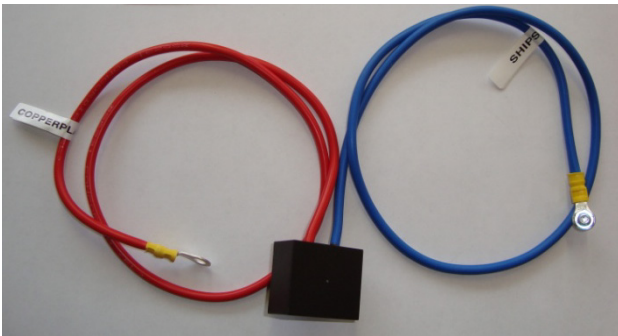




INSTALLATION MANUAL FOR **WEKA GUARD** WEKA PROTECTOR™ TYPE "T"

WEKA BOXCOOLERS B.V.
INDUSTRIEWEG 8
NL-2921 LB
KRIMPEN A/D IJSSEL
NETHERLANDS

Phone	+31 180 516 588
Fax	+31 180 516 064
E-mail address	info@wekaboxcoolers.com
Website	WekaBoxcoolers.com



WEKA GUARD



WEKA PROTECTOR



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1. INTRODUCTION

- Read this instruction manual before proceeding.
- Important documents besides this instruction manual are the order confirmation, the specification sheet and drawings.

1.1 Guarantee and liability

The “General Conditions of Sale of WEKA Boxcooler BV” are applicable. Also refer to the order confirmation for possible additions.

1.2 Receipt of goods

- Upon receipt of goods, please report any damage or discrepancy to WEKA Boxcooler BV.
- Compare the data on the identification plate, order confirmation and on the drawing.

1.3 Verifying correct installation of Boxcoolers

WEKA Boxcoolers must be mounted galvanically isolated from the ship’s hull. This is to safeguard the lifetime of the Boxcoolers, to avoid marine growth on the Boxcoolers and to avoid corrosion. The WEKA Guard and WEKA Protector are the devices which control and protect the Boxcoolers and the ship from these phenomena, provided the Boxcoolers are correctly installed.

A few things also mentioned in the “Installation Manual for WEKA Boxcoolers” are highlighted:

1. Make sure the mounting of the Boxcooler is complete – also with the bonnet on top of the cooler.
2. The top-plate of the sea-chest (tank top) shall be cleaned from water and obstructing materials.
3. Check the galvanic isolation of the Boxcooler using relevant procedures as below:

Ship is in dry-dock – Boxcooler is not submerged

- Measure the resistance (Ω) between the cooler and the ship’s structure. The resistance must not be less than 500 Ω .

Ship is afloat – Boxcooler is submerged and WEKA Guard is connected

- Measure the electric potential (Volt DC) between the Boxcooler and the ship’s structure. The potential difference should be approximately 350 mV.

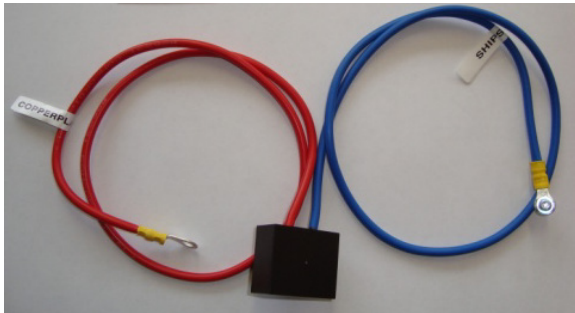
Please consult WEKA in case any questions should arise.

2. WEKA Guard

2.1 General

In the shipment a device will be included (free of charge) which protects the Boxcooler from being damaged by welding currents. Welding with Boxcoolers in place must be performed using the most modern and best available professional welding methods. This device (WEKA Guard) must be connected to the cooler and to the ship's hull during the newbuilding process of the ship when the ship-based electrical supply is not yet available. If not installed, the Boxcooler may suffer severe corrosion due to the welding currents. Once the ship is completed and due for delivery, the WEKA Guard shall be replaced by the WEKA Protector, which from this moment on takes over the protection of the Boxcooler.

2.2 Installation



One WEKA Guard is normally supplied for each Boxcooler.
The WEKA Guard consists of a small box with two wires, a blue and a red one.
The WEKA Guard needs no additional power supply.

The blue cable is connected with the ship's ground, the red cable is connected to the copper plate of the Boxcooler.

In appendix A, a connection diagram is found for the WEKA Guard unit.

2.3 Placement of the WEKA Guard

The WEKA Guard shall be placed in a safe area of the ship, in order not to be damaged during ship's construction.

3. WEKA Protector

3.1 General

WEKA strongly recommends installing one WEKA Protector per Boxcooler. This will protect the Boxcooler from being damaged by ICCP-systems or stray currents originating from sacrificial anodes. The WEKA Protector is a small device, which is placed in the vicinity of the Boxcooler to be protected.

3.2 Installation

One WEKA Protector is normally supplied for each Boxcooler.



The WEKA Protector consists of a small box with two wires, a blue and a red (or brown) one. Each cable is 300 cm of length. The WEKA Protector needs no additional power supply.

The blue cable is connected to the sip's ground; the red (or brown) cable is connected to the Boxcooler.

In appendix B, a connection diagram is found for the WEKA Protector.

When the WEKA Protector is connected, you must disconnect the WEKA Guard.

3.3 Placement of the WEKA Protector

The WEKA Protector shall be located near the Boxcoolers at an accessible position. Outside the box itself there are two mounting holes aimed for screws (not included in the delivery) for fixing the WEKA Protector at a safe and visible place.

Every two minutes the device will give a flash to show that the protector is working properly.

The WEKA Protector shall be mounted at a sturdy frame, in a dry and well-protected position, and mounted in such a way that excessive vibrations are avoided.

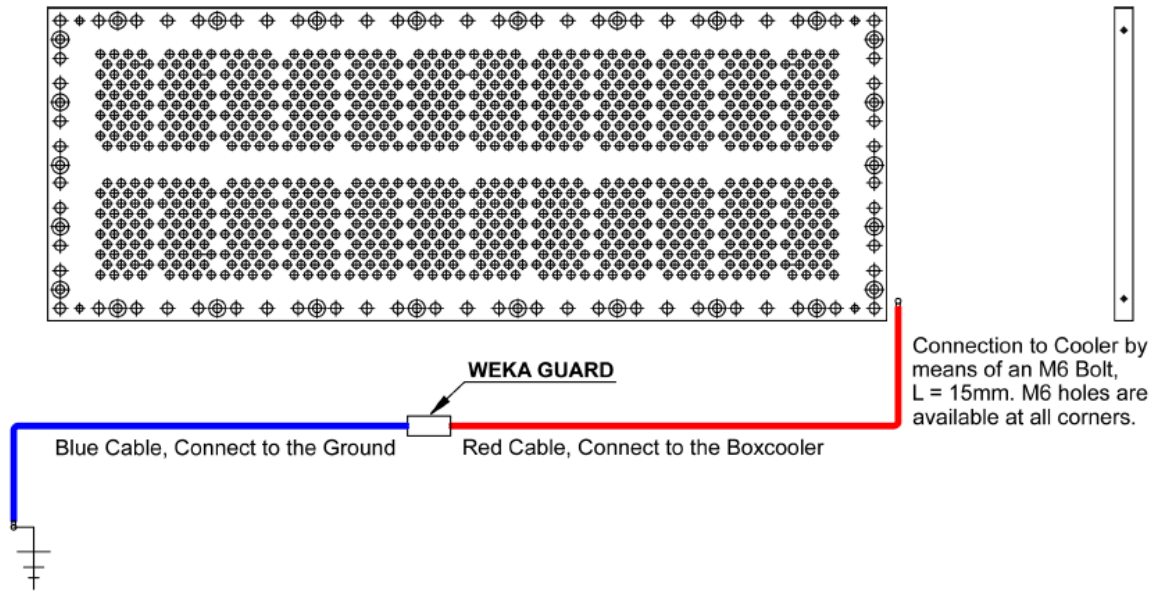
NOTE: The WEKA Protector must not be attached to the Boxcooler itself since the high temperature of the Boxcooler may damage the electronics of the WEKA Protector.

After 5 years the WEKA Protector has to be replaced by a new one.



WEKA Guard – Connection scheme

APPENDIX A



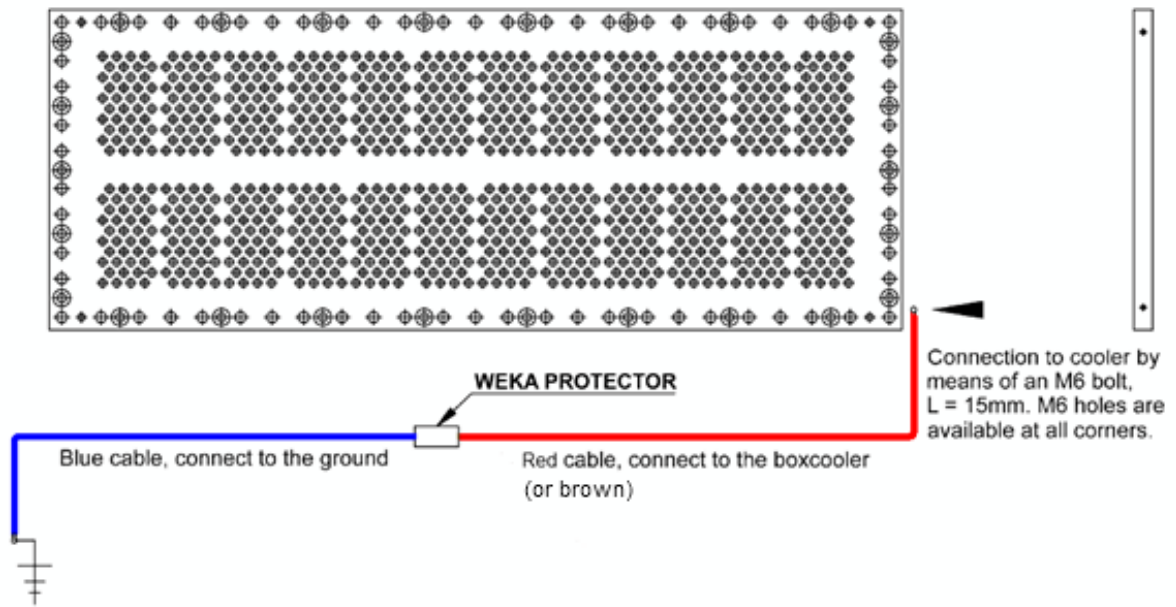
Firm connection to ship's ground.
Weld an M6 bolt to the ship's hull.

A WEKA Guard unit must be connected to each cooler at all times.
Only when the WEKA Protector unit is installed the WEKA Guard units may be removed.
One WEKA Guard unit is supplied for each cooler.



WEKA Guard – Connection scheme

APPENDIX B



Firm connection to ships ground.
Weld an M6 bolt to the ships hull.

A WEKA Protector unit must be connected to each cooler at all times.

A WEKA Protector unit is supplied for each unit.

A WEKA Protector's lithium battery has a life duration of 5 years.

AFTER 5 YEARS: REPLACE THE PROTECTOR