

## **CHILLER SİSTEM MARİN KLİMA ÜNİTESİ**

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### **Açıklamalar**

Bu kullanım kılavuzu, MARINCOLD klima sisteminizin güvenli ve uygun çalıştırılması için gerekli bilgileri içermektedir. Kullanım kılavuzunda anlamadığınız beyan ve prosedürler ile ilgili lütfen MARINCOLD Marine Klima Sistemleri San. Ve Tic. Ltd. Şti. 'ne başvurun. Tel +902124818810, Fax +902124818809, veya email [info@marincold.com](mailto:info@marincold.com).



### **Chiller Sistem Marin Klima**

**Chiller Sistem Marin Klima Ünitesi** kompresör, deniz su kondenseri, ısı eşanjörü, yağ ayırıcısı, elektrik panosu ve diğer bağlantı parçaları dahil tüm ana mekanik bileşenlerini bir klima sistemi içerisinde barındıran sistemlerdir. Normal koşullarda makina daireleri veya lazaret bölümüne monte edilmelidirler.

The Chilled Water Unit is normally mounted in engine room or lazaret. System refrigeration water is pulled into the unit, where it is cooled or heated, then discharged through water collector and then to all Fan-Coil Units that usually located low in the living area– under a settee or berth in the compartment.

Specially designed Chilled Water Units are available in capacities ranging from 64,000 to 320,000 Btu/h with one compressor towards to 4 compressors. Systems can produce available

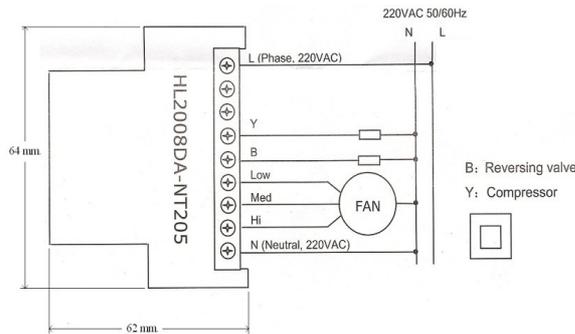
to work in single phase or three phase, 50Hz or 60 Hz, and all standard voltages. All system models can be staged together to provide a larger system.

Compact systems that are produced with more than 1 compressor, can work as single system in itself. Each compressor is connected with its condenser, heat exchanger, oil separator and pressure controller. Each unit is protected with freeze controls, high limit switches, high and low aquastats and timers.

The Fan-Coil unit includes the evaporator and a fan or blower mounted on a drip pan. It is installed in the living area in a similar manner to a self-contained unit. Ten or twenty Fan-Coil units can be connected to one Chilled Water Unit so that multiple or large cabins can be cooled.

## System Controls

There are two special boxes as Marincold microprocessor controls on the Chilled Water System. The electronic card assemblies are typically 2- knob switches that control mode, heat or cool. You can choose Mode 1 or 2 for heating or cooling. There will be red and blue light to show you which mode you choose. Set the temperature of the system water by microprocessor control. For cooling mode, prefer to set between  $+5^{\circ}\text{C}$  and  $+10^{\circ}\text{C}$ . The system will work until the system water get  $3^{\circ}\text{C}$  less than your choice. The system will work by automatically control, the compressors will stop but the pumps will continue to work. After the system water get  $3^{\circ}\text{C}$  more than your choice, the compressor start to work again.



Also there is special display to use Fan-Coil systems. Marincold controls are advanced microprocessor systems that provide a more comfortable environment and better system protection than mechanical controls. The display cables assembly line voltage (230VAC) and in many case full power of the unit. The selected mounting location must be safe in regards to voltage as well as heat produced by the cable assembly.

## Electrical System

Marincold air conditioning systems are available for use with common power supplies throughout the world. In Europe and Asia, power systems are typically 230V 50Hz single phase. On 380V 3-phase units there is often a separate, lower voltage circuit for the controls and blower, either 230V. On some power systems this can be supplied by using one input line and the neutral. If not, a separate control power feed or a transformer will be required.

Running and starting loads of an air conditioning system are often the largest electrical loads on a boat. It's important that the power supply system is large enough to handle these





## Grills

Standard air flow for any system is nominally rated at approximately 400 m<sup>3</sup>/h per 12.500 Btu. In order to maintain this air flow, return air grills are to be 160 mm. x 260 mm. sized. Supply grills are to maintain a minimum size 115 x 225 mm. This can be maintained using a single grill or a combination of smaller grills.

Places of grills is important to ensure proper system performance. Supply grills are to be located as high as possible in any cabin area. They should also be located to distribute air across the cabin as evenly as possible. When supply air grills can not be located high and must be installed lower, they are to be installed in such a way as to channel air flow up and across the conditioned area.

Return air grills are to be installed low in a cabin area and close proximity to the evaporator of the system. If any duct work is constructed between the return air grill and the face of the evaporator, all cross-sectional areas must maintain a minimum surface area equivalent to that of the return air grill. Return air should only be available to the system from the cabin area that are being attached.



## Initial Start Up

The following instructions apply to Chilled Water Systems.

- 1- Open the seawater inlet valve.
- 2- Turn on the circuit breaker for the air conditioner. If a pump relay is installed, the breaker for the pump must also be turned on.
- 3- Following directions in the operation manual, set the system for cooling or heating at the control box, and adjust temperature setting on the microprocessor control so the unit will turn on.
- 4- Verify that water is flowing from the overboard discharge. Check all overboard if more than one unit is installed.
- 5- Allow unit to run for 10 minutes. Check the system water pressure differential between discharges and return water by placing both pressure indicators for each system in front of the chilled water systems. The differential must be between 2 and 4. While the circulation pumps are working, if the system water pressure is lower than 1, open the system water valve and raise the system water pressure by adding the water.
- 6- The system water is consisting of %20 antifreeze and %80 normally water. This consist circulate from heat exchanger to all system fan coils. The sea water is only circulating inside of condensers.

If everything checks out, the system is ready to go.

## **Heating**

Heating capabilities can be provided through a variety of choices, depending upon each vessel's requirements. Reverse cycle heating provides the best efficient heat, but requires sea water more than 5<sup>0</sup> degrees. Using the compressor circuits, heat is extracted from the sea water and transferred into the interior spaces with high efficiency.

## **Over Maintenance - Routine**

### **Condensate Drains**

Every three months, check the condensate drains for obstructions by pouring a quart of water rapidly into the condensate pan. If it does not drain completely within 30 seconds, check the drain outlets for clogging. Remember that many MARINCOLD systems have two drains and hoses, one at each end of the unit.

### **Air Filters**

At least once a month, check the lint screen or filter behind the return air grill or on the face of the cooling/heating unit and clean if necessary.

### **Seawater Connections**

Verify that all seawater connections are tight, and check for water flow from each unit's overboard discharge.

### **Seawater Pump**

If your system uses a rubber-impeller seawater pump, you should inspect the impeller after 300 hours of operation. Replace it if worn. If you have a centrifugal pump, regular maintenance is not needed.

### **Refrigerant Gas**

The refrigerant gas (most likely R-22) used in your MARINCOLD air conditioning system is adequate for the life of the system. Routine "seasonal" charging of the system is not typically necessary.

### **Pressure Protector**

For the stopping the sea water circulation, the pressure protectors will safe the unit. If there is a sea water problem, there will be shown a green light on the control box. Turn the right the RESET button, the system will reset itself and the light will turn to red again. The system will continue to work safely.