

# MarinAire®



Innovation in Marine air conditioning and heating



**9,000 - 12,000 btuh**  
**Self Contained Marine Air Conditioners & Heat Pumps**

**110-120V / 60 Hz**  
**208-230V / 60 Hz**  
**220-240V / 50 Hz**

## MSA SERIES

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**The newly developed MSA series** are a milestone in the marine air conditioning industry. They are designed with a unique construction and with light weight materials, so they add less weight to your boat, resulting in less fuel consumption and making it easier to maintain

### **Real Humidity Control with Humidistat**

New microprocessor controlled system allows users to set desired humidity level in the cabin. Once dehumidification mode is selected, It's Hi-tech dual sensor will sense both the cabin temperature and humidity level. Humidity level can be set to any level by percentage (40%, 50%, 60% etc).

### **Dual Control**

MSA series come with LCD wall controller and wireless remote controller for convenience.

### **Sound Cover**

MSA series come with sound cover around the compressor compartment as standard accessory. The sound covers reduce the noise level by 60%

### **Built in Pressure Gauges.**

MSA series are equipped with high pressure and low pressure gauges. The pressure gauges bring easiness to monitor the air conditioner and diagnose how healthy it is operating. The gauges are installed in an angle that makes it readable horizontally and vertically.

### **360 Degree Rotatable Blower**

The unique design makes very easy to rotate the blower outlet. The blower can be rotated in any angle within minutes.

### **Environmentally Friendly with new R410A Refrigerant**

As standard, all MSA series come with R410A refrigerant pre-charged. The new refrigerant R410A is not only environmentally friendly, it also provides higher heating / cooling efficiency and low energy consumption.

### **Easy Charging Port**

Thanks to its 1/4" NPT standard charging port, MSA series are the easiest units in the market for servicing. There is no need to remove the unit or disassemble any part.

### **Compact Size**

It's great features come in small size. MSA series made in smallest possible size to fit tiny enclosures. Although it has bigger coils for higher efficiency, the extreme engineering made it smallest size possible.





**1) High Static Centrifugal Blower**  
Specially designed blower produce high static output with low noise level. Designed by German Aerodynamic engineers for an exact fit to MSA units.

**2) High Efficiency Coaxial Heat Exchanger**

The premium quality Copper-Nickel heat exchanger provide very high heat exchange capacity. Perfect for sea water and fresh water.

**3) Molded Plastic Parts and covers.**

Specially designed molds and plastic parts make the unit lighter in weight and stronger against corrosion and rust. Contrary to the other products that made of sheet metals that rust within few months, our products can last decades free from Corrosion and rust.

**4) Hydrophilic Coated Aluminum Fins**

Hydrophilic coating on the aluminum fins makes the condensate water to slide down easily. Water drops do not stick to the fins and this feature prevent pressure drop for better air flow. The hydrophilic coating also provide strength to the coil in seawater environment to last 50% longer than regular coils.

**5) Washable Return Filter**

Washable/permanent return filter protects the coil from dust and other particles in the air. This filter is a secondary filter to field installed filtered return grille. This feature makes sure that the coil is not blocked and clean air is circulated all the time.

**6) Vibration absorbers**

Vibration absorbers provide isolation between boat and the air conditioner. This feature prevents the vibration from the boat engine to be passed to the air conditioner, enabling the compressor, fan and other components to operate healthier.

**7) Compressor Sound Cover**

MSA series come with sound cover around the compressor compartment as standard accessory. The sound covers reduce the noise level by 60%

**8) Easy Charging Port**

Thanks to its 1/4" NPT standard charging port, MSA series are the easiest units in the market for charging refrigerant. There is no need to remove the unit or disassemble any part.

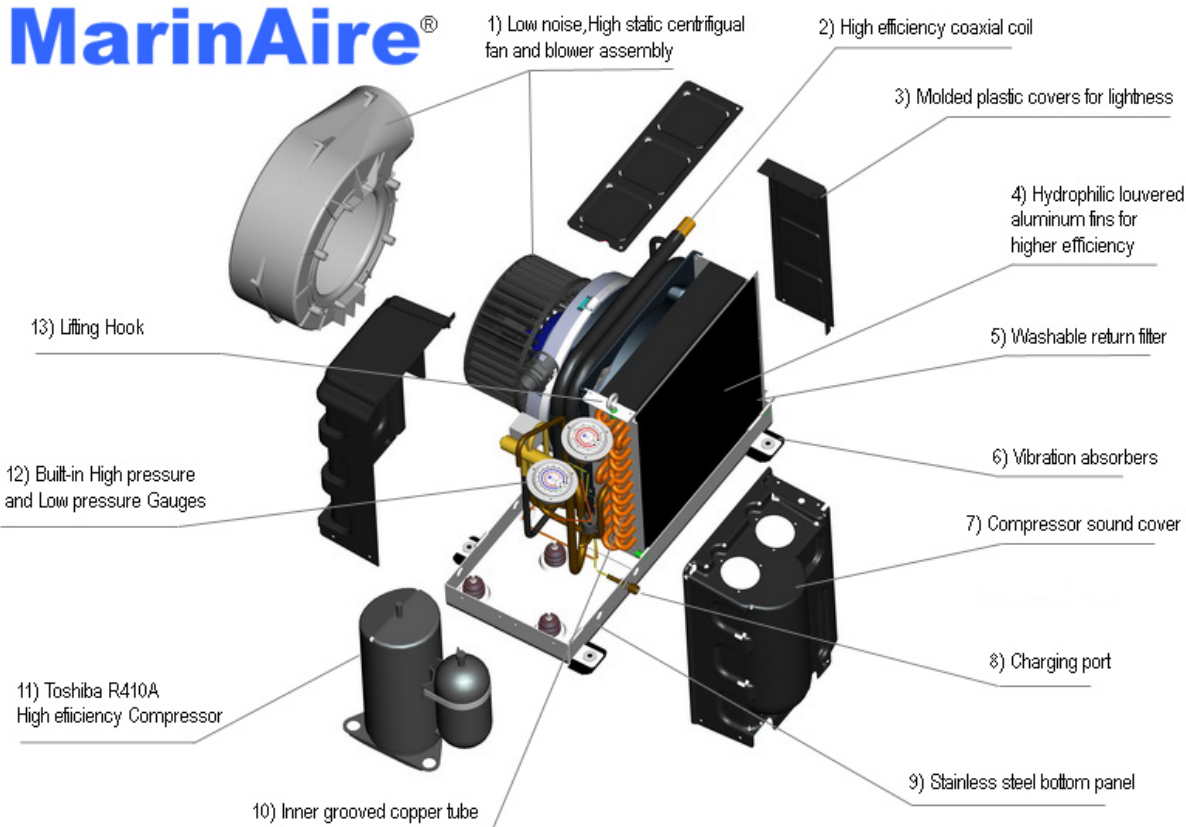
**9) Stainless Steel Bottom panel**

Bottom panel is made of heavy gauge high quality 304 grade stainless steel material. The panel will last decades free from corrosion and rust.

**10) 3 Row Inner grooved Copper tube**

Contrary to the competitors have only 2 row coil, the MSA12 unit's Evaporator coil is made of 3 Row coil. Inner groove in the copper tubes create turbulence and increased heat exchange capacity. This feature provide better efficiency, low energy consumption and ice cold air through the outlets.

## MarinAire®



1) Low noise, High static centrifugal fan and blower assembly

2) High efficiency coaxial coil

3) Molded plastic covers for lightness

4) Hydrophilic louvered aluminum fins for higher efficiency

5) Washable return filter

6) Vibration absorbers

7) Compressor sound cover

8) Charging port

9) Stainless steel bottom panel

13) Lifting Hook

12) Built-in High pressure and Low pressure Gauges

11) Toshiba R410A High efficiency Compressor

10) Inner grooved copper tube

**11) Toshiba R410A High Efficiency Compressor**

MSA series bear Japanese Toshiba compressor. Latest technology Toshiba rotary compressors deliver high efficiency performance with low noise level.

**12) Built-in High Pressure and Low Pressure Gauges**

MSA series are equipped with built in high pressure and low pressure gauges. Built-in pressure gauges bring easiness to monitor the air conditioner and diagnose how healthy it is operating. The gauges are installed in an angle that makes it readable horizontally and vertically.

**13) Lifting Hook**

Lifting hook bring easiness to handle the unit during installation and maintenance. since the competitor's products have no place to hold their units, they usually have damages to the unit during installation, or injuries occur to the installer.

**\* 360 Degree Rotatable Blower**

The unique design makes very easy to rotate the blower outlet. The blower can be rotated in any angle within minutes.

**\* Environmentally Friendly with new R410A Refrigerant**

As standard, all MSA series come with R410A refrigerant pre-charged. The new refrigerant R410A is not only environmentally friendly, it also provides higher heating and cooling efficiency for low energy consumption.



Model		Unit	MSA9K2	MSA9C2	MSA9E2	MSA12K2	MSA12C2	MSA12E2
Power supply		V / Ph / HZ	110-120V / 1ph /60Hz	208-230V / 1ph /60Hz	220-240V / 1ph /50Hz	110-120V / 1ph /60Hz	208-230V / 1ph /60Hz	220-240V / 1ph /50Hz
Cooling	Nominal Capacity	Btu/h	12,000	12,000	12,000	16,000	16,000	16,000
	ARI Rated Capacity*	Btu/h	9,000	9,000	9,000	12,000	12,000	12,000
	Input power	W	730	685	715	1108	1075	1090
	Rated current	A	6.8	3.19	3.23	9.78	4.59	4.65
	EER	Btu/w.h	12.3	13.1	12.6	10.8	11.1	11
Heating	Nominal Capacity	Btu/h	13,000	13,000	13,000	17,000	17,000	17,000
	ARI Rated Capacity*	Btu/h	10,000	10,000	10,000	13,000	13,000	13,000
	Input	W	822	775	795	1115	1025	1075
	Rated current	A	7.4	3.47	3.51	9.93	4.66	4.76
	COP	W/W.h	3.56	3.78	3.69	3.42	3.72	3.55
Moisture Removal		L/h	1.6	1.59	1.59	1.8	1.75	1.75
Water Flow (Pump sold seperately)		GPH	135	135	135	180	180	180
Starting current		A	40	20	16	40	15	15
Compressor	Type		Rotoray	Rotoray	Rotoray	Rotoray	Rotoray	Rotoray
	Brand		<b>TOSHIBA</b>	<b>TOSHIBA</b>	<b>PANASONIC</b>	<b>TOSHIBA</b>	<b>TOSHIBA</b>	<b>PANASONIC</b>
	Locked rotor Amp(LRA)	A	40.3	21	20	47.3	17	17
	Capacitor	uF	45	30	30	55	40	40
Fan Motor	Input	W	60	60	60	65	65	65
	Capacitor	uF	10	10	10	12	12	12
	Speed(hi/mi/lo)	r/min	1200/1100/1000	1200/1100/1000	1200/1100/1000	1400/1300/1200	1400/1300/1200	1400/1300/1200
Air flow (Hi/Mi/Lo)		cfm	300	300	300	400	400	400
Noise level (Hi/Mi/Lo)		dB(A)	40	40	40	42	42	42
	Dimension(L*W*H)	inch	21.8 X 16 X 14.4	21.8 X 16 X 14.4	21.8 X 16 X 14.4	21.8 X 16 X 14.4	21.8 X 16 X 14.4	21.8 X 16 X 14.4
	Packing(L*W*H)	inch	26.8 X 20 X 18	26.8 X 20 X 18	26.8 X 20 X 18	26.8 X 20 X 18	26.8 X 20 X 18	26.8 X 20 X 18
	Net/Gross weight	LBS	62.7 / 76	62.7 / 76	62.7 / 76	63.8 / 77.2	63.8 / 77.2	63.8 / 77.2
Refrigerant type / Charging amount		LBS	R410A / 1.3	R410A / 1.3	R410A / 1.3	R410A / 1.6	R410A / 1.6	R410A / 1.6
Operation temp		F	61 ~ 86	61 ~ 86	61 ~ 86	61 ~ 86	61 ~ 86	61 ~ 86
Entering Water temp (Heating Mode)		F	40 ~ 77	40 ~ 77	40 ~ 77	40 ~ 77	40 ~ 77	40 ~ 77
Entering Water temp (Cooling Mode)		F	60 ~ 95	60 ~ 95	60 ~ 95	60 ~ 95	60 ~ 95	60 ~ 95
Application area (Above Deck)		Cubic ft	500-700	500-700	500-700	700-1000	700-1000	700-1000
Application area (Mid Deck)		Cubic ft	650-950	650-950	650-950	950-1200	950-1200	950-1200
Application area (Below Deck)		Cubic ft	900-1100	900-1100	900-1100	1100-1400	1100-1400	1100-1400

Values given based on below conditions:  
 Cooling: EWT 80 F , EAT (DB/WB) : 80/67F  
 Heating: EWT 45 F , EAT (DB/WB): 68/59F  
 Specifications may be changed without prior notice.