

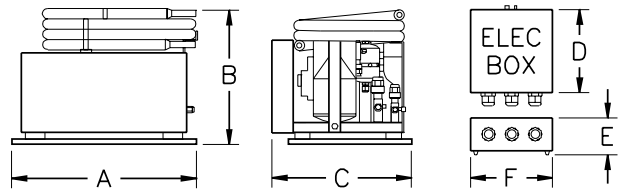
## PRODUCT DESCRIPTION

The **Mariner** series of holdover refrigeration systems is available from 1/4 HP to 1 HP capacities, for use with 12, 24 or 32 volt DC power supplies, and has been proven to be the ideal system for seafaring vessels with or without on-board AC power. Its unique design allows for automatic operation when either the alternator or the battery charger is energized. An electrical interlock prevents accidental battery drain.

These units come standard with a cupronickel seawater condenser for improved efficiency and lower operating pressure. The extensive **Mariner** series can efficiently cool a number of different box sizes and configurations. For maximum versatility, add an optional air cooled condenser to provide uninterrupted service when the vessel is hauled or unattended.

Condensing units can be installed in any convenient location and are unaffected by vibration or moisture.

The **Mariner** series units meet or exceed applicable ABYC and U.S. Coast Guard regulations, CE Directives, and general Air Conditioning and Refrigeration Industry (ARI) standards.



## FEATURES

### Modular Concept

- Unique compact base fits any application.
- Water cooled and air/water cooled units available.

### High Quality Components

- Rebuildable compressor, including valve plates and shaft seals for extended life.
- Replaceable brushes on all DC motors.
- Continuous duty cycle rating on DC motors.

### Remote Electrical Box

- Completely enclosed box protects all components.
- On board low voltage (DC) circuit provides safe operation of controls.

### Environmental Considerations

- Utilizes "ozone friendly" refrigerant R-409A.
- All units have base valves with service ports for evacuation, leak checking and refrigerant containment.

### Quality Assurance

- Each unit is hermetically sealed using nitrogen to ensure a contaminate-free circuit.
- Every unit is leak checked, test run and shipped pre-charged with refrigerant.
- Charge Guard® protection provides sealed process ports to ensure system integrity during handling and installation.

## SPECIFICATIONS

Model	DC425BD	DC433BD	DC450BD	DC475BD	DC4100BD
Refrigerant	R-409A				
Charge (oz/g)	55/1559				
Oil	Ester	Ester	Ester	Ester	Ester
Charge(oz/cc)	12/345.8	12/345.8	18/532.4	18/532.4	18/532.4
Capacity (BTU/H) <sup>(1)</sup>					
26°F (-3°C)	1800	2300	3400	5000	6500
0°F (-18°C)	1600	1900	2800	4200	5500
-9°F (-23°C)	1500	1700	2200	3600	4500
-18°F (-28°C)	1250	1400	1800	3200	3900
Electrical Data					
Motor Voltage (DC) <sup>(2)</sup>	12	12/24	12/24	12/24	12/24
Amperage	21	27/13.5	40/20	58/29	80/39
Max. Circuit Breaker <sup>(3)</sup>	30	40/20	50/30	70/40	100/50
Physical Data					
Dimensions (in/cm)					
A	20.00/50.80				
B	12.50/31.75	13.25/33.65			13.50/34.29
C	14.00/35.56	16.00/40.64	18.00/45.72		
D	10.85/27.56				
E	4.70/11.94				
F	10.50/26.67				
Weight (lb/g)					
Net	90/40.82	115/52.16	117/53.07	122/53.34	125/54.65
Ship	100/45.36	125/56.70	127/57.61	132/59.87	135/61.23

<sup>(1)</sup> BTU ratings are the average rate of heat extraction from either 26°F, 0°F, -9°F or -18°F solution holdover plates, and are not the capacity of the compressor or condensing unit. These figures are to be used to determine run times required to maintain box design temperatures.

<sup>(2)</sup> 32 volt DC available upon request.

<sup>(3)</sup> For wire size, ampacity, etc., refer to ABYC Standards, Section E-9 (DC Voltage).

# Installation Guidelines for DC Voltage/Belt Driven Model • Mariner

When choosing the proper model **Mariner** condensing unit, primary consideration should be given to calculated BTU loads and available power supply. Any special requirements (number of boxes and/or controls, refrigerant line lengths, wiring sizes, etc.) should be determined prior to installation.

The location of the unit should be dry and accessible for service. It is not recommended to locate the unit in an area that exceeds a continuous maximum temperature of 104°F. The location of the unit should provide for proper air flow through the air cooled condenser, if added, to avoid overheating the system.

The unit should be installed with the fasteners provided, and secured to a horizontal surface sufficient to support the weight and torsion load from the vessel's movement. Fasten the remote electrical box using the mounting hardware provided.

The seawater system must be installed below the water line and routed on a continuous incline from a dedicated thru-hull intake to the pump inlet, up to the condensing unit to prevent air locks in the seawater pump. Reinforced marine grade hose should be used for the seawater circuit, and all fittings should be double-clamped.

The refrigeration lines connecting the holdover plate(s) to the condensing unit must be constructed from refrigeration grade, dehydrated copper and must be properly insulated (suction line only).

All fittings are designed to use flare connections, and these connections are to be made using proper flaring tools and techniques during installation. A non-leak compound may be used on flare connections, if

desired, to prevent refrigerant leaks due to vibration or loosening of suction side connections because of frost. This compound should be applied sparingly to the male threads of the fitting, and great care must be used to prevent contact with the flare seat.

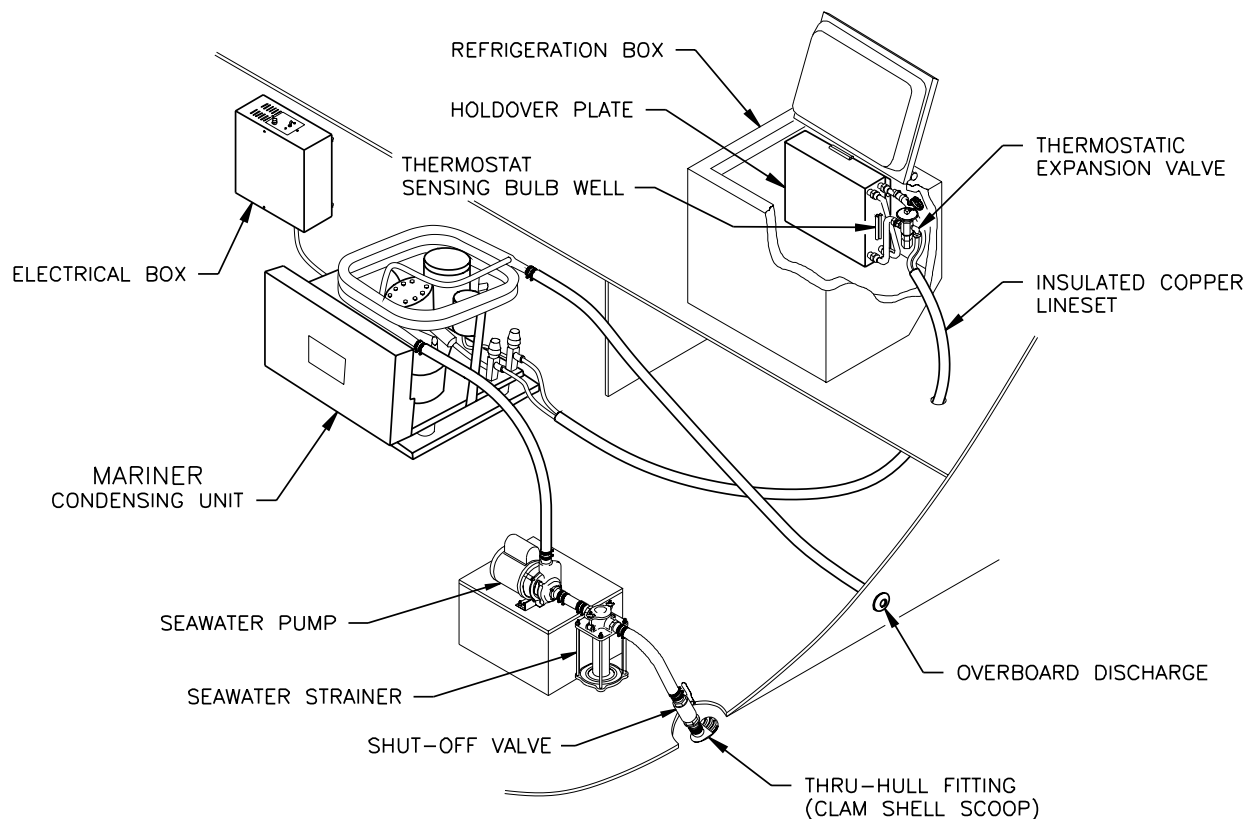
Flare connections must be adequately tightened, usually as tightly as possible, with the exception of 1/4" lines which can be crushed if the flare is overtightened. All associated mechanical components (solenoid valves, check valves and expansion valves) must be located and secured properly.

Thermostats are to be located and properly secured in the box(es) or on bulkheads with sensing bulbs properly secured into the sensing wells located on the holdover plates.

Circuit breakers and wire gauges must be sized accordingly to ABYC and marine design standards. Only stranded tinned copper wire should be used. All equipment must be properly grounded.

Refrigerant line sets and holdover plates must be thoroughly evacuated (recommended to 200 microns) and leak checked prior to releasing refrigerant from the condensing unit into the system and start up of the equipment. The refrigerant charge may require adjustment once the entire system is operational. Follow proper procedures and current regulations when adding or removing refrigerant to the system.

In keeping with regulations set forth by the EPA, only certified technicians should perform service on, or make adjustments to the refrigerant circuit.



In the interest of product improvement, Taylor Made Environmental's specifications and design as outlined herein are subject to change without prior notice.



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