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# marine propulsion

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# American Diesel hones in on the problem

The US based engine specialist, American Diesel, is successfully using a simple but effective device for honing the cylinders of large bore diesel models to achieve a super-smooth finish

Operating from New Orleans, American Diesel offers a specialised fast response service for main engines and generators 24 hours a day. The company claims that one of its best tools is a portable but mighty ball-style hone. This Flexy-Style hone enables engineers to offer an efficient honing service anywhere in the US, faster, the company claims, than competitors. Engines treated include Sulzer, MAN B&W and MaK models, and the unique ball-style system used is claimed to hone cylinder bores faster and more efficiently than with conventional methods.

Widely known by the brand name Flex-Hone and designed by the well established Los Angeles-based company, Brush Research Manufacturing, the ball-style hone is a highly effective specialised abrasive tool with a unique appearance. Featuring small, abrasive globules permanently mounted to flexible filaments, the device is a flexible, low-cost tool that is ideal for deglazing, de-burring, edge blending and crosshatching.

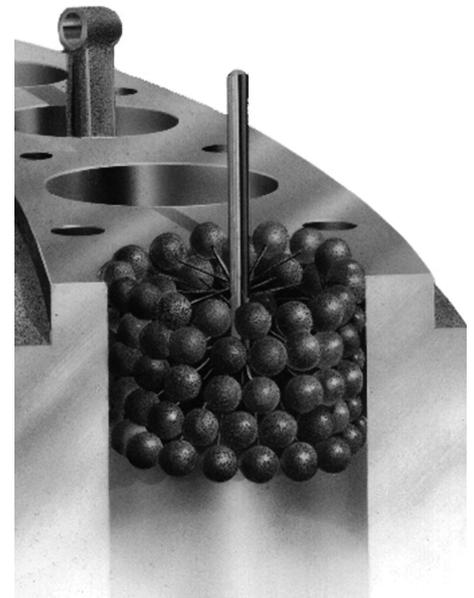
Al Guevera, American Diesel's general manager, told *Marine Propulsion* that "the ball hone is available in a range of radius sizes, including larger ones needed to service cylinders of around 1,000mm (40in) diameter, which

are those that we commonly service. The tool is highly portable and easy to use. All that is necessary is take a spring-loaded compensator, secure it over the engine and fix a good size drill motor to it. Then the ball-style hone is attached and simply moved up and down."

"We are in permanent standby mode because our customers, typically container ship operators, need fast service," explains Mr Guevera. "If an engine failure occurs, that is tremendously expensive for them. Since many crews today do not include diesel mechanics, it is more important than ever that we are able to provide the needed repair or overhaul services quickly and thoroughly. We also work on generator engines, which can have bore sizes up to 500mm (20in), plus an occasional high-speed engine – but nothing smaller than 158mm (6.25in)."

The need for speed and accuracy is critical, and American Diesel keeps its skilled teams and specialist equipment permanently ready for routine maintenance and emergency repairs. "It helps when we are working with tools that are versatile, portable and easy to set up," continues Mr Guevera, "Especially when we are providing emergency services in the field and cannot always anticipate what will be needed."

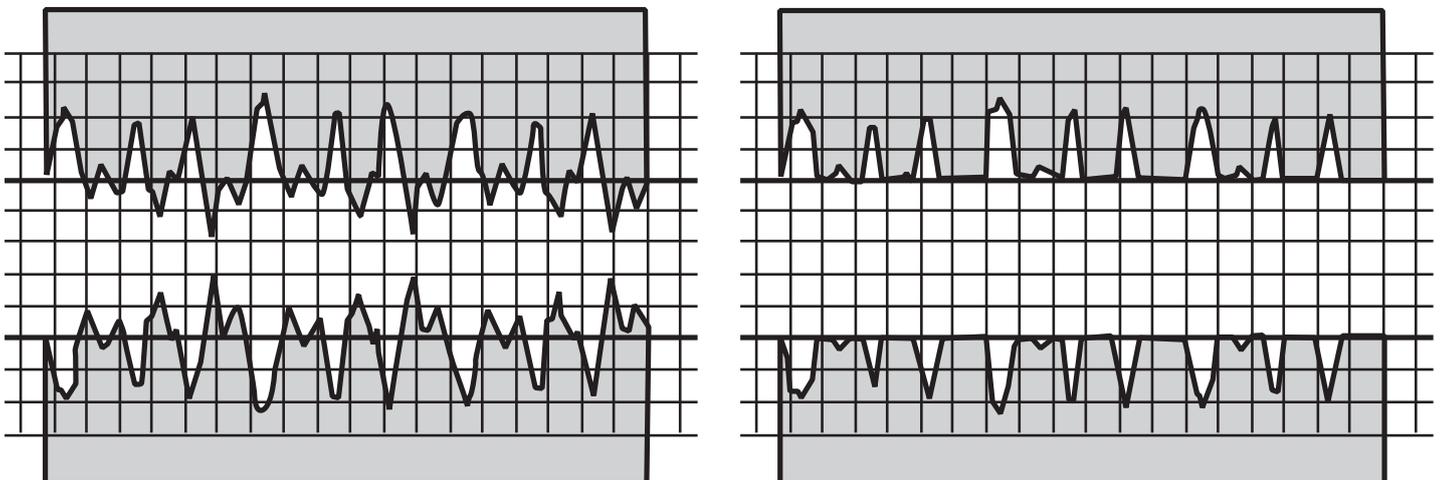
He claims the hone is a highly efficient and inexpensive alternative to air-operated equipment that hones with stones, where the machine must be lined up with the studs on the engine block. The ball hone can be set up faster, and just a few passes up and down inside a cylinder liner accomplishes thorough deglazing as well as crosshatching. The Flex-Hone's



*One of the most versatile and easy-to-use tools applied in industry today to perform maintenance on cylinders is the Flex Hone from Brush Research Manufacturing. The Flex-Hone ball-style technology is illustrated*

independently suspended, abrasive globules self-centre and self-align to the bore as well as compensating for wear, all of which facilitates close-tolerance finishing work.

The ball-style hone can also 'plateau finish', a process by which cylinder walls are subjected to a bore finishing procedure that increases the life of both the cylinders and piston rings. The purpose of 'plateauing' is to remove loose, cut, torn and folded material within the cylinder, create valleys, and remove peaks that would



*Graphs showing a cylinder liner before honing (left) and after honing by a Flex-Hone (right), which results in a super-smooth finish*

otherwise damage rings or seals. This results in more lubricant retention, improving engine start up and performance.

Mr Guevera tells *Marine Propulsion* that, "although many tools share fundamental characteristics, there is a significant quality difference between a generic tool selected from a catalogue and a custom-adapted honing tool engineered to meet the highly specialised requirements of the applications in which they are deployed." He discovered the ball-style hone over 20 years ago working on petrol engines as a teenager.

"I used ball-style hones for those small bore engines," he says. "Years later at American Diesel I contacted Brush Research Manufacturing Co and asked if it had those same hones for larger bores. Although the company did not have a standard line of bigger sizes, it said that it would be happy to supply whatever we needed, and we have been relying on Brush ever since." Mr Guevera says that some of his shipping customers have never seen a ball-style hone before and ask him if he would sell them his!

"Today, since crews are sometimes less experienced in servicing engines, they are impressed with a tool that is so inexpensive and easy to use," he says. "And when you consider that the daily cost of a ship being dead in the water is anywhere from US\$35,000 to US\$150,000, one can understand why they are interested in such a practical tool."

Mr Guevera adds that although American Diesel uses the Flex-Hone mainly for refurbishing cylinder liners, the tool is versatile and can be adapted to many other applications where honing the inside of cylindrical shapes is needed. "We have also used the tool to clean up bedplate journals. It can also be employed for cleaning bores for pipes or other cylindrical bores such as valves on some pump designs."

Established in 1958, Brush Research Manufacturing specialises in solving difficult finishing problems using brushing technology. The company works in the sophisticated environments of nuclear energy, aerospace, and computer technology as well as in shipping and industrial applications.

## Simplified Alpha Lubricator retrofit eliminates immobilisation issue

MAN Diesel PrimeServ has developed a new injector with a specially designed nozzle-geometry for installing the company's successful Alpha Lubricator system. The company claims that, since its introduction, the Alpha equipment has reduced cylinder oil costs by 20-30%.

With the introduction of this new injector installation, the cost of retrofit projects can now be reduced. It is said to eliminate the preparatory grinding work that previously required the

opening up of liners, which meant immobilising the engine. Grinding work was then required to adjust the spray pattern and ensure the even distribution of cylinder oil on liner walls during emergency running.

Peter Rytter Jensen, manager of MAN Diesel PrimeServ's project division, told *Marine Propulsion*: "This is an issue that we have been trying to resolve for some time. Ultimately, we have developed a unique injector that allows us to perform the modification work from outside the cylinder liner, meaning that engine immobilisation is no longer necessary. This makes installation of the Alpha Lubricator significantly easier, and we ensure that the oil is still distributed as it should be and remains in place upon the liner surface."

The Alpha Lubricator is based on the principle of injecting a specific volume of oil into a cylinder liner via a number of quills after a pre-set number of engine revolutions. The lubricator itself has a small plunger for each quill in the liner, and the power for injecting the oil comes from a hydraulic system, driven by a power pack.

This pack uses a pressurised, loop system, while the lubricator uses a high-pressure, positive displacement design that ensures each quill receives an equal volume of oil. The specific amount of oil injected can be adjusted as required for each individual cylinder. A computer automatically adjusts the feed rate according to the engine's power output. Pre-lubrication is a sequence in the bridge manoeuvring system but can also be performed manually if required. MAN PrimeServe claims that the Alpha Lubricator has displayed very low feed-rates both for marine and stationary engines, with oil consumption reduced to a very modest 0.60 g/kWh.

## Wärtsilä expands in Dubai, Brazil and Denmark

Wärtsilä has recently opened a new facility in Dubai, United Arab Emirates. The new workshops there will enable the company to offer a wide range of services for engines, ships, automation, propellers, thrusters, alignment, and in-situ machining. Tage Blomberg, group vice president of Wärtsilä Services reports that "Dubai has become an important business hub in the Middle East and its growth is foreseen to continue in the future. The expansion of Wärtsilä's portfolio of products and services in that region corresponds to our commitment to be a one-stop shop for industrial and marine customers. A local presence is of the essence in the service business."

Wärtsilä has also opened a new facility at Manaus in Brazil to provide for expanding marine and energy markets in the Amazon region.

At the same time, Wärtsilä has recently acquired the Danish company, International Combustion Engineering A/S (ICE), which

specialises in project engineering also the service and repair of steam boilers and ancillary burner systems. ICE additionally supplies spare parts for boiler and burner systems.

## Rolls-Royce launches service base in Mumbai

Rolls-Royce has opened a new marine service facility in Mumbai to support the growing shipping industry in India. Located at Navi Mumbai, the new facility employs 60 people and will offer comprehensive support services and undertake repair and upgrading of products in the region.

Rolls-Royce's successful cylinder head exchange programme, currently popular in Europe for Bergen engines, will now become operational from Mumbai. This will ensure that customers benefit from lower maintenance costs and shorter docking times.

John Paterson, president of Rolls-Royce's marine division, said: "We have developed a technically equipped facility for our customers in India, which will result in significant operational efficiencies and improved service quality. This is a big step forward in strengthening our presence in that country."

Srinivas Duvvuri, regional director for India, commented that "Although Rolls-Royce has a distinguished history of more than 75 years in India, it is planning new programmes which will ensure a long and worthwhile future."

The company has more than 1,300 engines in service in India, mainly as a result of long-term programmes. In the marine sector there, more than 60 Rolls-Royce UT Design vessels are in service and over 300 vessels operate with Rolls-Royce marine equipment. A further 39 vessels of UT Design type are currently under construction at various Indian shipyards for which Rolls-Royce is also supplying all major equipment. Additionally, there are also more than 30 vessels operating with the company's equipment in service with the Indian Navy and Coast Guard.

## Wärtsilä wins retrofit order for oily water separators

Wärtsilä has received a major order from Swedish shipowner Laurin Maritime to supply six Wärtsilä Senitec M1000 oily water separation units. These will be retrofitted to six of the company's vessels and will upgrade their oily water treatment performance. The order also includes six SolidPac units to handle solid residues.

Senitec oily water separators have a discharge level of less than 1 ppm (parts per million) of oil in the water and the separators can be installed either in newbuildings or as retrofits. The unit is designed and built for continuous operation, and is capable of cleaning 1 m<sup>3</sup>/h or 24 m<sup>3</sup>/day of sludge and bilge water. Wärtsilä also offers a larger Senitec M2500 unit capable of cleaning 2.5 m<sup>3</sup>/h of sludge. *MP*