



Ultrahigh-Pressure Waterjet Machining

WJM Machines

Versatile Processing Solutions

Ultrahigh-pressure abrasive waterjet (AWJ) cutting and machining is an excellent solution for processing advanced materials, including titanium, superalloys, and composites. The waterjet process is extremely versatile, allowing you to cut virtually any shape, material, and thickness. Our abrasive waterjet allows you to cut up to 10 times faster than milling, with a tool life of up to 500 times longer.

Whether cutting turbine blades, blisks, composites structures, or other complex parts, our high-precision solutions are the preferred way to process parts. Waterjet leaves no heat affected zones, and no stress is imparted into your material when cutting resulting in parts with a satin smooth edge directly off the machine. With full 3D cutting capabilities and a $\pm 100^\circ$ degree of freedom wrist, our systems offer positional accuracies of ± 0.1 mm, with the possibility to add additional axes if required.

Manufactured for High Production

Aquarese solutions easily integrate into manufacturing process lines. Designed for 24/7 operation, our waterjet solutions deliver reliable productivity, day in and day out. Continuous part monitoring and abrasive extraction provides maximum productivity for your shop floor. Easily recycle your scrap materials, the waterjet process removes chunks as opposed to chips which improves material utilization which is ideal when cutting high value materials.

Unequaled Expertise

Aquarese delivers unequalled expertise in the field of complex abrasive waterjet cutting for large, thick parts in 24/7 production environments. Our extensive process and application experience are integrated into our solutions. Aquarese waterjet solutions are used in the production of: blower vanes, motor crankcases, diffuser inserts, turbine vanes, turbine disks, structural parts, shroudings, tools and controls, boring products, stamped parts, foundry parts, customized material batch cutting, and more.

Lifetime Support

Our team is made up of waterjet experts who are highly-skilled in solving the most challenging manufacturing problems. We offer advanced process solutions and training as well as comprehensive preventative maintenance plans, partnering with our customers to provide lifetime support.



Benefits of Waterjet Machining

- Easy integration into manufacturing process lines
- Continuous monitoring/archiving of process parameters
- Continuous abrasive extraction
- Tool wear compensation
- Soundproof enclosures
- Effluent water treatment and closed-loop systems

Aquarese Industries S.A.
Parc des industries Artois Flandres
62138 Billy-Berclau, France

www.aquarese.fr
commercial@aquarese.fr
Phone: +33 (0)3 21 74 91 00





Ultrahigh-Pressure Waterjet Stripping

WJS Machines

Single Process Solution

Our ultrahigh-pressure waterjet stripping solutions remove coatings with ease. The waterjet induces a shearing force onto the surface to be stripped that is higher than the strength limit of the material, allowing for efficient removal of all types of materials. Aquarese solutions easily remove soft and hard deposits including thermal barrier coatings, resins, adhesives, rubbers, and more. Coatings are removed due to thermal projection, without damaging the original surface.

Waterjet stripping is an eco-friendly process where no chemicals are used and no pollutants are released. A single process solution, ultrahigh-pressure waterjet stripping removes all coatings, and easily reaches even the hardest to access areas.

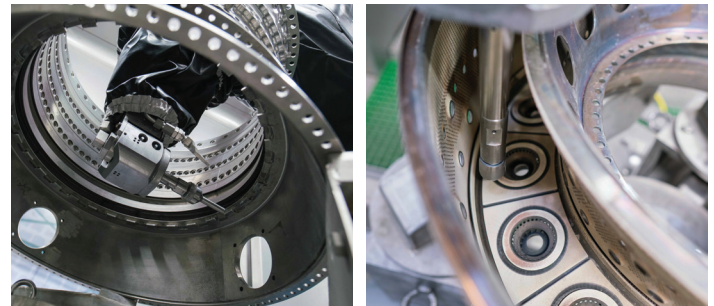
Waterjet stripping is up to 10 times faster than chemical removal processes, and a cost-efficient solution for coatings removal on combustors, vanes, boosters, blades, and more. The Aquarese self-centering turntable allows for fast and accurate material loading. A soundproof enclosure and intuitive user interface provide a safe and easy to use system that will allow you to quickly ramp your production.

NADCAP Ready

Our waterjet stripping solutions are NADCAP ready and adhere to strict process requirements. Your part integrity is assured and part traceability is full managed and preserved. Our solutions come complete with automated production reports and data storage to fully manage part processing.

Lifetime Support

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Substrate	Bond Coat and/or Top Coat Materials	Spraying Method	Waterjet Stripping	Example of Application
Inconel Titanium Titanium Aluminide Stainless steel Aluminum Steel	Metal & Alloys MCrAlY M=Ni/Co/ CuNiIn, NiFeCrSi	Plasma Spray	YES	HPT, Combustion Chambers
	Ceramics Al ₂ O ₃ TiO ₂ , ZrO ₂ Y ₂ O ₃	Plasma Spray EB-PVD	YES	LPT, Spools
	Carbide WC Co, NiCr, Cr ₃ C ₂	Plasma SprayHVOF	YES	HPT, Advanced mechanical part
	Rubber	Molded	YES	Vanes
	Abradable & Polymers AlSi-Polyester, AlSi Graphite	Plasma Spray	YES	Vanes



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High-Pressure Waterjet Deburring DBR Machines

Efficient & Effective Deburring Solution

High pressure deburring of critical components, including injection, steering, and braking is an effective way to remove burrs generated by fabrication processes (screw-cutting, lapping, drilling, etc.). Using various pressure levels our DBR solutions efficiently remove breakable burrs from machining and super-finishing, improving the overall cleanliness of the final part.

Preserve Part Integrity

Aquarese CSR solutions are highly productive, requiring less manpower than traditional shell and core removal processes. Our Aqualance rotating waterjet removal solution achieves significantly faster processing times. Aquarese offers several CSR models to accommodate high-volume, high-mix, and extra-large castings. Improve cluster cut-off operations by combining CSR automation and our Waterjet Machining (WJM) system for a fully integrated solution with unmatched productivity, quality, and flexibility.

No Geometric Limitations

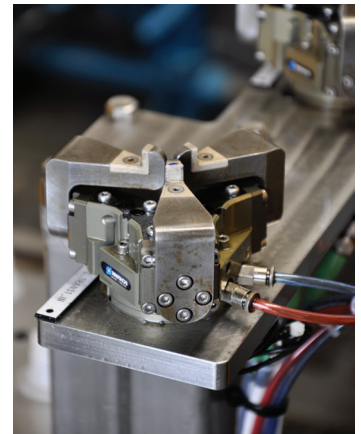
Aquarese DBR systems handle parts with a 6-axis robot so there are no geometric limitations. The machine adapts to your part, and the waterjet easily deburrs areas that traditional processes struggle to reach.

Maximum Productivity

Using our DBR systems you have the ability to process up to 5 million parts/year. The user-friendly process is easily integrated into your current manufacturing operations.

Lifetime Support

Our team of waterjet experts are highly-skilled in solving the most challenging manufacturing problems. We offer advanced process solutions, training and comprehensive preventative maintenance plans, partnering with our customers to provide lifetime support.



Benefits of High Pressure

- No alteration of part dimensions or surface finish
- No heat affected zone
- Closed-loop fluid treatment
- Low energy cost



EN 9100
BUREAU VERITAS
Certification



ISO 9001
BUREAU VERITAS
Certification



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Waterjet Blasting for Ceramic Shell & Core Removal

CSR Machines

The Ideal Solution

High pressure waterjet blasting is the ideal solution for ceramic shell and core removal on any investment, lost wax, or plaster casting for any material. Pure waterjet provides a clean, safe, automated, and repeatable process for aluminum, steel, titanium, and superalloys.

High pressure water performs shell knock-out and core removal in a single operation, preserving fragile details on thin walls or sharp edges and the base material is left undamaged. The result is a process that eliminates chemicals and toxic waste. The use of a closed-loop water filtration system is environmentally friendly and safe.

Maximize Productivity & Efficiency

Aquarese CSR solutions are highly productive, requiring less manpower than traditional shell and core removal processes. Our Aqualance rotating waterjet removal solution achieves significantly faster processing times. Aquarese offers several CSR models to accommodate for high-volume, high-mix, and extra-large castings. Solve cluster cut-off challenges by combining CSR automation and our Waterjet Machining (WJM) system for a fully integrated solution with unmatched productivity, quality, and flexibility.

Smart Solution, Easy Operation

With a comprehensive and intuitive user-interface, our CSR solution offers simple, smart operation. You can set up new parts quickly and manage existing process programs with ease. The CSR is a turnkey solution featuring automated loading/unloading with high accuracy positioning, and soundproof enclosures. The CSR is designed and engineered for an optimal manufacturing experience.

Lifetime Support

Our team of waterjet experts are highly-skilled in solving the most challenging manufacturing problems. We offer advanced process solutions, training and comprehensive preventative maintenance plans, partnering with our customers to provide lifetime support.



Benefits of High Pressure

- Preserve delicate parts with thin walls and/or sharp edges
- Knock out and core removal of any investment, lost wax, or plaster casting
- Ideal for complex 3D superalloy parts
- A single process removes both shell and core
- No chemicals or toxic waste
- Fast, repeatable process



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Solve your most challenging manufacturing needs

Advanced manufacturing processes and custom solutions for precision parts

Waterjet Machining

- High-precision waterjet machining of composites and superalloys, including fan blades & turbine blades
- Significant reduction of milling time
- 3D nesting with offcut material savings

Waterjet Stripping

- High pressure waterjet coating removal of abrasible & thermal barrier coatings
- Cost effective and eco-friendly
- No damage to base material



Shell Removal & Degating

- Knock out and core removal of any investment, lost wax, or plaster casting for any material
- Complex 3D superalloy parts
- Single operation
- No chemicals or toxic waste

Process. Implementation. Support.

AQUARESE
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