



Vapormatt



Fast and safe cleaning
and finishing of defence
components and materiel

Fast and safe cleaning and finish of defence components and materiel

Our wet blasting technology is used to clean and finish a wide range of land-based, naval and aerospace defence components and materiel worldwide.

Wet blasting is a critical process for maintaining the operational readiness, longevity, and reliability of defence components across all branches of the military.

It is particularly effective at maintenance, overhaul and repair operations thanks to its speed, combining cleaning and surface finishing processes into a single operation. Wet blasting cleans and finishes components safely by containing harmful dust and paint particles in the process' water.

Key advantages of wet blasting for defence include...

- **Speed:** Multiple cleaning and finishing processes can be carried out in a single rapid operation to help ensure military assets are quickly back in service.
- **Safety:** Thanks to the water element of wet blasting, dust and airborne particles are contained, making it safer for personnel and sensitive environments. The wet blasting process does not use harmful chemicals.
- **Material and geometry integrity:** Gentle on delicate or precise components, such as gun barrels or hydraulic systems. The geometry of components are left unaltered and underlying substrates are not damaged.
- **Process control:** Our wet blasting machines are highly versatile with the ability to finish delicate surfaces without damage or finish surfaces more aggressively when required. Our automatic machines can reliably and repeatedly produce the same uniform finish.
- **Environmentally friendly:** Our wet blasting machines recycle water and blast media. The process does not use harmful chemicals, and waste can often be disposed of without special requirements.

General applications of wet blasting for defence include...

- **Decontamination:** Closely linked to safety, harmful chemicals, asbestos and radioactive particles are contained in the water of the wet blasting process avoiding the creation of dust that might contain these contaminants.
- **Cleaning:** Highly effective at removing grease, oils, burrs, rust, carbon, chemical deposits, scale and other contaminants without damaging underlying paint or substrates.
- **Paint stripping:** By adjusting blast pressure and media type, paint can be rapidly stripped from components without damaging the substrate. If required an individual layer of paint can be removed leaving underlying layers intact.
- **Inspection:** Rapid cleaning and paint stripping in a single operation produces a perfect surface for inspection and subsequent repair.
- **Coatings:** Production of ideal uniform surfaces on metals, composites and other surfaces for anodising, plating, painting and other coatings like CVC and CVD.
- **Bonding:** Creation of perfect uniform surfaces for bonding, ensuring even application of adhesives for maximum bond strength.
- **Creation of non-reflective surfaces:** Wet blasting is highly effective at creating non-reflective surfaces which can often be advantageous for military applications.
- **Smaller components:** Fixings, gears and other smaller components can be cleaned and finished in volume by our barrel configured machines.





Land-based defence systems

Ground vehicles

Wet blasting is essential for cleaning and finishing ground defence vehicles, as it removes rust, coatings, and contaminants. This process prevents corrosion, enhances durability, and prepares surfaces for optimal adhesion of protective coatings or paint. Wet blasting ensures these vehicles remain reliable, operational, and ready for extreme conditions and demanding environments.

- **Tanks and armoured vehicles**

Thorough cleaning (removing grease, oil, rust and carbon buildup) and paint stripping in preparation for crack detection and subsequent re-coating. The water in wet blasting contains any toxic harmful paint dust, or even asbestos that might exist, unlike dry blasting. The process does not tie up the time of skilled staff with laborious manually cleaning.

- **Engine and drivetrain components**

Degreasing and cleaning components like cylinder heads, pistons, crankshafts, valves, gearboxes, and axles. Wet blasting using a glass bead media cleans and demagnetises components helping to ensure metal contaminants are fully removed.

- **Cleaning brake components**

Wet blasting cleans brake drums, discs, callipers, and other components by removing contaminants such as dirt, grease, oil, and rust without damaging the underlying surface. It can also strip paint and prepare surfaces for reassembly, painting, coating, or other treatments by creating a clean, consistent finish.

- **Suspension and undercarriage**

Cleaning parts such as coil springs, dampers, and tracks to ensure operational reliability.

- **Weapon mounts and turrets**

Cleaning and preparation for resurfacing weapon mounts to maintain proper alignment and functionality.



Artillery systems

Wet blasting cleans and finishes artillery systems by removing contaminants, rust, and coatings, ensuring reliability, preventing corrosion, enhancing surface adhesion for protective layers, and maintaining optimal performance in demanding operational conditions.

- **Gun barrels and breech components**

Removing carbon fouling, rust, and wear residues from howitzers and other large artillery. Cleaning bores rapidly to quickly get artillery pieces back into service, without damaging barrel rifling.

- **Shell casings and breech blocks**

Cleaning and finishing components to ensure smooth operation.

- **Coating removal and re-application**

Rapid coating and surface preparation for re-application in a single operation

Military transport and utility vehicles

Wet blasting cleans military transport and utility vehicles by removing dirt, rust, and old coatings, preventing corrosion, enhancing surface finishes, and ensuring durability, optimal performance, and effective protection in harsh environments.

- **Structural frames**

Cleaning truck frames and support structures to prepare for repair or re-painting.

- **Cooling systems**

Cleaning radiators and heat exchangers to improve thermal efficiency.





Naval components

Wet blasting cleans naval components by removing salt, corrosion, and debris, preventing further damage, enhancing surface integrity, ensuring effective coating adhesion, and improving durability to withstand harsh marine environments and extend service life.

Ship and submarine systems

- **Propellers and shafts**
Removing marine growth, rust, and saltwater corrosion for optimal performance.
- **Hull fittings**
Cleaning rudders, keels, and other underwater components for inspection or maintenance.
- **Internal piping and valves**
Descaling and cleaning for efficient fluid transfer and system functionality.

Weapons systems

- **Naval gun barrels**
Cleaning and resurfacing naval guns to maintain accuracy and prevent wear.
- **Missile launch tubes**
Preparing launch systems for operation by removing scale and residues.

Deck equipment

- **Winches and anchors**
Cleaning for maintenance and re-coating.
- **Hydraulic systems**
Cleaning cylinders and components to maintain proper operation.





Weapons and ordnance

Wet blasting cleans weapons and ordnance by removing dirt, carbon buildup, and corrosion, enhancing surface smoothness, preventing wear, ensuring proper coating adhesion, and maintaining reliability, accuracy, and longevity in demanding conditions.

Small arms and infantry weapons

- **Firearms**
Removing fouling, corrosion, and old coatings from barrels, receivers, and slides. Flushing through the barrels of small-bore guns. Creating a better surface for plating and a subsequent longer plating life. Cleaning and creating an ideal surface for spot repairs. Whilst more of a non-military requirement, wet blasting can prepare surfaces for cosmetic finishes.
- **Machine gun parts**
Cleaning high-usage components to prevent malfunctions.

Ammunition

- **Shell casings**
Restoring spent brass or steel casings for recycling or re-manufacturing.
- **Missile casings**
Cleaning and preparing for re-painting or decommissioning.

Explosive ordnance

- **Bomb casings**
Cleaning and finishing for storage or refurbishment.
- **Grenade bodies**
Removing surface contamination and preparation for coating.

Electronics and sensitive equipment

Wet blasting cleans military electronics and sensitive equipment by removing coatings and contaminants, ensuring precision, preventing corrosion, and enhancing surface integrity, which helps maintain functionality, reliability, and longevity in harsh and demanding environments.

- **Circuit boards**
Wet blasting is highly effective at removing protective coatings prior to the repair of circuit boards.
- **Radar and sensor housings**
Cleaning enclosures to remove contaminants while maintaining surface precision.
- **Cooling systems**
Cleaning fins, heat sinks, and cooling lines for improved efficiency.
- **Communications equipment**
Preparing metal casings and mounts for maintenance.
- **Electric motor rewinding**
Cleaning electric motor components prior to rewinding.

Missiles and rockets

Wet blasting cleans missiles and rockets by removing contaminants, corrosion, and coatings, ensuring smooth surfaces, enhancing adhesion for protective layers, and maintaining performance, reliability, and durability in demanding, high-stress environments.

- **Launch tubes**
Cleaning and preparing launch canisters for operational readiness.
- **Rocket motors and fins**
Removing contaminants and preparing for inspection or refinishing.





Personal protective equipment

Wet blasting cleans military personal protective equipment by removing contaminants, dirt, and corrosion, ensuring enhanced durability, surface integrity, and optimal coating adhesion, improving performance, comfort, and reliability in demanding environments.

- **Helmets and armour**

Cleaning and refinishing metal or composite surfaces for re-use. Composites can be cleaned using plastic media which is gentle enough to avoid damaging the material's fibres.

- **Ceramic plates and shields**

Removing surface debris without damaging structural integrity.

Support equipment

Wet blasting cleans military support equipment by removing rust, dirt, and old coatings, enhancing surface integrity, preventing corrosion, and ensuring optimal performance, durability, and reliable functionality in demanding operational environments.

- **Hydraulic and pneumatic systems**

Cleaning components like pistons, cylinders, and hoses for repair or reuse.

- **Generators and power systems**

Cleaning alternators, rotors, and housings for field generators.

In conclusion

Wet blasting offers a fast and safe way to clean, decontaminate, paint strip, and prepare for inspection and subsequent re-coating or bonding. With the ability to perform multiple processes in one wet blast operation it is an extremely effective and safe way to get military assets back in service in the shortest possible time.

Why work with us?

Vapormatt isn't just the world leader in wet-blasting. We invented the process and remain solely focused on it to this day.

Since Norman Ives Ashworth developed the first wet-blasting machines in the 1940s, we've been developing, improving and refining wet blasting for edge radiusing, surface preparation and peening. And we're still led by the Ashworth family today, continuing to design and manufacture bespoke machinery and after-market services built to the specific requirements of your cutting tool inserts business.

Our expertise spans many different sectors: from tooling carbide insert manufacturing, to stainless steel weld cleaning. Our breadth of knowledge means we can explore a wider range of applications that benefit a business like yours.

Because at Vapormatt, while we might be pioneers of wet-blasting technology, we never believe the job is done. We're constantly researching, developing our techniques and discovering new technological enhancements that we can apply to cutting tool inserts. Consequently, we hold and have patent applications pending in significant areas of process control and repeatability.

When working with you, we'll build a long-term technical partnership, giving you access to our know-how and world-leading wet blasting services. As a result, we understand you may need us to develop methods and processes in confidence. You'll benefit from our discretion too – in fact, we have a long track record of doing just that with our key customers across a number of high-tech sectors.

What you can expect of us?

- **Integrity** - We always conduct business with you in a confidential, honest, open and ethical manner
- **Commitment** - Every member of our team aims to exceed your expectations at every level
- **Innovation** - We're at the forefront of wet-blasting technology, implementing our technical expertise
- **Value** - You gain value from us through our high levels of service and technical excellence
- **Collaboration** - As a customer focused company, we work collaboratively to ensure you enjoy the best possible experience

Vapormatt, Robins Drive, Bridgwater, TA6 4DL, UK
 t +44 (0) 1823 257976 e sales@vapormatt.com

The Vapormatt Promise

In designing and manufacturing specialist machines that meet your exact requirements, we're always improving. Always refining. Always pushing the boundaries. We build on the successes of the past, incorporating proven designs and approaches, and combine them with innovative thinking to meet the specific challenges we face together with you.

Throughout that collaborative process, we're also completely honest and discreet. And it's in this respect that we make a promise to you.

As we develop more efficient, more seamless and more effective ways to deliver the benefits of wet-blasting to you, any off-the-shelf solution is unlikely to be suitable. So complete validation of every design detail is practically impossible, and some functions – software, for example – will inevitably need modification as they're integrated into your processes.

Equally, once the equipment is installed on your premises, things are unlikely to be up and running without a glitch from the first moment, in a plug-and-play manner. Performance will always improve as operators and maintenance teams become familiar with the machines and their operation.

Other manufacturers might shy away from such an honest admission. However, we accept that this is simply part of building and refining the right wet-blasting machines for you. That's why we promise to make the entire Vapormatt team, including our engineers, designers and sales specialists, available to offer advice, guidance and practical assistance once the equipment is installed and integrated in your workplace.

And we won't be satisfied until it's working to its full potential and this promise is kept.

The four pillars of our promise:

- **To continuously improve the design and manufacture of our equipment**
- **To provide you with machines of the highest possible quality**
- **To support you in achieving optimal performance from your machines**
- **To collaborate with honesty and discretion**