A boxcooler exploits natural convection. The heat source cooling water is circulated through the boxcooler tube bundle which is suspended in the sea chest. Heat is transferred from the boxcooler tubes to the seawater, causing it to rise due to its lower density, creating a natural upward circulation. Openings in the bottom and upper side of the sea chest help to direct and focus the natural convection flow of seawater through the sea chest and across the boxcooler tubes. Additional cooling efficiency can be realized through forced circulation induced by the motion of the vessel.

**Boxcooler Advantages**
- Eliminates raw water pumps, strainers, and filters
- Virtually maintenance free
- Cools engines up to 10,000 kw
- In-hull protection

**ENGINEERED TO COOL**

The WEKA Boxcooler is a custom engineered cooling solution designed to meet the specific demands of the engine manufacturer and operating conditions of your vessel. This design is ideally suited for vessels operating in icy, sandy, or debris laden water.

**Applications**

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**Vessels**

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WEKA Boxcoolers are constructed using uncoated 90/10 copper-nickel tubing. This alloy does not require a protective coating or ICAF (Impressed Current Anti-Fouling) system due to its inherent corrosion resistance to seawater and natural anti-fouling capabilities. To protect the uncoated boxcoolers against potential stray current corrosion, a WEKA Guard™ and WEKA Protector™ Type T system are applied. This exclusive design is successfully utilized in hundreds of vessels in fresh and saltwater applications worldwide.

WEKA Protector™ Type T and WEKA Guard™
Exclusive to WEKA Boxcoolers are the WEKA Protector™ Type T and WEKA Guard™. This equipment helps to minimize potential damage to the units and hull from stray electrical currents and galvanic corrosion. The WEKA Protector™ Type T also allows the copper-nickel to maintain its anti-fouling capabilities, protecting the tubes from marine growth.

Isolation
Our boxcoolers are constructed to be completely isolated from the hull during installation and in operation. Isolation from the ship’s hull combined with the WEKA Protector™ Type T allows the copper-nickel to maintain its anti-fouling capability.
Bottom Mounted Boxcooler
WEKA Boxcoolers have been successfully applied in bottom mount applications, such as repower projects or when additional equipment requires cooling. In most cases, a boxcooler is installed in a top down fashion by lowering the unit into the mounting frame and welding the unit to the top of the sea chest. In a bottom mount application, a special top sea chest plate is pre-manufactured and secured to the unit’s mounting frame. The entire assembly is lifted from the bottom of the vessel through a hole cut in the hull and sea chest. The boxcooler is then fitted into the top of the sea chest and welded into place.

**Single or Multiple Heat Sources**
A boxcooler can be designed to support single or multiple heat sources on one unit.

**Stepped Boxcooler**
A WEKA Boxcooler can be engineered to accommodate tight spaces by stepping the unit.

**Sea Chest**
The sea chest requires careful planning. The inlet and outlet slots of the sea chest must provide a constant flow of seawater over the boxcooler’s tubes. The inlet slots are located at the base of the sea chest and should be positioned transversely to the outlet slots on the side of the sea chest. The outlet slots should be positioned as close to the top of the sea chest as possible. The outlet slots must always remain below the waterline, even when the vessel is in a light draft condition. Please refer to the installation manual for guidelines on slot quantity and sizing.

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INQUIRIES

Our team will need the following specifications to make a proper product recommendation.

**Engine Information**
- Engine Type (Propulsion, Bow Thruster, Generator, Other)
- Emissions Data (Tier 1, 2, 3, or IMO)
- Engine Manufacturer
- Model
- Rating (BHP / RPM, BKW / RPM, EKW / RPM)
- Engine Age
- Percentage of Antifreeze Used
- Heat Rejection
- Fresh Water Flow Rate
- Fresh Water Temp Into Cooler
- Fresh Water Temp Out or Drop Across Cooler

**Reduction Gear Information**
- Make and Model of Gear

**Vessel Information**
- Type of Vessel (e.g., Ferry, Trawler, Tug)
- Hull Construction (Steel, Fiberglass, Wood, Aluminum Painted/Unpainted)
- Minimum Hull Speed at Full Rated Power (Under Full Load)

**Environmental Conditions**
- Maximum Seawater Temp

Get a quote at wekaboxcoolers.com