

MARINE AIR CONDITIONING SYSTEMS

SELF-CONTAINED UNIT VARIABLE SPEED TECHNOLOGY

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SCU SERIES
HIGH PERFORMANCE
AC & DC POWER

 **FRIGOMAR®**

MADE IN ITALY



THE FIRST MARINE AIR CONDITIONING SYSTEM WITH **VARIABLE SPEED TECHNOLOGY**



AC & DC POWER
7.000-10.000 BTU/h

ADVANTAGE OF USE

- Cooling and heating in one solution
- Very compact design and low weight
- 50% higher energy efficiency compared to ON/OFF
- Highest comfort: silent operation and stable temperature
- Lowest consumption: 150-200 W max input power in ECO mode
- Elimination of peak current at start-up (only 2 A max)

EASY INSTALLATION

The compact overall dimensions and low weight make the installation easier. More SCU can be installed in parallel reaching the desired cooling/heating capacity.

AC & DC POWER
12.000-16.000 BTU/h



AC POWER
24.000 BTU/h

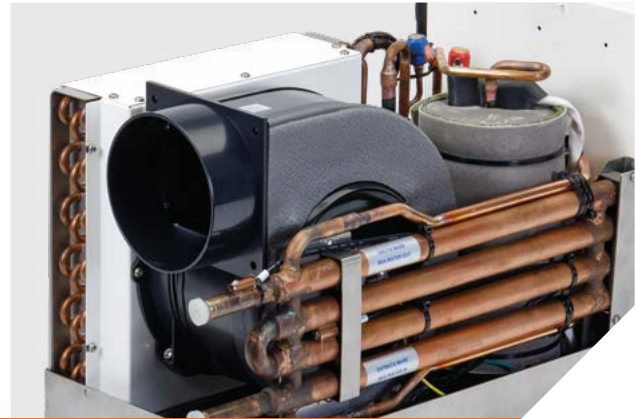


COMPACT AND ADAPTABLE OUR SCU'S SIMPLIFY INSTALLATION

The **electrical box** can be detached from the main body.



The **air outlet** can be rotated by 135° allowing an optimal ducting arrangement.



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All our SCUs are **tested one by one**. The testing is not a simple start-stop check, but it is a complete evaluation of product functionalities.



Everything under control. Thanks to the **touchscreen thermostat** setting temperature and mode is easy and intuitive.



FEATURES AND TECHNOLOGIES

ULTIMATE VARIABLE FREQUENCY DRIVE TECHNOLOGY

VFD technology “sensor less” is used to accurately control the compressor speed in order to deliver the needed capacity at all times, following the environmental conditions; by contrast traditional air conditioners use on/off type compressors that either work at maximum speed or stop.

The Frigomar self-contained unit is equipped with a BLDC motor compressor (98% energy efficient) controlled by an electrical inverter varying the speed from 20% to 100%. Thanks to the elimination of start-stop cycles the energy efficiency is considerably increased without sharp fluctuations of air temperature and power supply, thus increasing the lifespan of the unit and the comfort on board.

ENERGY SAVING

Compressor starts at low speed with no peak current and then accelerates smoothly up to the max frequency in order to cool or heat quickly.

As room temperature approaches the set point value, the compressor slows down, keeping a constant temperature in silent operation and saving energy.

In term of Seasonal Energy Efficiency Ratio, the average reduction in electrical energy consumption is 50%, compared to the equivalent traditional air conditioner.

SMOOTH STARTING (NO PEAK CURRENT AT START)

Starting ramp is set at low frequency allowing very low starting torque and starting current, far below the nominal value.

The max starting current is 2 A, while for the equivalent traditional air conditioner the max peak starting current is 20-30 A, despite employing soft starting devices.

POWERFUL

Inverter air conditioning operates at maximum capacity after start up, therefore the set temperature is reached more quickly.

COMFORTABLE

Inverter air conditioner finely adjusts its capacity according to the thermal loads variation in order to maintain the desired ambient temperature without fluctuations, thus allowing higher comfort than with non-inverter air conditioners.

Thanks to BLDC motor, sound shield and ventilation design the operation is very silent in every working condition.

VARIABLE CAPACITY OPERATION (ECO FUNCTION)

ECO function is activated by selecting the minimum fan speed, in order to further reduce the power consumption.

RELIABLE

BLDC motor together with accurate control of superheating allow a much longer compressor lifespan than non-inverter models, where start / stop cycles stress considerably the motor windings. Thanks to VFD technology the unit withstands very low seawater temperature in winter and very high seawater temperature in summer.

COMPLY WITH EMC DIRECTIVE

The equipment complies with the Electromagnetic Compatibility (EMC) Directive 2004/108/EC.

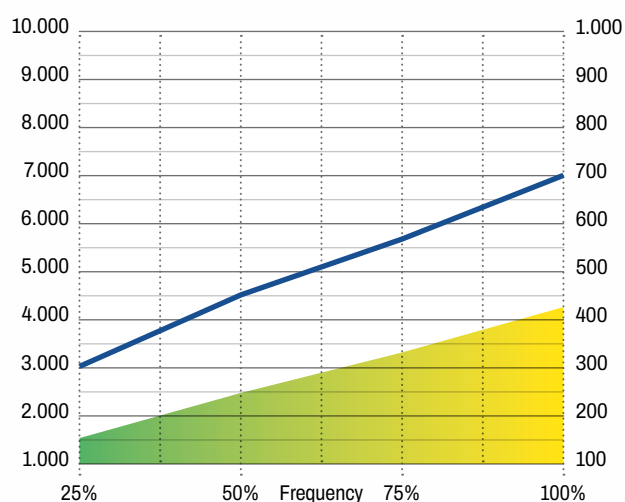
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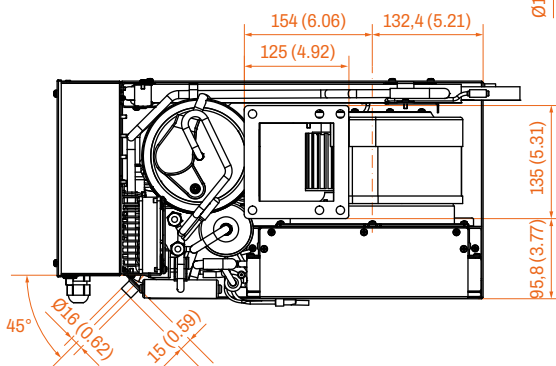
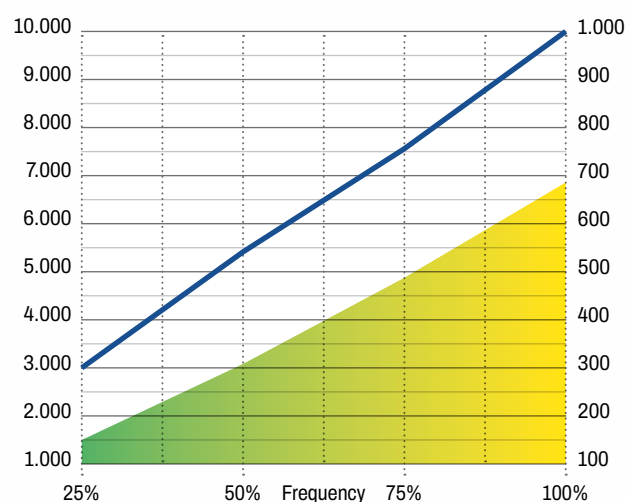
ACCESSORIES ON DEMAND

- Modbus KIT
- UVA/C LED AIR sterilizer KIT
- WI-FI point to point control APP
- Air exit adapters (from square to round shape, from round to oval)
- Stainless steel fixing brackets for wall mounting the electric box

AC POWER



AC POWER



dimensions in mm (inch)

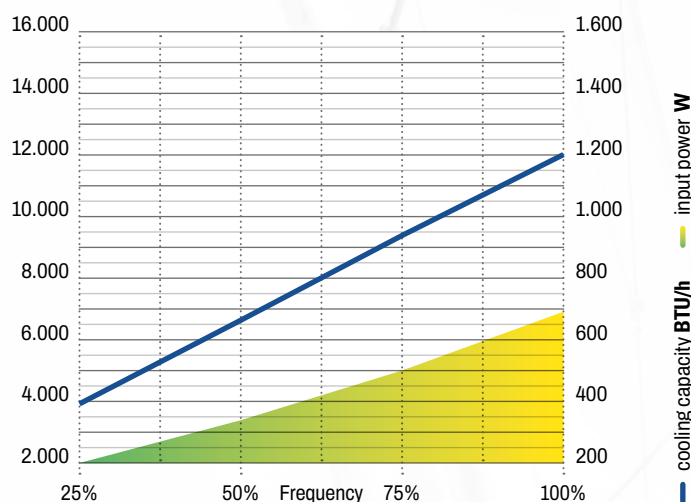
433 mm
WIDTH
260 mm
DEPTH
283 mm
HEIGHT

MODEL	SCU07VFD-E	SCU07VFD-A	SCU10VFD-E	SCU10VFD-A
Weight (including electrical box)	22 kg - 48.6 lb			
Remote Electric box dimensions	235,5 x 278,5 x 76 mm - 9.27 x 10.96 x 2.99 in			
Voltage/phase/ cycle	230 V / 1ph / 50-60 Hz	115 V / 1ph / 50-60 Hz	230 V / 1ph / 50-60 Hz	115 V / 1ph / 50-60 Hz
Max Cooling/Heating capacity	7.000 BTU/h	7.000 BTU/h	10.000 BTU/h	10.000 BTU/h
Max input power	430 W	470 W	680 W	730 W
Max Current	1,9 A	4,2 A	3,0 A	6,5 A
Cooling capacity ECO*	3.000 BTU/h			
Input power ECO mode*	150 W			
Max seawater flow-pressure drop**	1,0 m³/h 2,8 m H₂O - 4.4 gpm 9.2 feet H₂O			
Min seawater flow-pressure drop**	0,8 m³/h 1,8 m H₂O - 3.5 gpm 5.9 feet H₂O			
Air exit duct diameter	120 mm - 5 in			
Refrigerant R410A	0,350 kg - 0.78 lb			

* minimum fan speed ** considering the seawater condenser only

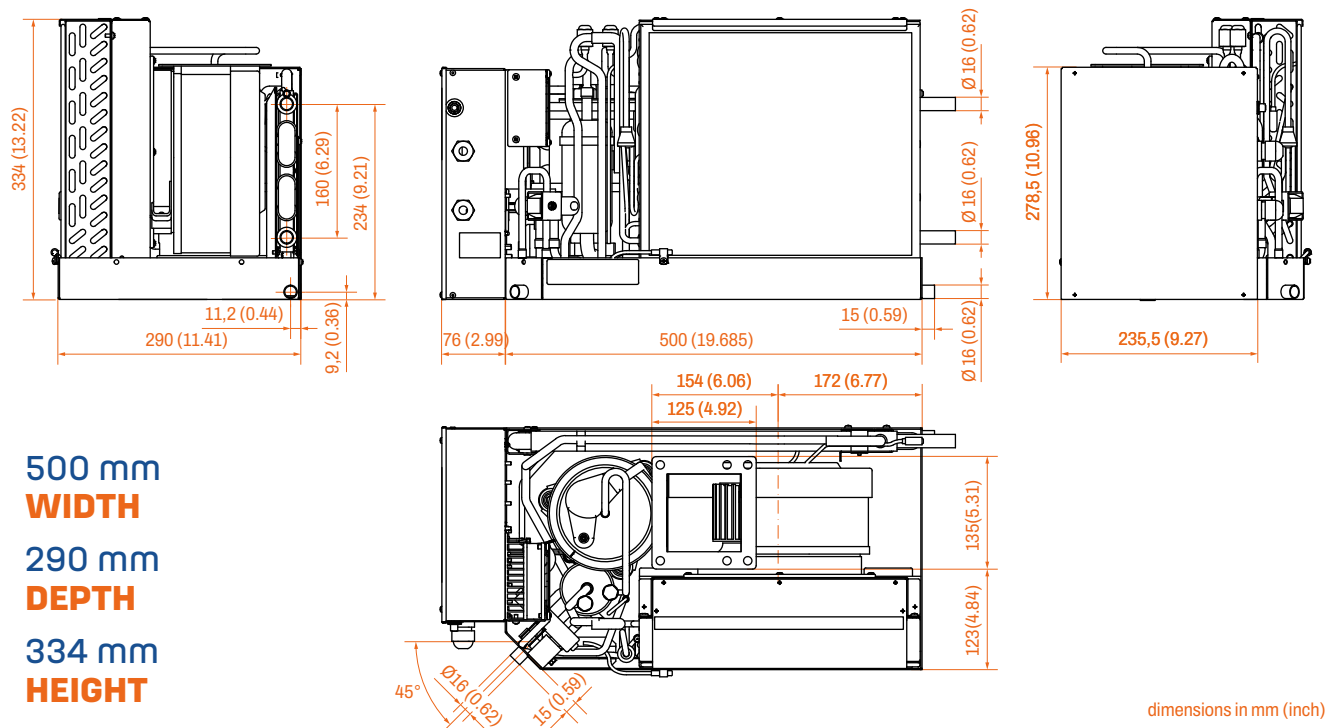
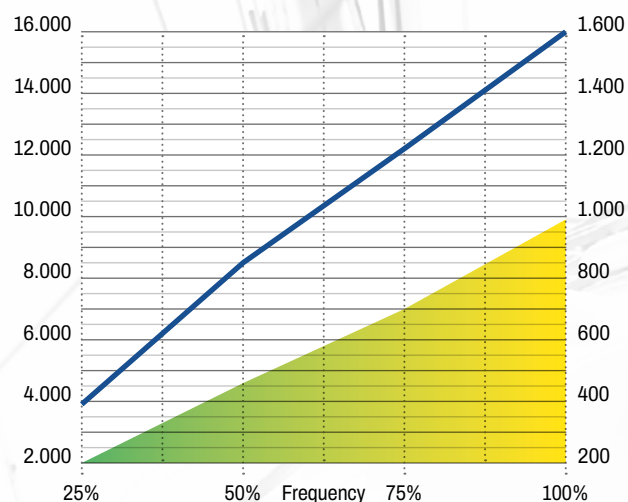
SCU12VFD 12.000 BTU/h

AC POWER



SCU16VFD 16.000 BTU/h

AC POWER

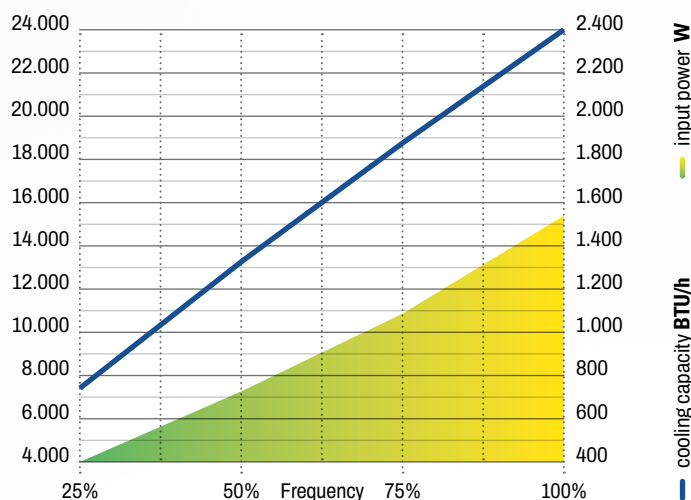


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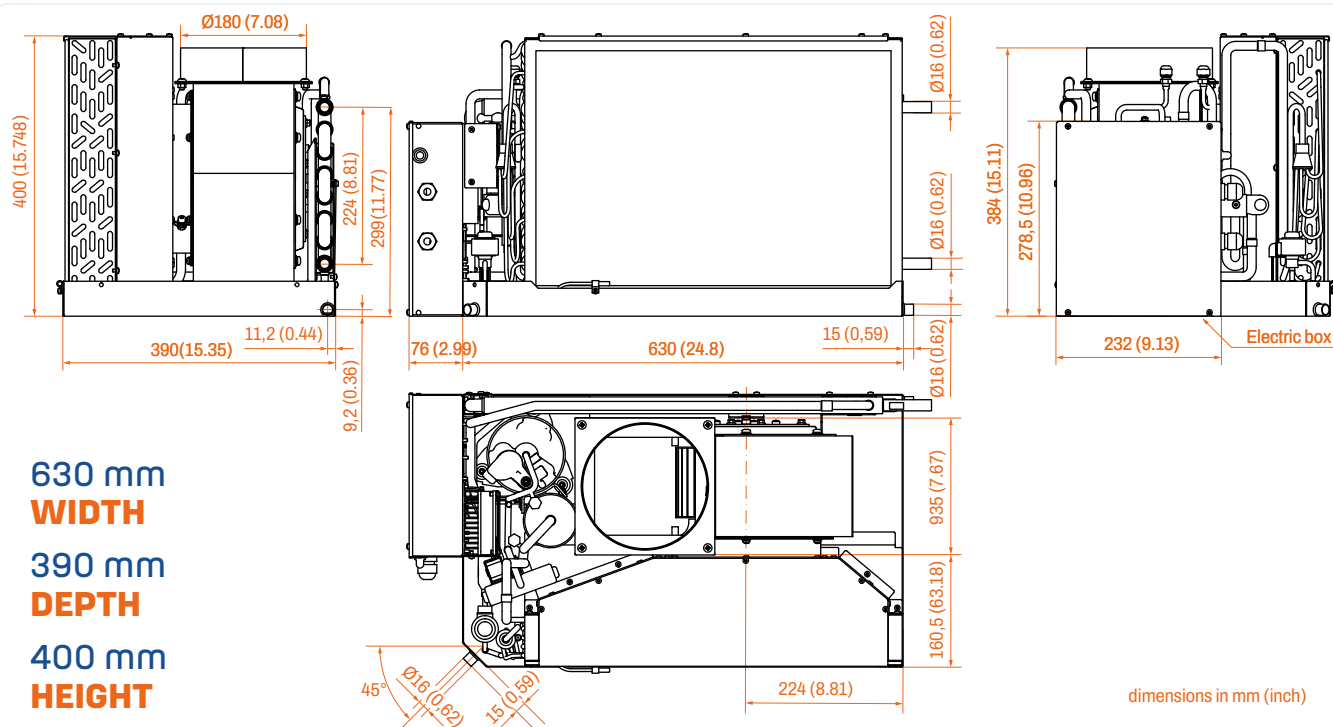
MODEL	SCU12VFD-E	SCU12VFD-A	SCU16VFD-E	SCU16VFD-A
Weight (including electrical box)	27 kg - 59.5 lb			
Remote Electric box dimensions	235,5 x 278,5 x 76 mm - 9.27 x 10.96 x 2.99 in			
Voltage/phase/ cycle	230 V / 1ph / 50-60Hz	115 V / 1ph / 50-60Hz	230V / 1ph / 50-60Hz	115 V / 1ph / 50-60 Hz
Max Cooling/Heating capacity	12.000 BTU/h	12.000 BTU/h	16.000 BTU/h	16.000 BTU/h
Max input power	710 W	750 W	1.050 W	1.090 W
Max Current	3,2 A	6,9 A	4,8 A	10,0 A
Cooling capacity ECO*	3.900 BTU/h			
Input power ECO mode*	200 W			
Max seawater flow-pressure drop**	1,3 m³/h - 4,2 m H₂O - 5.7 gpm - 13.8 feet H₂O		1,4 m³/h - 4,9 m H₂O - 6.2 gpm - 16.1 feet H₂O	
Min seawater flow-pressure drop**	1,2 m³/h - 3,6 m H₂O - 5.3 gpm- 11.8 feet H₂O		1,3 m³/h - 4,2 m H₂O - 5.7 gpm - 13.8 feet H₂O	
Air exit duct diameter	150 mm - 6 in			
Refrigerant R410A	0,450 kg - 0.99 lb			

* minimum fan speed ** considering the seawater condenser only

AC POWER



Enhanced heat exchanger for increased performance



MODEL

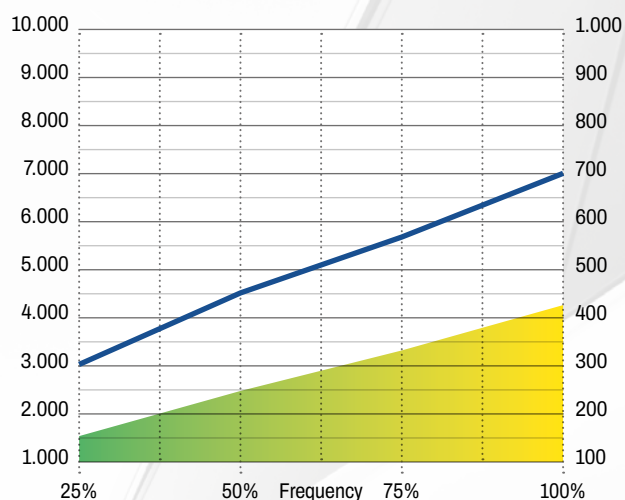
SCU24VFD-E

Weight (including electrical box)	42 kg - 92.6 lb
Remote Electric box dimensions	232 x 277 x 76 mm - 9.13 x 10.90 x 2.99 in
Voltage/phase/ cycle	230 V / 1ph / 50-60 Hz
Max Cooling/Heating capacity	24.000 BTU/h
Max input power	1.550 W
Max Current	7,1 A
Cooling capacity ECO*	7.100 BTU/h
Input power ECO mode*	400 W
Max seawater flow-pressure drop**	1,6 m³/h - 6 m H ₂ O - 7.0 gpm - 19.7 feet H ₂ O
Min seawater flow-pressure drop**	1,3 m³/h - 4 m H ₂ O - 5.7 gpm- 13.1 feet H ₂ O
Air exit duct diameter	180 mm - 7.08 in
Refrigerant R410A	0,750 kg - 1.65 lb

* minimum fan speed ** considering the seawater condenser only

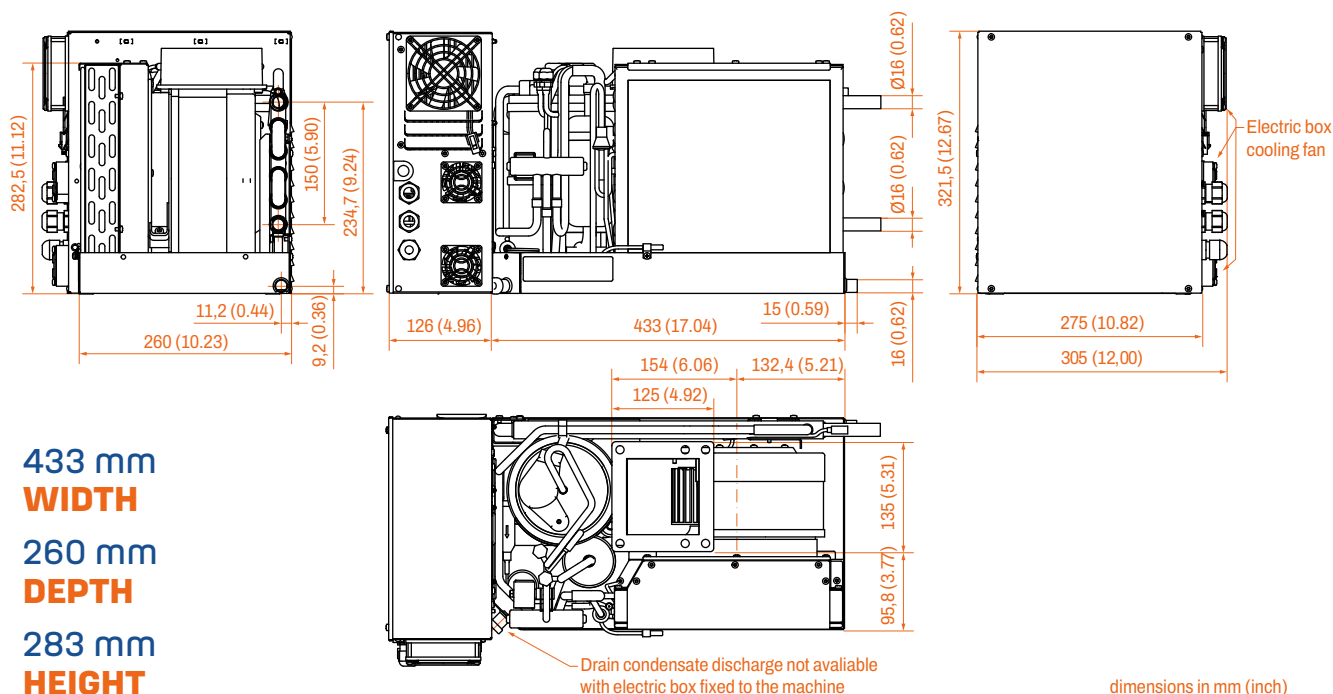
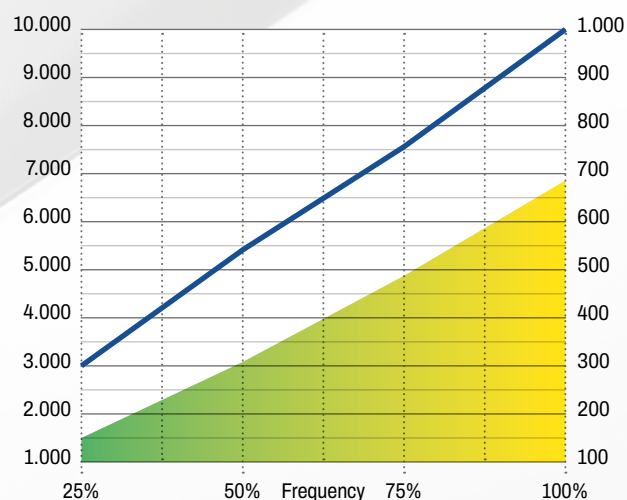
SCU07VFDHE-12 7.000 BTU/h

DC POWER 12 V



SCU10VFDHE-12 10.000 BTU/h

DC POWER 12 V

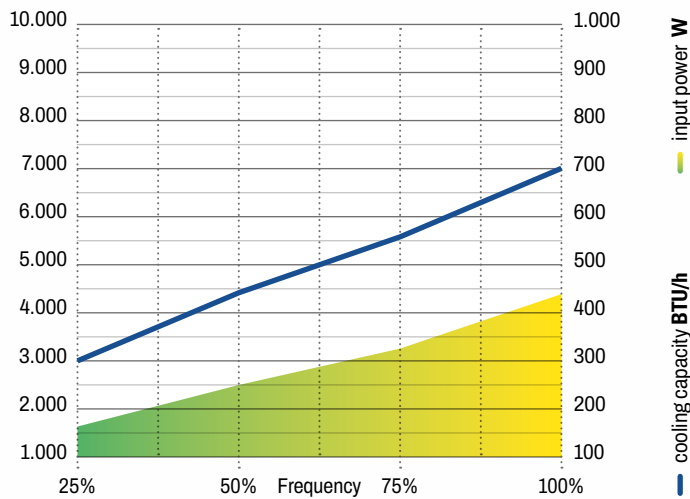


MODEL	SCU07VFDHE-12	SCU10VFDHE12
Weight (including electrical box)	24,5 kg - 54.01 lb	
Remote Electric box dimensions	275 x 321,5 x 126 mm - 10.82 x 12.67 x 4.76 in	
Voltage/phase/ cycle	12 V	
Max Cooling/Heating capacity	7.000 BTU/h	10.000 BTU/h
Max input power	470 W	690 W
Max Current	39,2 A	56,7 A
Cooling capacity ECO*	3.000 BTU/h	
Input power ECO mode*	155 W	
Max seawater flow-pressure drop**	1,0 m³/h 2,8 m H ₂ O - 4.4 gpm 9.2 feet H ₂ O	
Min seawater flow-pressure drop**	0,8 m³/h 1,8 m H ₂ O - 3.5 gpm 5.9 feet H ₂ O	
Air exit duct diameter	120 mm - 5 in	
Refrigerant R410A	0,350 kg - 0.78 lb	

* minimum fan speed ** considering the seawater condenser only

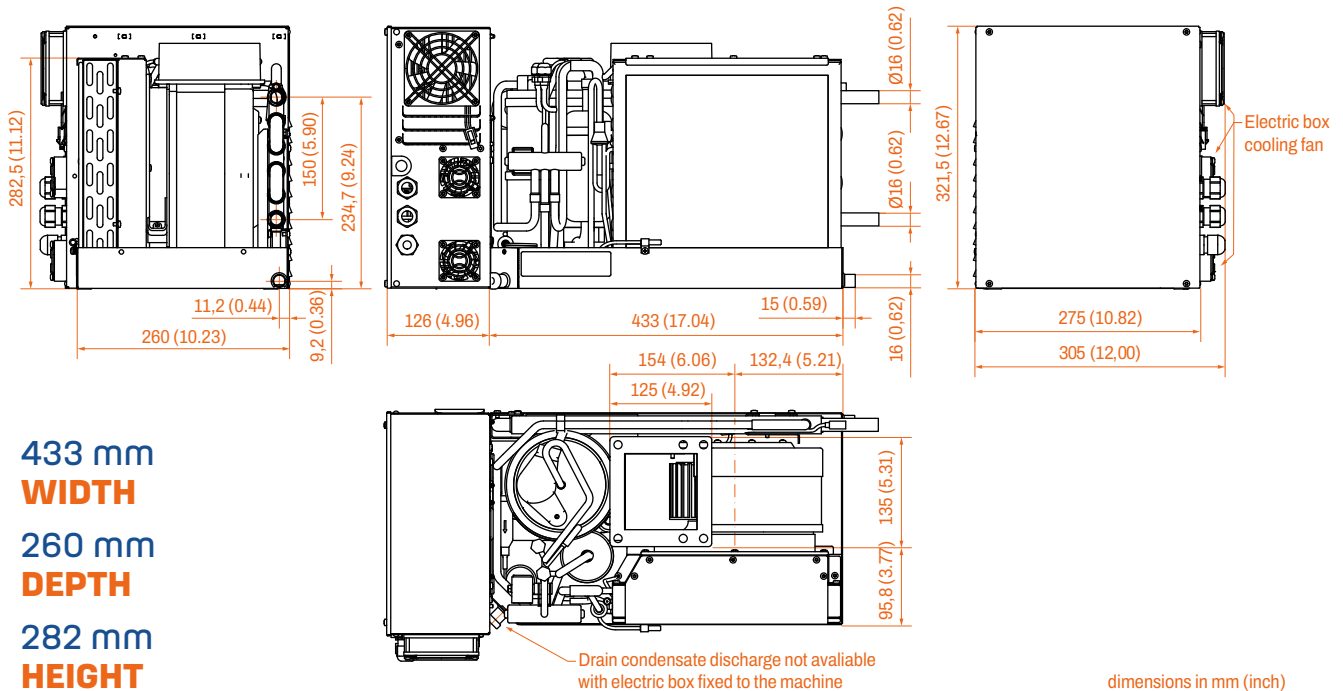
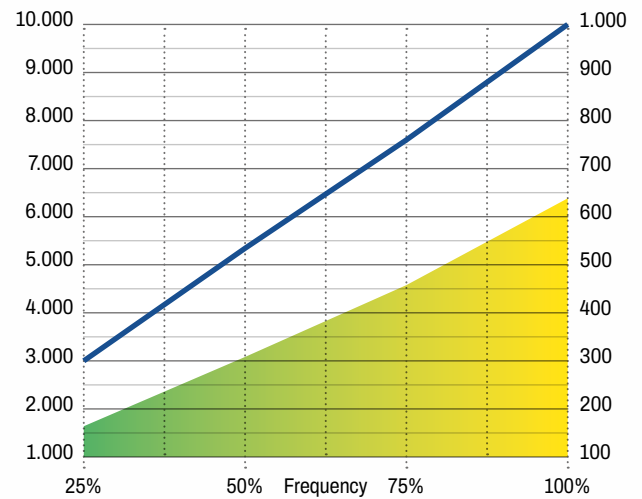
SCU07VFDHE 7.000 BTU/h

DC POWER 24/48 V



SCU10VFDHE 10.000 BTU/h

DC POWER 24/48 V



433 mm
WIDTH
260 mm
DEPTH
282 mm
HEIGHT

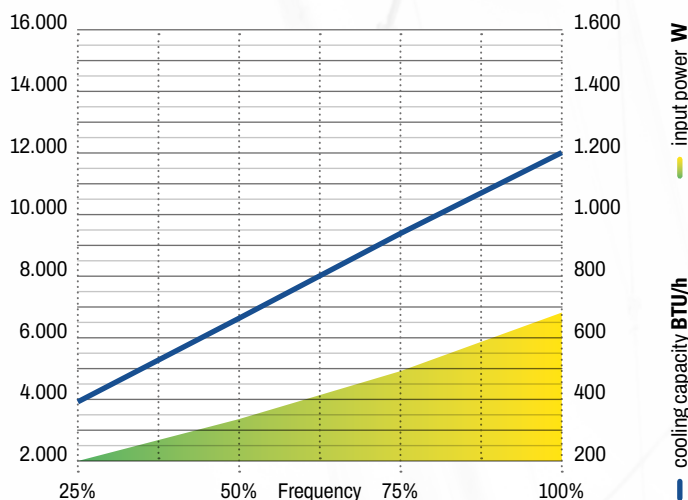
dimensions in mm (inch)

MODEL	SCU07VFDHE-24	SCU07VFDHE-48	SCU10VFDHE-24	SCU10VFDHE-48
Weight (including electrical box)	24,5 kg - 54.01 lb			
Remote Electric box dimensions	275 x 321,5 x 126 mm - 10.82 x 12.67 x 4.76 in			
Voltage/phase/ cycle	24 V	48 V	24 V	48 V
Max Cooling/Heating capacity	7.000 BTU/h	7.000 BTU/h	10.000 BTU/h	10.000 BTU/h
Max input power	440 W	440 W	640 W	640 W
Max Current	18,3 A	9,2 A	26,7 A	13,3 A
Cooling capacity ECO*	3.000 BTU/h			
Input power ECO mode*	155 W			
Max seawater flow-pressure drop**	1,0 m³/h 3,4 m H ₂ O - 4.4 gpm 11.16 feet H ₂ O			
Min seawater flow-pressure drop**	0,8 m³/h 2,2 m H ₂ O - 3.5 gpm 7.22 feet H ₂ O			
Air exit duct diameter	120 mm - 5 in			
Refrigerant R410A	0,390 kg - 0.86 lb			

* minimum fan speed ** considering the seawater condenser only

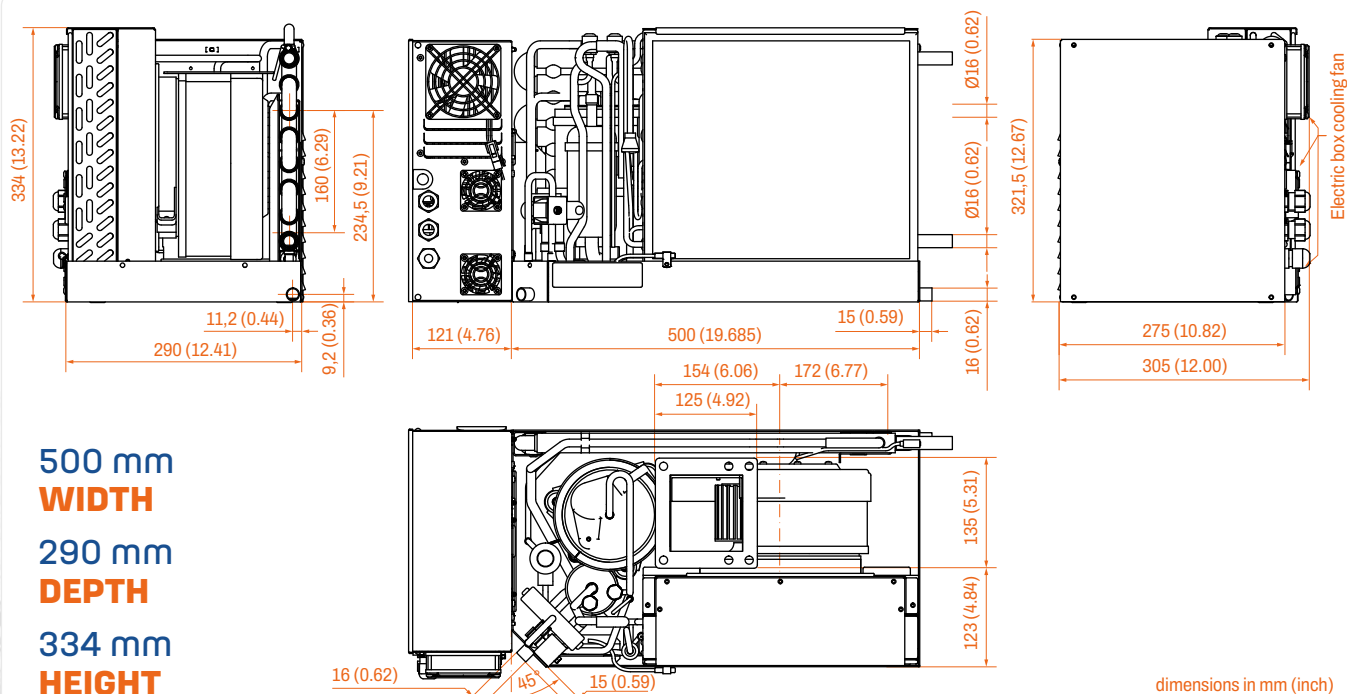
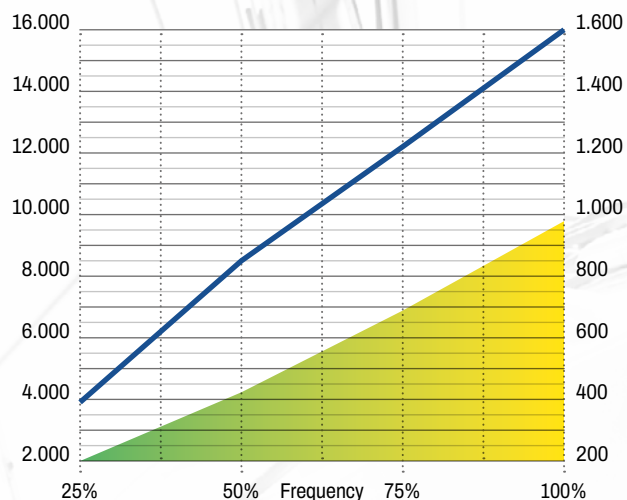
SCU07VFDHE 12.000 BTU/h

DC POWER 24/48 V



SCU10VFDHE 16.000 BTU/h

DC POWER 24/48 V



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MODEL	SCU12VFDHE-24	SCU12VFDHE-48	SCU16VFDHE-24	SCU16VFDHE-48
Weight (including electrical box)	29,5 kg - 65.03 lb			
Remote Electric box dimensions	275 x 321,5 x 126 mm - 10.82 x 12.67 x 4.76 in			
Voltage/phase/ cycle	24 V	48 V	24 V	48 V
Max Cooling/Heating capacity	12.000 BTU/h	12.000 BTU/h	16.000 BTU/h	16,000 BTU/h
Max input power	670 W	670 W	970 W	970 W
Max Current	28 A	14 A	40 A	20 A
Cooling capacity ECO*	3.900 BTU/h			
Input power ECO mode*	230 W			
Max seawater flow-pressure drop**	1,3 m³/h - 4,7 m H ₂ O - 5.7 gpm - 15.42 feet H ₂ O		1,4 m³/h - 5,4 m H ₂ O - 6.2 gpm - 17.72 feet H ₂ O	
Min seawater flow-pressure drop**	1,2 m³/h - 4 m H ₂ O - 5.3 gpm - 13.12 feet H ₂ O		1,3 m³/h - 4,7 m H ₂ O - 5.7 gpm - 15.42 feet H ₂ O	
Air exit duct diameter	150 mm - 6 in			
Refrigerant R410A	0,500 kg - 1.10 lb			

* minimum fan speed ** considering the seawater condenser only

SCU SERIES

AC & DC POWER VARIABLE SPEED TECHNOLOGY

OUR SERVICE NETWORK



design cplweb.it

OVER 140 FRIGOMAR SERVICES
AND 400 AUTHORISED TECHNICIANS
AROUND THE WORLD

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