Kelvion

Kelvion Box Cooler

EFFICIENT AND SPACE SAVING COOLING

DESIGN & FUNCTION

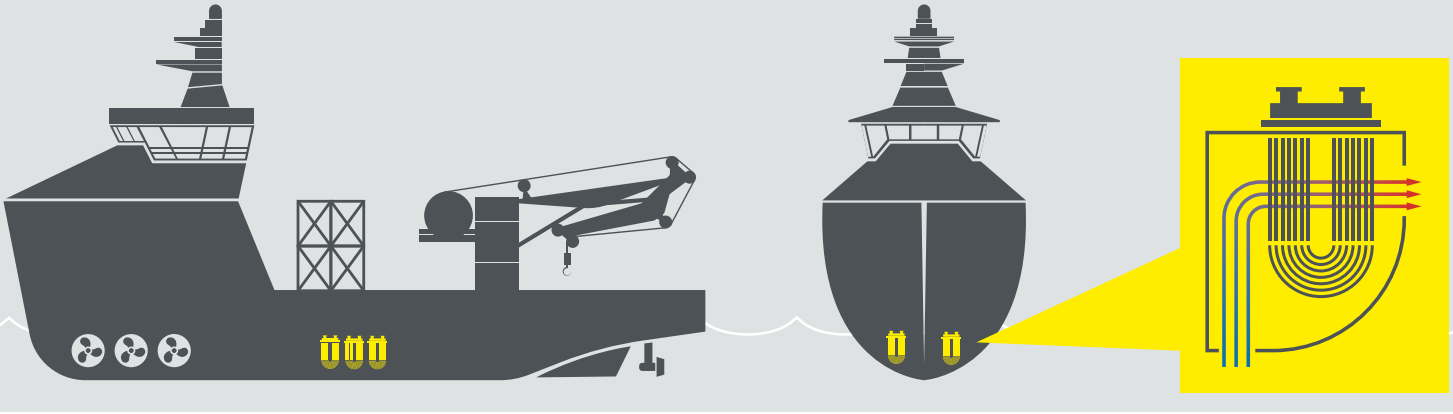
The box cooler comprises a U-tube bundle that is fitted in the sea chest on the side of a vessel, saving space in the engine room. The sea chest is equipped with inlet and outlet grids. Cooling sea water enters through the inlet grid and flows along the U-tube bundle to the outlet grid, thus cooling the water inside the tubes. The cooling effect is achieved by the forced circulation of sea water when the vessel is moving or by natural convection when it is stationary.

Box coolers can be used for a wide variety of temperature-reducing duties on a vessel, from cooling the main engines, auxiliary engines and bow thrusters to air conditioning and hydraulic systems.

Kelvion Box Coolers are ideal for small and medium sized vessels, including for example: tugboats, barges, fishing boats, carriers, dredgers, supply vessels, ferries, ice breakers, cargo freighters, tankers and reefers.

ADVANTAGES

- ELIMINATES ON-BOARD SEA WATER SYSTEM
- ANTI-CORROSIVE MATERIALS
- LESS SUSCEPTIBLE TO CORROSION AND FOULING
- CAN OPERATE IN ICY CONDITIONS, SILT OR POLLUTED WATERS
- LOW MAINTENANCE
- SPACE-SAVING IN THE MACHINE ROOM
- LOW OPERATIONAL COSTS



BOX COOLER TYPES AND VARIATIONS

Rectangular box cooler

Round box cooler

Stepped box cooler

DESIGN DATA

The basic design conditions of the box cooler are:

- Design pressure: 3.33 bar g
- Test pressure: 5.00 bar g
- Design temperature: 94.9 °C

Adapted data on request.

CLASSIFICATIONS

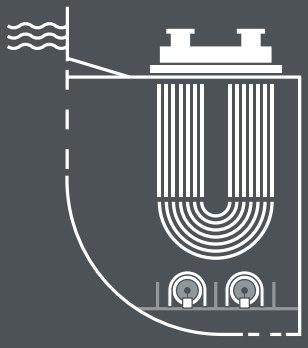
- **ABS** – American Bureau of Shipping
- **BV** – Bureau Veritas
- **CCS** – China Classification Society
- **CR** – China Corporation Register
- **DNV** – Det Norske Veritas
- **GL** – Germanischer Lloyd
- **IRS** – Indian Register of Shipping
- **KR** – Korean Register of Shipping
- **LRS** – Lloyds Register of Shipping
- **MROS** – Maritime Register of Shipping
- **NK** – Nippon Kaiji Kyokai
- **NSI** – Nederlandse Scheepvaart Inspectie
- **RINA** – Registro Italiano Navale
- **RRR** – Russian River Register
- **USCG** – Unites States Coast Guard

ICAF SYSTEM

For sailing areas where biological fouling could be an issue, we can provide special anti-fouling systems. Kelvion focuses mainly on the so called ICAF-Systems. The Impressed Current Anti-Fouling system (ICAF) is a very effective way of preventing biological fouling. Anodes of pure copper are mounted under the box cooler in the sea chest. A constant current is applied between the anodes and the hull (mass), which causes copper to dissolve in the seawater. These Cu+ ions create a continuous toxic environment preventing the settling of deposits.

We offer two different methods for installing the ICAF system:

Separate ICAF-System



Integrated ICAF-System