly adjust these systems to blast different parts allows manufacturers to spread the cost of a system across several products.

Standard A-Series Systems come configured for either two-station or single-station indexing. Two-station indexing puts two parts in each of the blast, blow-off, and load positions. Single-station indexing allows multi-step blasting, such as inside-and-out or top-and-bottom.

Consistent, Repeatable Results

For cleaning, deflashing, etching, finishing and shot peening, A-Series Blasting Systems eliminate expensive, time-consuming rework while delivering the same amount of blasting to the first part, the last part, and every part in between. For shot peening applications, A-Series Systems provide consistent, documentable peening intensity, making them perfect for peening aircraft turbine blades and other precision parts.

Safer for Parts and People

In an A-Series System, parts do not touch one another because each part enters the blast chamber mounted on a variable-speed, rotating satellite. This process prevents delicate parts from damaging one another, which could happen in tumble cabinets.

The blast guns, which are firmly mounted to fixed or optional oscillating arms, maintain constant distances and angles so parts receive the predetermined blast intensity and coverage.

A-Series Systems eliminate much of the fatigue and repetitive motion that operators experience during high-production, manual parts processing. Dual palm buttons (or optional light curtains) actuate the index-and-blast cycle only when an operator’s hands are clear of moving parts.

A-Series Systems stay sealed during blast and blow-off, reducing noise level and trapping dust and media inside the blasting chamber. A tray below the blasting-chamber door catches media when the door is opened.

Low Total Cost of Ownership

A-Series Blasting Systems save labor, time and blast media, and help prevent costly rework. The standard six-gun system can thoroughly blast a part inside and out in

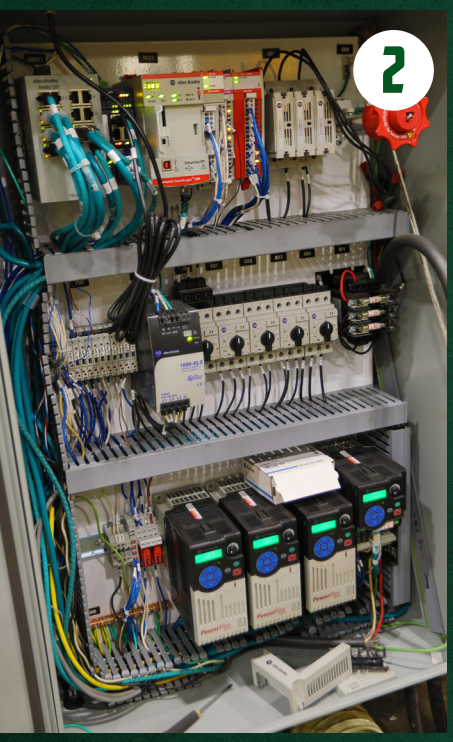


Photo Key

1. *Solenoid bank for blast guns*
2. *Main control panel*
3. *Lexan metering valves*
4. *Three controls:*
   - *Safety-door interlock (upper right)*
   - *Indexing-turntable palm button (center)*
   - *Emergency-stop push button (bottom)*
5. *On-machine, input-out block*
6. *Overview photo of automation controls*

A-Series Blasting Systems save labor, time and blast media, and help prevent costly rework.

a fraction of the time required by a single blast gun or other manual process. The systems are available with 6, 8, or 12 suction guns. In order to meet specific production requirements, systems can be built with more than 12 suction guns or with a higher-production pressure blast system.

SILVER OEM Partner
ROCKWELL AUTOMATION

Clemco incorporates Rockwell Automation technology into its A-Series Automated Blasting Systems and is a Rockwell Automation Silver OEM Partner.

PLC and HMI Controls

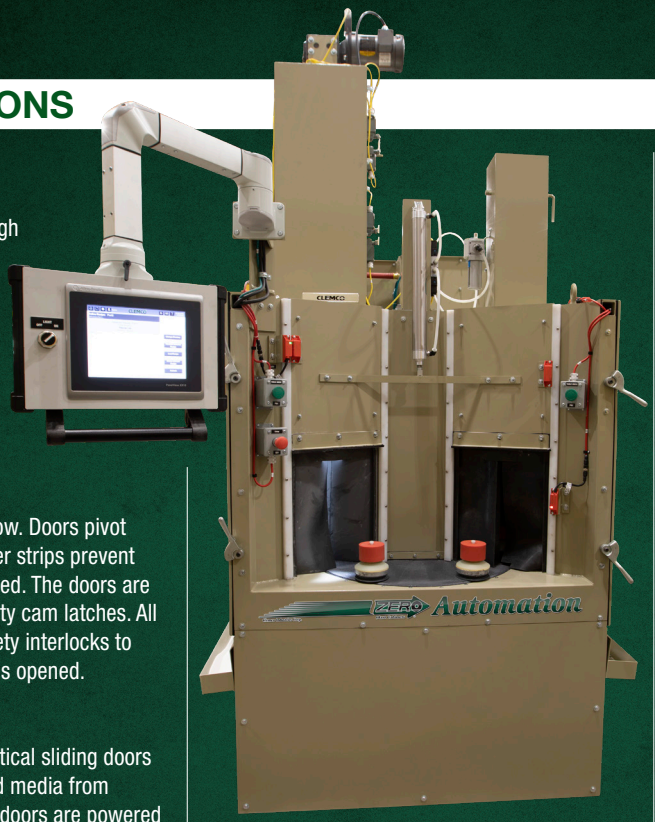
A rich, uncluttered display supported by a recipe-management system and other cutting-edge technology allows operators to initiate a variety of stored settings (blast pressure, satellite rotation speed, blast time, etc.) with a few touches of the screen. Straightforward access to these presets produce precise, repeatable results; facilitate quick changeover for blasting different parts; and ensure that operators use the correct settings.

In addition, the control system monitors the blast performance, illustrating onscreen in real time which system components are active and if any need maintenance or are malfunctioning, which all reduces maintenance costs and downtime. For example, A-Series Systems automatically season dust-collector cartridges and alert operators when cartridges need replacement.

A-Series Systems also have plug-and-play hardware and prerouted cables, promoting fast system setup. The technology they incorporate into their controls greatly reduces system wiring and components, contributing to this version of the machines having the smallest footprints of any in their history. The systems also are TUV certified for safety and quality.

These features and others ensure that A-Series Automated Blasting Systems provide consistent, repeatable results.

SPECIFICATIONS



Overall Dimensions
A200:
48” wide x 48” deep x 66” high

A205:
60” wide x 60” deep x 66” high

Maintenance Doors
Double-wall construction with foam insulation for noise reduction. Right door has a large 19” x 12” view window. Doors pivot on heavy-duty hinges. Rubber strips prevent leakage when doors are closed. The doors are held closed by two heavy-duty cam latches. All doors are equipped with safety interlocks to interrupt operation if a door is opened.

Part Entrance and Exit
Openings are covered by vertical sliding doors designed to prevent dust and media from escaping when closed. Both doors are powered by a 16” stroke air cylinder controlled by dual palm buttons for operator safety. Teflon™ guide rails provide smooth operation. The entrance opening is 12” wide x 16” high from table top to top of opening. Actual area for part passage is approximately 12” wide x 13.5” high, allowing for fixturing.

Turntable
Made from carbon-steel plate with a structural-steel support framework. Coated with a wear-resistant urethane coating for extended protection from abrasives. Mounted on triple-sealed bearings and driven by a 60:1 gear reducer powered by a 1/3 HP, 900 rpm variable speed DC motor. The turntable has an outside diameter of 30” and a total weight capacity of 150 lbs.

Rotating Air Blow-Off
Equipped with one rotating air blow-off station.

Fixturing
Six rotating fixture bases are each capable of supporting 25 lbs. Fixture rotation is accomplished with a 50:1 gear reducer and a 1/4 HP, 1800 rpm variable speed motor (0-30 rpm) rotated by a urethane belt with the motor located outside the blast chamber.

Blast Equipment System
ZERO venturi-type, suction-feed blast guns with 3/8” tungsten carbide nozzles and 3/16” orifice assemblies, metering valve assembly, air manifold assembly, and all necessary hoses and fittings. Either model can be fitted with 6, 8, or 12 suction guns or pressure nozzles as appropriate for the application. Guns are mounted on carbon-steel slotted bars to allow manual repositioning. Can also be mounted to optional oscillation devices.

Air Manifold
Designed to condition and evenly distribute compressed air to each blast gun. Includes a 1.5” automatic drain moisture separator and a 1.5” pilot-operated main air regulator.

Reclaim
Highly efficient, balanced ZERO reclaimer: 900, 1200, or 1800 cfm available.

Media Manifold
This assembly is located directly below the reclaimer and ensures proper distribution of blast media to each metering valve.

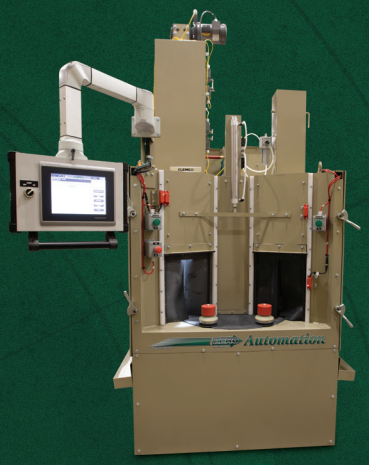
Dust Collection
Delivered standard with a ZERO RPH Model, reverse-pulse, jet-cartridge dust collector in 900, 1200, or 1800 cfm.

LED Lighting
Improves operator efficiency and outshines even higher-wattage florescent and incandescent lights.

Electrical Requirements
Units can be wired for 460V, 3 PH, 60 Hz or other electrical configurations upon request.

OPTIONS AND ACCESSORIES

- **Gun Oscillation**
  Increases parts coverage without adding guns and increases flexibility for gun positioning.
- **Sound Insulation Package**
  Includes extra sound-deadening foam, and raised air inlets and exhaust to meet customer-specified decibel level limits.
- **Light Curtain Control**
  Eliminates need for operator to depress palm buttons and prevents operation until operator’s hands are clear of moving parts.
- **HEPA Filters**
  Capture 99.97 percent of dust particles as small as 0.3 micron.
- **Shot Flow Monitors and Controllers**
  Maintain consistent, repeatable, and documentable peening intensities for compliance with AMS 2432.
- **Vibratory Classifiers and Spiral Separators**
  Enhance the media cleaning and classification system, particularly in shot peening applications where media size and shape are critical.
- **Automatic Media Refreshing**
  Maintains the proper operating mix from start to finish.
- **Pick-and-Place Robotics**
  Allow continuous loading and unloading without an operator.



ZERO Automation

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