



# Marvair<sup>®</sup> Reverse Cycle Chiller Models CHA120 & CHA144

## General Description

Marvair<sup>®</sup> reverse cycle chillers, models CHA120 and CHA144, have nominal cooling capacities of 10 and 12 tons. The chillers have two, independent refrigerant and water circuits with two compressors. The compressors can be staged to minimize starting amps and maximize efficiency. Dual systems also enhance reliability by providing redundancy.

All Marvair reverse cycle chillers use the environmentally friendly, non-ozone depleting R410-A refrigerant and are factory charged, wired and tested.



Model CHA144 with Display/Control Box



## Attractive, hi-grade aluminum cabinet

All of our chillers are completely enclosed, eliminating the need for the boat builder to encase the units. The white, corrosion resistant aluminum side, front and top panels enhance the appearance of the engine room.

## Ease of installation and service

The front and top panels can be easily removed for service access. Lifting eyes permit the unit to be conveniently and safely transported. The refrigerant access ports and the pressure differential switch are readily accessible.

Flush ports on the left and right side of the chillers allow easy access for cleaning the seawater coils.

Installation is simplified with a readily accessible terminal strip for both the power and control (low voltage) wiring. For accurate sensing of the chilled water temperatures, pots are factory brazed onto the chilled water inlet line (return from the loop) and on the chilled water out line (supply to the loop). The pots ensure accurate sensing of the water temperature by the temperature sensors. The temperature sensor on the inlet (return) turns the chiller on & off, depending upon the water temperature. If the chiller is in the cooling mode and the water temperature is above the set point, the chiller will turn on to cool the loop water. If the chiller is in the heating mode and the water temperature is below the set point, the chiller will turn on to heat the loop water.

The chillers are internally manifolded, eliminating the need for an external manifold. This reduces installation time, saves space and minimizes chance of leaks.

The temperature sensor on the outlet pipe (supply) provides freeze protection and high limit temperature conditions.

The ends of the sensor wires, the pots and the jacks on the control board are color coded to insure the correct placement of the sensors should they need to be replaced. Two condensate line openings on the base pan facilitate the drain line connection. Factory provided hold down clamps are included.

### **A Marvair® first-Interchangeable control boards**

All Marvair® chillers and air handlers use the same control board, reducing the spares required. The display automatically determines which control board it is connected to and displays the appropriate information and icons.

### **Innovative Display**

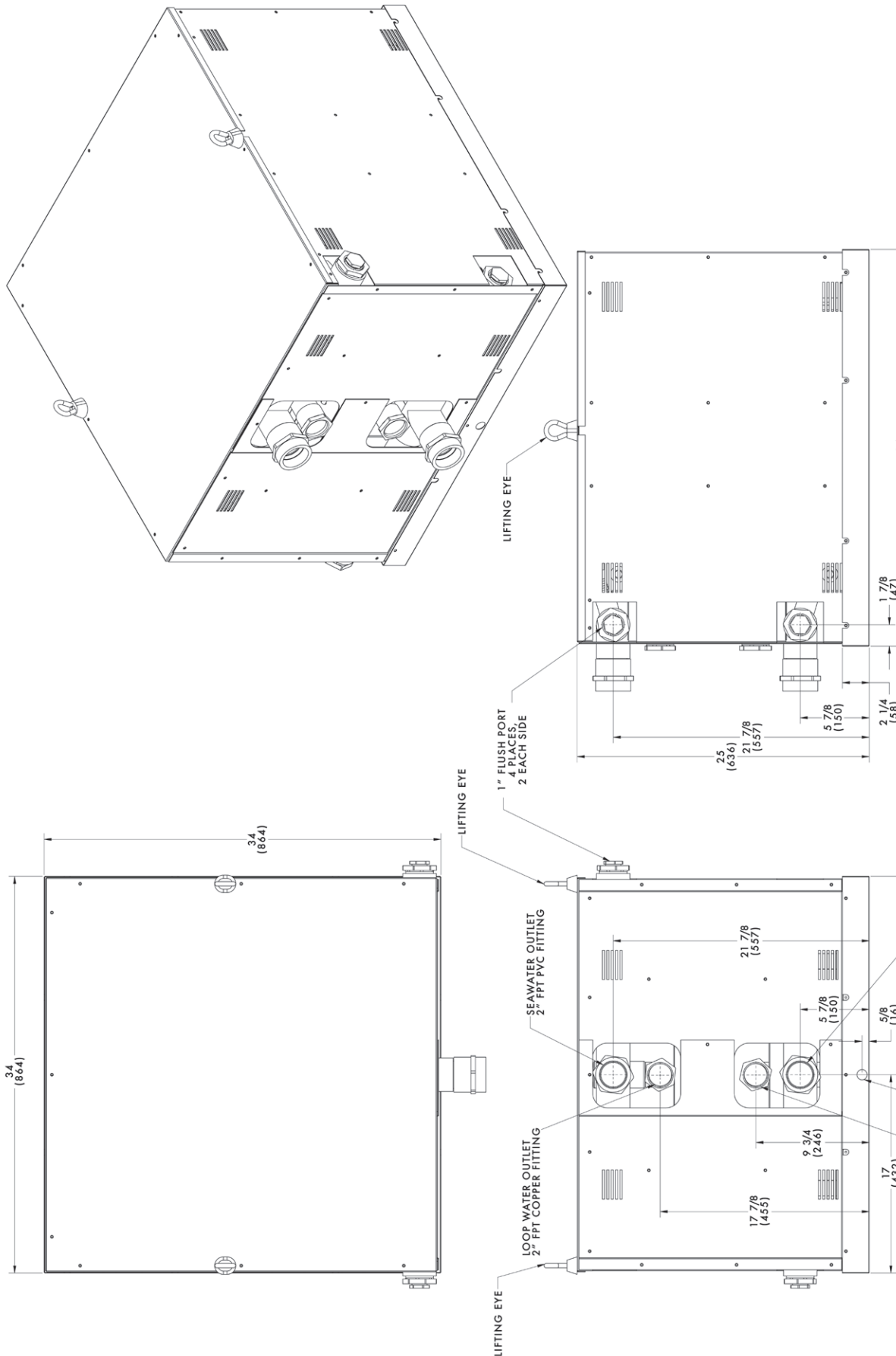
The display is on a cable to allow it to be mounted in an accessible location- not buried inside the electrical box- for quick viewing of the operation and set points of the chiller. Readily understandable icons are used to show the status.

### **Rugged components**

The CHA144 and CHA120 reverse cycle chillers feature two scroll compressors. Each system has its own suction line accumulator, filter drier and high and low refrigerant pressure switches. The switches are brazed in the refrigerant line to eliminate the leaks and nuisance trips common with screwed on switches. The coaxial tube-in-tube condensers are constructed of corrosion resistant cupronickel water tubing and copper refrigerant tubing. The flat plate evaporators are constructed of stainless steel for the water loop system. A rugged, easily accessible, a pressure switch in the chilled water line turns the system off if water flow is inadequate. To ensure years of dependable performance, the control box and the supports for the condenser and evaporator are constructed of superior corrosion resistant aluminum. A stainless steel condensate tray is available for installations where a factory supplied tray is required.

All Marvair® reverse cycle chillers are built to the requirements of UL Standard 484, 7th Edition. All Marvair® chillers meet applicable ABYC and US Coast Guard regulations, CE Directives and all applicable Air Conditioning and Refrigeration Institute (ARI) standards. Marvair® is an ISO 9001-2000 registered company.

# Dimensional Data - Models CHA120 & CHA144



## Model Identification

**CH**

CH - Chiller

**A**

A = R410-A  
Refrigerant

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Nominal Capacity  
120 = 120,000 BTUH  
144 = 144,000 BTUH

**RC**

System Type  
RC = Reverse Cycle

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Power Supply  
C = 208-230v. 3Ø, 60Hz  
D = 460v. 3Ø, 60 Hz.  
E = 380-420v. 3Ø, 50 Hz.

**.**

Controls  
S = Single Unit  
M = Multiple Units

## Chiller Electrical Characteristics

Model Number	Type of Compressor	Number of Compressors	Volts	Hz.	Phase	For Each Compressor			Total for Chiller	
						Nominal Cooling Amps <sup>1</sup>	LRA <sup>2</sup>	MCC <sup>3</sup>	MCA <sup>4</sup>	MFS <sup>5</sup>
CHA120RCC	Scroll	2	208-230	60	3	10.5	111	24.4	39	70
CHA120RCD	Scroll	2	460	60	3	4.9	52	12.1	19.3	30
CHA120RCE	Scroll	2	380-420	50	3	6.8	7.4	16.5	26.5	40
CHA144RCC	Scroll	2	208-230	60	3	15.7	164	36.2	58	100
CHA144RCD	Scroll	2	460	60	3	7.3	74	14	22.5	40
CHA144RCE	Scroll	2	380-420	50	3	9.1	101	19	30.5	50

<sup>1</sup>Nominal Cooling amps at 45°F (7.2°C) evaporating temperature and 100°F (37.8°C) condensing temperature as per the ABYC guidelines. Amp draw will vary with conditions and will be higher in the heating mode.

<sup>2</sup>LRA= Locked Rotor Amps

<sup>3</sup>MCC= Maximum Continuous Current

<sup>4</sup>MCA= Minimum Circuit Ampacity (Wire Sizing Amps)

<sup>5</sup>MFS= Maximum Fuse Size

## Minimum Seawater Flow Rates

Model	Gal/Min	Litres/Min
CHA120	42	159
CHA144	50	189

## Minimum Chilled Water Flow Rates

Model	Gal/Min	Litres/Min
CHA120	30	114
CHA144	36	136

## Chiller Weight

Model	Lbs.	Kgs.
CHA120	505	230
CHA144	525	239

As part of the Marvair® continuous improvement program, specifications are subject to change without notice.

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