

## **BACKGROUND INFORMATION**

### **Product Portfolio: Indel Webasto Marine**

#### **Joint venture: Indel Webasto Marine**

At the beginning of 2008 Webasto formed a new alliance for more comfort on board. The long established, Bavarian company acquired 50 percent of the shares in the company Indel Marine – and together with Indel B, founded the joint venture Indel Webasto Marine. The joint venture partner is one of the leading manufacturers for 12 and 24 volt refrigerators. The headquarters and production facilities of the newly established joint venture business Indel Webasto Marine are based in St. Agata Feltria, 120 kilometers south of Bologna. The headquarters of the American subsidiary is in Fort Lauderdale in the US state Florida.

The product portfolio of Indel Webasto Marine includes cooling and heating solutions. From small boats to superyachts –Indel Webasto Marine provides the right solution for every type of boat thus creating the perfect feel-good climate on board. The core competences of the company are customer-specific adaptations, which can be carried out in individual orders or for the whole production series. The Isotherm refrigerators and Isotemp boilers, sold by Indel Webasto Marine, are well-known in the marine industry.

With the Indel Webasto Marine partnership, customers profit from an extended distribution network and an embracing product portfolio. Whether customers look for heating, air conditioning, sanitary water heating or a refrigerator/freezer, Indel Webasto Marine has the solution to offer.

#### ***Isotherm: Refrigerators and freezers***

The name “Isotherm” stands for cooled travel boxes, refrigerators and freezers in the product portfolio of Indel Webasto Marine. These products stand out with their extremely low energy consumption. They are especially designed for life on board, and the special environmental conditions on boats and yachts. It is possible for customers to individually put together their own cooling solution. Alongside stainless steel or glass fronts, door panels or fixing flanges, almost the entire product range can be individually adapted to the interior of the boat. Some Isotherm models use sea or lake water to dissipate the surplus of heat. Thanks to this uniquely patented system, the energy consumption is significantly lower than the consumption of common household refrigerators. To pump the cooling water, Indel Webasto Marine uses the water current during the journey: this saves additional electricity – which is a precious commodity on board. There is a choice of

devices from the Cruise or Drawer series, combinations of refrigerator and freezer units, as well as custom-made designs and assembly kits.

***Refrigerators and freezers from the Cruise series:***

With the Cruise series, Indel Webasto Marine has combined technological innovation and practical design. Thanks to its magnetic rubber seal, the door can be closed safely and tightly. The compressor unit can easily be removed and mounted in a vertical position up to 1.5 meters away from the unit, which allows multiple installation possibilities. Door panels and fixing flanges of the Indel Webasto Marine Cruise series can individually be selected by the customer to match the interior design of the boat. The optional universal AC/DC installation kit enables operation with direct or alternating current. The cooling units use a 12 / 24 volt Danfoss/Secop compressor and can be equipped with different cooling techniques: in addition to the standard ventilation system and a water cooled installation kit without power consumption, water cooling by an electric seawater pump is also available. The capacity of the refrigerators ranges from 36 to 271 liters. The freezers from the Cruise range complete the large range of standard refrigerators and are available in three different sizes (63, 65 and 90 liters).

***Refrigerators and freezers from the Drawer series (drawer system):***

With the Drawer series including drawer refrigerators and the drawer freezers, fresh food and chilled beverages are always close to hand. Some of the models are equipped with the Frost-Free function. Thanks to this award-winning technology (IBEX Award 2008), ice accumulation inside the refrigerator or the freezer is prevented – electricity remains at a consistent low level. The Off Shore Lock prevents the opening of the refrigerator's door even when the seas are rough. The product portfolio includes stainless steel doors and glass fronts, which are available in different colours. The frames can be individually designed for an installation of two units side by side (Drawer 65 fridge and Drawer 55 freezer). Blue LEDs light up the inside of the refrigerator. The capacity ranges from 49 to 190 liters.

***Refrigerators – Custom-made designs***

Indel Webasto Marine has a very good reputation for individual, customized cooling solutions and refrigerators in the marine market. In close cooperation with shipyards, Indel Webasto Marine produces completely customised cooling units, which are perfectly tailored to the customer's needs and comply perfectly with the interior and space of their boats. The refrigerators are simple to install fit harmoniously into the boat's interior. In short: Indel Webasto Marine fulfills practically every customer wish.

### ***Air Heat Exchangers and Water Boilers***

Under the brand name "Isotemp", Indel Webasto Marine manufactures high quality hot water boilers which are especially designed for the marine environment. For example, rust-free steel makes the water boilers uniquely robust for use on board. The water tank, external cylinder and stable fixing feet are made of rust-free steel. The fixing feet can be adjusted by 360 degrees and can also be used for wall mounting. The water heaters are available with a volume from 15 to 75 liters. Particularly long corrugated coils ensure an efficient heat exchange. They also heat the water on the lower part of the tank and are available with capacities of 750, 1200 and 2000 watts. Thanks to the extra thick insulation, heat loss is reduced to a minimum. On option a thermostat mixing valve is available.

The Indel Webasto Marine air heat exchanger uses a "by-product" to its advantage: it uses the surplus waste heat coming of the engine in order to de-frost windshields or heat up interiors. Three power settings of the radial fan enable a precise adjustment to the heat requirement. The suctioned air can be canalized through hose adapters. Due to the heat output of 10 kW, the elements have to be especially heat-resistant; the heat is released from 4 outlets each with a 60mm aperture. The stainless steel casing enables harmonious integration into the cabin. The devices are also available in 12 or 24 volt versions.

### ***Travel Boxes***

For fresh food and cool drinks on the move, Indel Webasto Marine offers travel boxes. These portable refrigerators / freezers are specially designed for rough marine outside conditions and are available in five different versions with a volume from 31 to 55 liters. The cooled boxes are equipped with an AC / DC Danfoss/Secop compressor unit and practical handles for comfortable transportation.

### ***Built-In Boxes***

Built-in cooling boxes from Indel Webasto Marine are conceived for cooling solutions where only little space is available on board. The plastic or rust-free steel interior makes the units resistant against salt water and the special climate conditions on the ocean. The built-in boxes are equipped with a 12/24 V Danfoss/Secop compressor. High installation flexibility is guaranteed as the compressor unit can be positioned up to 1.5 meters away. Model BI29 can be fitted with roller slide rails on the sides and used as a drawer refrigerator.

### ***Cooling Units***

Indel Webasto Marine offers a broad range of cooling units to suit technically every demand. For an efficient removal of the heat, various methods can be applied. Isotherm cooling units use air or sea water to remove the heat.

The **Automatic Start Up** systems (ASU) from Isotherm can be built into custom-specific built-in units as well as in most refrigerators or freezers. The uniquely patented ASU technology detects when a surplus of power is available and uses this power to freeze the cooling plate which consequently stores the cold for times, when the engine is not running and therefore no power is available for cooling purposes.

**The advantages:**

- Reduces precious energy consumption on board
- Generates an enormous freezing capacity for refrigerators or freezers
- Self-installation possible due to easy “click on system”
- For high capability with the boat universal installation kits are available
- 12 / 24 V compressor (only used when stored energy is completely consumed)
- Available for air or water cooling

The Isotherm **self-pumping units** (SP) use sea water to remove the heat. The self-pumping units work without fans or pumps by using the movement of the hull and the water current during the journey. As the hull fitting is situated away from the boats gravity center the smallest movement of the hull or mast of the sailing boat is sufficient to create a pumping action. The device is cooled by permanently pumping cool water through the unit and withdrawing the warm water.

**The advantages:**

- Refrigeration is completely independent from the air temperature inside the boat
- Very low noise level: no fans, no pumps
- Simple fitting due to the easy “click on system” for fridges and freezers
- Consumption of very little energy: ideal for sailing yachts
- 12 /24 V Danfoss / Secop compressor
- Optional: universal AC / DC kit for complete power supply compatibility (12/24 – 115/230V, 50/60Hz)

Isotherm **Magnum** units are especially designed for vessels with exceptionally high refrigeration requirements i.e. due to the volume of the cooling box, fridge or refrigerator. They are water cooled and use the surrounding water to increase cooling efficiency.

**The advantages:**

- Extremely efficient solutions with need for increased cooling capacity
- Can be used fridge or freezer applications
- Variable speed water pump according to the temperature of the condenser
- Suitable for vessels sailing in tropical waters
- Optional: universal AC / DC kit for complete power supply compatibility (12/24 – 115/230V, 50/60)

### ***Ice Makers***

The Indel Webasto Marine ice makers ensure highest comfort on board – just like at home. Two different versions give customers the option of either clear or white ice for cool drinks. Other options available include a 15-liter water tank for separate fresh water supply, a three-sided flange and a separated ventilation kit for installation when space is limited. Saltwater-resistant stainless steel protects the technology inside.

### ***Board Safes***

Boat owners do no longer have to worry about taking sophisticated and expensive electronic devices on board. Board safes from Isotherm protect valuable items with three independent locking systems (code, mechanical system and an electronic key). The safe door is made of 5 millimeter thick rust-free steel, two solid locking bars and unbreakable hidden hinges. The safes are available in two sizes: the larger model, Safe 30, for example offers enough space for a laptop; the smaller model, Safe 10, is suitable for the safekeeping of smaller electronic items like cameras or cell phones.

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