# 2025.Q3

**Long Lasting** Repairs / Rebuilds

**Long Lasting** Protection

Happy Customers / 1.000+ Vessels

Local Delivery at Major Ports

Air Freight When Needed

No Expiry Date

100% Solids

Easy Application

Free Diagnosis / Advice

Application Experts, when required

# Truly long lasting anti-corrosion solutions for …




… vessels of all types …

REPAIRS . PROTECTION . REBUILDS

# Types of REPAIR and/or PROTECTION Applications for Truly Long-Lasting Performance

- EGCS overboard pipe protection
- Hull protection around EGCS washings
- Cargo heating coil repairs
- Deck steam pipe repairs
- Tank top, deck repair & protection
- Bulkheads of fuel tank & ballast tank
- Pipe repairs (GRE/GRP, etc.)
- Sea chest protection
- Water jet repair & housing protection
- Black-, gray-water tank protection
- Ballast pipes, eductors
- Engine block & crankcase door repairs
- FRAMO pipe repairs
- Cracked deck line repairs
- Deck seal repair and protection, etc.
- Pump impellers, casings, valves
- Tube sheets, water boxes, pipes
- Fairing (hull, propeller blades, etc.)
- BWMS pipes, chemical tanks
- etc.

# Sea Chest Protection

ENECON

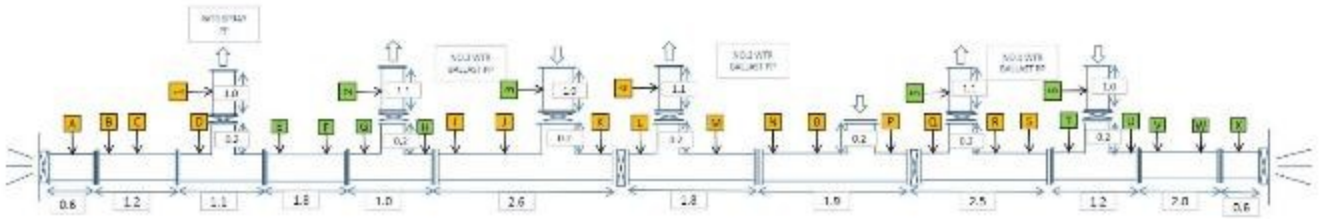
After 10 months of operation
in Brazilian waters

*Pictures from internal painting carried out through No.1 Ballast pump suction strainer*






***THICKNESS MEASUREMENT READINGS OF BALLAST SEA CHEST PIPING IN E/R***



* ALL DIMENSIONS MARKED ABOVE ARE IN METRES. THICKNESS VALUES BELOW ARE IN MM.

| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.9 | 3.5 | 3.1 | 3.0 | 9.6 | 9.5 | 9.9 | 9.9 | 2.5 | 2.7 | 2.9 | 3.4 | 3.1 | 2.9 | 2.7 | 3.0 | 2.7 | 2.7 | 3.0 | 9.0 | 9.4 |
| 3.7 | 3.4 | 3.0 | 2.7 | 9.6 | 9.6 | 10.1 | 10.0 | 3.1 | 2.4 | 3.0 | 3.6 | 3.3 | 2.8 | 2.4 | 3.5 | 2.6 | 3.0 | 3.0 | 9.0 | 9.6 |
| 2.4 | 3.4 | 3.1 | 2.6 | 9.5 | 9.4 | 10.1 | 9.9 | 3.0 | 2.5 | 3.6 | 3.5 | 3.0 | 3.0 | 2.7 | 3.6 | 3.7 | 2.4 | 3.4 | 9.5 | 9.5 |
| 3.6 | 3.4 | 2.6 | 2.4 | 9.6 | 9.6 | 10.0 | 9.4 | 2.5 | 3.3 | 3.2 | 3.4 | 3.2 | 3.6 | 2.0 | 3.7 | 3.4 | 2.3 | 3.6 | 9.5 | 9.4 |

| V | W | X | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 9.9 | 9.8 | 12.8 | 2.7 | 9.6 | 9.9 | 2.6 | 2.6 | 9.4 |
| 10.0 | 9.6 | 12.6 | 2.9 | 9.7 | 9.9 | 2.5 | 2.4 | 9.6 |
| 9.6 | 9.7 | 11.8 | 3.0 | 9.6 | 10.0 | 2.8 | 2.6 | 9.5 |
| 9.8 | 9.8 | 12.2 | 3.0 | 9.5 | 9.9 | 2.7 | 2.5 | 9.4 |

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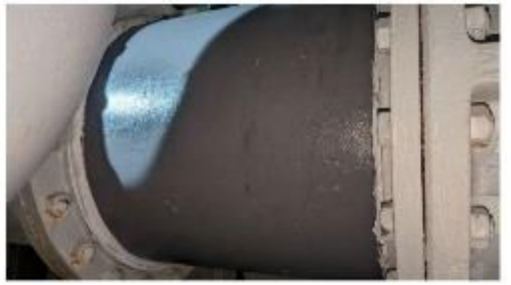
***BALLAST PIPE IN ER STRENGTHENING USING ENECON PUTTY (Ceramalloy CP+AC)***

***INITIAL CONDITION***

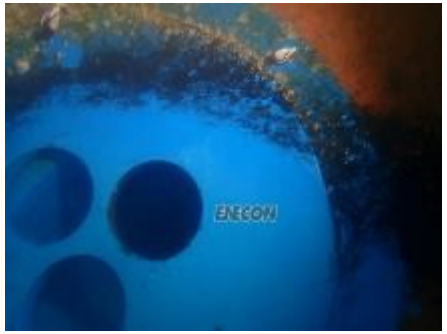

***COMPLETED APPLYING PUTTY EVENLY ON THE ENTIRE PIPE SECTION***

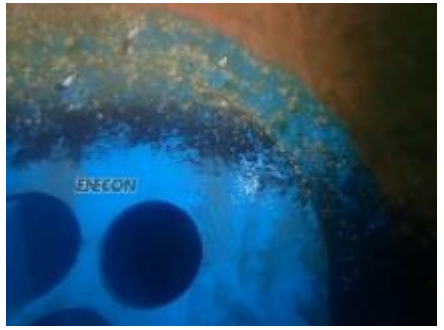



# Ballast Line Thickness Restoration










# Scrubber Ovbd Pipes

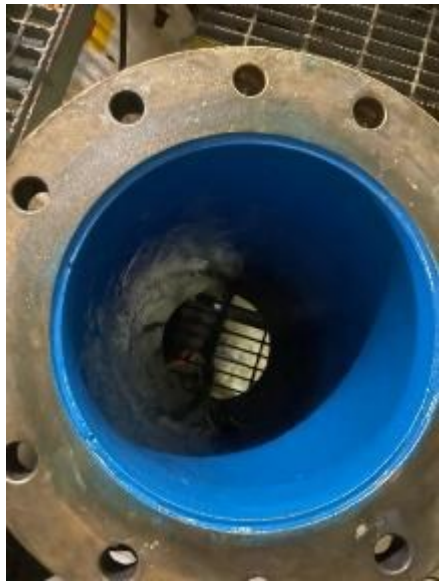






# Black and Gray Water Tank Protection



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# Fluid Flow Equipment Repair/Protect















# Tanker’s Heating Coils’ Repairs




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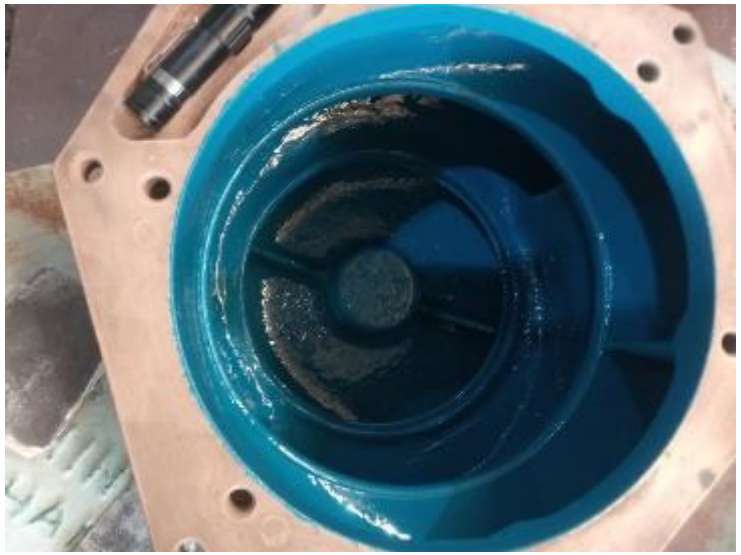
# Pump Casings





# Water Jet Refurbishment

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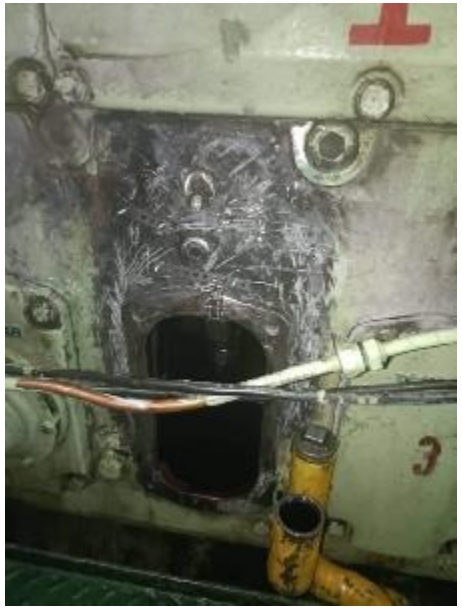
# Water Jet Housing Protection

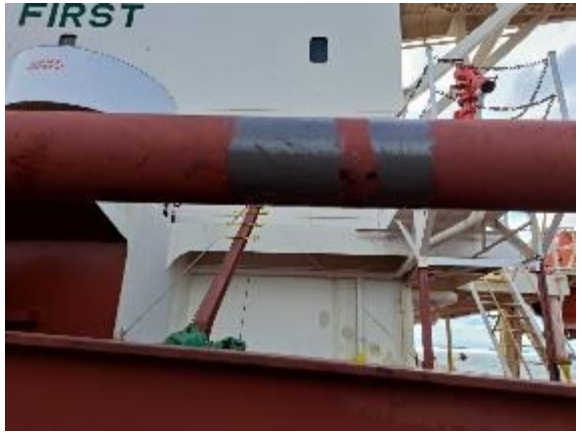
# Steam Lines' Repair




# Engine Block Crankcase Door Damaged by Failed Piston


# Yacht works at dockyards





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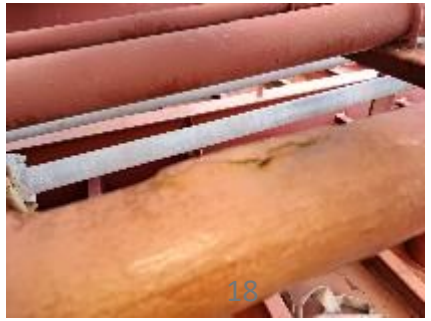
# FRAMO Pipes Repaired with DuraWrap



# U.S. Navy


The Auxiliary Electric Start Systems (AESS) lockers on an aircraft carrier provide the ability to "jump start" a fighter plane if required. The hatches are flush with the carrier deck and are designed to keep water and other contaminants from getting into these lockers – potentially compromising the operation of the electrical systems.

What often happens, however, is the gasket retainer corrodes due to constant immersion in saltwater, fuel, hydraulic fluid, etc. As a result, the hatches leak and the AESS lockers can fill with water. This is not a good thing.

A conventional welding repair is time-consuming and sometimes damages the hatches. The ship's engineers decided to utilize a more "high-tech" approach. The damaged areas were repaired with ***DurAlloy*** then sanded smooth to the desired shape and dimension. Two coats of ***CeramAlloy CL+ [AC]*** were then applied over the entire seal area to provide long-term corrosion protection to these hatches.

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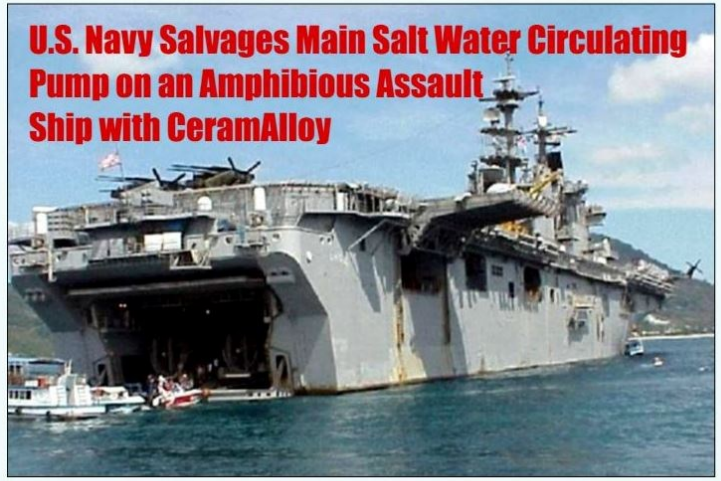
## U.S. Navy Salvages Main Salt Water Circulating Pump on an Amphibious Assault Ship with CeramAlloy



ENECON Hampton Road's Pier Side Rapid Availability Team (P.R.A.T) were recently called in to solve a severe erosion/corrosion issue on the main sea water circulating pump that feeds the main steam condenser on an LHD vessel. This class of ships carries helicopters, Harriers (vertical take-off jets), LCAC's (Landing Craft - Air Cushion hover crafts) as well as about 2,000 Marines and all their equipment. It is a key component of the U.S. Navy's amphibious assault arsenal.

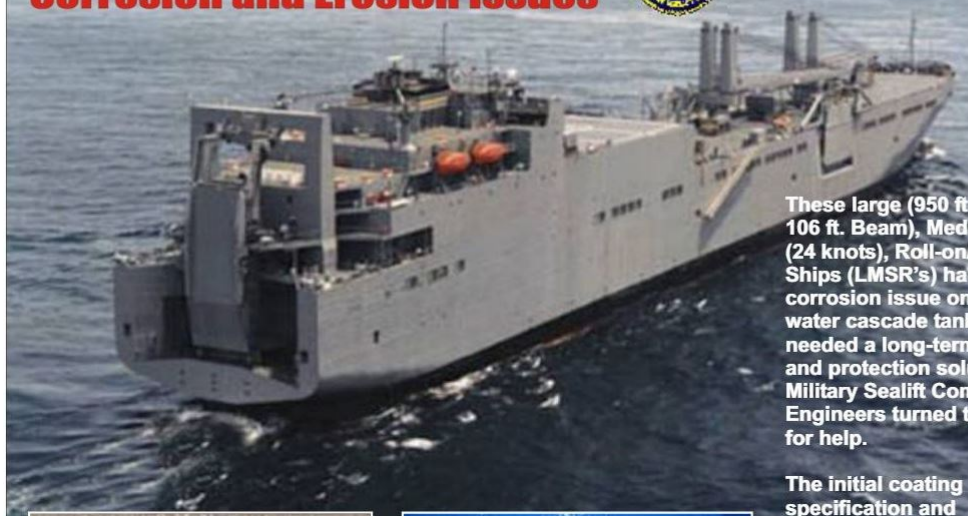
A direct replacement for this 13 year old bronze/monel pump was not available and a redesigned pump would have required extensive re-piping and would have cost the Navy over $250,000.

These photos, supplied by E.H.R's P.R.A.T engineers, illustrate a typical ENECON pump repair and coating procedure that was carried out in just a few days and cost the U.S. Navy just $12,000.

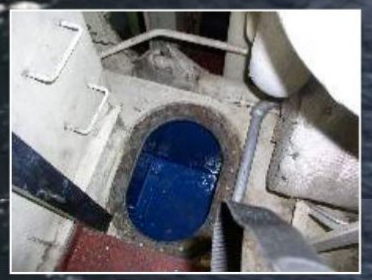
# U.S. Navy

ENECON

## Military Sealift Command Transport Ships Turn to CeramAlloy to Solve Critical Corrosion and Erosion Issues



These large (950 ft. Length, 106 ft. Beam), Medium-Speed (24 knots), Roll-on/Roll-off Ships (LMSR's) had a serious corrosion issue on their gray water cascade tanks. They needed a long-term repair and protection solution. The Military Sealift Command Engineers turned to ENECON for help.



The initial coating specification and development work was spearheaded by ENECON South East based in Sumter, South Carolina. They completed the tanks on the first LMSR in Charleston, SC. A second cascade tanks coating project was successfully completed by the ENECON North East Engineering Team (based in New York) at a Boston, Massachusetts, shipyard. A third ship was recently completed in Charleston.

There are a total of 5 ships in this class. Each $55,000+ project required thorough grit blasting of the cascade tanks followed by a standard CeramAlloy CL + AC installation.

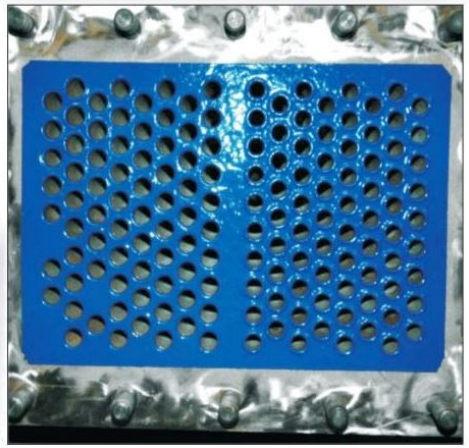
## U.S. Navy Saves $37,000 On Emergency Heat Exchanger Repairs

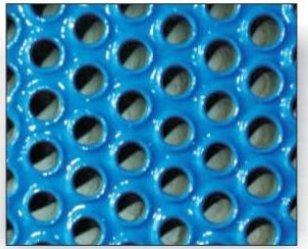
The engineers on this Navy Frigate recently discovered that one of the bleed air heat exchangers was suffering from such severe erosion/corrosion damage that the unit was not cooling sufficiently.

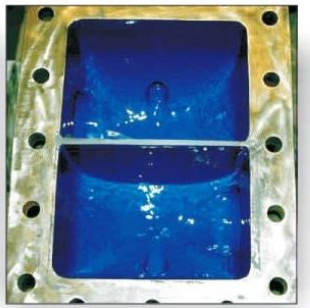
Replacing the unit at a cost of over $42,000 was not an option. Furthermore, the heat exchanger had to be up and running in just 7 days to permit the ship to sail on schedule.

The engineers turned to their local ENECON Field Engineering Team in Virginia who quickly evaluated the situation and confirmed that the repairs could be completed in the available time and for a fraction of the cost of replacement.

After the unit was grit-blasted, a 3 coat system of CeramAlloy CL+ was applied as illustrated in these photos. This entire project cost the Navy less than $5,000.







# U.S. Navy

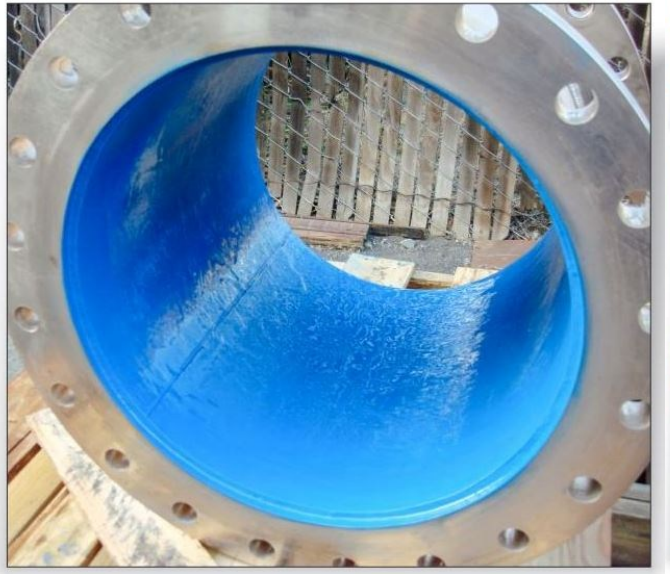
ENECON


The U.S. Navy routinely uses ENECON solutions to repair and protect their onboard equipment.

In order to extend the service life of new intake spools and transition lines being installed on a cargo ship, the Navy chose to proactively protect them with CeramAlloy CL+AC.

After grit-blasting to a 4 mil profile, 2 coats of CeramAlloy CL+AC were applied to some 15 spool pieces and transition lines that carry sea water to the engine for cooling.

CeramAlloy has been used by the U.S. Navy for applications like this for more than 20 years due to its ability to provide outstanding protection to equipment subject to salt water erosion and corrosion.






The U.S. Navy was in need of a solution to stop corrosion on their VLS (vertical launch system) uptake hatches on destroyer and cruiser class ships

Missiles are launched through open uptake hatches, usually located on the deck of a ship. The extreme high temperatures (400°F+), oxidized spent rocket fuel and environmental conditions of salt water were causing premature coating failure of the hatches.

ENECON's high temperature resistant repair and rebuilding composite, *CeramAlloy HTP*, was used to repair and rebuild the severely eroded areas of each hatch. The *HTP* was then machined to maintain the required tolerances.

Then two coats of *CeramAlloy HTL* were applied to resurface and protect the entire area.

The Navy was so pleased with the first twelve pairs of uptake hatches, more will be protected in the near future.


*Repairs made with CeramAlloy HTP*

# U.S. Navy


When it comes to superior protection of its most critical components, the U.S. Navy routinely turns to ENECON and specifies *METALCLAD CeramAlloy CL+AC* to repair and protect its fluid flow components from erosion & corrosion damage from sea water.

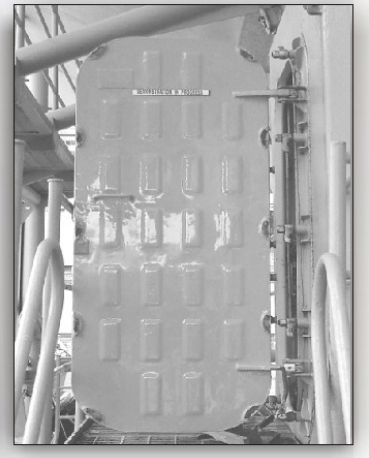
After each cooling water system component was carefully grit blasted to a 3 mil profile, and inspected, ENECON NorCal then coordinated the application of two coats of *CeramAlloy CL+AC*, first coat gray and second coat blue.

These components are now protected <u>better than new</u> and ready to be re-installed on the vessel.

ENECON

## CHEMCLAD SC Provides Significant Performance Improvements Over Powder Coating on US Navy Aircraft Carrier Watertight Doors

Powder coated doors after a few months at sea.



Same door protected with CHEMCLAD SC

*CHEMCLAD SC advantages...*

- No special tools are required – just a roller & paint brush.
- No odors & no health or environmental risks.
- Superior adhesion to the steel prevents under-film corrosion (rust creep).
- Any physical damage to the CHEMCLAD system remains isolated and can be easily repaired in the field by ship's force – not possible with powder coating.

ENECON®

REPAIR - DON'T REPLACE®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