

**AQUASNAP**<sup>PLUS</sup>  
Reversible

Chiller/Heat pumps

30AWH



Monobloc inverter



United Technologies

turn to the experts





# Compact, reliable and efficient

The new AquaSnap PLUS chillers and reversible heat pumps were designed and tested to address the specific needs of residential and light commercial buildings.

Carrier engineers were able to incorporate reliable quality components in its compact chassis including one of the most advanced electronic inverter controls in the industry.

The 30AW boasts impressive energy efficiency and can be easily matched with the wide range of Carrier terminal fan coil units.

Residential homes

Mid-size apartments

Shops and laboratories

Doctor's surgeries

Family hotels

Offices and waiting rooms

### DC Inverter

Power at peak load conditions combined with efficiency for standard operation



### Patented fan design

Innovative blade profile to maximise the supply air flow



# More than an heat pump

AquaSnap PLUS heat pumps offer the ideal solution for a wide range of applications in a new building, a refurbishment project or integrated with existing equipment. Carrier experts always provide the right system.

## Dual energy applications

The reversible AquaSnap PLUS heat pump can be integrated with existing heat sources. Simply define the parameters for switching to an alternative heat source and enjoy continuous operation with increased savings and optimum comfort in all weather conditions.

### COLD/HOT WATER PRODUCTION

- Heat pump / chiller

### INTEGRATION

- Hydronic module
- Boiler
- Dehumidifier

### DISTRIBUTION

- Under-floor systems
- Radiators
- Fan coils

### CUSTOMISATION

- Solar panels
- Swimming pool heater
- Domestic hot water production



## Advanced technology

### Brazed plate heat exchanger

High efficiency, with anti-corrosion protection



### Pulse modulating valve

Electronically optimises the refrigerant flow in the circuit



### Twin rotary compressor

Two-rotary compression cylinders, offset by 180° and a brushless DC motor with a perfectly balanced shaft



### DC Fan motor

Brushless, vibration-free DC motor for increased fan performance and reliability



### GMC Controller

Continuously analyses water, ambient conditions and customer inputs to provide the correct operating parameters



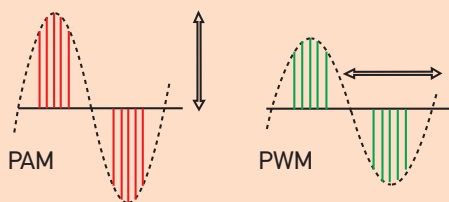
# INVERTER

Technology

Carrier DC inverters deliver improved reliability and optimised energy-efficiency from 20 up to 120% of nominal capacity. Carrier's exclusive hybrid DC inverter technology, used in the AquaSnap PLUS heat pump, combines two distinct electronic management logics (PAM and PWM) to optimise compressor operation in all operating conditions.

Pulse Amplitude Modulation (PAM) of the direct current drives the compressor at maximum load conditions (start-up and peak load conditions), increasing voltage at fixed frequency. The compressor works at high speed to rapidly achieve the desired temperature.

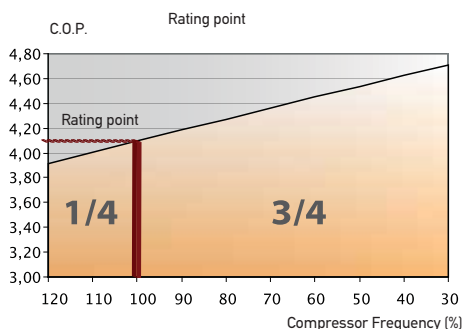
Pulse Width Modulation (PWM) of the direct current drives the compressor at part load conditions, adjusting frequency at fixed voltage. The compressor speed is fine-tuned and the system provides high-level comfort without temperature fluctuations.



Maximum power at high speed and unmatched efficiency at low and medium speed.

**COP > 3,90**  
**EER > 3,60**  
**ESEER > 4,30**

The AquaSnap PLUS reversible heat pump and chiller offers an exceptionally high energy efficiency ratio both in cooling (EER) and heating (COP). This translates into substantial savings for the user. With their low energy consumption the 30AW units can also qualify for local tax reductions and incentive programmes in all EU countries. The seasonal efficiency (at part load) of the AquaSnap PLUS reversible heat pump is one of the highest in the industry.



## Seasonal energy efficiency

The inverter efficiency ratio is calculated at nominal value, when the compressors run at 100% capacity. But in practice the unit operates at lower compressor speeds (part load) 75% of the time. Here the Carrier inverter technology has one of the highest efficiency ratios.

Energy-efficiency class A for size 06 in underfloor heating applications.



## GMC controller

The platform has been enhanced with a new, sophisticated algorithm for use with the new inverter board.

The extended features include:

- customised or pre-defined climate curves
- domestic hot water control
- night noise reduction function
- defrost/alarm output signal
- external heat source
- pump blockage protection function
- freeze protection
- compressor operation management

## Comfort

Hybrid DC inverter technology modulates the compressor speed to match the load to give stable and controlled temperatures without fluctuations.  
Heating on cold days with outside temperature down to  $-20^{\circ}\text{C}$ .  
Energy-efficient cooling during the summer.



## Low sound levels

In addition to the use of the twin-rotary compressor, particular attention was given to noise elimination or reduction in all the moving parts. This led to a new propeller fan shape, dual insulation for the compressor and a new damper for the vibrating components.



## Domestic hot water

The leaving water temperature of up to  $60^{\circ}\text{C}$  is ideal for hot water for domestic use.



### 33AW-CSI

#### Programmable thermostat

The new Comfort<sup>TM</sup> series user interface has a large display to show all system settings and operating parameters plus extended features like schedule timer, silent mode and pre-set operating programs. Auto-diagnosis and automatic configuration programs guide the technicians during commissioning and servicing.



### Touch 'N' Go

This unique feature on the remote control is a revolutionary simple programming option - literally, touch and go to immediately get the desired comfort settings from the system (Home, Away, Sleep).

## User interfaces



### 33AW-RCI

#### Remote controller

User-friendly remote controller to manage the main unit functions: cooling, heating and Eco mode. Small and unobtrusive LEDs indicate the unit status. LEDs are also used to signal possible faults during the auto-diagnosis tests.

# Installation made easy

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## Hydronic module

The 30AW version with hydronic kit (pump, expansion vessel, automatic purge valve and water pressure relief valve) increases the flexibility and ease of installation.

Easy access to all internal components—simply remove three screws to open the front panel and gain access to all main components for regular checks and maintenance of refrigerant pipes, control box, electrical connections, compressor hydronic kit and other key internal components. Water and drain connections are easily accessible from the rear of the unit

Servicing and commissioning are facilitated by routines available on the user interface.

Dealer Service Tool for remote monitoring and parameter setting via a PC.



Handles

For easy transportation

3 wires

Fast electrical connections

Minimum operating weight

Reduced footprint

## Compatible with all Carrier fan coil units



42GW

Cassette

# Safety and performances certified by independent organisations



The AquaSnap PLUS heat pumps use air as a primary energy source. This results in reduced use of natural resources and reduced CO<sub>2</sub> emissions to the atmosphere.



The United Technology ACE system guarantees the highest manufacturing standards.

Every unit undergoes a set of multiple tests at different stages on the production line for circuit leakage, electrical conformity, correct water and refrigerant pressure.

The use of high-quality parts and components guarantees the overall quality and reliability of the 30AW AquaSnap PLUS unit.

The hybrid DC compressor with its twin-rotary cylinders reduces the stress on the parts, and therefore increases unit operating life.

All unit components are free of any hazardous substances and specifically designed to operate effectively with chlorine-free refrigerant R-410A, which has an Ozone Depleting Potential (ODP) of zero.

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## Recyclable packaging

Carrier is committed to reduce the amount of polluting material and this is reflected in the design of the unit packaging. The material used to protect the unit during its transport is 100% recyclable.



42N  
Floor and under-ceiling



42DW / 42EM  
False ceiling



42BJ / 42GR  
Suspended ceiling





## Physical Data

30AWH		004	006	008	012	015	12-3Ph	15-3Ph
<b>Data at Eurovent LCP /A/CHF conditions*</b>								
Nominal heating capacity	kW	4.1	5.8	7.2	11.9	14.5	12.0	15.0
Power input	kW	0.98	1.35	1.80	3.01	3.54	2.79	3.57
COP	kW/kW	4.15	4.28	3.97	3.95	4.09	4.30	4.20
Eurovent class, heating		A	A	B	B	A	A	A
Nominal cooling capacity	kW	4.9	7.0	7.8	13.5	16.0	13.5	16.0
Power input	kW	1.17	1.90	1.96	3.70	4.17	3.25	4.20
EER	kW/kW	4.20	3.70	3.99	3.66	3.85	4.15	3.81
Eurovent class, cooling		A	B	A	B	A	A	A
<b>Data at Eurovent LCP /A/AC conditions**</b>								
Nominal heating capacity	kW	3.9	5.8	7.4	12.9	14.0	11.2	14.5
Power input	kW	1.19	1.89	2.31	4.26	4.32	3.34	4.39
COP	kW/kW	3.26	3.05	3.19	3.03	3.23	3.35	3.30
Eurovent class, heating		A	B	B	B	A	A	A
Nominal cooling capacity	kW	3.3	4.7	5.8	10.2	13.0	10.2	13.0
Power input	kW	1.10	1.58	1.96	3.46	4.42	3.40	4.47
EER	kW/kW	3.02	3.00	2.98	2.96	2.95	3.00	2.91
ESEER part-load performance	kW/kW	4.4	4.5	4.2	4.2	4.3	4.4	4.3
Eurovent class, cooling		B	B	B	B	B	B	B
Nominal heating capacity, radiator applications***	kW	4.1	5.4	6.5	11.5	11.7	5.0	12.0
Power input	kW	1.48	2.07	2.68	4.60	4.13	3.96	4.21
COP	kW/kW	2.75	2.60	2.41	2.49	2.82	2.80	2.85
Operating weight	kg							
Unit without hydronic module		54	58	66	101	109	113	113
Unit with hydronic module		57	61	69	104	112	116	116
Refrigerant		R410-A						
Compressor		DC twin-rotary						
Expansion valve		PMV						
Fans		Propeller fans						
Quantity/diameter	mm	1/495	1/495	1/495	2/495	2/495	2/495	2/495

\*Weight shown is a guidance only. To find out the unit refrigerant charge, please refer to the unit nameplate.

The water heat exchanger fouling factor is 0 (m<sup>2</sup> K)/W for all conditions.

\* Standard Eurovent LCP/A/CHF conditions in heating mode: water heat exchanger entering/leaving water temperature 30 °C/35 °C, outside air temperature 7 °C db/6 °C wb. Standard Eurovent LCP/A/CHF conditions in cooling mode: water heat exchanger entering/leaving water temperature 23 °C/18 °C, outside air temperature 35 °C.

\*\* Standard Eurovent LCP/A/AC conditions in heating mode: water heat exchanger entering/leaving water temperature 40 °C/45 °C, outside air temperature 7 °C db/6 °C wb. Standard Eurovent LCP/A/AC conditions in cooling mode: water heat exchanger entering/leaving water temperature 12 °C/7 °C, outside air temperature 35 °C.

\*\*\* Conditions in heating mode: entering/leaving water temperature 55 °C/a, outside air temperature 7 °C db/6 °C wb. Performances are in accordance with EN 14511.

\*\*\*\* Based on the following conditions: entering/leaving water temperature 35 °C/30 °C, outside air temperature 7 °C.

† Based on the following conditions: entering/leaving water temperature 12 °C/7 °C, outside air temperature 35 °C.

## Electrical Data

30AWH		004	006	008	012	015	12-3Ph	15-3Ph
Power supply	V-ph-Hz	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	400-1-50	400-1-50
Voltage range	V	198-264	198-264	198-264	198-264	198-264	376-424	376-424
Full load current	A	7.2	11	14	23	20	16	16
Fuse rating	A	10	16	16	25	25	20	20
Main power cable section	mm <sup>2</sup>	2.5	2.5	2.5	2.5	2.5	2.5	2.5

### AHI CARRIER SOUTH EASTERN EUROPE S.A.

#### Headquarters

18, Kifissou Ave  
104 42 - Athens  
GREECE  
Tel. : +30 210 6796300

#### Thessaloniki Branch

Ag. Georgiou 5, Cosmos Offices  
570 01 - Patriarchiko Pileas, Thessaloniki  
GREECE  
Tηλ. : +30 23130 80430

#### Bulgaria Branch

25 Petar Dertliev blvd  
1324 Sofia  
BULGARIA  
Tel : +35 929 483960

#### Romania Branch

270d Turnu Magurele str Sector 4  
Cavar center - Bucharest  
ROMANIA  
Tel. : +40 214 050751



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turn to the experts

www.ahi-carrier.gr