

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.



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 trough 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

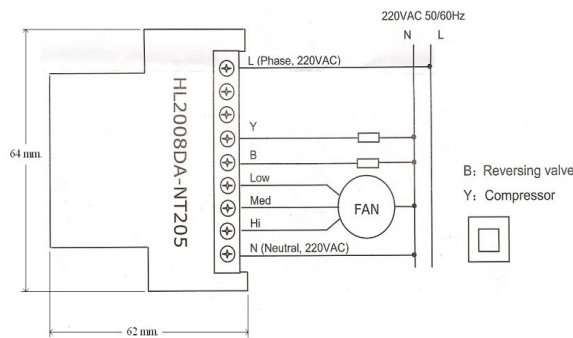
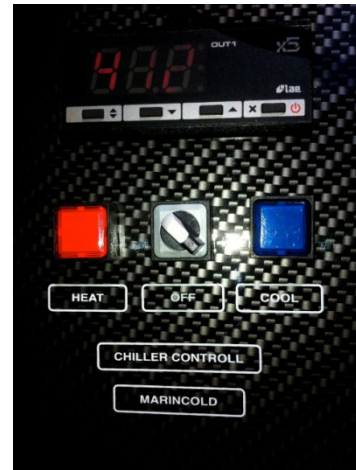
to work in single phase or three phase, 50Hz or 60 Hz, and all standard voltages. All system models can be staged together to provide a larger system.

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°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°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

loads, and is installed properly. Contact an electrician if you are not sure about the proper wiring procedures.

Voltage and Frequency

The voltage rating of a unit is a nominal rating. The actual voltage in a given location may be higher or lower by as much as 10% and the system will still operate fine. For example, at 60Hz, you will sometimes see 208VAC to 240VAC, or 440VAC to 480VAC. In a 50Hz environment, common voltages range from 220V to 240V, or 380V to 415V.

When choosing a system, the voltage and frequency must be known. While standard 60Hz equipment can often be run at 50Hz, it will experience a 17% drop in performance; however, 50Hz equipment can not be run at 60Hz because the 50Hz motor will run too fast and cause damage. Seawater pumps will lose even more performance at 50Hz due to the nature of centrifugal pumps.

Electrical Parts

All circuit breakers and wire gauge must be sized according to marine design standards. Only stranded tinned copper wire should be used. All equipment should be properly grounded and bonded using the lug provided on each unit's chassis. Electrical boxes can be remote mounted in a convenient location. Field wiring is required between remote switch and unit electrical box.

Electrical Connections

- Failure to properly ground and bond the system will void warranty.
- All electrical connections should be made within the electrical junction boxes supplied with the units. All MARINCOLD units have terminal strips that are labeled or have color-coded wiring.
- Wiring diagrams are included inside the cover of the electrical boxes on all units. Contact with MARINCOLD, if you do not have the correct diagrams.
- Each air conditioning unit requires its own dedicated circuit breaker.
- All units must be grounded to minimize the potential hazard of electrical shock and personal injury.
- All metallic fittings in the seawater system must be isolated from the A/C unit.

Sea Water and Circulation Pump

Centrifugal pumps are not self-priming, and must be mounted so that they are below the heeled waterline in any given operating condition. The pump should be accessible for future service. Mount the pump so the outlet is directed upward so air can escape. The head on some pumps can be rotated to allow mounting on a vertical bulkhead. Self-priming pumps are available if the pump cannot be mounted below the waterline.



Grills

Standard air flow for any system is nominally rated at approximately 400 m³/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.

