

Leading The Evolution Of Aerospace Surface Treatment Solutions

A new asset for FerroECOBlast

FerroECOBlast, one of the leading manufacturers of surface treatment machinery has brought a new asset to their facility. They acquired a Bombardier CRJ 200 ER passenger jet, took out some components to their testing laboratory where their engineers will use the parts to develop new technologies and applications which in the future could help improve parts' safety and extend the durability of aerospace materials. The aircraft was then transported to their Headquarters in what was one of the most challenging extraordinary transports in the history of Slovenia. The jet has already become an attraction and will be used as a very unique meeting room. "Too bad we didn't have the place for a bigger plane, as we could have hosted our FerroECOBlast Academy aboard. But having a meeting on a passenger jet is quite impressive on its own!" says Ms. Mojca Andolšek, FerroECOBlast's CEO.

"FerroECOBlast" Complete »Turn-Key« Solutions For Engine Blades And Vanes

FerroECOBlast has been heavily investing in research and development in the

aviation sector over last few years and has established itself as one of the leading companies when it comes to surface treatment machinery.

»We don't only produce machines for our customers – we provide them with complete solutions and real knowledge. Our main goal is customer satisfaction, which we attain once they begin using our high-quality products. We strive to have flawless products as there is no room for mistakes, especially when it comes to the aviation industry, where there is a lot at stake.« said Mr. Aljaž Molek, FerroECOBlast's in-house shot peening expert.

FerroECOBlast delivers complete turn-key solutions to MRO workshops where jet engine blades and other aircraft components come for repair. They provide complete surface treatment solutions including, besides machine design and production, installation, operator and maintenance personnel training as well as technical consulting.

»We provide tailor made solutions and always deliver them together in conjunction with installation, training and consulting. Our employees are highly educated and most of us have been certified by the FAA for shot peening. We want to understand the process itself to really help our customers, not



Roboblast Series blasting machine for surface preparation before coating

just sell equipment. One of our latest installations was done for an MRO workshop dealing with engine parts – engine blades and vanes, to be precise. When the coating is removed, vanes are inspected for cracks and repaired. After inspection, shot peening is performed to reduce residual stresses and prevent the occurrence of corrosion. After shot peening, grit blasting with fine aluminium oxide (30 microns) is performed with a separate machine and finally the part is ready for new metal or ceramic coating. If both coatings are to be applied on a vane, grit blasting needs



Bombardier CRJ200 en route to FerroECOBlast's headquarters



ASP Series Shot peening machine for blades and vanes

to be performed between coatings as well«, Mr. Molek continues.

Automatic Shot Peening Machine – ASP Series

The machine is designed for high productivity and meets all requirements according to AMS2430 and AMS2430 specifications. The operator loads the part on the satellite turntable and presses a safety switch that initiates the rotation of the turntable, which enters the working area passing through a part detection station. The machine is also ready for robotic loading, which will be an option in the near future. Shot peening is performed with steel shots according to customer requirements and the shots are recycled in a so called »recycling tower«. All media is transported through a dust extraction unit to remove dust. Subsequently, the recycled media goes through a series of classification units that make sure only good and still usable media is fed back in the system. The recycling tower is designed in such way that media is always being recycled according to AMS2431 specifications. All our machines feature our own, user-friendly interface system called »FerroSmartPanel« to control all parameters and store reports for each part, which provides complete traceability and repeatability of the process to the customer. A large touch screen panel gives the operator good visual feedback of the process and parameter setup.

Highlight features:

- User-friendly »FerroSmartPanel«
- Parameter setup
- Data report and visual monitoring
- Safety features
- Full media recycling system (AMS2431)
- MagnaValve media flow control
- Closed loop airflow control
- Repeatability of the process
- Traceability of the process

All FerroECOBlast shot peening machines are compliant with: AMS2430, AMS2432, AMS-S-13165, NADCAP

Precise Pre-coat Grit Blasting Robotic Machine - RoboBlast Series

Surface preparation ahead of coating is of utmost importance to ensure a high-quality final product. For this specific purpose, we designed a robotic grit blasting machine. Since this type of surface treatment requires working at low pressure and with very fine aluminium oxide (~30 microns), designing and manufacturing a custom media delivery and recovery system has been a real challenge. The working process is essentially very similar to shot peening – either an operator or a robot loads the part on the satellite turntable to start. Since this machine allows to use both pressure and injection blasting, a robot selects the correct system according to a present program formulated by a technician on the »FerroSmartPanel«.

The process is performed in several steps with different pressure and media flow parameters, which ensured the workpiece meets the specific requirements and is ready for coating. The flexibility of the robot and synchronized working satellite allows the operator to implement this application on parts of differing geometries. Recycling of media is similar to shot peening and it also uses a continuous system. Years of experience and knowledge paid off, as we were able to successfully design a special system for media that fine. To comply with low-pressure working requirements of around 0.1 bar (~1.45 PSI), we engineered a completely new pneumatic system that delivered perfect results. Due to closed-loop airflow regulation, we managed to stay within tolerances, despite the low working pressure. However, our continued efforts in research and development paid off, and we managed to combine all these innovation into a truly state of the art machine.

Highlight features:

- Robotic manipulator
- Synchronized satellite movement
- User-friendly »FerroSmartPanel«
- Pressure blasting system
- Injection / suction blasting system
- Low pressure blasting – 0.1 bar / 1.45 PSI
- Specially designed media recycling system
- Fine media blasting – 30 microns



The FerroECOBlast team with their partners during their 2019 Share & Succeed Business Conference



The FerroECOBlast team with their partners pose in front of the CRJ200 jet FerroECOBlast acquired for research purposes



Mr. Aljaž Molek at FerroECOBlast's booth during the MRO Asia Pacific show in Singapore

In the last few years FerroECOBlast has made a big step forward in its technological, marketing and R&D departments. They also started hosting their yearly "Share & Succeed Business Conference" for partners from all over the world, where they teach and share new technologies, projects and business opportunities to succeed in different markets and industries. "We are a family company, so we treat our business partners and customers like

family members. We believe that trust and respect are of utmost importance for a successful long-term partnership" – concludes Ms. Andolšek.

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