Siapro Automation Equipment – Stress Peening Production Process with Siapro Shot Peening Machine and Robotic Handling System

Upgraded solution: This Siapro machine located in Romania is a fully automated system specifically designed for advanced shot peening and stress peening applications. It was initially engineered by Siapro and later upgraded for seamless integration with robotic systems.
Machine vision: The machine incorporates a sophisticated Vision system (machine vision), allowing it to accurately recognize and select items for processing - even when the items are not uniformly positioned on the plates. This capability ensures reliable performance and precision during the blasting process, as the robot can adapt dynamically to variable item placement.

100% automation: Key features of this equipment include an AAD valve, efficient E.ECO Siapro turbines and a frequency converter, providing exact control over blasting parameters. Engineered as a custom solution for handling heavy metal leaf springs, the equipment is designed to operate with 100% automation, eliminating the need for human intervention. Delivered as a turnkey project, it embodies Siapro's expertise in creating tailored, high-efficiency robotic systems for demanding production environments.

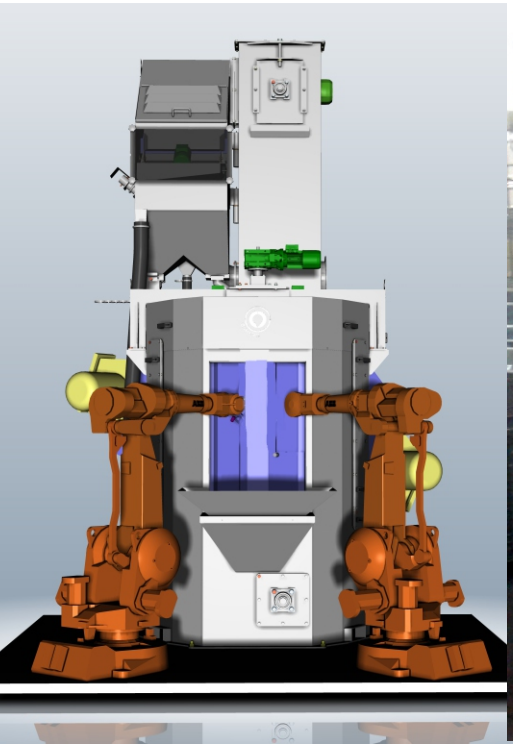
Siapro RBN 400×800 Shot Blasting Machine Integrated with a Robotic Handling System

Custom-made machine operating in the laboratory: This customized equipment was sold to a client in Slovenia and it is used in a laboratory. It is a very compact machine. Blasting machine operates on the principle of sandblasting using a pressure vessel and is specially designed for laboratory use. Blasting is performed with corundum.

The machine includes a hanger with space for four products, which the robot loads in a specific sequence. Each product is cleaned with its own nozzle, with a total of four nozzles used for precise cleaning.

Manipulation with robot: The robot manages both the cleaning process, which has a cycle time of one minute, as well as the loading and unloading of products into the machine.

Siapro RBB 400×4 Robot Shot Blasting Machine for 100% Automated Production



Advanced Robotic Blasting Technology

Machine is located in Slovenia. The machine operates within a robotic cell, with loading and unloading managed by a manipulator. It is designed for fully automated operation, featuring an AAD valve, AAF system, frequency converter, and position sensors that recognize hanger positions and send data to robots. Built specifically for blasting aluminium products with either aluminium or stainless-steel abrasive, the machine meets customer requirements and offers quick, easy maintenance.

E.ECO Turbines with Superior Wear Resistance

Equipped with 2 Siapro E.ECO turbines with concave blades, this machine utilizes Complete Process Monitoring Technology (CPMT) for optimal shot blasting results. The E-ECO turbines, developed with a unique wear-resistant material discovered through extensive metallurgical research, boast a lifespan up to 10 times longer than conventional blades. This design maximizes energy transfer from the motor to the abrasive while minimizing wear, making this turnkey project a robust and efficient solution for automated shot blasting.

Siapro RBB 850×1500 Robot Shot Blasting Machine Installed in Canada

High-Performance Blasting Machine Optimized for Aluminium Products and Efficiency

The machine is in operation in Canada, equipped with 2 Siapro E.ECO 320 turbines, each with a power of 11 kW. It has been dimensionally customized to suit the size of the products being blasted, and additionally tailored for shipping requirements. The machine is housed in a robotic cell with a capacity of one product per minute. A unique feature of this robotic machine is its dual or triple blasting chamber, which allows for simultaneous loading of products while blasting occurs, significantly reducing handling time.

Innovative Design and Customization for Enhanced Productivity and Durability

This machine is specifically adapted for blasting aluminium products with minimal maintenance needs. It features Siapro E.ECO blasting turbines and an OCR material shield, providing a lifespan four to five times longer than standard manganese shielding. Additionally, it has an integrated rotary sieve that automatically removes impurities from the abrasive into a collection bin, further lowering maintenance needs. The machine's filter system includes an optional rotary valve and a small bag feature. All our machines come in a standard colour palette, but we can customize the colour upon customer request.

Siapro RBB 1400×500 Robot Shot Blasting Machine

Future-Ready Design with Robotic Upgrade Capability
The machine is currently in operation for a customer in Slovenia. It is set up for manual operation but is designed to be upgraded for robotic operation in the future. The machine is used for shot peening and is equipped with key features, including an AAD valve, an AAF system, and a frequency regulator.

Efficient Shot Peening for Surface Hardening of Gears and Shafts
The machine is fitted with two Siapro E.ECO turbines, each with a power of 11 kW, specifically intended for blasting gears and shafts that require surface hardening.
A distinctive feature of this machine is its capacity for loading three products simultaneously, with space for up to 12 products in total.

Siapro RBB 460×3 Robot Table Shot Blasting Machine

This machine is in operation in Sweden. The machine is equipped with two E.ECO turbines, each with a power of 7.5 kW. It includes a frequency regulator, an AAD valve, and an AAF system, optimized for shot peening of smaller products. A unique feature of this machine is its three blasting chambers: one dedicated to loading products and the other two for simultaneous blasting. The entire machine is enclosed in a noise-reduction chamber for quieter operation.

Advanced Shot Peening with Multiple Blasting Chambers
Designed for efficiency, the machine's three-chamber system allows for continuous operation with simultaneous blasting and loading, maximizing productivity.
Enhanced Performance with Noise Reduction
Equipped with a noise-reducing enclosure, this machine ensures a quieter work environment while delivering reliable, high-quality surface treatment for smaller components.