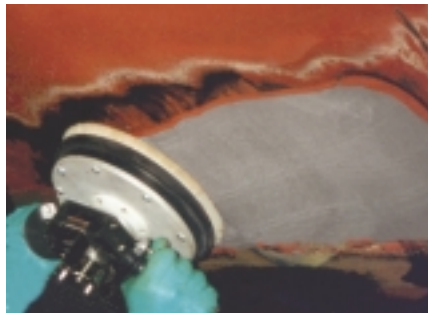


# 3000 bar UHP water blasting systems for surface preparation in ship building and ship repair

Hammelmann ultra high pressure water blasting systems operate at pressures up to 3000 bar without any abrasive additives.

Using water eliminates the harmful and often damaging side effects produced by dry abrasive blasting such as airborne dust, chemical/thermal pollution and surface ingrained residual blasting materials. It is the healthy, environmentally friendly method of surface preparation.



The energy of the high velocity water jets blasts into the pores in the metal surface flushing out solid foreign matter and non water soluble pollutants such as oil and grease. Remaining chloride levels are at least 5 times lower than in a grit blasted surface and the substrate profile remains intact ensuring good adhesion of the new coating and greatly reducing the risk of future paint film defects.

The amount of waste produced is far less than that produced by dry blasting. It is only the waste water, old paint, marine growth and rust which is easily collected for separation and disposal. Water can be treated for disposal or recycling.

Shrouding the work area is not necessary. Water will not harm nearby seaworthy equipment and machinery as is often the case with ingress of flying grit particles nor is there any unhealthy dust to distress yard personnel.

Substrates prepared by Hammelmann systems meet the quality requirements set by international paint manufacturers and standards authorities for the application of new coatings.

The water pressure necessary depends upon the condition of the existing surface layer(s), the type of coating to be applied and the substrate quality necessary for the successful application of that coating.

**Economic, ecological removal of TBT coatings**

Old paint      Red epoxy shop primer      Rust



These illustrations are extracts from HEMPEL'S reference handbook of NACE/SSPC standards showing substrate grades with the original surface conditions at the top.

# Semi automatic UHP systems

Semi automatic UHP metal surface preparation systems are capable of producing a range of surface finishes from washed, swept, selectively removed coating(s) right through to blank metal. The traverse speed over the surface and the stand off distance between jetting nozzles and the surface are adjustable to enable optimum working efficiency.

## Dockmaster®



The Dockmaster® is specifically designed for cleaning, rust removal and coating removal from ship hulls.

The waste water and removed solids are vacuumed to an on board treatment plant where the solids and water are separated with the solids collected in an interchangeable filter module for further disposal.

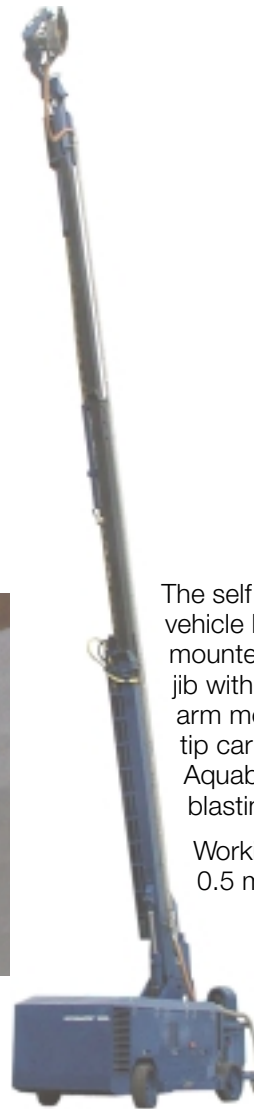


The system is outfitted with an integral Aquajet® 40 Ultra High Pressure pump unit producing 72 l/min. at 2800 bar operating pressure and at the touch of a button 85 l/min. at 2500 bar.

The high energy water jets concentrate blasting over a working width of 850 mm and dependent upon the quality of surface finish required achieve removal rates between 100 and 300 m<sup>2</sup>/h.



The design of the swivelling work arm is such that overhead deployment of the Aquablast® is possible from a minimum height of 3.5 m.



The self propelled vehicle has a turntable mounted telescopic jib with a work arm mounted at the tip carrying an Aquablast® surface blasting unit.

Working height 0.5 m to 28 m.



Photo courtesy of Blohm+Voss Repair GmbH

## SpiderJet® 3000



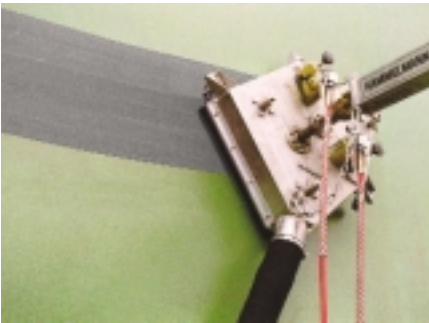
The remotely controlled SpiderJet® 3000 attaches to the work surface by vacuum force. It can blast while traversing both vertically and horizontally in either direction on flat and on curved surfaces and can also operate overhead.

Two powerful pneumatic motors drive the wheels of this extremely manoeuvrable unit enabling surface blasting rates of up to 70 m<sup>2</sup>/h to be achieved from a working width of 375 mm.



Waste water and waste materials are directly vacuumed away from the work surface. A twin cable arrester and permanent vacuum force monitoring coupled to automatic pump pressure shut down ensure safe operation.

## ML 3000



A gas damped telescopic section automatically maintains the blasting head against the work surface and the waste water and removed waste can be vacuumed away from the surface for collection and disposal.

The ML 3000 is mounted to man lifts, dock arms and other access devices.

It has a working width of 400 mm and can be traversed either vertically or horizontally achieving blasting rates of up to 50 m<sup>2</sup>/h dependent upon the surface being treated.



## Dockboy

The Dockboy is a modern blasting head carrier vehicle designed for use in dry docks. Its low height enables it to be deployed for hull bottom blasting and work at a height of up to 2600 mm.

In addition to bottom blasting with an Aquablast® mounted on the carrier device it can be outfitted with ancillary tools either on the carrier or on mounting adapters to convert it to dock bottom or ship deck work.

# Manual UHP water blasting tools

The efficiency of manual water blasting tools is very dependent upon the operator. They are normally employed for special small surface area blasting tasks.

Hand held guns fitted with water driven Rotorjets or with pneumatically driven specialist nozzle carrier heads are particularly useful for working in restricted access areas or for intensive spot blasting.



The hand held Aquablast® is the ideal tool for flat vertical surface treatment. It has a working width of 140 mm.



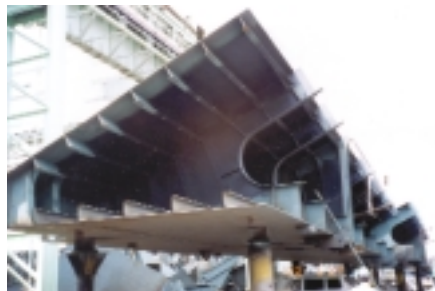
Flexibility of deployment and ease of handling make the manual UHP gun the universally accepted blasting tool.



## Repair yard and on board applications

- Marine growth removal from bilge keels, propellers etc.
- Spot blasting on hulls above and below the water line
- Rust and coating removal in ballast tanks, holds and bunkers
- Blast cleaning and coating removal, superstructures, decks, deck machinery, anchor chains etc.
- Dry dock clean up and maintenance

The manually deployed horizontal surface version has a working width of 215 mm. Both can be outfitted for direct waste vacuuming.



## New build applications

- Removing burnt primer and slag from welds
- Pollutant (grease, dirt etc.) removal
- Cold cutting



## Pump units

The heart of any high pressure cleaning or ultra high pressure blasting system is the pump unit. Hammelmann Aquajet® pump units are available in power ratings from 70 to 550 kW in stationary or mobile format and with sound damping covers if required.

They can also be mounted in a range of heavy duty containers particularly suitable for the dockyard environment.

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