

# MARINE OFFSHORE AIR CONDITIONERS

HAC



## General

Self-contained, horizontal ceiling-mounted marine air conditioners are designed to maintain a stable temperature in technical spaces such as engine control rooms, switchboards, thruster rooms, server rooms, and other compartments where reliable heat removal and precise temperature control are essential.

Each unit is engineered specifically for the harsh conditions of the marine environment, built to meet strict requirements for system tightness, durability, and energy efficiency. The design is based on the latest engineering practices in refrigeration and air conditioning, ensuring safe and reliable performance in demanding offshore applications.

## Construction

Sedina-HVAC horizontal ceiling-mounted air conditioners are plug-and-play units, ready for quick installation and immediate operation. Each unit is equipped with:

- Hermetic reciprocating compressor.
- Radial fan with integrated electric motor or EC motor technology.
- Water-cooled condenser (plate heat exchanger for fresh water or shell-and-tube type for sea water).
- Direct expansion evaporator (air cooler).
- Expansion valve with regulating and control assemblies.
- Electronic temperature controller.

All components are installed inside a painted steel casing with integrated air inlet and outlet grilles. Thanks to their compact construction, these units can be easily mounted even in confined shipboard spaces. Installation requires only ceiling fixation, water connections, and main voltage power supply—after pressing the start button, the system is ready to operate.

## Main electrical voltage

Standard units are available with the following power supply:

- 3x400V / 50 Hz
- 3x440V / 60 Hz

Other voltages can be supplied on request for special designs.



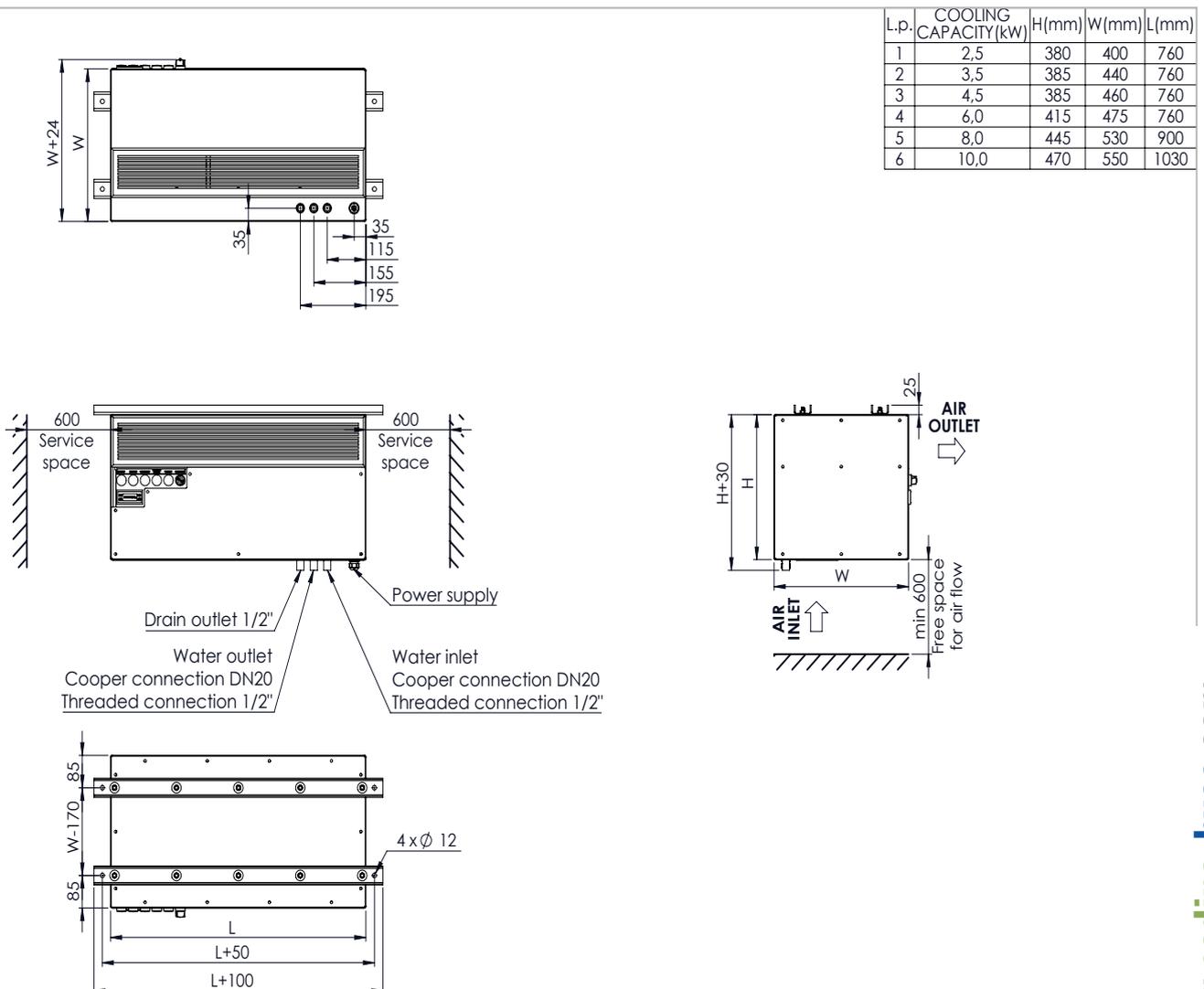
## Refrigerant

To minimize environmental impact, Sedina-HVAC units are designed to operate with R513A (XP-10) as the standard refrigerant.

- R513A is an HFO/HFC blend with one of the lowest GWPs (Global Warming Potential = 631, EN378:2016) among A1 (non-flammable) refrigerants currently available.
- It provides excellent energy efficiency while significantly reducing greenhouse emissions compared to traditional HFC refrigerants.
- Safety class: A1 (non-flammable, according to EN378-1).

On request, other refrigerants can be used, though with higher environmental impact:

- R134a – GWP 1430, class A1.
- R449A (XP-40) – GWP 1397, class A1.
- R448A (N-40) – GWP 1387, class A1.
- R407C – GWP 1774, class A1.



### TECHNICAL PARAMETERS

**AIR CONDITIONERS COOLED BY SEA WATER AND FOR MAIN VOLTAGE U=3X400 V; 50 Hz**

**AIR CONDITIONER'S CAPACITIES CALCULATED FOR:**

REFRIGERANT: R513A

EVAPORATING TEMPERATURE: +5 °C,

CONDENSING TEMPERATURE: +50 °C

VOLTAGE: U = 3x400V; 50Hz,

SEA WATER TEMPERATURE: +32 °C

AIR TEMPERATURE BEFORE AIR COOLER (TEMPERATURE IN COOLED AREA): +27 °C,

AIR HUMIDITY BEFORE AIR COOLER(AIR HUMIDITY IN COOLED ROOM): 50%

TYPE	HAC-2.5-S	HAC-3.5-S	HAC-4.5-S	HAC-6.0-S	HAC-8.0-S	HAC-10.0-S
AIR FLOW [ m <sup>3</sup> /h ]	350	500	625	825	1100	1400
COOLING CAPACITY [ kW ]	2.5	3.5	4.5	6.0	8.0	10.0
ELECTRIC POWER INPUT FOR COMPRESSOR [ kW ]	1.153	1.37	1.83	2.73	3.50	4.414
CURRENT FOR COMPRESSOR [ A ]	2.07	2.39	3.20	4.86	5.63	6.61
ELECTRIC POWER INPUT FOR FAN [ kW ]	0.094	0.106	0.122	0.164	2 x 0.112	2 x 0.138
CURRENT FOR FAN [ A ]	0.82	0.99	1.09	1.40	2 x 1.020	2 x 1.180
SEA WATER FLOW [ m <sup>3</sup> /h ]	0.22	0.35	0.68	0.55	1.00	0.90
SEA WATER PRESSURE DROP IN CONDENSER [ BAR ]	0.03	0.06	0.03	0.04	0.13	0.13
"COP" FOR COMPRESSOR	2.32	2.7	2.69	2.43	2.41	2.33
ELECTRIC HEATER CAPACITY [ kW ] OPTIONAL ELECTRIC HEATER	0.6 0.9 1.2 1.8 2.4	0.9 1.5 2.1 2.7 3.3	1.5 2.4 3.0 3.6 4.2	1.5 2.4 3.0 4.5 6.0	1.5 3.0 4.5 6.0 7.5	3.0 4.5 6.0 7.5 9.0
WEIGHT [ kg ]	80	85	90	100	140	160
COOLED WATER CONNECTION DIAMETER INLET/OUTLET	G1/2" / G1/2"					
WATER FROM DRIP TRY CONNECTION DIAMETER	G1/2"	G1/2"	G1/2"	G1/2"	G1/2"	G1/2"

### TECHNICAL PARAMETERS

**AIR CONDITIONERS COOLED BY FRESH WATER AND FOR MAIN VOLTAGE U=3X400 V; 50 Hz**

**AIR CONDITIONER'S CAPACITIES CALCULATED FOR:**

REFRIGERANT: R513A  
 EVAPORATING TEMPERATURE: +5 °C,  
 CONDENSING TEMPERATURE: +50 °C  
 VOLTAGE: U = 3x400V; 50Hz,  
 FRESH WATER TEMPERATURE: +38 °C  
 AIR TEMPERATURE BEFORE AIR COOLER (TEMPERATURE IN COOLED AREA): +27 °C,  
 AIR HUMIDITY BEFORE AIR COOLER(AIR HUMIDITY IN COOLED ROOM): 50%

TYPE	HAC-2.5-F	HAC-3.5-F	HAC-4.5-F	HAC-6.0-F	HAC-8.0-F	HAC-10.0-F
AIR FLOW [ m <sup>3</sup> /h ]	350	500	625	825	1100	1400
COOLING CAPACITY [ kW ]	2.5	3.5	4.5	6.0	8.0	10.0
ELECTRIC POWER INPUT FOR COMPRESSOR [ kW ]	1.153	1.37	1.83	2.73	3.50	4.414
CURRENT FOR COMPRESSOR [ A ]	2.07	2.39	3.20	4.86	5.63	6.61
ELECTRIC POWER INPUT FOR FAN [ kW ]	0.094	0.106	0.122	0.164	2 x 0.112	2 x 0.138
CURRENT FOR FAN [ A ]	0.82	0.99	1.09	1.40	2 x 1.020	2 x 1.180
FRESH WATER FLOW [ m <sup>3</sup> /h ]	0.443	0.591	0.868	0.997	1.354	1.698
FRESH WATER PRESSURE DROP IN CONDENSER [ BAR ]	0.251	0.252	0.274	0.318	0.313	0.348
"COP" FOR COMPRESSOR	2.32	2.7	2.69	2.43	2.41	2.33
ELECTRIC HEATER CAPACITY [ kW ] OPTIONAL ELECTRIC HEATER	0.6   0.9   1.2   1.8   2.4	0.9   1.5   2.1   2.7   3.3	1.5   2.4   3.0   3.6   4.2	1.5   2.4   3.0   4.5   6.0	1.5   3.0   4.5   6.0   7.5	3.0   4.5   6.0   7.5   9.0
WEIGHT [ kg ]	80	85	90	100	140	160
COOLED WATER CONNECTION DIAMETER INLET/OUTLET	G1/2" / G1/2"					
WATER FROM DRIP TRY CONNECTION DIAMETER	G1/2"	G1/2"	G1/2"	G1/2"	G1/2"	G1/2"

## TECHNICAL PARAMETERS

### AIR CONDITIONERS COOLED BY SEA WATER AND FOR MAIN VOLTAGE U=3X440 V; 60 Hz

#### AIR CONDITIONER'S CAPACITIES CALCULATED FOR:

REFRIGERANT: R513A  
 EVAPORATING TEMPERATURE: +5 °C,  
 CONDENSING TEMPERATURE: +50 °C  
 VOLTAGE: U = 3x440V; 60Hz,  
 SEA WATER TEMPERATURE: +32 °C  
 AIR TEMPERATURE BEFORE AIR COOLER (TEMPERATURE IN COOLED AREA): +27 °C,  
 AIR HUMIDITY BEFORE AIR COOLER(AIR HUMIDITY IN COOLED ROOM): 50%

TYPE	HAC-2.5-S	HAC-3.5-S	HAC-4.5-S	HAC-6.0-S	HAC-8.0-S	HAC-10.0-S
AIR FLOW [ m3/h ]	350	500	625	825	1100	1400
COOLING CAPACITY [ kW ]	2.5	3.5	4.5	6.0	8.0	10.0
ELECTRIC POWER INPUT FOR COMPRESSOR [ kW ]	1.07	1.507	1.695	2.333	3.461	4.428
CURRENT FOR COMPRESSOR [ A ]	1.76	2.30	2.49	3.4	5.09	6.31
ELECTRIC POWER INPUT FOR FAN [ kW ]	0.094	0.106	0.122	0.164	2 x 0.112	2 x 0.138
CURRENT FOR FAN [ A ]	0.82	0.99	1.09	1.40	2 x 1.020	2 x 1.180
SEA WATER FLOW [ m3/h ]	0.22	0.35	0.68	0.55	1.00	0.90
SEA WATER PRESSURE DROP IN CONDENSER [ BAR ]	0.03	0.06	0.03	0.04	0.13	0.13
"COP" FOR COMPRESSOR	2.36	2.33	2.75	2.64	2.34	2.316
ELECTRIC HEATER CAPACITY [ kW ] OPTIONAL ELECTRIC HEATER	0.6   0.9   1.2   1.8   2.4	0.9   1.5   2.1   2.7   3.3	1.5   2.4   3.0   3.6   4.2	1.5   2.4   3.0   4.5   6.0	1.5   3.0   4.5   6.0   7.5	3.0   4.5   6.0   7.5   9.0
WEIGHT [ kg ]	80	85	90	100	140	160
COOLED WATER CONNECTION DIAMETER INLET/OUTLET	G1/2" / G1/2"					
WATER FROM DRIP TRAY CONNECTION DIAMETER	G1/2"	G1/2"	G1/2"	G1/2"	G1/2"	G1/2"

### TECHNICAL PARAMETERS

**AIR CONDITIONERS COOLED BY FRESH WATER AND FOR MAIN VOLTAGE U=3X440 V; 60 Hz**

**AIR CONDITIONER'S CAPACITIES CALCULATED FOR:**

REFRIGERANT: R513A  
 EVAPORATING TEMPERATURE: +5 °C,  
 CONDENSING TEMPERATURE: +50 °C  
 VOLTAGE: U = 3x440V; 60Hz,  
 FRESH WATER TEMPERATURE: +38 °C  
 AIR TEMPERATURE BEFORE AIR COOLER (TEMPERATURE IN COOLED AREA): +27 °C,  
 AIR HUMIDITY BEFORE AIR COOLER(AIR HUMIDITY IN COOLED ROOM): 50%

TYPE	HAC-2.5-F	HAC-3.5-F	HAC-4.5-F	HAC-6.0-F	HAC-8.0-F	HAC-10.0-F
AIR FLOW [ m <sup>3</sup> /h ]	350	500	625	825	1100	1400
COOLING CAPACITY [ kW ]	2.5	3.5	4.5	6.0	8.0	10.0
ELECTRIC POWER INPUT FOR COMPRESSOR [ kW ]	1.07	1.507	1.695	2.333	3.461	4.428
CURRENT FOR COMPRESSOR [ A ]	1.76	2.30	2.49	3.4	5.09	6.31
ELECTRIC POWER INPUT FOR FAN [ kW ]	0.094	0.106	0.122	0.164	2 x 0.112	2 x 0.138
CURRENT FOR FAN [ A ]	0.82	0.99	1.09	1.40	2 x 1.020	2 x 1.180
FRESH WATER FLOW [ m <sup>3</sup> /h ]	0.443	0.591	0.868	0.997	1.354	1.698
FRESH WATER PRESSURE DROP IN CONDENSER [ BAR ]	0.251	0.252	0.274	0.318	0.313	0.348
"COP" FOR COMPRESSOR	2.36	2.33	2.75	2.64	2.34	2.316
ELECTRIC HEATER CAPACITY [ kW ] OPTIONAL ELECTRIC HEATER	0.6   0.9   1.2   1.8   2.4	0.9   1.5   2.1   2.7   3.3	1.5   2.4   3.0   3.6   4.2	1.5   2.4   3.0   4.5   6.0	1.5   3.0   4.5   6.0   7.5	3.0   4.5   6.0   7.5   9.0
WEIGHT [ kg ]	80	85	90	100	140	160
COOLED WATER CONNECTION DIAMETER INLET/OUTLET	G1/2" / G1/2"					
WATER FROM DRIP TRY CONNECTION DIAMETER	G1/2"	G1/2"	G1/2"	G1/2"	G1/2"	G1/2"

# MARINE OFFSHORE AIR CONDITIONERS



## Product marking:

**HAC** — **2.5** / **1.5** — **F** — **3x400V/50 Hz** — **R513A**

▲  
**Product type**  
**HAC**  
Horizontal Marine  
& Off-Shore  
Air Conditioner  
ceiling mounted

▲  
**Type [kW]**  
**2.5; 3.5; 4.5; 6.0; 8.0; 10;**  
COOLING CAPACITY  
FOR HAC TYPE [kW]

▲  
**Heating capacity [kW]**  
**0, 1.5, ...**  
ELECTRIC HEATING CAPACITY [kW]  
(AVAILABLE CAPACITY  
ACCORDING TO TABLES)

▲  
**Type of water**  
**F** - FRESH WATER  
**S** - SEA WATER

▲  
**Voltage**  
**3x400V/50Hz**  
MAIN VOLTAGE U=3 x 400 V; 50 Hz  
**3x440V/50Hz**  
MAIN VOLTAGE U=3 x 440 V; 60 Hz

▲  
**Refrigerant**  
**R513A AS STANDARD**

**DIFFERENT VOLTAGE  
ONLY FOR SPECIAL REQUEST**

### Example: **HAC-2,5/1,5-F-3x400V/50Hz-R513A**

SEDINA'S MARINE AND OFFSHORE AIR CONDITIONER HORIZONTAL TYPE WITH COOLING CAPACITY 2.5 kW, ELECTRIC HEATING CAPACITY 1.5 kW, CONDENSER COOLED BY FRESH WATER, MAIN VOLTAGE U=3x400 V; 50 Hz, REFRIGERANT R513A

Tailored HVAC  
systems for marine  
and offshore environments

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