



A Contour Precision Group Company

REMOVE COATINGS FROM TURBINE COMPONENTS WITHOUT DAMAGING THEM AND LOWER YOUR COSTS.

The Clean & Green Solution

A Precision Abrasive Waterjet (AWJ) Process is higher quality and more cost effective than traditional acid stripping and grit blasting.

Superalloy components require coating systems to protect the base metals from the extraordinary operating environments of gas turbines. These tenacious coatings are designed to resist the oxidation and corrosion created by the combustion process in the turbine hot gas path. These coatings also resist removal when they become depleted during operation.

Most modern hot gas path coatings consist of a ceramic thermal barrier coating (TBC) on the outer surface and a "bond" coat between this TBC and the base metal. Typically, acid stripping and grit blasting of these bond coatings from superalloy components can cause both metallurgical and dimensional damage.

Acid stripping and grit blasting of MCrAlY bond coatings of vanes, blades, shrouds, liners and transition pieces are destructive processes. Exposure to acid can result in part stress, alloy depletion, corrosion cracking and pitting. Grit blasting can cause uneven material removal and thinning of the parent material. And there are the environmental issues that are becoming increasingly important.

The Abrasive Waterjet (AWJ) process is the cleanest, most efficient, most repeatable process for removing MCrAlY coatings from hot gas path components. The process removes the coating without compromising the base metal integrity. There is no intergranular attack or other issues and it is environmentally friendly. AWJ is gaining wide acceptance as the preferred method for the factory of the future.

When you want to remove coatings from turbine components without damaging them and lower your costs, be sure to specify a Precision Abrasive Waterjet (AWJ) Process.

Compare stripping processes to see the difference.



AWJ precision process cleans better, protects better and extends useful part life lowering total cost.

- An X-ray Fluorescent device is used to measure the Yttrium "K-alpha" peak to determine the amount of MCrAlY bond coat remaining. As one approaches the base metal, the peak diminishes, thereby allows "sneaking up" on the base metal with iterative passes by the unit.
- The high-pressure water prevents entrapment of the abrasive in the material, so the part is much cleaner than grit blasted part.
- Parts can often be coated after waterjet without an aggressive grit blast process. This will speed the part through the repair process.
- The AWJ process can remove the TBC and Bond coat in one process.

There has been extensive scrutiny, qualifications and approvals by Users, Independent Service Providers and major OEMs over the last 5 years resulting in increasing utilization of the AWJ stripping process on almost every frame and application, from Blades (buckets), Vanes (nozzles), Liners, Transition Pieces, and Shrouds. The results are predictable, repeatable, and environmentally friendly.

Huffman, LLC (www.huffman-llc.com) in cooperation with Springfield Manufacturing LLC (www.springfieldmfgllc.com) developed and patented (US Patent - 6,905,396) the process. The AWJ process utilizes Huffman's multi axis machine tool technology, built on Huffman's experience in manufacturing grinding machines used for tight tolerance gas turbine component machining. The AWJ machining service is available from Springfield Manufacturing. Springfield has seven machines available to service your requirements. Both Huffman and Springfield Manufacturing are located in Clover, SC - just 30 minutes from Charlotte and just over an hour from Greenville SC.

Aerospace and Industrial Gas Turbine original equipment manufacturers work with Springfield to seek out applications where cost, cycle time, and improved repairability can be realized with green manufacturing.

Specify Precision Abrasive Waterjet (AWJ) Process to remove coatings from turbine components without damaging them and lower your costs.

If you are looking for a way to significantly extend service life of the critical life-limited parts, ask for them to be AWJ cleaned before coating without grit blasting for new parts, or to be AWJ stripped before re-coating for your repairs. You will extend component life as a result, and reduce your maintenance cost considerably.



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