Marine Shell & Tube Heat Exchanger Refurbishment

A technical overview for commercial & leisure operators

Overview

Brehon Engineering provides specialist refurbishment of marine shell-and-tube heat exchangers, charge-air coolers, oil coolers and raw seawater pumps for vessels operating across the Channel Islands and the UK.

These components operate in harsh seawater environments where scale, fouling, corrosion and biological growth can significantly reduce thermal efficiency. Controlled refurbishment restores internal flow paths, removes contamination, identifies defects and returns components to a reliable, serviceable condition.

Refurbishment is often more cost-effective and faster than outright replacement. For older or discontinued units, refurbishment may be the only practical way to keep equipment in service. Our aim is to provide a fast turnaround with predictable, cost-effective pricing to minimise downtime for vessel owners and operators.





^ Lombardini marine LDW1204M heat exchanger before disassembled and ready for reassembly

Process overview

On receipt, all components are documented and photographed in their ‘as-received’ condition. If assemblies require additional work beyond standard refurbishment, such as welding, brazing, machining, extraction of seized studs or thread repair, we provide a report with recommendations and pricing before proceeding.

Standard refurbishment includes:

- Disassembly of end caps, tube stacks and gaskets
- Chemical and abrasive cleaning where required

- Detailed inspection of all components
- Replacement of internal seals, O-rings, gaskets, standard fasteners and anodes
- Surface preparation of external castings
- Priming and coating with a 2-pack polyurethane system for adhesion, toughness and corrosion resistance
- Reassembly and hydraulic pressure testing at 1.5× working pressure



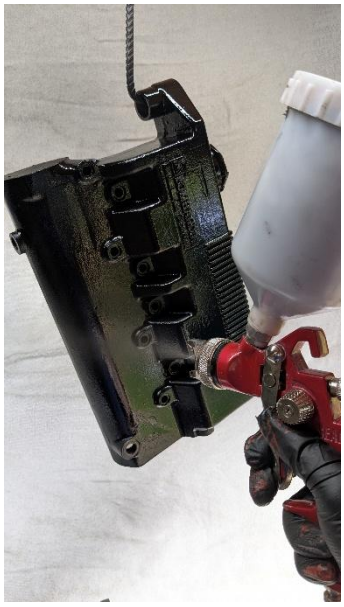
All heat exchanger casings are refinished in RAL7035 (light grey) as standard to avoid delays associated with custom colours. If required, we can overcoat the standard 2-pack system with 1K nitro-acrylic paint to match existing engine colours. This is quoted separately and may extend lead time.

^ Brehon Engineering serial number tag fitted to a refurbished heat exchanger

Completed assemblies are fitted with a Brehon Engineering serial number for traceability and warranty purposes. These are adhesive or mechanically fixed depending on the heat exchanger design.



^ 2700 series Ford Marine Diesel engine with heat exchanger painted to match remainder of engine



^ Lombardini LDW1204M heat exchanger painted to match OEM colour

Typical applications

The service is suited to marine engineers, boatyards, commercial operators and private owners working with:

- Commercial and leisure marine engines (Volvo Penta, Perkins, CAT, MAN, Cummins, Yanmar, Nanni, Beta Marine, Ford, Mercruiser & others)
- Workboats, fishing vessels, pilot boats & private vessels
- Standby generators and auxiliary engines
- Industrial cooling systems using marine-pattern heat exchangers



^ End caps exhibiting scale deposits before cleaning



^ Beta Marine heat exchanger before disassembly



^ Corrosion damaged material being removed from exhaust port for subsequent weld repair



^ Corroded area built back up with new material, dressed flush and reshaped

Common issues identified during refurbishment

- Tube stack blockage from scale, debris or biological fouling
- Anode depletion
- Internal corrosion of seawater passages
- Corrosion around exhaust/saltwater discharge connection
- Pitting and erosion on tube plates
- Failed O-rings and gaskets
- Cracked or distorted end caps
- Paint failure and external corrosion
- Reduced flow due to contamination
- Electrolysis damage on bronze components
- Heavy oil/carbon deposits in exhaust passageways
- Bearing, seal and impeller failures on raw water pumps



^ Scale on a tube stack before cleaning



^ Ford Sabre end cap inspection



^ A severely corroded heat exchanger

What we don't do

- Fault diagnosis of cooling issues
- Provide removal/installation advice
- Pressure testing of complete engines
- Repair of severely corroded or perforated shells (unless it is cost effective to do so)
- Modification of OEM cooling designs
- Engine servicing or general repairs

Pricing and turnaround

The service is used by customers who require controlled, workshop-based refurbishment of removable cooling components carried out to a high technical standard.

Customers are encouraged to submit photographs to enable us to discuss suitability and indicative pricing before components are shipped or delivered. Most units can be refurbished within **5–10 working days**, subject to workload and parts availability. We occasionally hold stock of some refurbished units and will offer these on an exchange basis when available.

For UK customers, DHL temporary-export handling ensures no VAT is payable on return shipments, with door-to-door collection available. We can arrange collection from you in most cases and arrange return shipping.

Contact Details

Email: info@brehon-engineering.com

Telephone: +44 7781 162766

Website: brehon-engineering.com

Terms & Conditions

All refurbishment services are carried out in line with our full Terms & Conditions, available on our website.