

New Wet Blast Machine is Ideal for Aerospace Applications

WHEELABRATOR'S NEW WET BLAST turntable machine (TTW5) is ideal for the aerospace industry. The TTW5 delivers all of the benefits of wet blast peening, plus it was developed with Wheelabrator's successful Module8 Principles for Airblast Machines. It also has two advantages compared to other wet blast machines: the Module8 construction does not need a special foundation or platform, and it is the same size and shares the same footprint as similar dry blast machines.

In addition, installation is easy, user interfaces and operational controls are familiar to the machine operator—these were the reasons why one Wheelabrator aerospace customer in particular placed an order for this machine.

Aerospace Components and Wet Blast Peening

Aerospace applications for wet blast peening with the TTW5 are blades and blisks. Blades are used in the front part of the engines with a length of up to 2 m (6.5 ft). They must have extremely high stability and a good surface finish to deliver the required mechanical and aerodynamical properties. A blisk (or bladed disk) is a single engine component consisting of a rotor disk and blades, which may be either integrally cast, machined from a solid piece of material, or made by welding individual blades to the rotor disk. Blisks are used in the compressors of the engines and a special feature is that a ring with blades forms one unit. It is crucial for the aerodynamics of both products that they have a smooth surface with stability at the welded seams. In addition, a smooth surface resists corrosion. All of these benefits can be achieved using wet blast peening with ceramic beads in the TTW5.

The TTW5

The TTW5 is equipped with four blast nozzles which can be moved by two nozzle manipulators, each with five interpolating axes. Nozzle movements and the turntable allow an 11-axis process so that parts with complex geometries can be optimally blasted.

The flexibility of the new wet blast turntable machine makes it ideal for blades and blisks. Long blades need a high blast cabinet to provide uniform treatment over the complete height. However, the blisks – with the relatively close arrangement of the blades – need a solution which allows precise treatment between the blades. This is feasible with the 11-axis process and the optional use of fine-blast lances based on the flexible Module8 concept.

The aforementioned customer also liked the flexibility of the design concept. The adaptability to new applications



Wheelabrator's Module8 Principles for Airblast Machines

Wheelabrator has developed and implemented a set of concepts and strategies to aid the decision-making process and ensure that the right solution is developed for the application. The eight principles are as follows:

- Flexibility
- Wear Reduction
- Ease of Maintenance
- Safety
- Productivity Reliability
- Process Reliability
- Quality
- Short Delivery Times

The Module8 concept was developed from detailed analysis of customer requirements over a long period. The adaptable blast cabinet is created using flexible, modular wall and ceiling elements. Further components for blast media circulation and blasting technology are positioned around the cabinet so that they can be easily and safely maintained from only one level, preferably the accessible roof. Due to the modular construction, blast nozzles, workpiece transport devices and other systems can be installed on either side of the blast cabinet to create an optimized solution for each customer.



possible as machine parts can easily be replaced and upgraded to meet future expectations.

Familiar Structure and Controls Simplify Integration

The processing of the parts in the TTW5 is CNC controlled, including media flow and air pressure, to ensure that the customer's clearly defined blast result is achieved. The TTW5's Module8 machine structure and control is identical to the relevant Wheelabrator dry blast machines, so operators will recognize familiar part holders, a familiar user interface and familiar processes. This is another reason why the aerospace customer chose this machine—with several Wheelabrator dry blast machines in use, the change to the new wet blast machine was quite simple. ●



All the advantages of the Module8 concept are now available in wet blast technology. For more information, contact Wheelabrator Group GmbH in Metelen, Germany by telephone: +49 2556 88-0, fax: +49 2556 88-150 or email: kontakt@wheelabratorgroup.de.

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