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How to benefit more from drydockings

Drydockings are essential for the safe running of ships. But much too often shipowners have not been able to take benefit from the idle time, when their vessel is tied up in a floating or graving dock.

Today, the possibility to carry out corrosion preventive and corrective maintenance works onboard, has been greatly reduced, partially due to cutting down in ship's crews, legislative and ecological laws and regulations, state and port related regulations, prohibiting virtually all kinds of coating works when loading/discharging. The only proper time to successfully upgrade and refurbish by ways of surface preparation and coating is during the ship's drydocking periods.

Also repair yards have in the past been facing difficulties with the local authorities, prohibiting them to carry out dry abrasive blasting at their premises, due to a risk of widely spreading and distributing contamination from abrasives and paint residues which become airborne and travel long distances. This has lead to difficulties in obtaining proper preparation of external areas of ships even during drydocking periods.

In his capacity as a corrosion consultant and inspector Per Gabrielsson says he is witnessing a concerning trend. Coatings are at a crossroads where some products are yielding to contractor demand for ease of application, surface tolerance and rapid drying, thus compromising the ultimate performance; while other high solids, high performance coatings are capable of unprecedented performance. Due to their high modulus and higher film thickness these high performance systems generally require proper surface preparation and surface profiles in the 75 micron range, sometimes even up to 100 micron. His concern is a continued acceptance to tolerate and even recommend tools for manual cleaning as an accepted means to prepare weld seams and other areas, thus compromising these otherwise high performance coatings.

The time when power tool cleaning is an accepted method for refurbishing and upgrading of various items must end. Reasons for this are low productivity rates, inadequate ability to create a profile, contamination of surroundings, substandard quality of works compared with time used and the famous 'Three Ds' – Dirty, Difficult and Dangerous. The money spent by shipowners for refurbishing works, is hence to a great extent wasted, as the durability of any coating, exposed to water and the marine environment, suffers greatly when the surface preparation has been inadequate.

A solution available

Now actually many of these obstacles may be overcome with the use of the Sponge-Jet environmentally friendly blasting system says Gabrielsson. This revolutionary method has been created and developed by Sponge-Jet Inc., of Portsmouth, New Hampshire in the United States and consists of lots of new, ecological thinking in the abrasive blasting field. This patented process uses a composite

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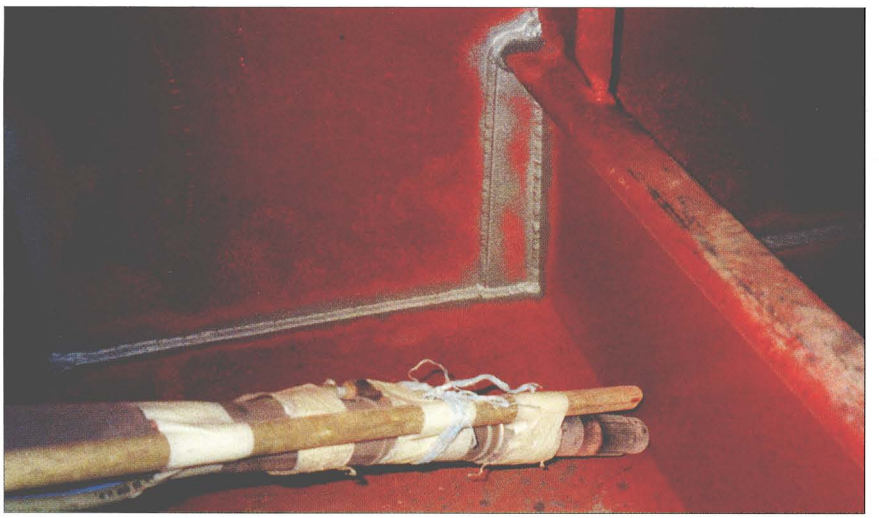

Spongejet media has been used to clean welds on this repair

particle of abrasive and polyurethane sponge to abrasive blast surfaces without dust and rebound of conventional blasting. Recently work on two Aframax crude oil tanker newbuildings was completed where this technology was essential at ensuring the erection joint welds in the ballast tanks, as well as large burned areas, were properly prepared without damage to the already existing coating, applied at block stage. This unique system is also relevant to drydock repairs.

The Sponge-Jet blast units have recently been upgraded in order to increase production speed and cost efficiency. Some of the units include complete vacuum recovery and recycling systems of the Sponge Media. The blast units are supplied as mobile units in order to improve accessibility to the areas to be treated.

The Sponge Media is supplied in different grades, depending on the surface and task it has to fulfil. The good thing with the media is that it, due to its nature, flattens at impact and exposes the abrasive. Instead of bouncing back (ricocheting), the media constricts after impact, pulls and entraps most of what normally would have been airborne contaminants before falling down. The normally observed – and feared – dust distribution around the blasting area is almost eliminated and may be further minimized by simply lightly masking off the area with, for example, plastic sheathings. The reduction of contaminants, flying freely in the air and being distributed all around the item to be blasted, is estimated to be 5.5 times less with the Sponge Media than for coal slag. The aggressiveness of the blasting procedure is easily adjusted from a control panel, where both air pressure and media distribution may be regulated to a level suitable for the work to be carried out on a specific item. Thanks to the recycling properties of the Sponge Medias, waste and collecting amounts are minimal, compared to conventional abrasives.

Uses for this technology during a ship's drydocking

Just to give a few examples, one could mention:

- removal of antifouling coating, without damaging the under laying primer coats
- removal of other, loosely adhering coatings
- upgrading of external hatch covers and coamings, where normally the only possible surface preparation method has been power tooling. By being able to abrasive blast such surfaces, one could improve the condition of such by for instance applying an inorganic zinc silicate coating as first primer coat. This would, in the long run, considerably reduce the need for further maintenance works
- upgrading of bridge wings, where normal blasting would be impossible, due to carriage of airborne pollution
- the following examples belong to the same category as the hatch covers and coamings: deck winches, different supports, pipes, ventilators, ladders, valves and other small items, where maintenance work is required frequently due to their shape and exposure. Also the use of the Sponge-Jet technology would allow the building up of the corrosion protective coating system with a high performance system such as an inorganic zinc silicate coating
- refurbishing of potable drinking water tanks, other fresh water tanks, bilge holding tanks, waste oil tanks, sewage tanks and other small tanks
- refurbishing of cofferdams and void spaces
- upgrading of valves, pumps and motors in engine room
- refurbishing of bosun's store and other store rooms
- refurbishing of access trunks, pipe tunnels, etc.
- upgrading of suction wells in cargo tanks, as well as spot blasting of locally corroded areas
- spot blasting of locally corroded areas in water ballast tanks
- cleaning of fuel oil tanks
- removal of soot contamination

Drawing the attention of shipowners to a misunderstood phenomenon, Gabrielsson remarks that:

Rusty water running down from outfitting items, pipes and supports onto the main deck areas, may give an impression of a largely spreading corrosion. Wetting inspectors, surveying the ship, may in many cases get a completely wrong impression of the overall condition of the main deck area due to this. Such conflicts could be avoided by performing a Sponge-Jet blasting of those items and giving them a proper corrosion protection.

New coating for *Stena Explorer*

While in for a £ 2 mill refit in Belfast, this high speed ferry which runs on Stena Line's Holyhead to Dun Laoghaire route, was given a new silicon-based coating after blasting off the old paint.

To prevent rust from forming during this period of the work, humidity control specialists Munters installed humidity control equipment. Experts from the company's Temporary Humidity Control (THC) service attended the vessel in Belfast.

It is claimed that this is the largest high speed vessel in the world and is able to carry 375 cars, trucks and buses, and up to 1500 passengers at a maximum speed of 40 knots.